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Dear Friend and Colleague,

On behalf of the Organizing Committee, it is my great pleasure to welcome you to Tunis and to the 27th World Veterinary Congress. We are delighted that the first Congress of the new century will be held in Tunis and look forward to a very successful meeting.

The Congress has been designed to provide an innovative and comprehensive overview of the latest research developments in Veterinary Medicine, primarily in the areas of food safety and public health, production and pathology of various domestic and wildlife animals, nutrition, pharmacology, animal welfare and pain management, veterinary education and specialization, history of veterinary medicine, veterinary disaster management, and veterinary medical legislation.

Many distinguished veterinarians and scientists will take part in this Congress. Papers will be presented in the form of plenary sessions, thematic sessions, symposia and posters and will include superb scientific material that was carefully selected by the scientific abstract review committee from over 900 abstracts submitted for presentation at the meeting. These studies originating from researchers and practitioners in 120 countries assure that the meeting will be a major scientific event.

The Congress will be a memorable experience in one of the world's most beautiful cities, an event that will fulfill your professional expectations at the highest level. The Congress will provide ample opportunities for discussion of these and other important issues both during the Congress itself and during the extensive social program.

Tunisia is well known for its culture, its breathtaking scenery, food and hospitality and for its relaxed way of life. Visitors from all corners of the globe will find Tunisia an exciting country to explore, and Tunis a vibrant city to visit. I am sure you will enjoy the program and our city in September 2002.

We would like to express our thanks to President Ben Ali and the Tunisian Government, to our sponsors for their generous support, and to our dedicated staff, colleagues, friends and families for their untiring help, support and advice in planning and arranging this meeting.

We hope that you will enjoy the Congress and that your interaction with your colleagues from many different countries will stimulate a creative exchange of ideas and will be personally rewarding. We also hope and trust that you will enjoy your visit to the very beautiful and exciting city of Tunis, in September 2002.

Yours sincerely,
Dr. Faouzi Kechrid
Chairman of the 27th World Veterinary Congress Organizing Committee
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1. A HISTOPATHOLOGICAL SURVEY OF *Tribulus terrestris* POISONING IN SHEEP. A. Abavisani, A. Movassghi. Ferdowsi University of Mashad School of Veterinary Medicine – High Education Center of Shahid Hasheminejad, Khorasan, Iran.

Geeldikkop, known as hepatic photosensitivity disease, occurs in sheep and goats. This disease is caused by feeding of *Tribulus terrestris*. Clinically, affected animals have dermatitis due to photosensitivity, emaciation and yellowish mucous membranes. The lesions are characterized by crystalloid materials in bile ducts, hepatic fibroplasia, bile duct hyperplasia, nephrosis and necrosis of cardiac muscle associated with infiltration of inflammatory cells. Experimental disease caused by feeding of *Tribulus terrestris* have shown different results. Therefore, an experimental trial was undertaken to evaluate feeding of *Tribulus terrestris* in sheep in Khorasan province. 11 sheep were divided to two group: Treatment group (6 sheep) and Control group (5 sheep). During 45 days, sheep of control were given fundamental diet and sheep of treatment were given fundamental diet (20%) and *Tribulus terrestris* (80%). Clinical signs in treatment sheep included dermatitis due to photosensitivity, pruritis, emaciation, keratitis and yellowish mucous membranes. At necropsy, observations included skin lesions, yellowish serosal surfaces and changes in consistency and colour of liver and kidney. Tissue specimens were fixed in 10% buffered formalin, were stained with H & E stain and examined histologically. Microscopic examination of specimens revealed necrosis of hepatocytes, refractile crystals in bile ducts, epithelial necrosis of bile ducts, bile duct hyperplasia, fibroplasia around the portal triad, infiltration of inflammatory cells. There were necrosis of tubular epithelium in kidney, crystals in renal tubules, infiltration of inflammatory cells, focal necrosis of cardiac muscles associated with infiltration of inflammatory cells. There were also dermal congestion, infiltration of inflammatory cells in dermis and intraepidermal vesicles and pustules. These lesions were observed with different severity in all six treatment sheep. According to the results of this experiment and comparison with other results of recent studies, it is confirmed that geeldikkop can be induced by feeding of *Tribulus terrestris* in sheep in Khorasan province.


Comparative studies about the characteristics of the acute toxicity of streptomycin and gentamicin and the antagonizing effect of calcium to their toxicity were performed in mice. This was made by comparing the time of appearance and disappearance of toxicity symptoms of this aminoglycoside before and after calcium therapy and also by comparing the LD50 value of both agents. It was concluded that streptomycin is legs potent but more efficacious as toxic agent than gentamicin and that calcium had a competitive inhibitory effect to the toxicity of aminoglycoside perhaps because of the similarity in their charges and binding sites. Calcium therapy seems to offer quantitatively the same protective level for both agents «nearly one time” but qualitatively better protective level against acute toxicity of streptomycin than for gentamicin in mice.
3. DNA FRAGMENTATION, APOPTOSIS AND CELL CYCLE ARREST INDUCED BY ZEARALENONE IN CULTURED KERATINOCYTES, VERO AND CACO-2 CELLS. S. Abid Essefi,†, Z. Baudrimont†, Ouanes I, R. Anane†, E.E. Creppy†, H. Bacha†. †Laboratoire de recherche sur les substances biologiquement compatibles, Faculté de médecine dentaire, Rue Avicenne, 5019 Monastir, Tunisie. ‡Laboratoire de toxicologie et d’hygiène appliquée, Faculté des sciences Pharmaceutiques, Université Victor Segalen Bordeaux 2, 146, Rue leo-saignat, 33076 Bordeaux, France.

Zearalenone (Zen) is an oestrogenic mycotoxin produced by several Fusarium species particularly occurring in maize and wheat. In Tunisia, Zen was detected in cereals, corn and hay intended for feeding of domestic animals. Zen and its metabolites have a strong oestrogenic and anabolic activities notably hyperestrogenism leading to infertility in cattle and poultry. Moreover, it causes problems with the reproductive organs of farm animals, especially swine. In addition, it affects the liver and kidneys of exposed animals. The genotoxicity of Zen was questionable until the last decade when increasing data tended to show this toxin to be genotoxic in vivo. Indeed, recently, Zen showed a positive DNA damaging effect in recombination tests with Bacillus Subtilis. It induces sister chromatide exchanges and chromosomal aberration in CHO cells. Zen induces DNA-adducts formation in mice and SOS repair system in lysogenic bacteria. In this study, Zen was found to be genotoxic in three cell lines tested (Vero, Caco-2 and Keratinocytes) at a concentration of 10, 20 and 40 µM. In these conditions, Zen induces DNA fragmentation showing DNA laddering in gel electrophoresis, apoptotic bodies revealed by chromatin staining with acridine orange and ethidium bromide. These two effects were dose-related. Zen also provokes cell cycle arrest characterized by an increase in the number of G2 phase cells. In the same conditions, the treatment with Zen and vitamin E (25µM) simultaneously for 24h, reduces partially DNA fragmentation and apoptotic bodies.

4. PHARMACOKINETICS AND BIOAVAILABILITY OF PEFLOXACINE IN JAPANESE QUAIL. Al Shaha, F. Khazal Kaml Department of Physiology; College of Veterinary Medicine, University of Baghdad, Baghdad-Iraq.

The pharmacokinetic parameters and bioavailability of pefloxacin (a new generation of fluoroquinolone antibacterial), were estimated in Japanese quails. Hundred and twenty Japanese quails were used in this study. The birds were divided into two equal groups. The first group was injected a single i.v bolus of 5 mg/kg. b.w. of pefloxacin via the jugular vein, the second group was given a single bolus of 5 mg./kg b.w.of pefloxacin orally via the crop. Blood samples were collected from 3 birds for each time intervals from both groups. Pefloxacin from plasma samples was assayed be using the microbiological assay. E.coli ATCC25922 was used as a test m.o. The plasma concentration - time curve of i.v. injection indicated that pefloxacin pharmacokinetic followed a first order kinetic of two compartments. The pharmacokinetic parameters were as follow: the average t1/2 alpha was 11.7 min, the t1/2 beta was 138.6 min, the average Vd was 8.3 L/kg, The average total body clearance (CL) was 41.6 ml/kg/min and the average AUC was 120.1 ug/ml.min. The pharmacokinetic parameter was the same after oral administration with exception of AUC which was 70 ug/ml.min. The bioavailability was 58%.

Concentration of Danofloxacin, marbofloxacin, and norfloxacin, which are Fluoroquinolone antibacterial drugs, were estimated in plasma and respiratory tissues of three groups of two-week old hybrid layer chicks (10 chicks each) with recommended dose of each drug for five days with drinking water. A group of 6 chicks was used as control. Samples of blood, lung, and air sac tissues were taken at the termination of treatment and 48 hours later. The concentration of each drug at each interval was compared with its minimum inhibitory concentration against E. coli ATCC 25922. The result indicated that concentration of each drug in either respiratory tissues were about twice that of plasma. Danofloxacin achieved better concentration when minimum inhibitory concentrations were taken into concentration.


A survey was conducted on the occurrence of drug resistance of trichostrongylids on communally grazed goats in semi-arid South Africa. On 20 communal goat farmers the efficacy of albendazole, levamisole and ivermectin was tested by a faecal egg reduction test. Overall, the results of the faecal egg reduction tests showed more than 80% efficacy with all the drugs used, with few exceptions indicating a probable little or no anthelmintic resistance in communally grazed goats. Ivermectin demonstrated resistance in three farmers with reliable egg counts while albendazole was highly effective except in one farmer with 47% efficacy but of no reliable egg count. Levamisole demonstrated insignificant resistance in two farmers of more than 75% efficacy.


Trace element deficiencies are very frequently observed in animal production. Because of the biochemical importance of trace elements, these diseases can have important consequences on a clinical point of view. For these reasons, an important research is carried out in order to develop new therapeutic concepts to prevent trace element deficiencies. Our program was dealing with the study of an hydrolysate of proteins prepared from birds feathers, which is composed of free amino acids and some small peptides in saline solution. This complex was labelled with zinc 65. Metabolic and pharmacokinetic studies were carried out using who le body autoradiography in rats and radioactivity counting in several animal species including sheep and horses. Whole body autoradiography demonstrate that when zinc -proteinate is delivered to rats, ther is a higher tissular distribution of the isotope than when zinc chloride is delivered to animals. This study demonstrate that target tissues for zinc i.e. liver, bones, intestinal wall, and several glands such are pancreas, hypophysis, thyroid and adrenals have a higher concentration of zinc 65 when the animals are dosed with zinc proteinate compared to those which are dosed with zinc chloride. In rats and ewe fetus, this study emphasize the fact that transplacental passage of zinc is greatly enhanced on animals dosed with zinc proteinate. Pharmacokinetic studies have been performed on sheep and horses which were dosed either with labelled zinc chloride or labelled zinc proteinate. Radioactivity was measured in whole blood, plasma and cell pellet, and in urine and faeces for sheep, in order to evaluate the amount of elimination. All the results demonstrate that blood levels are higher on animals dosed with zinc-proteinate than on those dosed with zinc chloride. In sheep, the half-life of elimination is shorter in plasma than in whole
blood. This is a consequence of fixation on zinc on erythrocytes and on blood proteins, mainly globulins. When given orally, the bioavailability of zinc is increased by 30%. In horses, the pharmacokinetic of zinc has been studied on animals dosed either with the zinc proteinate or with zinc-glycocollate or zinc-lysinate. In all cases, it is demonstrated that the absorption of zinc is greatly increased when compared with animals dosed with zinc chloride. These results clearly emphasize the potential interest of chelates and proteinates for delivering zinc to animals suffering of zinc deficiency.

8. MÉDICAMENT VÉTÉRINAIRE ET PROTECTION DE LA SANTÉ PUBLIQUE. J. Boisseau. France.

Les diverses législations pharmaceutiques vétérinaires se sont données pour objectif principal de garantir la qualité, l’efficacité et l’innocuité des médicaments vétérinaires en instaurant, en particulier, une procédure d’autorisation préalable de mise sur le marché. La complexité et la diversification des exigences techniques requièrent une évaluation sans cesse plus approfondie de la part des comités d’expert s associant les compétences nécessaires dans les divers domaines de la pharmacie, de pharmacologie, de la toxicologie et de la clinique vétérinaire. Le bon fonctionnement de cette procédure d’autorisation de mise sur le marché des médicaments vétérinaire dépend de la responsabilité de l’industrie pharmaceutique vétérinaire chargée de la qualité des informations fournies et de celle des autorités compétentes chargées de l’évaluation de ces données et de la définition des bonnes conditions d’utilisation des médicaments vétérinaires. La responsabilité des vétérinaires praticiens d’administrer aux animaux des médicaments vétérinaires conformément aux dispositions des AMM octroyées est beaucoup plus engagée en cas d’utilisation hors AMM de ces produits. La conjonction des lois économiques du marché et de l’accroissement des coûts de mise au point des médicaments vétérinaires résultant, pour l’essentiel, de l’augmentation des exigences techniques et réglementaires à satisfaire, se traduit par la réduction du champ couvert par les AMM, affectant plus particulièrement les médicaments vétérinaires destinés aux espèces animales mineures et aux indications thérapeutiques ponctuelles. Cette tendance de fond, qui s’est accentuée au cours des dernières années, a pour double effet regrettable de réduire l’arsenal thérapeutique mis à la disposition de la médecine vétérinaire pour protéger la santé publique et d’accroître les responsabilités du vétérinaire praticien dans le choix et l’utilisation appropriés des médicaments vétérinaires. Il est donc urgent de prendre les mesures nécessaires propres à inverser cette évolution conduisant à l’opposé du but recherché par les législateurs. La prise en compte de démarche d’analyse des risques qui ne dissocié pas l’appréciation et la gestion des risques dans la procédure d’autorisation de mise sur le marché des médicaments vétérinaires devrait permettre de répondre à cette attente. Elle pourrait en effet inspirer l’élaboration d’un ensemble d’exigences adaptées pour déterminer l’efficacité et l’innocuité pour des médicaments vétérinaires destinés à des espèces animales dites mineures ou à des indications thérapeutiques occasionnelles. elle devrait également permettre de raisonner l’extrapolation de limites maximales de résidus médicamenteux entre les espèces animales. Enfin, elle pourrait fournir l’assise technique et scientifique à un usage prudent des antibiotiques et des antiparasitaires pour éviter que ne se développent des résistances préjudiciables à la protection de l’homme et de l’animal.

Le méthomyl, carbamate insecticide, est fréquemment retrouvé lors d’intoxication d’origine accidentelle ou par malveillance chez les animaux domestiques en Tunisie. Le présent exposé rapporte les cas d’intoxication observés chez les différentes espèces animales et les conditions de recherche de ce carbamate par chromatographie liquide haute performance (HPLC).

10. MEASUREMENT OF FAECAL CORTISOL METABOLITES USING EIA IN EGYPTIAN BUFFALOES: EFFECT OF DEXAMETHASONE ADMINISTRATION. K.A.I. El Battawy¹, R. Palme². ¹National Research Centre, Animal Reproduction and Artificial Insemination Dept., Tahrir Street, Dokki, Egypt. ²Institute of Biochemistry, University of Veterinary Medicine, Vienna.

In mammals under stress glucocorticocorticoids are secreted by the adrenal cortex. Only recently an enzyme immunoassay (EIA) for 11,17-dioxoandrostanes has been established to allow the determination of faecal in ruminants. Consequently, it is considered as a basis for a non-invasive assaessment of adrenocortical activity. Palme and möstl (1997) characterised some of the metabolites of infused 14C-cortisol in ruminants, wich led to the establishment of EIA for 11,17-dioxoandrostanes. The aim of this study is to evaluate the biological relevance of this EIA in buffaloes by suppressing cortisol release by the adrenal cortex. Dexamethasone (15mg) were injected i.v into se animals. Concentration of cortisol metabolits in faeces were determined and the variability among animals concerning both basal and peak values in faecas were observed. Dexamethasone injection resulted in decrease in the levels of 11,17-dioxoandrostanes. Thus, measuring faecal 11,17-dioxpandrostanes can be used as a non-invasive tool for monitoring adrenocortical activity in buffaloes.


Suite au décret du 2/07/99 et depuis le 15 Janvier 2002, date de la première réunion de la Commission Nationale de Pharmacologie Vétérinaire le coup d’envoi de la Pharmacovigilance vétérinaire française a été donné sous la tutelle de l’AFSA. Alors que chaque école vétérinaire exerce depuis de longues années un système de veille toxicologique (Centres antipoison) concernant les intoxications des animaux par tous types de produits, maintenant deux écoles abritent officiellement chacune un Centre de Pharmacovigilance -l’Ecole Vétérinaire de Nantes et l’Ecole vétérinaire de Lyon (à l’origine de CNITV)- dédié au recueil et à la validation des appels des professionnels de santé (vétérinaires, médecins, pharmaciens). Sont pris en compte: les effets indésirables liés à l’utilisation des médicaments vétérinaires dans les conditions respectant ou non le R C P (in ou hors A. M. M) chez les animaux traités; les effets indésirables chez l’homme manipulant ou au contact des animaux traités, et sans dou,te dans un proche avenir les effets des médicaments vétérinaires sur l’environnement, la non application des LMR ou l’absence d’efficacité, les risques d’antibiorésistance. A l’approche d’un travail d’une telle envergure les premiers pas consistent à élaborer un guide de bonnes pratiques de pharmacovigilance fondé sur des définitions communes et consensuelles au niveau européen entre différents intervenants, industriels du médicament vétérinaire y compris.
Les pays hors union européenne pourront sans doute s’inspirer de cette organisation pour réaliser un tel suivi à un niveau national ou supranational; les sujets de préoccupation majeure seront peut-être différents, plus axés sur l’évolution de la résistance des bactéries aux antibiotiques comme le récent rapport de l’OIE le laisserait entendre.

12. A RETROSPECTIVE SURVEY ON ANTIBACTERIAL DRUGS USAGE IN POULTRY FARMS IN QUM PROVINCE. S. M. Faghihi. Division Of Pharmacology, Faculty Of Veterinary Medicine, University Of Tehran, P.O.Box 14155-6453, Tehran, Iran.

In general, use of antibacterial agents that might result in deposition of residues in meat and eggs, must be permitted in food intended for human consumption. However, if use of antibacterial agents is necessary, as in treatment of poultry diseases, a withholding period must be observed until the residues are negligible or can no longer be detected. For many years, antibacterial agents have been used for chemotherapeutic and prophylactic purposes and also used as feed additives to promote growth, improve feed efficiency, enhance feed acceptability, and enhance acceptability by the consumer of the end product. The purpose of this paper is to provide the findings from several poultry farms from all over the Qum province in relation to potential problems that may be associated with certain aspects of antibacterial agents usage.

13. OCHRATOXIN A, BETA 2-MICROGLOBULIN AND KARYOMEGALY IN PATIENTS WITH HUMAN NEPHROPATHY IN TUNISIA. W. Hassen1, S. Abid1, A. Achour1,2, A. Zakhama1, N. Guezzah1, H. Bacha1. 1Laboratoire de Recherche sur les Substances Biologiquement Compatibles (LRSBC), Faculté de Médecine Dentaire, Rue Avicenne, 5019 Monastir, Tunisia, 2Service de Néphrologie, CHU, Monastir, Tunisia, 3 Service d’anatomopathologie, CHU, Monastir, Tunisia, Ecole de santé, Rue Avicenne, 5019 Monastir, Tunisia.

Ochratoxin A (OTA) is a nephrotoxic mycotoxin. Studies performed in European countries pointed at OTA as the determinant agent of the porcine nephropathy. Similarities between OTA-induced porcine nephropathy and human Balkan Endemic Nephropathy have been noted, consequently, BEN was also attributed to OTA exposure. Tunisia is concerned as well by a similar nephropathy known as Chronic Interstitial Nephropathy of undetermined etiology. However, since the direct causality has not been established, it is still controversial whether OTA plays a causative or only a subordinate role in the induction of these human nephropathies. In this study, we tried to consolidate the suspected link between blood OTA contamination and Tunisian Chronic Interstitial Nephropathy of unknown cause. We compare firstly, blood OTA and urinary b2-microglobulin in groups of CIN with unknown etiology and other renal diseases and secondly, groups with CIN of known and unknown causes. Then, we gave the results of the prospection of a Tunisian household with several characterized cases of CIN of unknown etiology. Blood and food were assayed for OTA levels and a renal biopsy was performed. The first investigation showed that the highest levels of blood OTA were found in the CIN with unknown cause group. An accordance was found between OTA and b2-microglobulin levels. In the prospective household, we uncovered an interesting case of CIN of unknown etiology with high blood OTA contamination and whose biopsy revealed karyomegalic cells. Karyomegaly is a characteristic aspect of nephropathy induced by OTA. All
together, our results bring new elements involving OTA in this pathology and emphasize further the causative role of OTA in the onset of this particular human nephropathy. Moreover, we underline the importance of b₂-microglobulin and karyomegaly in the characterization of this disease. Keywords: Blood Ochratoxin A, Urinary b₂-microglobulin, Karyomegaly, Chronic Interstitial Nephropathy, Tunisia.

14. ACTION ANALGESIQUE ET HÉMODYNAMIQUE DE L'ADMINISTRATION INTRATRACHÉALE DE LA KÉTAMINE SUR LES CAPRINS. A.L. Junqueira¹, R. De Rossi², M.P. Beretta³, E.B. Gaspar³. ¹PIBIC/CNPQ. ²Department de Medicine Veterinaire, UFMS.

La quetamine, un dérivé de la fenciclidine, est utilisé de manière extensive sur les animaux et l’homme par les voies intramusculaires et intraveineuses comme anesthésiques dissociés. De nombreuses études relatent son utilisation par les voies epidurales et intrathécale pour le contrôle de la douleur, sans interférer de manière significative sur les système cardiovasculaire ou respiratoire. Le propos de cette étude a été d’établir si une application intrathécale de quetamine induit une analgésie sur les caprins, déterminant le début, la durée et l’extension. Démontrer s’il existe des altérations cardiovasculaires et respiratoires avec le dosage utilisé, observer le degré de sédation et ataxie. Un groupe de 6 caprins (males e femelles) sans race définie, pesant entre 25 a 50 kg ont été utilisés avec cet objectif. Trois traitements ont été appliqués sur chaque animal avec intervalle d’une semaine. Chaque caprin a reçu par voie intrathécale: quétamina - 3 mg/kg (Groupe KET); lidocaïne 2% - 2,5 mg/kg sans dépasser 100 mg (5 ml) (Groupe LID) et solution saline 0,9% (Groupe SS). Tous les paramètres ont été évalués avant l’application intrathécale des drogues (0) e 2, 5, 10, 15 e 30 min. et ensuite tous les 30 min., jusqu’à la fin de l’insensibilisation. Le début de l’analgésie a été similaire pour la quétamine et lidocaïne, 3,83±1,33 e 3,5±1,22 min., respectivement. La durée de l’analgésie a été plus courte avec la quétamine (48,83±13,5 min.) qu’avec la lidocaïne (66,5±31,03 min.). La quétamine produit une sédation modérée de 15 à 30 min., après l’administration intrathécale. L’ataxie provoquée par la quétamine a été de légère à modérée et la lidocaïne a provoqué une sévère ataxie durant toute la période d’anesthésie. Aucune altération significative des valeurs cardiovasculaires, respiratoires et de la température rectale a été observée sur les groupes étudiés. Les résultats indiquent que la quétamine intrathécale appliquée sur les caprins produit une analgésie de courte durée avec une sédation modérée et ataxie avec un minimum d’effets cardio-pulmonaires.

15. EXPERIMENTAL POISONING OF BUTANA CALVES BY NERIUM OLEANDER (Apocinaceae). E.A. Khalda¹, O.S.A. Mohamed². ¹Central Veterinary Research Laboratory, Soba P. O. Box 8067 Amarat, Khartoum, Sudan. ²College of Veterinary Medicine and Animal Production, Sudan University of Science and Technology P. O. Box 204 Khartoum North, Sudan.

Oleander is a beautiful ornamental shrub, grown extensively throughout Sudan. Oleander poisoning has been reported in man and animals. The present experiments address the gross, microscopic and serum constituents changes due to oleander poisoning in Butana calves. Shade dried oleander leaves were orally administered to sixteen one year old male Butana calves. Single or repeated daily oral doses given at the rate of 1000, 250 and 10 mg/kg body weight up to mortality. At a higher doses the Oleander produced restlessness, lack of appetite, profuse salivation, ruminal tympany, bloody diarrhea, laboured respiration, weakness of the hind limbs, tachypnea, dyspnea, tachycardia, irregular heart rate, ruminal atonia, slight
and generalized muscular tremors, recumbency and death. The main lesions were congestion, hemorrhage, degeneration and necrosis of myocardium. The kidneys showed extensive necrosis and sloughing of urinary tubules and glomeruli, the capsular space and convoluted tubules were dilated with protein precipitate. The liver showed necrosis of hepatic cord cells at the centre of lobules. The abomasum and duodenum showed marked necrosis and sloughing of the mucosa and submucosa. There were increases in the activity of GOT, ALP and concentration of urea and decrease in the concentration of total protein in the serum. There are many question still unanswerd about the toxicological aspects of oleander plant.

16. BIOCHEMICAL AND PATHOMORPHOLOGICAL ALTERATIONS IN QUAILS AFTER SHORT TERM EXPOSURE TO SALINE DRINKING WATER. J. Kumar1, S. S. Kashyap2, Y. Singh3, S. G. Kumar4. 1Department of Veterinary Physiology, 2Department of Poultry Science, 3Department of LPM and 4Department of Pharmacology and Toxicology U.P. Pt. Deen Dayal Upadhyaya Veterinary Science University, Mathura, 281 001 C.U.P. Iudia.

Sodium chloride is considered to be one of the essential constituents in the diet of humans and animals. In poultry too, feeding of common salt either in feed or drinking water is necessary for proper growth and production, however, higher levels are known to be toxic in chickens and turkeys. Apparently, no data are available on the toxicity of common salt in quails. Therefore, present study was aimed to investigate the effect of saline drinking water at three concentration levels in layer quails. Twenty quails aging 42 weeks and weighing between 230 and 250 gram were randomly divided into four groups of five each. The birds were maintained on standard feed and water provided ad libitum. Birds of group I served as control and was provided sodium chloride free drinking water. The birds of groups II and III were provided drinking water having sodium chloride in the concentrations of 0.5 and 1.0 p100 (W/V), respectively for three weeks while the birds of group IV were provided drinking water having sodium chloride (2 p100) for one week only. At the end of experimental period, blood samples were collected by cardiac puncture in heparinized test tubs. Birds were sacrified and the organs collected for pathomorphological examination. Plasma was separated and stored at –4°C. Different biochemical parameters, namely-plasma glucose, total proteins, albumin, globulins, cholesterol, sodium and potassium and activities of aspartate and alanine aminotrasferases and alkaline phosphatase were subjected to statistical analysis by applying the ANOVA. Daily observation of the birds revealed that the quails of groups III and IV were dull and depressed and reluctant to move. Perusal of the blood-biochemical data revealed that drinking of water by quails containing sodium chloride (0.5%) for three weeks did not alter glucose, total proteins, albumin, globulins, cholesterol, sodium or potassium levels but there was significant increase in activities of aspartate aminotransferase and alkaline phosphatase compared to those in control group. Sodium chloride at a concentration of 1 % in water significantly reduced the plasma albumin levels and increased plasma sodium and aspartate aminotransferase and alkaline phosphatase activities. The birds of group IV were provided drinking water having higher concentrations of salt (2%). Apparently, there was drastic reduction in the consumption of drinking water in quails of this group. Two of the birds also died on third and fourth day of experiment. The surviving birds of this group exhibited severe signs of dullness and depression compared to those in control group. Collection of blood samples on 8th day of the experiment from the surviving three birds revealed that there was slight reduction in the values of total plasma proteins, albumin, glucose and potassium and increase in the activity of alanine aminotranferase, however, alkaline phosphatase and aspartate aminotransferase activities significantly (P<0.01) increased within one week of treatment compared to those of control group. Thus, suggesting that higher concentrations of
sodium chloride produce deleterious effects in quails too as in chickens and turkeys. On gross examination of the birds of group III after sacrifice, ascites could be very well appreciated. Histopathological examination of liver revealed congestion, hemorrhages, cloudy swelling in hepatic cells and few necrotic foci in the hepatic parenchyma along with lymphoid aggregations. Kidneys of the treated birds of this group revealed tubular degeneration and necrosis of renal tubules. In spleen, mild depletion of lymphoid tissues while in brain edema at the junction of molecular and granular layer was observed. There was neuronal degeneration involving few of the purkinje cells, focal gliosis, edema and hemorrhages in the cerebrum and also perivascular and perineuronal degenerative changes. Intestines revealed desquamation of epithelial cells and hyperplasia of goblet cells. Therefore, from the results of the present study it is evident that saline drinking water containing sodium chloride at higher concentrations (>0.5%) is harmful to quails and alters many of the blood biochemical constituents and also induces pathomorphological changes.

17. RECENT DEVELOPMENTS IN NON STEROIDAL ANTI-INFLAMMATORY DRUGS. P. Lees. UK.

Sodium salicylate and aspirin were the NSAID s introduced to human and veterinary medicine in the late 19th century. In the 20th century new drugs such as phenylbutazone, isopyrin and dipyrene became available and these have now been used in veterinary medicine for approximately 50 years. Commencing in the 1980’s a range of newer drugs, starting with flunixin and continuing with tolfenamic acid, meloxicam, nimesulide, etodolac, eltenac, carprofen, ketoprofen and vedaprofen, have become available for veterinary use. The later four drugs are of particular pharmacological interest because they contain a single chiral centre and therefore exist as two enantiomers which have markedly differing pharmacokinetic and pharmacodynamic properties. All these drugs are inhibitors of cyclooxygenase (COX), the enzyme in the arachidonic acid cascade which generates pro-inflammatory prostaglandins e.g. PGE2 and PGI2. A major discovery in 1991 was that COX exists in two isoforms, COX-1, present constitutively in most cell types, which performs what has been described as a range of housekeeping functions, including gastro-protection, renal protection and blood clotting. Inhibition of COX-1 is now thought to give rise to most of the side-effects characteristic of NSAIDs, including gastric irritation and ulceration and renal toxicity. COX-2 is present constitutively in some cells and has physiological roles, for example at the time of parturition. However, it is regarded primarily as an inducible enzyme formed at sites of tissue damage and leading to the synthesis of pro-inflammatory prostaglandins. Over the last decade there have been major efforts to discover and introduce into clinical medicine selective COX-2 inhibitors, since these compounds are likely to have most of the benefits of non-selective inhibitors of COX isoenzymes but fewer side-effects. Selective COX-2 inhibitors (e.g. celecoxib, rofecoxib and valdecoxib) have now been introduced into human medicine and it is only a matter of time until veterinary medicine also benefits from this advance. Indeed, the available evidence suggests that of currently available drugs carprofen, meloxicam and etodolac may be partially selective for COX-2. It should be noted that selectivity for COX-2 in clinical use depends partly on the COX-1:COX-2 ratio of inhibition but also on the slope of the concentration inhibition relationship. This is generally shallow and the consequence is that to inhibit COX-2 to the extent of 90-95%, whilst inhibiting COX-1 to less than 10%, may require a COX-1:COX-2 ratio of 100:1 or greater. Therefore, at the present time it is not clear that drugs with inhibition ratios of 10:1 or less will necessarily be safer drugs than non-selective inhibitors. COX-1:COX-2 ratios of inhibition have been reported, in in vitro studies and also using PK-PD
modelling, for flunixin, etodolac, ketoprofen, carprofen, vedaprofen and tolfenamic acid in a number of species of veterinary interest. The available data suggests that most of these drugs are non-selective inhibitors of COX, although carprofen has been described as prostaglandin sparing, because at clinical dose rates it is a weak inhibitor of both COX isoforms, whilst vedaprofen may be COX-1 selective. The next major advance in this field will be the introduction into veterinary medicine of highly selective COX-2 inhibitors. Other recent studies have demonstrated, by modelling of clinical responses to NSAIDs, that the PK-PD approach might be invaluable as a means of setting both dose rates and dosing intervals for the use of NSAIDs in veterinary medicine. The pioneering studies of Toutain and co-workers using this approach for flunixin, phenylbutazone and nimesulide are particularly noteworthy. In the early 1980s the concept of dual inhibition of COX and 5-lipoxygenase (5-LO) was introduced as a means of inhibiting not only prostaglandines but also leukotrienes, another important group of inflammatory mediators. Arachidonic acid serves as substrate for both COX and 5-LO, to yield prostaglandins and leukotrienes, respectively. Early investigations with compounds such as BW755C and BW540C in the 1980s did not come to clinical fruition because of toxicity problems. However, a new generation of dual inhibitor compounds with good anti-inflammatory and analgesic properties and wide safety margins has now been introduced, and in veterinary medicine a novel drug of this class is tepoxalin. The other major advance in the field of NSAID therapy has been the widespread recognition throughout the veterinary community that animals can and do feel and suffer pain as do human beings. Consequently, there has been a marked rise in the use of NSAIDs to control pain during and after surgery and in chronic conditions such as degenerative joint disease. Moreover, the anti-inflammatory properties of NSAIDs are now widely used in neonatal and young animals with conditions such as pneumonia and watery diarrhea. NSAIDs now have a major role to play in treating these lung and gastrointestinal conditions.

18. ALTÉRATION DE LA RELAXATION $\beta_3$ ADRÉNERGIQUE DANS LES VEINES DIGITÉES DE CHEVAL INCUBÉES EN PRÉSENCE D’ENDOTOXINE. Y. Mallem, M. Gogny, F. Gautier, V. Bucas, S. Madec, J-C. Desfontis. Unité de Pharmacologie fonctionnelle (UPSP), Ecole Nationale Vétérinaire BP 40706, 44307 Nantes Cedex 03.

Le rôle des récepteurs $\beta_3$-adrénergiques (b-AR) dans la fourbure aiguë est peu connu. L’objectif de cette étude est de rechercher in vitro les effets directs d’une endotoxine sur les relaxations induites par les agonistes $\beta_3$-AR sur les veines digitées de cheval (VDC). Les VDC sont suspendues dans des cuves à organes isolés. Les résultats sont exprimés en % de relaxation par rapport à la contraction initiale. Sur des VDC contrôles précontractées à la phényléphrine, le SR 58611 (SR) et le ZD 2079 (ZD) (agonistes $\beta_3$-AR préférentiels) produisent une relaxation concentration-dépendante. L’effet obtenu à la plus forte concentration (Emax) est 66,2 ± 4,1% (n=6) et 56,8 ± 4,3% (n=6) respectivement. Afin d’évaluer les effets directs des endotoxines d’E Coli, des expériences ont été menées sur des VDC provenant de chevaux fourbus. En présence de cyclohexémide (inhibiteur de synthèse protéique) ou d’ibuprofène (inhibiteur des cyclooxygénases) la relaxation des VDC préalablement incubées avec les LPS est rétablie, suggérant l’implication des métabolites de l’acide arachidonique dans les effets de l’endotoxine. En conclusion, ces résultats montrent que, dans les VDC, l’altération de la réponse $\beta_3$-AR...
en présence d’endotoxine serait la conséquence, en partie, de l’activation des cyclooxygénases. Cette altération contribuerait à la pathogénie de la fourbure aiguë chez le cheval.


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La transmission de l’influx nerveux est assurée par un mouvement des ions Na+, k+ et Ca2+ au travers de la membrane grâce à des canaux ioniques spécifiques. Parmi les toxines animales, les neurotoxines de scorpion forment une famille de protéine qui agit en bloquant sélectivement et avec une forte affinité, les canaux ioniques des cellules excitées [1]. Elles constituent de ce fait des “outils” pharmacologiques de choix dans l’étude de ces protéines membranaires. Notamment, la purification et la caractérisation des toxines courtes actives sur les canaux K+ a largement contribué à améliorer nos connaissances concernant cette sous-famille de canaux qui, de part leur diversité structurale et fonctionnelle ainsi que leur répartition ubiquitaire, jouent un rôle déterminant dans de nombreux processus neurobiologiques. Les toxines de scorpion actives sur les canaux K+ sont des toxines courtes qui contiennent entre 30 et 40 résidus d’acides aminés et trois ponts disulfure, à l’opposé des toxines longues de scorpion, actives sur les canaux sodium, et qui comptent 50 à 60 résidus d’acides aminés réticulés par 4 ponts disulfure. Depuis peu, des toxines courtes à 4 ponts disulfure ont été identifiées et se révèlent également spécifiques des canaux K+ [2]. Pi4 en est un exemple puisque c’est une toxine courte isolée du venin du scorpion chactoïde Nord-africain Pandinus imperator, qui compte 38 résidus et est réticulée par 4 ponts disulfure [3]. Cette toxine étant faiblement représentée dans le venin, nous avons envisagé sa synthèse chimique pour la première fois par synthèse peptidique en phase solide afin d’étudier sa structure tridimensionnelle et son activité biologique spécifique sur les canaux K+. Ainsi, l’ordre d’appariement des demi-cystines sera démontré à la suite d’un clivage enzymatique de la Pi4 synthétique (sPi4) qui révélera le type d’organisation des ponts disulfure. L’analyse de la structure tridimensionnelle de la sPi4 sera réalisée par RMN bidimensionnelle 2D-RMN afin de visualiser le motif structural alpha/bêta commun (une hélice alpha en position N-terminale reliée par deux ponts disulfure à un double brin de feuillet bêta antiparallèle) retrouvé pour toutes les toxines de scorpion quelque soit l’espèce dont elles sont issues. Enfin, l’activité pharmacologique de sPi4 sera évaluée in vitro d’une part, par des tests électrophysiologiques sur des oocytes de Xenopus Xenopus laevis exprimant notamment les canaux Shaker B et K.v 1 de rat et, d’autre part, par des tests de compétition sur des synaptosomes de cerveau de rat avec del’apamine radio marquée 125I-apamine. Des tests in vivo seront également effectués par injection intracérébroventriculaire sur des souris de souche C57/BL6 afin de déterminer la dose létale à 50% (DL50).

20. EVALUATION OF HAEMATOLOGICAL PROFILE, LIVER AND KIDNEY FUNCTION AFTER ADMINISTRATION OF METHOTREXATE IN DOGS (Canis familiaris, Linnaeus, 1758).
Methotrexate (MTX) is an antimetabolite that occupies a special place in antineoplastic chemotherapy. It is classified as an antimetabolite drug and its mechanism of action is related to inhibition of the dihydrofolate reductase enzyme. This fact leads to the depletion of the tetrahydrofolate cofactors that are required for the DNA synthesis. As with most antimetabolites, MTX’s cytostatic effect is not selective for tumor cells and its hypoplasia-inducing effect can be seen on rapidly renewing cell systems such as those of hematopoietic and gastrointestinal tissues. The aim of this study was to evaluate the hematotoxics, nephrotoxics and hepatotoxics effects of different doses of MTX on healthy dogs. The essay was carried out on 16 adult dogs, males and females, divided into four groups: Group zero (control), injected with placebo, intravenously, every week, during five weeks. The animals from Groups 1, 2 and 3 received 5 mg/m², 10 mg/m² and 15 mg/m² respectively, in five applications separated for weekly intervals. Peripheral blood parameters and biochemical profiles (urea nitrogen, creatinine, alanine aminotransferase, alkaline phosphatase, serum protein, albumin, bilirubine and gamma-glutamyltransferase) were determined at seven days intervals, and were collected 48h after application of MTX, and five weeks after its suspension. The results showed, under the experimental conditions, were normal.

21. MODIFIED CLINOPTILOLITE AS REMEDY FOR PREVENTION OF ASPERGILLOSIS IN POULTRY. S. Sinovec, R. Resanovic, J. Nedeljkovic-Trailovic, D. Sefer, Z. Sinovec. Faculty of Veterinary Medicine, Belgrade University, FR Yugoslavia.

The aim of this study was to examine the protective effects of modified clinoptilolite (MC) on the adverse effects of aflatoxin B1 (AFB1) and ochratoxin A (OTA) in poultry. The 28-day long trial was performed on a total of 150 day-old Hybro broilers divided into five groups. After a 14-day long pre-experimental period, two experimental groups were p.o. treated daily with AFB1 0.1 mg/kg BW (AFB1 groups) or two experimental groups offered feed contaminated with OTA in an amount of 1.0 mg/kg, while 0.5% MC was added to the feed for the third and fifth experimental group. At the end of the trial all broilers were sacrificed and samples of livers (AFB1 groups) or kidneys (OTA groups) were taken for pathohistological examination, as well as for determination of AFB1 and OTA residues using TLC. The liver of treated broilers was enlarged, dark yellow colored and tender in consistence. In some cases punctiformes and maculosas extravasation could be seen. Varied amounts of fatty droplets could be detected in hepatocytes. Progressive fatty vacuolization, i.e. a different degree of fatty metamorphosis were spread centrolobularly or panlobularly. In altered areas focuses of extensive necrosis could be seen. Hyperplasia of the intrahepatic bile ducts was also prominent. Residues of AFB1 were detected in all liver samples. In the liver samples of the control group, as well as the group offered feed with added MC no histopathological alteration or presence of AFB1 residues was detected. Proximal tubules were predominantly affected, while glomerules were chiefly preserved. Cytoplasm of tubulocytes was microgranulated and the nuclei were masked. Vacuolization was noticed in a certain number of altered cells. Foci of acute tubular necrosis were noticed in a few tubules. In some cases weak hemorrhage could be seen in affected areas. Residues of OTA in an amount of 3.23±0.80 ppm were detected in all kidney samples. In the kidney samples of the group offered contaminated feed with added MC morphological alterations were expressed in the form of intracellular edema which caused tubule lumen stenosis. Residues of OTA in an amount of 1.43±0.39 ppm were detected in all kidney samples.
22. NOUVELLE FORMULATION DE L’ACÉTATE DE DIMINAZENE DE TYPE IMPLANT À LIBÉRATION PROLONGÉE POUR LE TRAITEMENT DES BOVINS ET DES PETITS RUMINANTS. M. Tchao. Faculté Mixte de Médecine et Pharmacie, Université de lomé, BP 50, Togo.

Les trypanosomoses animales désignent un groupe de maladies causées par la présence et l’activité d’un ou de plusieurs des trypanosomes pathogènes dans l’organisme de certains animaux domestiques. Le présent travail concerne la reformulation galénique de l’acéturate de diminazène, trypanocide de la classe des amidines aromatiques dans le traitement chimiothérapique et chimio prophylactique des trypanosomoses animales africaines. Il s’agit d’associer au principe actif des substances telles que l’isopropylmyristate, l’inositol (1,3,4,5) tétraphosphate et la vitamine E. Ensuite l’acéturate de diminazène et ces substances sont inclus dans les liposomes fluides et présentés sous forme d’implant à libération prolongée. Le médicament implanté en sous cutané à la face externe de l’oreille de l’animal permet une résorption sanguine du principe actif par libération contrôlée et ce pour une période suffisamment longue (3 mois). La demi-vie biologique de l’acéturate de diminazène est brève soit 17 à 20 heures en moyenne selon les espèces animales. L’avantage de la nouvelle forme de type implant est qu’elle contient plusieurs fois la dose active usuelle et permet au principe actif de se maintenir à une concentration efficace sans tomber au niveau sublétal où les parasites peuvent survivre. Les essais de préformulation ont concerné l’évaluation des propriétés physiques, chimiques et mécanique du principe actif (acéturate de dimazène) et des substances d’association. La formulation galénique envisage l’inclusion du soluté actif dans les vésicules liposomiales. Ces liposomes fluides sont employés avec un solvant. Les propriétés pharmacologiques sont définies par les substances d’association permettant par voie systémique le passage rapide du principe actif dans l’organisme. Le mécanisme d’action reposerait sur la modification de la structure glycoprotéine variable de surface avec une concentration sélective de la substance médicamenteuse au niveau des lysosomes, des mitochondries, de la poche flagellaire. Cette nouvelle formulation a donc la propriété de pénétrer à l’intérieur des trypanosomes pour y délivrer le médicament plus efficacement que les trypanocides classiques.

23. COMPARATIVE RESULTS OF THE THERAPEUTIC DRAW USING IN PET CARNIVORES WITH DERMATOMICOSIS. S. Sturzu¹, M. Brutaru¹, A. K. Draghici². ¹Institute for control of veterinary biologicals and drugs, bucharest, Romania. ²Faculty of Veterinary Medicine-Bucharest, Romania.

A great variety of mycosis may be diagnosed in pet carnivores. However, the number of available antifungal drugs from market is limited. The association of topical and systemic agents is imperiously required because of the numerous occurred restarting and of the increasing contamination risk in human. Therefore the required antifungal therapy can be long, costly and may have side effects. This paper are presented the therapeutic resultants obtained after association of topical and sistemic therapy in pet carnivores which diagnosticated with dermatomycosis.

In this paper are presented the results concerning synergy effect between linomicyn and spectinomicyn against 12 strains of *Escherichia coli* isolated from pigs with digestive syndromes. All strains of *Escherichia coli* were identified on basis the classical morphological and biochemical tests. From both antibiotics included in the study we have made dilutions. Final concentrations of antimicrobial ranging between 500?g/ml and 2?g/ml were obtained for each antimicrobial. Evaluation of the synergic effect was released on basis of Muller Hinton media supplemented with 5% horse blood serum and antimicrobial tested. They were inoculated with *Escherichia coli* strains. The results were determined after 24 hours incubation at 37°C. The MIC and FIC of each antimicrobial was determined for each strains and for both combined antimicrobial. Synergy was observed on 58,33% of *Escherichia coli* and the additive effect was observed on 41,67% of the remaining cases. CMI in linomicyn /spectinomicyn combination, comparing to CMI individual has been reduced with the factor of 3 or 4.

25. STUDY OF PHARMACOLOGICAL ACTIVITY OF *Petropyrum aucheri* IN WOUND HEALING. S.J. Al Awadi, A. Ali El Baddr Institute for Genetic Engineering and Biotechnology University of Baghdad, Baghdad, Iraq.

The pharmacological activity of *Petropyram aucheri* stem extract was studied for wound treatment in laboratory animals. Three groups of rabbits were used (treated plus two control groups). Surface circular cuts were made between the shoulders of the experimental animal under anesthesia. The wounds of the test group were treated with a mixture of 10% of plant extract and Vaseline. Animals of negative control group and the positive group were treated with Vaseline and with mixture of 10% nefucin and Vaseline respectively. Treatment with the plant extract resulted in faster wound healing in comparison with the control treatment indicating a recommended use of *Petropyram aucheri* for such purposes. Pharmacological analysis of the active ingredients involved is under way.

26. IMPORTANCE OF FLORFENICOL IN THE TREATMENT OF CALVES DIARRHEA. V. Aslan¹, H. Güzelbektaş¹, O. Erganis², K. Kav³, M. Corlu¹. ¹Department of Internal Diseases. ²Department of Microbiology, Faculty of Veterinary Medicine, 42031 Kampus, Konya, Turkey.

Diarrhea of calves is an important disease of this species and causes significant economical lost. Calve diarrhea is known as multi-factorial disease, and the levels of mortality and morbidity are parallel to the application of herd health program by facilities. Based on management, feeding, housing conditions and presence of microbial agents, these levels can differ. In facilities with poor management, levels of mortality and morbidity are as high as 8-25% and 100%, respectively. The rate of casualties from diarrhea can be decreased to 1% in the facilities where herd health programs are applied. Calve diarrheas are depend on several infectious and noninfectious factors. Infectious agents, environment (wetness, cold regions, dirty animal houses, and stress), feeding (extensive milk intake, poor quality milk and feed stuffs) and hygienic factors play important roles in development of the disease. Main infectious agents causing calve diarrhea are viruses (rotavirus, corona virus, BVDV, adenovirus, parvovirus, astrovirus, calcivirus, bredavirius), bacteria (*E. coli*, *Salmonella spp*, *Cl. perflings*, *Campylobacter jejuni* etc.), protozones (coccidian, criptosporidium, giardia) and helmints (*Neoascaris vulitlorum*). These infectious agents cause calve diarrhea alone or as a mix infection (Warner, 1984; Allen and White, 1985; Niilo, 1988; Diker et al., 1989; Gül and Özdemir, 1990; Adesiyum et al., 1992; Aslan, 1994; Turgut and Ok, 1997). The objectives of this study are to enlighten the etiology, to establish an effective antibiotic program and to develop
preventative measures for heard health for a disease progressing with diarrhea in a facility mainly causing significant production loses, death, abortion and casualty slaughters.

27. EVALUATION TOXICOLOGIQUE DE TROIS EDULCORANTS DE SYNTHESE (SACCHARINE, ASPARTAM ET CYCLAMATA) APRES ADMINISTRATION SUB-CHRONIQUE PAR VOIE ORALE CHEZ LE RAT WISTAR. K. Azine, M. Zaouani, H. Younsi. 35 Avenue Youcef Ben Khettab el Mohamadia Alger, Algeria.

Les édulcorants sont des produits de grande importance parmi les additifs alimentaires, ils jouent un rôle considérable en toxicologie car ils se placent à la limite des médicaments du fait de leur emploi comme substitut du sucre chez les diabétiques et les obèses. Ils sont utilisés également en pharmacie comme excipients de certains médicaments en remplacement du saccharose. Il existe un risque différent entre les produits naturels, qui sont peu ou toxiques et les édulcorants synthétiques qui posent des problèmes toxicologiques surtout administrés à long terme. Dans notre travail nous avons cherché à mettre en évidence les effets de trois édulcorants de synthèse (saccharine, cyclamate et l’aspartam) sur d’éventuelles perturbations au niveau de la vessie du métabolisme en général chez le rat après leur administration durant une période de trois mois.

28. EFFECT OF GnRH AGONIST AN INTRACELLULAR SIGNALING MECHANISMS IN CANINE MAMMARY CELLS. R. Ciarcia¹, L. Crispino¹, U. Pagnini², G. Iovane², G. Pagnini¹, S. Florio². ¹Department of Structures, Functions and Biological Technologies; ²Department of Pathology and Animal Health, University of Naples Federico II, School of Veterinary Medicine, Via Delpino 1, 80137 Naples, Italy.

Gonadoropin-Releasing Hormone agonists (GnRH-A) are semisynthetic hormones that have been shown to be effective to suppress ovarian hormones in bitch, through the down-regulation of the pituitary-ovarian axis (Vickery et al., 1989; Kawakami et al., 1991). Our previous results showed that Goserelin (GnRH-A), is efficacy on such disease producing tumour shrinkage and reducing the incidence of metastases (Lombardi et al., 1999) suggesting that GnRH-A efficacy is not due solely to the suppression of gonadal activity but also to the block of hypothalamus-pituitary axis and to a direct action on tumour cells. Epidermal growth factor (EGF) bind to the same membrane receptor (EGF-R), which is a class I receptor tyrosine kinase (Baselga, 1996) which induce direct PIP₂ Hydrolysis, by a direct phosphorylation of PLCs, producing Inositol trisphosphate (InsP₃) and variations in [Ca²⁺]ᵢ. (Fantl, 1993). Calcium (Ca²⁺) is used by cells as a second messanger to control many cellular processes (Berridge M.J. 1997), importantly, it participates in the regulation of the cell cycle in proliferating cells and of tumour cells in particular (Dixon et al 1997). Moreover has been demonstrated that Ca²⁺ and nitric oxide (NO) work together in the control of cell homeostasis, in fact currently, almost all aspects of Ca²⁺ homeostasis have been reported to involve modulation by NO. (Clementi E. & Meldolesi). Therefore the present experiments have been performed in order to verify if GnRH-A, may possess a direct effect on the growth of canine mammary tumour cells and whether a GnRH regulatory system may be present in these cells by interfering with the stimulatory action of EGF (Ca²⁺ and NO signalling) and on EGF receptors binding affinity. Tumour masses were obtained from the mammary glands of spontaneous canine mammary tumours, hystologically
diagnosed and cultured according to method described by Tateyama et al (1990). \([\text{Ca}^{2+}]_i\) was assayed by using FURA-2 AM. Nitric oxide was assayed by the Griess reagent. EGF-R binding was assayed by using a ligand-binding method according to a modified published method (Lubrano et al. 1993). As far as the expression of steroid receptors and Epidermal growth factor receptor is concerned, our findings demonstrate that both ER, PR, GnRH and EGF receptors are expressed in our canine mammary tumour cells. Moreover, Scatchard plot analysis showed the presence of two binding sites for EGF-R with different binding affinity in canine mammary tumour cells. Binding competition experiments clearly demonstrated that GnRH was able to affect EGF binding, reducing binding affinity of \(^{125}\text{I}-\text{EGF}\). Concerning Calcium signalling experiments, our data demonstrated that GnRH-A was able to reduce Calcium proliferative stimuli acting both on a specific proliferative stimulus such as EGF as well as on an aspecific proliferative stimulus such as ATP. Moreover, our results suggest that NO may have a role in the chain of intracellular events elicited by activation of epidermal growth factor receptors and in the down-regulation of Calcium signalling by GnRH. In conclusion, our findings seem to suggest that GnRH analogues may be effective in reducing the growth of epidermal growth factor receptors/hormone receptors positive canine mammary tumour cells at concentrations which are consistent with current therapeutic doses. Such effect was mediated both by affecting EGF-binding as well as by reducing calcium signalling probably by means of NO down-regulation.


Besides the relevance to the Public Health, the presence of antimicrobial residues causes severe losses on the dairies industries. Therefore, it was considered important to verify the influence of mastitis on the persistence of the residues beyond the expected withholding period and evaluated the occurrence of antibiotic residues on bulk tanks of Brazilian dairy herds. A total of 90 bulk tank milk samples from different dairy herds was submitted to screening test analyses (penzime\(^{a}\); Snap \(^{b}\)-p-lactam, CITE Pobre\(^{c}\) and, Delvo test\(^{d}\)) for antibiotic residues. Among the studied dairy herd bulk tanks: 6.89% of the milk samples were positive for antibiotic residues. The highest rate of clinical mastitis detected among the 90 dairy herds studied was 41.8% and its bulk tank sample was positive for residue. The lowest rate of clinical mastitis was 2.3% and the bulk tank was negative for residue. It was observed a correlation among clinical mastitis levels and bulk tank positivity for antibiotic residues (Spearman test =1) in this study, it was also observed in many animals that, although the recommendation to discard the milk until 72 hours after the last treatment the residue persisted for a longer period of time(96 to 120 hours) in the milk samples evaluated either by Delvotest\(^{e}\) and/or Snap in many animals.

30. ANTIMYCOPLASMATICAL ACTION OF PROPOLIS IN VITRO. B. Dukic, T. Bajrovic, D. Camo, L. Arapovic. Institute of epizootiology, University of Sarajevo.
Propolis a natural resinous substance produced by honey bees. Antimycoplasmatical efficacy of the ethanolic extract of propolis (EEP) of natural propolis (bee glue) was examined against 22 species of genus *Mycoplasma* (*hyorhinis*, *hypopneumoniae*, *hyosynoviae*, *flocculare*, *dispar*, *bovis*, *bovirhinis*, *putrefaciens*, *ovipneumoniae*, *capricolum*, *conjunctivae*, *arginini*, *synoviae*, *gallisepticum*, *gallinaceum*, *pullorum*, *hominis*, *pneumoniae*, *salivarium*, *pulmonis*, *faucium*, *caviae*), 3 species of genus *Acholeplasma* (*laidlawii*, *granullarum*, *oculi*) and 2 species of genus *Spiroplasma* (*melliferum*, *apis*). We conclude that ethanolic extract of propolis (EEP) has antimycoplasmatic action on all genus of *Mycoplasma*, *Acholeplasma* and *Spiroplasma*, but that effects is genus depend. Antimycoplasmatical effects of EEP is probably due d’presence of very active but unstable components such es: flavonoids, p-coumaric acid benzyl ester, caffeic acid phenethyl ester (CAPE), trituprenes, turpenes, steroids. These effects maybe contribute to the antymicoplasmatical action of propolis, and to is small, but significant, synergism with antibiotics.

31. DRUGS INFLUENCE ON UTERINE MOTILITY AND ENDOMETRIUS TREATMENT AT COWS. J. Dubinskis, A. Jemeljanov. Research Centre”Sigra” of Latvia University of Agriculture, 1 Institutu Street, Sigulda LV-2150, Latvia.

The cows uterine motility changes were investigated by using intrauterine balloonographic method. Cows diseased with acute or chronic post-calving endometritis were used in the investigations. The research results have shown that after oxytocine, carbocholine and dezaminooxytocine spolutions infusion in uterine it’s muscles tone intensified significantly, muscles contractions renewed or intensified separate contration amplitude –mostly increased. Preparations action duration, force and character depend on inflammation kind and dose quantity. In case of acute or chronic catarrhaly purulent endometritis oxytocine and carbocholine increased uterine motility till 270 minutes but dezaminooxytocine till 300 minutes after infusion. Treatment duration as well as time from calving till being on heat and inseminating index decreased significantly by using this preparation in therapeutical doses together with antimicrobic substances intauterinally to cows diseased with endometritis. Preparation effect on uterine motility is observed in the first minute already after its intrauterinal infusion independently of dose. Preparation maximum effect is observed depending on dose’s quantity 30-90 minutes after infusion. Dissolvents of medical substances have definite role for combined preparations. Those can intensify or weaken uterine tonic effect directly on uterine motility as well as on general indices of animal’s.

32. LES MEDICAMENTS VETERINAIRES INTERDITS D’UTILISATION EN PRODUCTION ANIMALE. L. El Bahri¹, J. Belghith¹, I. Khazri¹, J. Mellef¹, H. El Ghoul²  / Service de Pharmacie - Toxicologie. Ecole Nationale de Médecine Vétérinaire de Sidi Thabet, Tunisie; Direction des Services Vétérinaire. Ministère de l’Agriculture. Tunis. Tunisie.

Dans le cadre de la protection de la santé du consommateur contre les risques des résidus des médicaments vétérinaires, différents pays (Union Européenne, Etats Unis d’Amérique, Australie, Tunisie...) ont interdit l’utilisation de certains principes actifs (chloramphénicol, nitrofurannes, nitro- imidazoles, dapsone...) dans les productions animales en interdisant leur commercialisation (retrait des autorisations de mise sur le marché) ou en ne fixant pour ces substances aucune limite maximale de résidu dans les denrées alimentaires d’origine animale. Les risques de diverses natures (réactions allergiques, toxicité hématopoïétique, actions mutagène et cancérogène) de ces résidus pour l’homme sont précisés.
33. RESEARCH OF RADIOCESIUM TRANSFER COEFFICIENT AND DISTRIBUTION FOR COW MILK IN CONDITIONS OF LOW LEVEL ACTIVITIES IN DIET. N. Gradascevic, L. Saracevic, A. Mihalj, D. Samek. Veterinary Faculty of the Sarajevo University, Zmaja od Bosne 90,71000 Sarajevo, Bosnia and Herzegovina.

Environmental contamination by radiocesium during the last few decades has significant impact on the animal production, especially on milk and milk products. In this paper the transfer coefficient and distribution of Cesium 137 was researched from diet to cow milk in conditions of low level activity in dairy herds diet. A gammaspectrometric measurements of mineralized feed, milk and concentrated water samples were used in determination of the Cesium 137 radioactivity levels in investigated samples. Informations about quantity and quality of diet and milk production for investigated animals were also used for calculation the transfer coefficient and distribution of Cesium 137 from diet to cow milk. Obtained mean value for transfer coefficient of Cs-137 was 4.26 x 10^-3 d x l^-1. Distribution from diet to milk was in range 5.02 to 8.85 % of Cesium 137 activity in diet. Results obtained in our research shows good agreement with the results in literature. Values of transfer coefficient and distribution in our research are similar with the results obtained after Chernobyl accident. On the basis obtained results we can conclude that transfer coefficient and distribution of radiocesium from diet to cow milk shows the similar values in conditions of high and low radiocesium activities in diet.

34. THE EFFECT OF SUBSTANCE P ON THE ISOLATED SMOOTH MUSCLES OF THE BOVINE RUMEN. M. Muminovic, S. Hadzovic, I. Abdagic, A. Smajlovic. Department of Pharmacology and Toxicology, Veterinary Faculty, University of Sarajevo.

Substance P (SP) is one of three peptides, known under a joint name of neurokinins. The substance is usually produced in an organism, as a result of which, it can be found in many organs, especially in the central nervous system, the digestive tract, in retina, serum, cerebrospinal and synovial fluid etc. SP is, amongst others, a chemical neurotransmitter, which reacts via its specific receptor known as neurokin-1 receptor (NK-1). This type of receptor can be found in some tissues (intestines, subepithel of larynx, vagus, jugular ganglion), and it is possible that its subtypes can be found in some tissues, as well (for instance in m. sphincter and m. dilatator pupillae). Activating NK-1 receptors, substance P causes contractions of intestinal smooth muscles, bronchodilatation, peripheral vasodilatation with a drop in blood-pressure, it increases capillary permeability, participates in transmission of laryngeal reflexes, pain, etc. As there is not much information about the effects of SP in vitro on smooth muscles of the bovine rumen, it seemed of interest to check the effect of SP, acting unilaterally and when accompanied with its antagonist, on smooth muscles of the bovine rumen, and hence establish the possible presence of NK-1 receptors. The experiments were performed on isolated smooth muscles of circular and longitudinal layer of cattle rumen (strip dimension 3-4 mm x 2 cm placed in water bath), whose vitality was always tested by acetylholine application. Contaction of isolated muscle were recorded on one channel printer by isometric transducer. After testing of the vitality of the muscle strip, SP was added into the bath for isolated organs in concentrations of 10^-7 up to 10^-3. Antagonist of SP, (D-Pro4, D-Trp7,8,10, Phe11)-SP (4-11) was added in a concentration of 10^-5, into the bath with isolated strip 3-4 minutes before the SP. On basis of the results, it can be concluded that SP is one of the less efficient substances on smooth muscles of the bovine rumen, whose effect was always manifested as a contraction. This effect was successfully antagonized by (D-Pro4, D-Trp7,8,10, Phe11)-SP (4-11), which implies that NK-1 receptors are present in this muscles. Everything
implies that SP participates in the regulation of rumen motoric activiy, but considering the insufficient results, this has no practical meaning from a pharma
cotherapeutic point of view.

35. RESEARCH OF RADIOCESUIM LEVELS IN COW MILK IN SARAJEVO REGION DURING THE PERIOD 1985-2001. I. Saracevic, N. Gradascevic, A. Mihalj, D. Samek, D. Hasanbasic. Veterinary Faculty of the Sarajevo University Zmaja od Bosne 90; 71000 Sarajevo, Bosnia and Hezegovina

Milk as animal product with significant contribution in human diet represents foodstuff of great impact for radiation risk of human population during the environmental contamination. The results showed in this paper represent the Cesium 137 radioactivity levels in cow milk obtained in research during 16 years-monitoring period of radioactivity in animal production. Determination of Cesium 137 radioactivity levels in milk samples was performed by gammaspectrometric mesurements with HPGe coaxial detector. During the research period, Cesium 137 radioactivity levels in milk were moved in range: 0.04 to 0.1 Bq x l-1 in 1985, 100 - 1500 Bq x l-1 in 1986 and 0.02 - 0.06 Bq x l-1 in 2001. Obtained results shows that radioactivity levels in milk follows environmental contamination by radiocesium. During the last few years, decrease of radiocesium radioactivity levels in cow milk has recorded down to the levels obtained before Chernobyl accident, that is evident in results of our research.


La localisation intracellulaire de certains sels de lanthanides administrés par voie orale ou parentérale a été étudiée chez le rat. Ces éléments sont localisés dans les lysosomes de nombreuses cellules étudiées telles que les entérocytes, les hépatocytes, les cellules proximales rénales, les cellules stéroïdogènes de la surrenale et du testicule… Le but de ce travail a été d’étudier la réponse de la muqueuse intestinale de rat adulte après administration par voie orale de sels solubles de thulium et d’eupourium. Cette étude présente un intérêt particulier, dans la mesure où le développement de l’industrie chimique donne lieu à une utilisation accrue de ces éléments d’ou des risques potentiels de toxicité liés à une utilisation accrue de ces éléments d’ou des risques potentiels de toxicité liés à une exposition professionnelle ou accidentelle. L’étude ultra structurale et la microanalyse nous ont permis de montrer que l’administration orale de ces éléments. S’accompagne de leur précipitation sous forme de sels insolubles de thulium ou d’eupourium dans les lysosomes du duodénal de rat et leur élimination 72 heures après, par le phénomène d’apoptose cellulaire. Ce phénomène se déclenche rapidement, puisque les differentes techniques d’analyse utilisées nous ont permis de localiser cet élément 1 heure après son administration. Ce mode de précipitation met en jeu une réaction enzymatique, celle de Gomori in vivo, et faisant intervenir la phosphatase acide intralysosmale. Ces données sont à prendre en considération sur le plan de la sécurité alimentaire, puisqu’elles mettent en evidence le rôle de barrière par l’épithélium duodénal vis-à-vis des substances toxiques.
La contamination des milieux naturels et des denrées alimentaires par le cadmium ri est devenue ces dernières années un problème de préoccupation mondiale. Cette préoccupation est justifiée par le risque que ce métal constitue pour la santé du consommateur. L'exposition au cadmium d’origine industrielle répandu dans l’environnement entraîne une accumulation progressive et quasi irréversible de ce métal dans l’organisme. Les études cliniques et expérimentales permettent de conclure que le rein constitue l’organe critique, c'est à dire l’organe présentant les premiers effets toxiques suite à une exposition chronique du cadmium par inhalation ou par ingestion. L’accumulation du cadmium dans le cortex rénal provoque des troubles de la fonction tubulaire. Le présent travail a eu pour objet de reproduire une néphropathie par le cadmium chez le rat Wistar après une intoxication alimentaire subchronique de 13 semaines et d’identifier des biomarqueurs spécifiques de l’atteinte tubulaire rénale et aussi d’évaluer les doses toxiques et de déterminer une dose sans effet. Notre travail s’est déroulé dans le cadre d’un protocole in vivo ayant pour objectif d’étudier le devenir du cadmium chez le rat en décrivant son accumulation dans le sang et dans les reins et de suivre le processus de lésion rénale tubulaire dans le temps par analyse urinaire et par observation histo-pathologique au terme de l’étude.
II. NUTRITION & ANIMAL FEEDING

38. A CASE OF LAMB HAEMOGLOBINURIA DUE TO NUTRITIONAL HYPOPHOSPHATAEMIA. N. Alidadi1, T. T. Bazargani2, A. Gh. Masbhadi3, Veterinary Medical Teaching and research hospital, Mohammadshahr, Karaj, Iran. Veterinary Medical Teaching and research hospital, Mohammadshahr, Karaj, Iran. Department of Clinical Studies, Faculty of Veterinary Medicine, Sh Chamran University, Iran.

A haemoglobinuric lamb on the only lush alfalfa diet bearing of normal vital signs and the paleness but no icterus of mucosal membranes was injected 2 ml of a phosphorous compound and then hospitalized giving a mixed ration of alfalfa hay, grain concentrate, wheats straw and a mineral lick. Fifteen hours later, the lamb recovered. The concentrations of serum inorganic phosphates before the injection, 15 hours after the injection and three months later were evaluated as 4.70, 7.06 and 9.46 mg/dL respectively and the PCV was increased from 24% to 36% for this period.


In an attempt to find the best time of the year when to supplement phosphorus (P) of grazing beef cattle at Mafikeng, 18 Bonsmara cows of about three years were randomly allotted into two groups of 9 animals each and assigned to either a lick containing 45.5% degelatinised bone meal, 45.5% salt and 9% molasses or a control diet containing salt lick only, from 1992 to 1995. Blood and bone samples were collected bimonthly when body mass was also measured. Both groups of cows depended entirely on natural pasture and all were managed alike and grazed together. P supplemented cows (p+) had generally more (P<0.05) body weight gains over the entire trial period which was 21% heavier than the controls and this effect of a phosphorus supplement was also reflected in their higher (P<0.05) serum and bone inorganic phosphorus (Pi) content. Regarding reproductive performance, the birth and weaning mass of calves varied from year to year and generally the P+ cows tended to give birth to and wean heavier calves. When compared in the dry and wet seasons, the (P+) cows tended to have significantly more (P<0.05) body weight gains in the dry season as compared to the wet season. This was in agreement with their higher (P<0.05) serum and bone (Pi) levels. This also agreed well with the data obtained when considering several physiological states i.e. during late pregnancy (dry season in this study) the (P+) cows tended to have significantly more (P<0.05) serum and bone (Pi) levels and this effect was insignificant during the wet season i.e. during early pregnancy/lactation. The results of this study therefore, highlight the possible significance of (P) supplements in the dry season in range breeding cattle but not in the wet season.

40. VALORISATION DES FIGUES DE BARBARIE ET DES PULPES DE DATTES DANS L’ALIMENTATION ANIMALE EN ZONES ARIDES ET SAHARIENNES. A. Chermiti1, M. Mahouachi2, H. Rouissi3, Laboratoire des productions animales et fourragères, INRAT, Ariana, Tunisie. Laboratoire de zootecnie, ESA. Le Kef, Tunisie. Laboratoire de zootecnie, ESA Mateur, Mateur, Tunisie.
Les figues de barbarie, les cactus et les dattes sont incorporés après broyage dans des aliments contenant du son de blé, de l’urée, des minéraux, des vitamines et un liant. Tous les ingrédients sont mélangés, conservés sous forme de blocs puis séchés à l’air libre. Ils sont par la suite distribués à volonté en tant que complément à la paille, au foin d’avoine ou aux parcours à des ovins et à des caprins jeunes ou adultes, à des genisses d’élevage ou des chamelons en croissance. La ration témoin est composée de ces mêmes fourrages et parcours complémentée avec des aliments concentrés de type commercial. La teneur en protéines des blocs était comprise entre 18 et 27%. La digestibilité in vivo de la matière organique des rations utilisées est indépendante de la nature des blocs et elle varie entre 65 et 75%. La quantité d’azote retenue chez les ovins est plus élevée avec les rations contenant des blocs à base des dattes (+12,4g/j) qu’avec celles complémentées avec les blocs à base de figues entières (+9,8g/j). L’ingestion volontaire varie selon l’espèce et la nature des blocs. Les niveaux d’ingestion les plus élevés ont été observés avec les blocs à base de dattes. Ils sont en moyenne de 2,4 kg MS/j chez les chamelons, de 1,3 kg MS/j chez les genisses, de 0,5 MS kg/j chez les ovins et de 0,410 kg MS/j chez les caprins. Les croissances observées avec les rations ou la complémentation est assurée avec les blocs sont equivalentes, voire même supérieure à celles obtenues avec les rations témoins. Ces travaux confirment clairement que les figues de barbarie ou les dattes déclassées peuvent se conserver sous forme de blocs alimentaires en association avec d’autres ressources locales au lieu de les laisser aux champs jusqu’à leur déperissement. La durée de conservation de ces blocs multi-nutritionnels peut être longue tout en conservant la même valeur alimentaire permettant leur utilisation par les animaux aux moments opportuns et plus particulièrement pendant les périodes de secheresse. En outre, ces blocs constituent un aliment concentré de haute valeur alimentaire supérieure à celle des aliments concentrés habituellement commercialisés. Ils constituent un bon complément pour les fourrages pauvres et les parcours.

41. NATURAL ZEOLITES PREVENT THE IMPACT OF MYCOTOxin AUROFUrsArn IN QuAILs. J. Dvorska. Veterinary Medicine Department, Sumy state Agarian University, Ukraine.

An experiment was conducted to examine influence of clinoptilolite (CLI, a natural zeolite) on the impact of fusarium graminearum dimeric naphthoquinone aurofusarin (AU) in japanese quails. Four groups (Control, AU, CLI, AU plus CLI) were formed from 45-days-old japanese quails. The experimental group quails were fed a diet containing Fusarium graminearum Culture (3%) containing exclusively aurofusarin at a level of 880mg/Kg, with about 3% CLI. The experiment lasted for 4 weeks. The performance of quails and eggs quality were measured. It was evaluated the aurofusarin treatment didn’t alter egg productivity, but the fertility and hatchability of eggs were significantly decreased. The quality of eggs was reduced, the syndrome of reducing egg quality (color of egg yolk was brown with blood spots) was observed. The content of vitamin E (α-tocopherol, β-tocopherol.), A (retinol) and carotenoids were reduced. The addition of CLI to an AU-containing diet significantly reduced the effect of AU on the organism of Japanese quails and the egg quality. CLI treatment (3%) improved the hatchability by 13%, fertility –10%. The syndrome of “reducing of eggs quality” was not as severe as in the experimental group without CLI - the changing of yolk color was not severe. The content of vitamin E (α-tocopherol, β-tocopherol,) was increased by 10,2% and 9,8%, retinal-by 13,14%, carotenoids-by 9,4%.

42. VITAMIN A DEFICIENCY IN AN 18 MONTHS OLD BUFFALO. A. Ghaderdan Mashhadi. Faculty of Veterinary Medicine, Sh. Chamran University, Ahvaz, Iran.

Vitamin A (retinol) in found in green plants and can be synthesized by the small intestinal mucosal cells from plant carotenoid precursors. Vitamin A deficiency occurs primarily in growing ruminants in feedlots.
Deficiency develops under these conditions because the growing animal has a higher requirement for the vitamin and feedlot-reared animals may have limited access to succulent plants. In young animals the manifestations of the deficiency are mainly those of compression of the brain and spinal cord. In adult animals the syndrome is characterized by night blindness, corneal keratinization, pityriasis, defects in the hooves, loss of weight and infertility. Vitamin A also provides a protective effect against various infectious diseases. In winter of 1996 an 18 months old buffalo was referred to Ahvaz veterinary hospital with history of inappetite, unthrifty and reduced ability to see in dim light (nyctalopia). The owner said two buffalo was slaughtered with these signs. The animals were kept on very poor roughage. Clinical examination of the animal revealed disturbances in the animal health which appeared in form of disturbances in growth, diminished menace reflex, pityriasis, and hyperkeratosis. Skin and hair samples were examined for parasites and fungi that were negative. But biochemical examination of the blood revealed changes in vitamin A and beta-carotene. Serum carotene and vitamin levels were 6 µg/dl and 0.3 µg/dl, respectively. Vitamin A deficiency is diagnosed and the animal was treated with vitamin A solution.

43. BETA-CAROTENE AND VITAMIN A CONTENT IN BLOOD PLASMA AND THE LIVER OF SLAUGHTER COWS IN DIFFERENT SEASONS OF THE YEAR IN AHVAZ. A. Ghaderdan Mashhadi, M. R. Jalali, M. Behrozi. Faculty of Veterinary Medicine, Sh. Chamran University, Ahvaz, Iran.

Vitamin A is one of the fat-soluble vitamins. Because of its particular role in different tissues and organs in deficiency conditions various clinical signs are seen. In addition, sometimes the marginal deficiency is present that clinical signs are not visible but performance defects, such as infertility is seen. In present study seasonal changes of vitamin A and beta-carotene levels in serum and liver of 220 cows was investigated in a slaughterhouse around Ahvaz (Iran) between September 1997-June 1998. We also selected animals from two sexes and divided them to the 5 age groups (less than 2, 2-3, 3-4, 4-5 years old and more than 5 years old). A simple and cheap method (spectrophotometry) was used for measuring vitamin A and beta-carotene. The results were analyzed statistically by multifactorial repeated measures (ANOVA), multiple regression and Pearson’s correlation. Results showed that the values of mean of liver and serum vitamin A levels and liver levels of beta-carotene were within normal range 157 µg/gr, 83 µg/dl and 36 µg/gr, respectively). These values in different seasons, age groups and two lower than normal, too. While serum levels of beta-carotene concentration (110 µg/dl) was lower than normal range. There wasn’t significant difference in serum and liver vitamin A and beta-carotene between male and female. In different age groups significant difference was seen in serum vitamin A (maximum in cows 2-3 years old and minimum in cows 4-5 years old) and serum bate-carotene (maximum in cows more than 5 years old and minimum in cows 3-4 years old). Liver and serum vitamin A in spring, beta-carotene in winter and beta-carotene in spring was significantly higher than other seasons. These findings are different from similar study that performed in poland and Tehran (Iran).

44. THE EFFECT OF A NUTRITIONALLY BALANCED CASSAVA (Manihot esculenta Crantz) DIET ON GROWTH, MUSCLE AND BONE DEVELOPMENT IN YOUNG MALE DOGS. C. Ibebunjo1, B.P. Kamalu2, E.C. Ihemelandu3. 1Department of Veterinary Surgery and Obstetrics, 2Department of Veterinary Pathology and Microbiology, 3Department of Veterinary Anatomy, University of Nigeria, Nsukka, Nigeria.

The root of the cassava (Manihot esculenta Crantz) plant is a dietary staple for more than 500 million people in developing countries. People eat 60% of the cassava produced and feed the table scraps to their
dogs. One third of the harvest is feeds farm animals. All cassava cultivars contain the cyanogenic glucoside, linamarin, but in different concentrations. Growing dogs were divided into three groups and were fed on nutritionally-balanced diets. Control dogs were fed on a rice diet, the cassava (gari) group ate a diet in which processed cassava root (gari) provided the carbohydrate source, while the rice + cyanide group consumed the rice diet to which hydrocyanic acid (equivalent to that present in the gari diet) was added. Each group consumed its diet for 14 weeks. Variables measured were body-weight gain, rate of closure of the proximal epiphyseal plate of the ulna, bone development, muscle development, plasma alkaline phosphatase (EC 3.1.3.1) activity, total serum 3,5,3'-triiodothyronine (T3) and some plasma free amino acids. There was no significant difference in body-weight gain between the control and gari-fed groups of dogs, however, the gari-fed dogs tended to be heavier and the apparent greater weight was associated with greater subcutaneous fat deposition. The body-weight gain was significantly lower in the dogs fed on the rice + cyanide diet \((P < 0.05)\). There was retardation of muscle development in the gari-fed dogs, with the muscle mass index being smaller in the gari-fed dogs compared to the control dogs and the rice + cyanide-fed. There was no significant difference in the rate epiphyseal plate closure between the gari-fed dogs and the control dogs, but closure occurred earlier in the gari-fed dogs. Rate of epiphyseal plate closure was significantly slower in the dogs fed on the rice + cyanide diet \((P < 0.05)\). Bone development as indicated by absolute bone weight, length, and diameter was not significantly different among the groups of dogs, however, there was a tendency towards shorter bone length, as well as lower bone weight in grams per millimeter bone length among the gari-fed dogs, suggesting also, less mineralization of the bones. Plasma alkaline phosphatase activity was significantly lower in the rice + cyanide group compared to the gari group \((P < 0.05)\) but the differences between gari and control groups were not significant. Plasma free methionine, leucine, isoleucine and valine concentrations were higher in the rice + cyanide group, compared to the other groups, indicating that they were not being utilized to the same extent as in the other groups. Serum T3 was significantly lower in the rice + cyanide dogs compared to the other groups. Increased subcutaneous fat deposition, decreased muscle mass index, early epiphyseal closure and decreased bone length associated with increased bone diameter and deficient mineralization of the bone resembles the findings in children suffering from protein-calorie malnutrition.

45. THE EFFECT OF A NUTRITIONALLY BALANCED CASSAVA \((Manihot esculenta Crantz)\) DIET ON ENDOCRINE FUNCTION USING THE DOG AS A MODEL: THYROID. B.P. Kamalu, J.C. Agharanya. Department of Veterinary Pathology and Microbiology, University of Nigeria, Nsukka, Nigeria Department of Chemical Pathology, College of Medicine, University of Nigeria, Enugu Campus, Nigeria.

The root of the cassava \((Manihot esculenta Crantz)\) plant is a dietary staple for more than 500 million people in developing countries. People eat 60% of the cassava produced and feed the table scraps to their dogs. One third of the harvest is feeds farm animals. All cassava cultivars contain the cyanogenic glucoside, linamarin, but in different concentrations. Growing dogs were divided into three groups and were fed on nutritionally-balanced diets. Control dogs were fed on a rice diet, the cassava (gari) group ate a diet in which processed cassava root (gari) provided the carbohydrate source, while the rice + cyanide group consumed the rice diet to which hydrocyanic acid (equivalent to that present in the gari diet) was added. Each group consumed its diet for 14 weeks, during which plasma thiocyanate concentrations and total serum triiodothyronine (T3) were monitored. At the end of the experiment the concentrations of plasma free amino acids phenylalanine and tyrosine, the thyroid weights and histology
were determined. While plasma thiocyanate remained undetectable in control dogs, dogs consuming both gari and rice + cyanide generated significant amounts. In the control dogs and the gari group, total serum T3 increased 40 and 38.8% respectively from the basal level by the end of the period (P<0.02). In contrast there was a decrease in T3 by 36% in the dogs fed on rice + cyanide (P<0.05). This group also showed significant thyroid enlargement and a histological picture consistent with parenchymatous goiter, whereas the gari group was essentially normal. These findings suggested that the gari diet, despite generating thiocyanate endogenously, when taken in a nutritionally-balanced diet with high-quality animal protein, has no deleterious effects on thyroid hormone production. However, further investigation has shown that thyroid hormonal function in dogs fed on the gari diet was impaired in spite of normal thyroid hormone levels. Other workers have reported impaired thyroid function in humans consuming cassava, although T3 and T4 levels may be normal.

46. THE EFFECT OF A NUTRITIONALLY BALANCED CASSAVA (Manihot esculenta Crantz) DIET ON ENDOCRINE FUNCTION USING THE DOG AS A MODEL: PANCREAS. B.P. Kamalu, E.C. Ichemelandu, Department of Veterinary Pathology and Microbiology, University of Nigeria, Nsukka, Nigeria.

The root of the cassava (Manihot esculenta Crantz) plant is a dietary staple for more than 500 million people in developing countries. People eat 60% of the cassava produced and feed the table scraps to their dogs. One third of the harvest is feeds farm animals. All cassava cultivars contain the cyanogenic glucoside, linamarin, but in different concentrations. Growing dogs were divided into three groups and were fed on nutritionally-balanced diets. Control dogs were fed on a rice diet, the cassava (gari) group ate a diet in which processed cassava root (gari) provided the carbohydrate source, while the rice + cyanide group consumed the rice diet to which hydrocyanic acid (equivalent to that present in the gari diet) was added. Each group consumed its diet for 14 weeks, during which plasma thiocyanate concentrations and plasma lipase (EC 3.1.1.3) activity were monitored. Plasma free amino acids were determined from pooled samples taken at the end of the experimental period, and the insulin status of the dogs was evaluated using the gluconeogenic index. At the end of the experiment the pancreas was examined for histopathology. Dogs fed on both the gari diet and the rice + cyanide diet generated significant amounts of thiocyanate when compared with the controls, with the rice + cyanide group having higher plasma thiocyanate than the gari group (P < 0.01). Plasma lipase activity rose significantly at the end of the experimental period in the dogs fed on gari (P < 0.05). Gluconeogenesis from protein was greatest in the dogs fed on gari, five times greater than that in the control dogs, while gluconeogenesis from protein in the dogs fed on rice + cyanide was approximately twice as high as that of the control dogs. Histopathological examination of the pancreas showed haemorrhage, necrosis, fibrosis and atrophy of the acinar tissue and fibrosis of the islets of Langerhans in the dogs fed on gari. The pancreas of the dogs fed on rice = cyanide showed similar lesions but haemorrhage was not prominent and fibrosis was more marked. The present study indicated that a hypoinsulinaemia developed which was more severe in the dogs fed on gari than in the dogs fed on the rice + cyanide diet and that the condition was not related to the level of plasma thiocyanate or the histopathology observed. The present study also suggested that the findings in the gari fed dogs was an early expression of the end-stage picture of tropical pancreatitis and diabetes mellitus seen in humans consuming cassava as a dietary staple.
Dans la plupart des nouveaux systèmes d’évaluation protéique des aliments destinés à l’alimentation des ruminants, notamment le système français PDI, l’estimation de la dégradabilité théorique (DT in sacco) des matières azotées obtenues par la méthode des sachets de nylon est nécessaire. Malheureusement, cette méthode de référence est fastidieuse, très coûteuse et affectée par plusieurs facteurs de variation. La contamination des particules résiduelles par l’azote microbien au moment de l’incubation dans le rumen est le facteur le plus important notamment dans le cas des fourrages. Cependant, plusieurs méthodes faisant appel à des protéases bactériennes ou végétales ont été proposées pour la prévision de la DT in sacco des MAT des aliments. Ces méthodes restent toutefois peu appropriées aux fourrages. La dégradabilité enzymatique (DE) des MAT de 33 fourrages différents provenant de différentes régions de Tunisie, a été mesurée suivant la méthode de Kammoun et al. (1996) adaptée aux fourrages et qui utilise une protéase extraite de Streptomyces griseus (concentration de 2 mg par 500mg d’échantillon et 24 heures d’incubation). Par ailleurs, la DT in sacco des MAT de cette large gamme de fourrages a été aussi mesurée et où l’isotope stable(15N) et la spectrométrie dans la proche infrarouge ont été utilisés pour l’estimation du taux de contamination (Lecomte et al., 1994). Le matériel végétal étudié (23 fourrages frais lyophilisés : 12 graminées et 11 légumineuses, 4 ensilages et 6 foins) est caractérisé par une large variabilité analytique (%MO : 82-97 ; %MAT : 5-32 ; %CB : 19-40 ; %NDF :28-76 et % ADF: 21-48).

La cinétique de dégradation de l’azote a été mesuré dans le rumen de 3 bœufs de race Pie Noire munis de canules ruminales et nourris à base de foin de prairie et de concentré (2/3 et 1/3) Nos résultats montrent que le taux de contamination microbienne est très élevé particulièrement chez les fourrages pauvres et ou il dépasse même les 90% de l’azote résiduel. L’incidence de ceyye contamination sur la valeur DT in sacco est très variable (graminées : 57-84 ; 74-90, légumineuses : 72-85 : 76-87, ensilages : 71-76 ; 88-91 et foin : 33-59 ; 72-76 respectivement pour les valeurs avant « %DT nc » et après « %DT c » correction pour la contamination microbienne). L’erreur peut dépasser les 120% (foin de vesce-avoine récolté au stade pâteux-laitexes). La DE (%) des MAT des fourrages étudiés varie de 71 à 89, de 74 à 86, de 84 à 90 et de 73 à 79 respectivement pour les graminées, les légumineuses, les ensilages et les foin. Cette dégradabilité enzymatique se trouve mal corrélée avec les valeurs DT nc, par contre elle permet de prédire la DT c avec une très bonne précision (%DT nc =1,307. (%DE)-37,459 « R²=0,29,n=33 », %DT nc = 0999. (%DE) + 0,938 « R²=0,89,n=33) Avec les valeurs de la DT c, ma méthode enzymatique adaptée présente une variabilité nettement plus faible que celle de la littérature, ceci ne peut être expliqué que par la précision de la mesure de la DT in sacco corrugée pour la contamination microbienne.

48. NUTRITION PARTICULARITIES OF CATS. Y. Miceli. Royal canin, centre de recherche de descavaldo-SP, Brazil.

Our knowledge of the nutritional needs of cats has expanded greatly over the last 30 years. Its now reconignised that cats require specialized diets formulated for thir specific nutitional needs. Those specific needs are the result of their long history of research that lead into modifications of enzyme activities and thus, metabolic pathways.
49. THE EFFECT OF CONCENTRATE SUPPLEMENTATION ON WATISH LAMBS GRAZED ON DOLICHOES LABLAB. H.E. Osman. Sudan.

Eighteen male lambs of Sudanese Desert Watish ecotype sheep of three equal age groups 13-14, 9-10 and 5-6 months designated as groups A, B and C respectively were used in this study. Each of these groups was randomly divided into two subgroups (3 heads/ subgroup) designated as 1 and 2. Subgroups A1, B1, and C1 were offered ad lib. concentrate while subgroups A2, B2 and C2 were restricted to half ad. lib. intake. Concentrate was fed from 6:00 a.m. to 12:00 noon, then subgroups were allowed to graze freely to 6:00 p.m. The concentrate used consisted of 40% molasses, 20% bagasse, 20% groundnut cakes, 18% wheat bran and 2% NaCl+ CaCO\textsubscript{3}. Concentrate supplementation continued for about six weeks. During the experimental period feed intake, initial body weight, final body weight and daily weight gain were recorded. At the end of the experimental period, twelve lambs (two from each subgroup) were randomly picked and slaughtered for carcass evaluation. Non-significant weight gains were recorded during forage supplemented feeding periods with group B (middle aged) exhibiting the highest average daily gain during the ad lib. supplementation periods. On restricted feeding, younger animals (C2) showed the higher gain. Elder animals are least efficient convertors during supplemented feeding. Younger animals showed the highest feed conversion values during the supplementation period. Variation in carcass yield is mostly due to age differences rather than energy intake. It is considered feasible to supplement forage fed lambs with concentrate, when they are ~9-10 months age- giving the maximum gain and profitability.

50. EFFECTS OF ADDING UREA AND SULFUR TO RATION ON SOME RUMEN AND BLOOD PARAMETERS, FATTENING PERFORMANCE IN FAUNATED AND DEFAUNATED RAMLIC LAMBS. M. Ozdemir. Afyon Kocatepe University, Faculty of Veterinary Medicine, Afyon, Turkey.

This study was designed to investigate the effects of defaunation and adding urea and sulfur to ration in place of plant-originated protein sources on levels of some blood and rumen contents parameters, live weight gain, and avarages daily weight gains in ramlic lambs. Forty 2.5-3 months of aged, and approximately 16 kg weighed male ramlic lambs were used in the study. The animals were equally divided into four groups as faunated + control ration (F), defaunated + control ration (D), faunated + experimental ration (F+D) and defaunated + experimental ration (D+D). The groups F and D were fed with a control concentrate diet containing plant protein as nitrogen source while the groups F+D and D+D were fed with the concentrate diet supplemented with urea and sulfur as 3% of liveweight of the animals for during investigation. Dry alfalfa was used 350 g per each animal as a forage, and the forage and concentrate feeds per group were also given two meals at a day equally. pH and NH\textsubscript{3}-N levels of the rumen contents in the lambs fed with the experimental ration (F+D and D+D) were significantly higher (P<0.05) than those in the lambs fed with the control ration (F and D) at the same sampling times. pH and NH\textsubscript{3}-N levels of the rumen contents were not changed by defaunation. At the same sampling times, while the defaunation (except for the first month) and adding urea and sulfur to ration had no effect on the nitrate levels of the rumen content samples, the above mentioned factors increased the nitrite levels of the rumen contents significantly (P<0.05). The nitrate and nitrite levels in rumen contents were found to be higher (P<0.05) than those detected in the former month in all the groups. The protozoa in the rumen contents of lambs in the group F+D were not observed, except for the first month, whereas the protozoa in the rumen contents of animals in the group F were the highest level in the first month samples and then, decreased
significantly (P<0.05) by the following months. Plasma urea nitrogen levels were found insignificantly higher in defaunation and significantly (P<0.05) in the feeding with the experimental ration. The plasma glucose levels of defaunated groups (D and D+D) were insignificantly lower than those in the faunated groups (F and F+D), and significantly higher (P<0.05) in the groups fed with experimental ration (F+D and D+D) than those in the groups fed with the control ration. The lowest plasma glucose levels in the all groups were recorded in the thirth month samples. While effects of defaunation and the experimental ration on the plasma total protein levels among all groups were not significant, the same parameter in the thirth month were significantly (P<0.05) lower than those of the former in the between months comparisons in all groups. The blood methaemoglobin values among the groups were not difference, except for the samples of the first month. In the following periods of the study, the blood methaemoglobin levels of all groups were observed to increased (P<0.05) as compared with to those in the former months. While the no significant differences in the aspect of height of chest, chest girth and body length were observed among the groups, at same measuring dates, the forecannon values, in general, were higher in the groups fed with the experimental ration than those of the groups fed with the control ration. These parameters were observed to increase significantly (P<0.05) among the months from former to latter ones within the same groups. In the blood samples taken from the animals at the end of the investigation, there was no difference among the groups in respect of erythrocyte and leukocyte counts, haemoglobin amount, haematocrit level, the lemphocyte, neutrophil, monocyte and eusinophil percentages of differential leukocytes. The basophil percentages in the defaunated groups (D and D+D) were higher (P<0.05) than those in the faunated groups (F and F+D). We concluded that the ration supplemented with urea and sulfur instead of plant protein sources has not a negative effect on the live weight gain, and defaunation of lambs being fed with urea and sulfur added to ration has resulted in higher growth rates and better conversion efficiencies.


L’utilisation de *Ulva lactuca* (14% protéine brute et 6.19 % cellulose brute) et *Ruppia cirrhosa* (13.48% protéine brute et 16.41 % cellulose brute) dans l’alimentation du poulet de chair (200 sujets) à un taux de 6% et dans l’alimentation de la poule pondeuse (240 sujets) et le lapin de chair (63 sujets)à un taux de 10 et 20 % a entraîné des améliorations du gain moyen quotidien de 11 à 17% et une diminution significative de l’indice de consommation. Cependant, l’introduction de ces végétaux marins dans la ration n’ont pas modifié les caractères organo-lectiques des productions.


Les auteurs ont utilisé 4 lots de chevreaux et d’agneaux recevant des blocs alimentaires composés essentiellement avec de la pulpe oranges et de l’urée. Ces blocs supplémentent des régimes à base de fourrage, à base de fourrage + concentré. L’effet de ces rations est comparés à une ration témoin classique sans bloc alimentaire et à une ration complète sous forme de bloc composé par la pulpe d’orange +urée
+ concentré +fourrage. La comparaison au sein de la même espèce a montré l’intérêt de la ration bloc, concentré et fourrage. Par contre la comparaison inter-espèce a montré de meilleurs résultats (Gain moyen quotidien et rendement à l’abattage) chez les ovins.


Les auteurs ont travaillé sur des vaches élevées dans de grandes exploitations (> 50 vaches par exploitation) et chez de petits éleveurs (2-10 vaches par ferme). Chaque 2 vaches reçoivent un bloc alimentaire enrichi en Phosphore et en Calcium durant tout un cycle de production. La supplémentation minérale commence 2 mois avant le vêlage. L’effet est très positif sur l’état corporel des vaches, le poids des veaux, la quantité et la qualité du lait avec un réduction de l’intervalle vêlage – vêlage de 30 à 60 jours. Les résultats sont plus significatifs dans les exploitations de petite taille.


The aim of the present study was to investigate the influence of milk and probiotics on buffalo calves blood biochemical constituents. 28 one week old buffalo calves (12 males and 16 females) were randomly distributed into three groups: M) 5 males and 4 females fed with maternal milk; P) 4 males and 4 females fed with hot reconstituted milk for buffalo calves, supplemented with probiotics in the [Ist five days after colostrum; R) 7 males and 4 females fed with hot reconstituted milk for buffalo calves. All the groups were fed twice a day in buckets; ad libitum at the beginning and then following a restricted feeding program from the age of two months for weaning. From the first week until weaning, blood samples were taken from jugular vein every 15 days to check growing buffaloes metabolic state. Metabolic profiles included: blood urea-N, Crea, AL T, AST, GGT, Bilir. tot., ALB, total protein, PCV. Among these parameters PCV was the only one influenced by sex, while also Bilir.tot., PT, blood urea-N, Crea, ALB, ALT, AST and GGT were influenced by the age of the animal. The kind of milk had a significant impact as regards PCV, Bilir. tot., ALB and AST.

55. STUDY OF THE EFFECTS OF JAPANESE QUAIL EGGS DIET ON SUGAR AND CHOLESTEROL BLOOD LEVELS.

M.A Dhahi.

تم دراسة تأثير تناول بيض طائر السلوئ الياباني في مستويات السكر والكولسترول في مصل الدم بهدف معرفة إمكانية استخدام بيض هذا الطائر كعلاج بديل للأدوية الكيميائية التقليدية المستخدمة في علاج داء السكري. تم أجراء تجربتين، الأولى.
Effect of an anionic diet on cation-anion difference values of blood plasma and urine was investigated. Experiment was conducted on 22 dry pregnant Holstein cows during last three weeks of pregnancy. Cows were divided in two groups (cationic and anionic) each containing 11 animals. Diets were based on maize silage and grass hay with concentrate added, all fed separately in two daily equal portions. Anionic group diet contained mix of anionic salts MgSO4x7H2O, CaCl2x2H2O and NH4Cl, to reach desired level of dietary cation-anion difference. Urine samples were collected once per week during experiment and analyzed on macronutrient elements content. Blood samples were taken of all cows during the first twelve hours after calving and plasma analyzed on the same parameters. Values obtained were used to calculate cation-anion difference of urine and blood plasma using several different equations. Experiment was conducted to find whether cation-anion difference of blood plasma and/or urine could be a useful tool in assessing of cation-anion difference of pregnant cow’s diet at actual intake.

57. INFLUENCE OF DIET REGIME IN THE DEVELOPMENT OF PANSTEATITIS IN CATS.
M. M.R.E. Niza L.M.A. Ferreira. CIUSA-Faculdade de Medicina Veterinária, Pólo Universitário do Alto da Ajuda, Rua Prof. Cid dos Santos, 1300-477 Lisboa, Portugal.

Pansteatitis or yellow fat disease is a recognized nutritional disease of cats, usually associated with diets based on oily fish. The present work describes two cases of pansteatitis in cats fed mostly of pig’s brain. A comparison of clinical signs, haematologic values and lesions of pansteatitis present in these two cats and others fed mainly oily fish is presented. The cats which diet consisted mainly in pig’s brain did not show any abnormal clinical signs and the haemogram revealed a normal profile. Pansteatitis was suspected when these animals went through a routine surgery where yellow abdominal subcutaneous fat
was patent. Diagnosis was confirmed by histological examination of subcutaneous tissue. Therapeutic and prophylactic approaches of feline pansteatitis are also discussed.

58. THE RELATIONSHIP BETWEEN YOLK AND EGG TOTAL CHOLESTROL AND TOTAL LIPID LEVELS IN LAYING HENS. A. Hodzic. A. Gagic, M. Hamamdzic, M. Mihaljevic. A. Kurspahic, F. Buljusmic, Faculty of Veterinary Medicine, University of Sarajevo, Bosnia and Herzegovina.

In an attempt to determine the relationship between the yolk total cholesterol and total lipid concentration, as well as egg total cholesterol and total lipid content in laying hens at the start of the production period, the experiment with diets with or no added fat was designed. The 12-weeks-term trial was conducted on 119 laying hens Isla Brown provenience 27th week of age. According to the experimental design, three types of diet were prepared, marked as the diet I, II and III: diet I with no added fat, diet II with 3.2% added palm oil and diet III with 2.5% added pork fat. Laying hens were divided into four groups, two controls and two experimental: YK+, the positive control group fed diet III during all 12 weeks of the trial; YK-, the negative control group fed diet I during the whole experiment; experimental groups YP and YS fed diet I in the preexperimental (1-3 weeks) and postexperimental (10-12 weeks) periods, and in experimental period (4-9 weeks) fed diet II and diet III, respectively. Different dietary treatments did not affect significantly the yolk and egg total lipid levels. Dietary treatments, as well as environmental temperature and production parameters, had no effect on yolk total cholesterol concentration, but they affected the egg total cholesterol content through the influence on the yolk mass. In our experimental conditions the positive correlation between the yolk and egg total lipid and total cholesterol levels was found.

59. UTILISATION DE L’N
15 ET DE LA SPECTROMÉTRIE DANS LE PROCHE INFRAROUGE POUR LA DÉTÉRMINATION DE LA DÉGRADABILITÉ RUMINALE In Sacco DE L’AZOTE DES FOURRAGES. M. Kamoun1, A. Théwis2. 1Ecole Nationale de médecine vétérinaire,2020 Sidi Thabet, Tunisie. 2Faculté Universitaire des Sciences Agronomiques de gembloux, Belgique.

Pour mesurer la valeur réelle de la dégradabilité ruminale (DT) des matières azotées des fourrages suivant la technique des sachets de nylon, les méthodes de dilution isotopique de fourrages ou de microorganismes marqués au moyen de 15N (méthodes de référence) ainsi que la spectrométrie dans le proche infrarouge (SPIR), ont été utilisées pour estimer le taux de contamination azotée d’origine microbienne dans les particules résiduelles de 51 fourrages différents. Ce matériel végétal, provenant en grande partie de différentes régions de la Tunisie et caractérisé par une large variabilité analytique comporte 41 fourrages frais (28 graminées et 13 légumineuses), 4 échantillons d’herbes ensilées et 6 foins différents. Les résultats issus de méthodes de référence ainsi que ceux de la SPIR montrent que le taux de contamination microbienne est particulièrement très élevé chez les graminées et qu’il est d’autant plus intense que le fourrage est pauvre et que peut dépasser les 90% (de 3h à 48h d’incubation, il varie de 11 à 92 et de 1 à 66 de l’azote résiduel respectivement pour les graminées et les légumineuses). Les valeurs de la DT in sacco des MAT des fourrages étudiés, avant (DTnc) Et après (DTc) correction pour la contamination microbienne, varient de : 33% ; 76% à 80% ; 90% respectivement pour un foin de vesce avoine <<stade pateux-laitieux>> et un ray-grass <<repousse>> l’erreur due à cette contamination dans
l’estimation de la valeur de la DT (exprimée par le rapport entre les valeurs DTc et DTnc) semble être en relation étroite avec les teneurs en MAT et en fibres des fourrages. L’amplitude de cette erreur est très élevée Particulièrement dans le cas des graminées et des mélangees graminées-légumineuses ou elle Peut dépasser les 120%. Par contre, elle semble être nettement plus faible chez les légumineuses et les fourrages très jeunes. Enfin, et à partir de ces résultats, nous avons établi la relation suivante permettant d’estimer la valeur corrigée pour la contamination microbienne de la DT des MAT des fourrages en fonction de leurs teneurs en MAT et en NDF : %DTc = \{(1,16-1,59 (%MAT) +0,63 (%NDF) \} [ %DTnc ] ou r= 0,8 Sy.x=0,14 et n=51.

59. TECHNOLOGIES TO EXPLOIT DOMESTIC FLIES LARVA FOR FEEDING POULTRY AND FISH. N’G. Kone. Centre de Recherches Agronomiques de Sotuba, BPE : 4760, Bamako, Mali.

The lack of appropriate feed formulations for fowls in rural areas remains a major constraint to the development of fowl breeding at village level. Feeding a substitute for fish flower has always been a constant concern for the users of results of agricultural research. These two raisons motivated the development of a production process for a sustainable exploitation of the larva of domestic flies, Musca domestica and Calliphora vomitoria. The production process uses municipals wastes and a prototype of larva sorter and one of larva incubator developed both for the purpose. Larva biomass exclusively composed of larvae from the above stated fly species is saleable fresh, sun dried, or in the form of roasted dried pupa. The dried larva form or the dried pupa one can be directly incorporated into the rations for poultry and fish. It can be stored over one year. The use of domestic flies larva in poultry feeding contributes to the attainment of food security as well as to the cleaning-up of the environment through biological fight against domestic fly. On fair show grounds or in show rooms for technological inventions and innovations products derived from fly larva drew great interest from the public, especially poultry breeders. The opening to this new avenue create a pressing demand for fly larvae. This fact led us into an in depth thinking about the establishment of an industrial production unit to supply poultry breeders with fly larvae, in the scope of effectively substituting for all the fish and meat flower used in poultry and livestock feeding.

60. INVESTIGATION OF CHEMICAL CHARACTRISTICS OF SUGAR BEET TOPS AND CROWN SILAGE AND IT'S NUTRITIVE VALUE IN SHEEP. M. Gh. moghaddam, M. Raissain Zadeh, M. Danesh. Iran.

In an experiment with 3 stages, 12 treatments, using 11 combinations of sugar beet tops and crown (SBTC) were ensiled for 2 months as bellow: 1-SBTC, 2-Chopped SBTC, 3-SBTC + 5% molasses (the percentage of additive materials were based on dry matter of SBTC), 4-treatment 3+ 2% urea, 5-SBTC + 10% moplasses, 6-treatment 5 + 2% urea, 7-SBTC + wheat straw until 35% dry matter (DM), 8-treatment 7 + 10% molasses, 9-treatment 8 + 2% urea, 10-STBC + wheat straw until 40% DM + 10% molasses, 11-treatment 10 + 2% urea, 12-dried sugar bet tops and crown (the before silage’s were compared with treatment 12). In the first stage the voluntary feed intake and blood metabolites were determined by using 42 Baluchi lambs (24,7+/-1,2 kg), in completely randomized design, with 6 treatments (1,2,5,7,8 and the treatment of control’s basal diet). In this stage the silage consumption were ad-lib and the basal diet was: (barely 46%, alfalfa 27%, sugar beet pulp 26%, according to ARC requirement for maintenance), at the
rate of 343 g/d/lamb. The maximum voluntary feed intake was noted treatments 1 and 2 (778.9 g DM), while it decreased when DM in treatments declined. At the end of this stage the blood samples were taken from 4 lambs in the blood glucose and urea nitrogen concentration in each group. The blood glucose was higher in samples of 3 hours after feeding (57.8 mg/dl) while blood urea nitrogen was higher before and 1 hour after feeding in samples of treatment 8 (15.8 mg/dl). In the second stage, apparent and chemical characteristics (pH, DM, organic matter (OM), ammonia nitrogen (N-NH3), total nitrogen (N), non protein nitrogen (NPN), true protein nitrogen (TPN), neutral detergent fiber (NDF) and acid detergent fiber (ADF)), of treatments 1 to 12 were determined. This experiment with 6 replications were used for each treatment in completely randomized design were analyzed. The mine of treatment were compared by Duncan test. Adding molasses to silage caused significant increase in pH and N-NH3. In other hands increasing the amount of wheat straw was related to significantly increase DM and pH in silage. In the second stage of experiments, in situ degradability of DM and crude protein of treatments 1, 2, 3, 4, 5, 6, 8 and 12 were determined by using 2 fistulated lambs. The results were analyzed by Fig.P software and the coefficients of a, b and c degradability diagrams were calculated. The increasing of molasses and urea caused increases in quickly degradable (a) dry matter and crude protein and decreases in slowly degradable (b) dry matter and increase in coefficient of (c) for DM.
III. ANIMAL WELFARE-PAIN MANAGEMENT-ETHICS

III.1. ANIMAL WELFARE

61. ANIMAL WELFARE: A HISTORICAL AND CRITICAL APPRAISAL. F.O. Odberg. Ghent University, Faculty of Veterinary Medicine, Heidestraat 19, B-9820 Merelbeke. Free University of Brussels, Faculty of Psychology.

The subject is fashionable nowadays, but much constructive work has been carried out outside the spotlights of the media since the sixties. It is all too often forgotten that the development of intensive housing and batteries was partly motivated by welfare through improvement of hygiene. However, lack of interdisciplinary training and exacerbated production ideology resulted in behavioral factors not being integrated in the systems although knowledge was available. The first scientific report on the subject was published in 1965 (the “Bramble report”, British Ministry of Agriculture). Pressure from three sectors resulted in an increasing public and political awareness. 1. Animal protection societies extended their interest to farm animals. Some worked constructively with scientists, while others took an aggressive extremist course, propagating intellectual or physical violence. 2. Scientists developed ways of evaluating welfare (is there a problem?) and better housing systems (what is the solution?). Lack of training in behavioral sciences affected the quality of data, especially in the beginning. There is no litmus test for welfare, but combination of parameters often yield useful indications. 3. Philosophers applied ethical concepts to the subject, which resulted in better-structured thinking. However, writings were used as theoretical background for extremist attitudes (e.g. dogmatic use of “speciïsm” instead of a useful tool) and the conceptualization of an a priori (e.g. the concept of “integrity” often hides preconceptions). It contributed to the post-modern wave of irrationality.

Official national and supra-national councils now often advise decision-makers. European directives are very important as states often resent taking unilateral initiatives, which could harm their economic interests. These progresses are now at risk due to ultra-liberal stands during WTO discussions. Final decisions are ethical but should be based on as exact as possible data in order to make the right choice. Science should resist lobbying from all sides and remain credible.

62. ANIMAL WELFARE CONSIDERATIONS IN VERTEBRATE PEST CONTROL WHAT TO MEASURE AND HOW MUCH. Bruce. Warburton, Cheryl. O’Connor. Landcare Research Lincoln.

New Zealand has a number of introduced mammals all of which, to a greater or lesser extent, have become pests. The most serious of these pests is the brush tail possum (Trichosurus vulpecula) introduced from Australia. Possums have a significant negative impact on New Zealand’s indigenous vegetation and wildlife and, as a vector of bovine TB, play a significant role in the maintenance of the disease in beef, dairy and deer herds. To manage this pest problem various agencies, charged with the responsibility of protecting conservation values or animal health, carry out extensive control operations costing in excess of $NZ40 million per year. Although the animals killed in these control operations are pests, those involved in carrying out the operations are still obliged to select the most humane control methods possible. To determine what control methods are the most humane we have been testing a range of traps and toxins to identify those that might clearly be unacceptable, and to rank the remainder so those that
have the least welfare impact can be selected. Leg hold traps are used extensively for controlling possums and these devices cause both pain because of capture-related trauma, and distress because of the constraint. To test these traps a scoring system, as detailed in an ISO standard, has been developed, and traps can by ranked on the basis of any capture-related pathology. Capture stress can also be assessed by measuring a range of physiological parameters. The action of toxins is much more complex with each one having its specific toxic kinetics. Behavior, pathology and physiology can all be used to obtain relative indicators of welfare. We suggest in this paper that pest control tools can be ranked adequately using only one of the possible array of measures, and that intensive and expensive tests are not necessary to be able to make an assessment and therefore a big improvement to the welfare of a large number of pest animals.

63. THE WELFARE OF ANIMALS IN CROATIA'S ZAGORJE REGION., D. Stubican. Faculty of Veterinary Medicine University of Zagreb, Heinzelova 55, 10000 Zagreb, Croatia.

Croatia’s Zagorje region of northwestern Croatia territory is the unity of natural and farming husbandry cooperatives. Besides that, this unity is an ethnical, ethnological and ethnographic part with its characteristic and officially recognized Kajkavian language which is one dialect of the Croatian language in use. Tradition of animal husbandry has got its roots in the time of settlement of Croatia and has taken a very important place in many generations of people living there. Domestic animals are housed and handled according to the level of social structure and classes of breeders and their financial and economic possibilities for construction of stables depending also on configuration of the owners land. Through years the ways of animal housing and handling have been in connection with socio-economic changes depending on conditions of adaptation of previous stables to new necessities. Also, for these people the term “treasure” has had a special meaning, from ancient times to nowadays, to denote big domestic animals, since their possession meant wealth ensuring survival and better life. On the territory of town Krapina surroundings the fossils of Pleistocene animals and human bones were found as well as their tools. Near town Zlatar in place named Batina Donja a cattle fair in function was established in 1430. In addition, the work with horses has given the name to the place Konjscina (Horseplace) as well to their owners Counts Konszky. The breeding of asses, horses, pigs, cattle and poultry were wellknown for Paulist Fathers in Lepoglava whose monastery was organized in year 1400. Also in the town Varazdin in 1589 the first Butcher’s Guild was established to provide a better animal welfare. Roman remains in surroundings had the same significance. In addition, besides historical data of domestic animal breeding in this region, written documents about care and healing of these animals have been in use from medieval history and such so-called “Ljekarusa” and “Hiszna knisicza” are well known from the authors who had written them in Kajkavian language: e.g. Juraj Scrbacic (1687), Countess Josipa Orsic (1772), Count Franjo Orsic (1776), canon Baltazar Adam Krcelic (1778), Annonymus (1836), Aleks Vancas (1839), etc. Traditional crafts in Croatia’s Zagorje region are craftsmen for blacksmith’ signboard and gingerbread skills which also has given tribute to keep alive animal visions for the new generations. So till nowadays a feeling of high esteem of animal patrons such as St George, St Leonard, St Noburga and St Eloi has prevailed. In this region through history up to now all veterinary and agricultural education and literature with related legislation and ethical codex’s and statements including the law on animal welfare have been in use, as well as permanent development of animal breeding and care.
Using pheromone in the treatment of anxiety begins to be classical in cats and pigs. In these species, it appears that the clinical effects of the phenomenal treatment has a high efficacy and no side effects. In horses, fear reactions are very common and can be very dangerous for the horse and for the rider. Some very classical situations like transporting horses and the veterinary examination are very difficult and it is very dangerous with some horses to train them to stay quiet in such situations. We have studied the effects of E.A.P in horses that where not trained to go into a van. This study was comparing the behaviour of the horse and the heart frequency during this exercise. It was a crossing study: each animal was its own reference. The pheromone was included in a biodegradable granola looking resina. These granola were presented in a hay-bask tied up under the nose of the horse. Each horse was previously equipped with a heart frequency meter system. Comparison of the results with and without pheromones shows that the heart frequency of a horse treated with pheromone don’t increase until the horse is jumping in the van. The horse appeared to learn more easily with the pheromone, maybe because there was no emotional reaction. This study has shown that EAP was able to decrease fear reactions and was helpful in the learning process. The horses treated with the pheromone were more easily trained to go into the van.

The purpose of this paper is to provide an integrated view of relationships between animal welfare assessment, societal expectations regarding animal welfare standards, the need for regulation, and two ethical strategies for promoting animal welfare, emphasizing farm animals. The method was to explore ideas in relevant papers. Key insights are outlined and illustrated, where appropriate, by New Zealand experience with different facets of the welfare management of farm animals. The major conclusions are as follows. An animal’s welfare is good when its nutritional, environmental, health, behavioral and mental needs are met. Compromise may occur in one or more of these areas and is assessed by scientifically-informed best judgments using parameters validated by directed research and objective analysis in clinical and practical settings. There is a wide range of perceptions of what constitutes good and bad welfare in society, so that animal welfare standards cannot be left to individual preferences to determine. Rather, the promotion of animal welfare is seen as requiring central regulation, but managed in a way that allows for adjustments based on new scientific knowledge of animals’ needs and changing societal perceptions of what is acceptable and unacceptable treatment of animals. Concepts of “minimal welfare”, representing the threshold of cruelty, and “acceptable welfare”, representing higher, more acceptable standards than those that merely avoid cruelty, are outlined. They are relevant to economic analyses which deal with determinants of animal welfare standards based on financial costs and the desire of the public to feel broadly comfortable about the treatment of the animals that are used to serve their needs. Ethical strategies for promoting animal welfare can be divided broadly into the “gold standard” approach and the “incremental improvement” approach. The first defines the ideal that is to be required in a particular situation and will accept nothing less than that ideal, whereas the second aims to improve welfare in a step-wise fashion by setting a series of achievable goals, seeing each small advance as
worthwhile progress towards the same ideal. "Incremental improvement" is preferred. This also has application in veterinary practice where the professional commitment to maintain good welfare standards may at times conflict with financial constraints experienced by clients.


New Zealand’s heritage is closely bound up with farming and animals and both livestock agriculture and animal based research make a major contribution to national economic well-being. There is a wide range of views regarding animal use within New Zealand and, as a multi-cultural society, different cultures have different perspectives on the value and management of animals. Changing attitudes outside the country also have a strong influence on animal use practices domestically. Throughout the world, consumers and the general public have become more and more sensitive to the ways in which animals are used in research and raised for food and fiber. The boundary between acceptable and unacceptable behavior in the treatment of animals is constantly shifting. Ultimately, the consensus of societal values shapes the rules to protect animals from pain and suffering. The legislator’s task is to ensure that the rules will keep behavior within the bounds of acceptability and promote a positive approach to animal use and ethical responsibility. In the early 1980s, a decision was taken to establish a broadly based National Animal Ethics Advisory Committee. This committee has played a vital role in the effective implementation of Animal Ethics Committee based legislation and in advising the responsible Minister on specific issues concerning the use of live animals in research, testing and teaching. The NZ veterinary profession has played a key role in the work of the national committee. A second broadly based independent ministerial advisory committee, the Animal Welfare Advisory Committee, was established in the late 1980s and has played a similar role regarding the use of animals in agriculture and recreation, and in addressing issues such as welfare aspects of vertebrate pest control and live animal exports. The committee facilitated the production of 21 voluntary codes of practice over a 10 year period and again veterinary involvement has been essential to the success of the committee. In the New Zealand context, the two independent national committees, complemented by Codes of Welfare and Animal Ethics Committee based legislation, have demonstrated the importance of "buy in" and "ownership" by affected parties, when implementing incremental change. This approach is particularly applicable to the complex public policy issues associated with animal welfare. The veterinary input to the national animal welfare infrastructure established in New Zealand over a relatively short timeframe, plus an established culture of consultation and societal involvement and duty of care based new legislation (the Animal Welfare Act 1999), puts New Zealand society and New Zealand veterinarians in a strong position to address the animal welfare challenges of the 21st century.

67. ALTERNATIVE METHOD OF CATTLE STUNNING. IS IT A NECESSITY? S. Ramantantis. Department of Food Technology, Technological Educational Institution (T.E.I.) of Athens, Agiou Spyridonos Str., 122 10 Egaleo, Athens, Greece.

Due to concerns about a link between variant Creutzfeldt-Jakob disease in humans and similar prion protein-induced disease in cattle, i.e., bovine spongiform encephalopathy (BSE), strict controls are in place to exclude BSE-positive animals and/or specified risk materials including bovine central nervous
system tissue from the human food chain. Captive bolt stunning is widely used for cattle. Explosive cartridges and compressed air have been used to drive bolts through the skull of cattle. Where slaughter lines move fast, the use of the cartridge driven pistol causes unacceptable delay. To overcome these difficulties the pneumatic stunner has been devised. A version of the pneumatic stunner with hollow bolt injects, after the bolt has been shot into the head, highly compressed air in the cranial cavity, largely destroying the brain and sometimes the spinal cord. This makes unnecessary the pitting. The entrance of the bolt into the cranial cavity results in massive brain tissue damage with bleeding and, in some cases brain tissue emerges from the hole made by bolt. Irrespective of the type of penetrative stunning, if brain particles are disseminated in the blood, the tissues and organs likely to be contaminated with the risk material, in decreasing order of risk are blood, pulmonary arteries, lung, right atrium and ventricle of the heart. The level of risk will vary according to the specific equipment used, the depth and velocity of penetration, the amount of brain material damaged, the location of the stun, the possibility of the re-stunning etc. The ranking order of stunning methods in terms of decreasing risk for causing contamination is: 1. Pneumatic stunner that injects air. 2. Pneumatic stunner that does not injects air. 3. Captive bolt stunner with pitting. 4. Captive bolt stunner without pitting. Negligible or absent risk can be expected from: Non-penetrative stunner and cardiac arrest stunning. Since 1998 the German Federal Institute for Health Protection of Consumers and Veterinary Medicine has repeatedly proposed, in regions where the BSE is present, the imminent replacement of the penetrative stunning method with the cardiac arrest stunning, so that the transfer of risk material could be avoided. Since the summer 2001 the first cardiac arrest stunning equipment has been operational in the continental Europe. A description of the equipment is presented, which specifications are in accordance with the German regulations on the protection of animals at slaughter [minimum 2.5 A, for at least 8?, induction of cardiac fibrillation in cattle over 6 months old]. Furthermore, a description of similar equipment is presented, according to the UK regulations. A critical discussion about the abovementioned equipment is held.


To compare the efficacy of a synthetic analogue of the Equine Appeasing Pheromone versus placebo in a standardised fear-eliciting situation. Design: The trial was a double-blind, randomised and monocentric trial. Animals: 51 horses, classified by sexe, race and reactive ness were randomly assessed to three groups. Procedure: All three groups (one placebo-group and two pheromone-groups) received a nasal treatment spray. The two pheromone groups differ from one another on the nature of the preservative. The fear eliciting situation consists in an obstacle (a cover) the horse must go through to return to its penmates. The design of the test defines five sections: 1. Cardiac frequency will be quantified by the use of a heart rate monitor placed on the horse by a holter. This equipment is prepared when the horse is in his box.2. Then, the horse is led to a neutral point Ç A é of the stable for two minutes.3. The horse is then led outside, to a place Ç B é located nearly 20 meters from the obstacle.4. The horse stay at Ç B é two minutes.5. The horse is led through the obstacle by the owner. After 150 unsuccessful seconds, a helper intervenes with a long whip. If more needed, the cover is folded away. After 240 seconds, time limit is reached, and the test is called off. The comparison of efficacy was assessed by scoring the time needed to enter, tacking into account the need to help the horse and the exceeding time-limit. Results: The two pheromone groups have a significatively best score than the placebo group (U-Mann-Whitney : respectively n=34 ; p=0,01 and n=34 ; p=0,001). Conclusions and clinical relevance: These results suggest that use of synthetic Equine Appeasing Pheromone may reduce behavioural signs of fear and improves welfare of horses.
Russell and Burch’s Three Rs (reduce, replace, refine) provide the framework for reducing animal pain and distress in biomedical research. Replacement has, perhaps, gained the most attention because activist groups targeted toxicity testing in animals. However, toxicity testing represents only a small percentage of research involving animals. Refinement, on the other hand, has the greatest potential to reduce animal distress and/or pain due to experimental procedures and frequently reduces the number of animals used. The assessment of pain has been extensively reviewed. Traditionally, good experimental design defined the variables of interest. All remaining parameters remained the same in order to isolate and assess the specific variable(s) of interest. With the advent of genetically-altered animals, the scientist often cannot identify all parameters that may be affected by genetic manipulation — both intended and unintended effects. Although unintended consequences from genetic manipulation (either physiological, psychological, or both) affect the scientific data collected, the nature of the experiment does not allow complete avoidance of unintended consequences. If avoidance of unintended consequences is impossible, then careful monitoring and assessment of animal health and welfare are necessary with these animals, beginning at birth. The challenge is to select parameters easily monitored that will, with sufficient accuracy, provide information about the health and welfare of genetically-altered animals. With such strategies, the veterinary staff may assist the scientist in minimizing consequences of physical and psychological responses from the norm. Such strategies represent another measure of study refinement that will result in other benefits such as strengthening the scientific data (less inter-animal variability). In addition, these strategies, if successful, should also lead to reduction in numbers of animals used because animal morbidity and/or morbidity usually lead to greater numbers of animals needed to reach the scientific objective.

We study the development of the interactions in 5 litters of puppies from 4 to 7 weeks old (31 subjects). Fifteen minutes a week of recordings videos are analyzed per litter. By week and by puppy, the frequencies of 16 behavioral variables are counted: II=to introduce an interaction, EI=to end an interaction, HO=to put the head on another puppy, PO=to put a paw on, SIT=to be sitting, STD=to be standing, LB=to lie down on the back, LS=to lie down on the side, OVER=to overhang another puppy, PL=to invite to play, P=to pursue, KNK=to knock against, CLM=to rock-climb, BB=to bite the body, BM=to bite the muzzle, BE=to end the interaction with a bite.

A cluster analysis reveals three groups of variables: Group 1 with weak frequency of appearance (CLM, HO, P, KNK, PL, BE); Group 2 with intermediate frequency of appearance (SIT, LS, LB, OVER) and Group 3 with high frequencies of appearance (II, STD, BB, PO, EI, BM). A new variable is calculated per Group and called Mean. An Anova [puppies (Litter*Sex)*Week*Mean] shows an effect of the Litter and Mean factors (p<0.001). There is no Sex effect (p=0.1261) nor Week effect (p=0.1526). There are
interactions Litter x Week (p<0.05), Litter x Mean (p<0.01) and Week x Mean (p<0.05). Groups 1 and 3 consist of variables which are a part of dominance signals observed to adult dogs. The number of interactions between puppies depends on the litter to which animals belong (Litter effect). Altogether, it doesn’t vary during time (absence of Week effect) and doesn’t depend on sex of the animals. The Anova interactions put in evidence the combined effects of the used factors and illustrate the variability of the behavioral measures realized in this work.

71. OBSERVATION SUR L’ADAPTATION DES AUTRUCHONS À UNE CONDUITE EN ENCLOS INDIVIDUELS. S. Kennou Sebei1, R. Bergaoui2, O. Souilem2. 1Département des Productions Animales, ESA Mograne; Tunisie. 2Département des Sciences de la Production Animale et de la Pêche, INAT. Laboratoire de Physiologie-Thérapeutique, ENMV Sidi Thabet.

A l’état naturel les autruches (struthio camelus) vivent en groupe de quatre ou cinq mâles accompagnés des femelles et de leurs jeunes. Les autruchons sont élevés, éduqués et protégés par les parents jusqu’à l’âge de 9-10 mois. Le comité permanent de la convention européenne des animaux dans les élevages, recommande aux éleveurs de ratites d’avoir des contacts rapprochés avec les animaux, en particuliers lorsque les oiseaux sont jeunes, et de prolonger cette pratique pendant toute la vie des animaux. Dans les conditions d’expérimentation, les animaux peuvent être mis dans des situations inappropriées à leurs exigences naturelles de bien-être se traduisant par des perturbations pouvant conduire à la mortalité. L’objectif de ce travail est d’identifier d’éventuelles perturbations comportementales induites par la mise en place en enclos individuels chez l’autruchon. A l’occasion d’une étude sur la croissance et l’alimentation, 10 autruchons âgés de 4 mois ont été transférés d’un enclos collectif à des enclos individuels. Cette opération s’est accompagné d’un ensemble de perturbations comportementales et physiologiques qui a pris plus de deux mois pour disparaître. En effet, les quatre premières semaines ont été marquées par les observations suivantes : incessantes tentatives de franchissement de la barrière grillagée, perturbations alimentaires touchant le rythme d’ingestion, le niveau de consommation et le transit digestif, coprophagie accentuée, émission fréquente de cris, grande agitation au moindre bruit, décès de quatre sujets. Ces signes se sont progressivement amoindris à la suite de la révision de certains aspects du protocole expérimental, de la consolidation du grillage des enclos et de l’intensification des soins et des contacts directs avec les animaux. L’ensemble de ces observations confirme l’importance des soins individuels qu’il faut apporter aux autruchons pour réduire leur angoisse et faciliter leur adaptation à tout changement des conditions d’élevage.


A study was carried out to investigate the metabolic, hormonal and immunological responses induced in sheep by a road transport. The animals (n 20 adults) were rounded up and loaded onto a vehicle where they were held in a common pen. When animals were loaded, they were taken on a journey lasting 5 hours. Blood samples were collected the day before the transport (basal values), just before loading animals onto vehicle (starting of the journey) and immediately after the unloading. Measurements were made of serum concentrations of Cortisol, AS T, CPK, LDH, N EFA, T3, T4, Na, K, lysozyme and serum
bactericidy. Haematocrit, lymphocytes and granulocytes were determined. The journey produced large increases in cortisol, CPK, NEFA and potassium (K) concentration. The journey did not markedly affect haematocrit percentage, but we noticed a consistent increase of granulocytes amount whereas lymphocytes resulted decreased.


The effect of transportation stress on the haematological parameters of 20 male calves (16 Holstein - Friesian and 4 crossbred), 4 - 10 months old and average in weight of 160 Kg was studied. The calves were healthy with no history of any serious diseases. During a period of 42 days experiment, the calves were kept indoors and fed alfalfa hay and corn silage ad libitum. After a period of adaptation, on day 21, the first blood samples were taken from all calves in order to have baseline data. Then the calves were divided into three groups:

Control group 1 (5 calves) which kept at stable and had free access to food and water during a 12-hour period of transportation of the experimental group. 2- Control group 2 (5 calves) which stayed at stable but were kept deprived of food and water at the same time. 3- Experimental group (10 calves) which were transported and deprived of food and water too.

On day 26 when transportation began, blood samples were obtained simultaneously from all groups at 0, 1, 3, 6, and 12 hours of transportation. On day 27 blood samples were taken from the experimental group and both control groups. Then on days 31 and 42, blood samples were taken from both experimental and control group2. Haematological examination of blood samples revealed that number of R.B.C., W.B.C., neutrophils, and levels of cortisol and P.C.V significantly increased, but lymphocytes and monocytes significantly decreased in the experimental group compared with the control groups (1&2) on the day of transportation (P<0.05).

74. THE EFFECTS OF STOCK CRATE DESIGN AND STOCKING DENSITY ON ENVIRONMENTAL CONDITIONS FOR LAMBS ON ROAD TRANSPORT VEHICLES. A.D. Fisher¹, J.D. Edwards², M. Stewart¹, J. Tacon³, L.R. Matthews⁴.¹ AgResearch, Private Bag 3123, Hamilton, New Zealand. ²MAF Biosecurity Authority, PO Box 2526, Wellington, New Zealand. ³RD1, Kaiapoi, New Zealand

The aim of the study was to evaluate the potential of variations in crate design (especially ventilation) and stocking density for reducing the risk of environmental stress for lambs during long-haul road transport in hot weather. In Experiment 1, lambs were transported on vehicles fitted with either a newer design, aluminum alloy crate comprising a 3-deck truck and 4-deck trailer, or an older, more ventilated steel crate of a 3-deck truck and 3-deck trailer. In Experiment 2, lambs were transported on newer design vehicles at either standard practice stocking density (0.20 m² per 35 kg lamb) or at a 20% lower density. In each experiment, each journey was replicated twice and consisted of travel periods and stationary periods designed to emulate conditions associated with a roll-on/roll-off ferry journey. Air ammonia concentrations and temperature and humidity were monitored within 6 pens on each vehicle, and the temperature-humidity index (THI) was calculated. Ammonia concentrations were variable, and were
generally less than 50 ppm, with no consistent trends with treatment. The THI increased when the vehicles were stationary, especially under conditions designed to emulate an enclosed ferry deck. The ambient climatic conditions during Experiment 1 were not very warm (up to 21°C), although there was evidence that THI was slightly lower in the older design crate. High ambient temperatures (up to 33°C) were present during Experiment 2, and THI was significantly lower at low density loading. During a 3-hr stationary period, the peak THI at standard practice stocking density was 91.0, compared with 84.9 for the low density treatment (P < 0.001). For a standard type of lamb transport vehicle, a strategy such as lowered loading density may be of considerable benefit in alleviating conditions that increase the risk of lamb deaths during transport on hot days.

III.2. PAIN MANAGEMENT & ETHICS


La pensée éthique prend son origine dans l’Ancien testament où l’on y enseigne que les êtres humains ont le devoir d’agir de façon responsable envers la création de Dieu. L’expérimentation animale et la pensée éthique ont ensuite évolué au fil des siècles sous l’influence d’un grand nombre de courants philosophiques. Le nombre d’animaux utilisés en recherche ayant augmenté de façon exponentielle au cours du xxᵉ siècle, et plus spécifiquement au cours des trente à quarante dernières années, plusieurs pays industrialisés ont mis en place des systèmes de surveillance relatifs à l’utilisation des animaux en recherche, en enseignement et pour les tests. Ceux-ci sont basés sur l’implantation et le fonctionnement de Comités d’éthique institutionnels ou nationaux dont le rôle et les responsabilités feront l’objet de cette conférence.

76. LA THERAPIE XENOGENIQUE CHEZ L’HOMME ET LES ENGEUX ETHIQUE. B. Hamza. B.P 74-Institut Pasteur de Tunis-1002 TUNIS Belvedere.

La thérapie par substitution d’organes humains s’est progressivement intégrée au système de santé publique, en raison des résultats obtenus, la survie et la réhabilitation au sein de la famille et de la société. Cependant l’écart s’accroît entre les besoins et l’offre d’organes à prélever amenant ainsi le décès ou la détérioration de l’état du patient et les chances de succès. Aussi, a-t-on envisagé de s’affranchir dans une certaine mesure de l’utilisation du corps humain et de recourir à l’organe animal en particulier à la thérapie xénogénique. Indépendamment des risques infectieux de transmission de maladies dues à des micro-organismes qui franchissent les barrières entre espèces et qui peuvent réaliser des pandémies, la thérapie xénogénique comporte des questions éthiques qui méritent réflexions avant l’application pratique et qui se situent au plan de l’animal, du médecin de l’acceptabilité par le malade et la société. L’auteur se propose de développer ces interrogations. Néanmoins dans l’état de connaissances sur la thérapie xénogénique chez l’homme, l’exigence éthique est de développer la recherche dans ce domaine, de ne pas antérioriser les évolutions pour ne pas risquer de démobiliser les voies du don d’organes humains, qui devra rester un don de vie et de solidarité et d’explorer d’autres voies ou des alternatives comme sur les cellules souches embryonnaires et les cellules souches adultes considérées comme des cellules de l’espérance pour pallier au déficit d’organes humains.
77. GESTION DE LA DOULEUR CHEZ LES ANIMAUX DOMESTIQUES. O. Souilem.  
Laboratoire de Physiologie, Pharmacologie. Ecole Nationale de Médecine Vétérinaire. 2020 Sidi Thabet, Tunisie.

La reconnaissance de la souffrance animale par la communauté scientifique et la prise de conscience des conséquences néfastes de la douleur sur l’organisme animal ont permis progressivement de proposer une stratégie pour s’opposer à la douleur. En effet la « neutralisation » de la douleur permet à l’animal de retrouver plus facilement son état homéostatique et une récupération plus rapide à la fin du traitement. De plus, le blocage du phénomène nociceptif améliore l’état de bien être animal et les conditions du travail du vétérinaire. L’analgésie est de plus en plus considérée par le vétérinaire praticien comme une intervention thérapeutique à part entière tout en la distinguant de l’anesthésie et de la sédation.

La gestion de la douleur repose surtout sur l’utilisation de moyens pharmacologiques. Deux concepts d’analgésie méritent d’être discutés : L’analgésie préventive qui se base sur la maîtrise du « risque de la douleur ». Elle est pratiquée surtout dans un cadre chirurgical.- L’analgésie balancée ou à toxicité dispersée qui repose sur la combinaison de plusieurs agents pharmacologiques ou de techniques analgésiques différentes afin de bénéficier d’un effet synergique et de diminuer les effets indésirables.

De nos jours, les principales molécules utilisées sont : les morphiniques (analgésiques centraux), les anti-inflammatoires non stéroïdiens (AINS), les sédatifs analgésiques non morphiniques et les anesthésiques locaux. Les morphiniques restent actuellement les molécules les plus efficaces et les plus employées malgré leurs effets indésirables et la difficulté de les procurer. Ces effets secondaires sont mieux contrôlés lorsque les opiacés sont associés aux AINS ou à d’autres molécules (alpha 2 agonistes, anesthésie locorégionale). Pour chaque espèce animale, le choix du protocole analgésique sera discuté en fonction de la nature de la douleur, de son degré et de son origine. Les différentes contraintes pratiques seront analysées.

78. PRISE EN CHARGE DE LA DOULEUR CANCÉREUSE CHEZ L’HOMME. S. Amara Schleith. 110, Avenue de la liberté, Tunis, Tunisie.

Nous pourrions privilégier W1 des aspects de la douleur cancéreuse selon ce que vous jugeriez d’un intérêt paniculier en médecine vétérinaire. La douleur est le symptôme le plus fréquent au cours de la maladie cancéreuse : 700/0 des malades atteints de cancer souffrent d’une ou de plusieurs douleurs au cours de l’évolution de leur maladie. Elle est rarement révélatrice du cancer mais elle marque son évolution. La douleur cancéreuse est caractérisée par son mode évolutif comme une douleur aiguë qui se renouvelle, par son mécanisme physiopathologique comme une douleur le plus souvent mixte, nociceptive et neuropathique, par son retentissement émotionnel comme une sensation créatrice d’anxiété et de dépression. En effet, la douleur a une valeur “marqueur” au cours de la maladie cancéreuse. elle est souvent le premier signe d’aggravation ou de rechute de la maladie avant que 005 moyens actuels de diagnostic puissent le décélérer. Les douleurs les plus sévères se traduisent par des stigmates inscrits dans le corps. réactions de défense, émotion, économise le geste et de la mimique allant jusqu’à l’atonie psychomotrice. L’évaluation de la douleur fait appel à des outils utilisant la communication verbale, le dessin et l’observation comportementale. L’examen clinique permet de délimiter l’origine topographique et contrite à différencier le mécanisme physiopathologique : douleur nociceptive et douleur neuropathique. Le traitement approprié permet un soulagement souvent complet de la douleur nociceptive et une nette amélioration de la composante neuropathique en fait appel aux antalgiques des 3 paliers de l’OMS,
aux co analgésiques (corticoides, antidépresseurs tricycliques, anti-épileptiques), à la radiothérapie et à différentes techniques neurochirurgicales.


Suite à la présentation du Dr Demers en session d’ouverture (keynote speaker) sur le thème : “L’éthique: concept en constante évolution.”, le Dr Demers discutera plus spécifiquement dans cette présentation orale, du rôle et des responsabilités des Comités d’éthique à l’égard de la révision des protocoles impliquant l’utilisation d’animaux. Les principaux éléments qui devraient être présents dans un formulaire de protocole d’utilisation des animaux seront discutés. Le concept des 3 ‘‘R’’ de Russell and Burch à savoir la Réduction, le Raffinement et le Remplacement sera mis en évidence. Le mérite scientifique et la mise en place de points limites expérimentaux seront aussi discutés. En conclusion, l’importance d’harmoniser le processus d’évaluation des protocoles impliquant des animaux sera discuté.

80. TECHNOLOGICAL ADVANCES THAT ENHANCE VETERINARY ANATOMY TEACHING. S D. Alexander. Institute for Veterinary, Animal and Biomedical Sciences. Massey University, Palmerston North, New Zealand.

The inventions that have progressively contributed to education have never offered opportunities as vast as in the digital era, even though this is still scarcely 25 years old. In this time, digital handling of data led first to text processing, bitmap and vector graphics, and now digital sound and movies. As these advanced, the storage methods became larger, faster, easier and cheaper. The acceleration of technology into teaching has happened to such an extent that the standard of most teaching aids now available is well below what can currently be achieved. We are confronted with unparalleled potential for applying the principles of reduction, refinement and replacement of animals in education. Not only are the visual teaching aids improved by digitising, but also are the ease, high speed, and low cost of creation, editing, copying, distribution and access all aspects of the new era. Several examples will be given, including access to interactive panoramic movies, animated sequences to explain difficult concepts, on-line tutorials, and image databases using digital photography, radiography and other diagnostic methods, as well as the production of desk-top movies. The speed of technical advance brings its own problems, but the challenges and possibilities for developing viable alternatives to the use of animals in teaching are vast.

81. THE MEANS TO HAVE AN ETHICAL INTERACTION BETWEEN VETERINARY PROFESSION AND PUBLIC OPINION. Santori, P. the bioethical committee for veterinary medicine, Italy).

The Veterinary Bioethical Committee was formed in 1997 as an emanation of the College of Veterinary Surgeons of the Province of Rome. This initiative was taken as a response to the need, widely felt inside the veterinary profession, to constitute a suitable forum for a diversified and multidisciplinary discussion on the themes concerning human relationship with animals. One of the main functions of the Committee is to debate, within a broader context, the problems that veterinary surgeons often have to face alone, and to compare professional experience with other social actors, who may be equally involved in the same problems, but are characterized by a different professional experiences and a different operational context.
The Committee sees itself as an observatory and a laboratory of study, with the main objective to sensitive civil society to the ethical problems stemming from the way in which we relate ourselves to the animal world. The Committee has given itself a multidisciplinary structure: its membership comprises veterinary surgeons, philosophers, theologists, ethologists, jurists, anthropologists, pedagogists, animal rights activists, breeders, consumer association’s representatives, journalists and economists. The Committee has faculty to invite to take part in its work other experts on the themes debated. This pluralism of expertise is meant to correspond to a real pluralism of values: in the committee there are widely different, even antithetic moral positions concerning human relationship with animals. The Committee *modus operandi* has been eminently practical, giving consideration to specific problematic cases, from an ethical point of view, with the purpose of providing tools for the sensitisation of the civil society and showing possible ways for the elimination or the reduction of conflicts. The Committee thought that the most suitable approach was not to put the emphasis on theoretical issues but rather to debate practical issues and to allow the theoretical aspects to come thus to surface. Personal convictions and theoretical principles are on purpose given a back seat so as to make possible the dialogue between different positions, to stimulate attention to different points of view and to identify possible consensus among people with very different ethical paradigms. Operationally the Committee has adopted the following work procedure: it assembles once or twice a month, selects subjects to be discussed in plenary meetings, and as it may be required, arranges for outside expertise, and institutes study groups, which then report to the Committee. At the conclusion of this process the Committee elaborates a document which is approved by the plenary (annexes include different opinions, technical reports and bibliography). Till to now the Committee has produced three documents. The first, concerning the problem of the transport of animals, starting from the endorsement by Italy of the European directive 95/29 and suggesting possible strategies of improvement of the sector in order to provide a greater tutelage of animal welfare during transport. The second document regards the procedures for decision-making in veterinary clinical practice. Starting from the debate on the so-called “informed consent” in veterinary medicine, the Committee has debated on the deontological and ethical aspects of veterinary profession. Its conclusion stressed the need to introduce innovative elements to heighten the attention to animal welfare in general and the sensitisation of the users in particular. The document does moreover supply some practical advices to facilitate this aim. The third document examines the ethical problem instigated by the killing, at various title, of animals. Also in this case the reflection of general and theoretical character, though present, the Committee has privileged the research of practical ways to attenuate the conflicts between the wide range of diverging opinions. The Committee has elaborated a generally acceptable scheme which can be used to evaluate the various forms of animal killings. Now the Committee is dealing with ethical aspects of slaughtering.

82. ETHICAL CODES FOR VETERINARY SURGEONS IN ITALY AND TUNISIA: A COMPARISON BETWEEN TWO COUNTRIES. A. Passantino¹, C. Di Pietro¹, C. Fenga², M. Venza¹, M. Passantino¹. ¹Dipartimento di Medicina e Farmacologia Veterinaria - Università degli Studi di Messina - Via S. Cecilia, 30 - 98123 Messina. ²Dottore di Ricerca in “Normative dei Paesi della CEE relative al benessere e protezione animale”.

An ethical code contains a set of rules of behaviour, relative to law, ethics and practice with which veterinary surgeons must comply. Specific norms may vary from country to country, thus, something which is considered ethically correct in one country may not be so in another. Dealing therefore with
provisions issued by individuals formed by very different cultural, historical, ethical and juridical backgrounds, there cannot but be substantial differences in the formulation of regulations and principles. In the light of such considerations, the authors thought it might be interesting to draw a detailed comparison between the ethical code currently in force in Italy, approved by the National Council of the Federation of Italian Veterinary Surgeons Association, 3rd April 1993, and the code currently in force in Tunisia, passed by order of Decree No. 2000-254, 31st Jan 2000.

83. EUTHANASIA OF SMALL PETS: IMPLICATIONS IN ETHICS AND HEALTH IN ITALY. C. Fenga, A. Passantino, M. Venza, M. Passantino. Dipartimento di Medicina e Farmacologia Veterinaria - Università degli Studi di Messina - Via S. Cecilia, 30 - 98123 Messina.

In the present legal situation in Italy, the conditions under which euthanasia of small pets is justified are only partly regulated by Law no. 281/91, art. 2 no.6 and 9 and by the later Ministry Circular March 10 1992, no.9. Law no. 281/91, besides delegating the job of birth control in cat and dog populations to the regions, has made it statutory that stray dogs may only be euthanised when they are“seriously or incurably ill or proved to be dangerous”. The Ministry Circular underlines the fact that“euthanasia of dogs in prohibited except in special justified cases”. On the other hand, in the case of animals with owners, the owner has the“ius vitae ac necis” over his animal so a request for euthanasia is licit, whatever the animal’s state of health may be. The authors feel that further legislation to regulate the question more completely would be appropriate and so they analyse the problems of ethics and public health that a veterinarian faces when carrying out euthanasia, also bearing in mind the codes of professional ethics. They suggest possible solutions which could be adopted by the competent authorities.

84. PETS BEHAVIOR DURING FOUR YEARS OF SARAJEVO SIEGE. M. Skandro; J. Ferizbegovic; Z. Hadziomerovic; M. Kadic, A. Kustura, T. Goletic, E. Rsidbegovic. (Bosnia-H).

War brings suffering and traumas not only to people, but to innocent animals as well. The paper lists results of direct observational researches of pets, that is, cats and dogs. Animals were observed during various parts of the day, before, during and after shelling. Circumstances were noted in which certain actions happened, and written verbal description was used as behaviour recording method. Behaviour is described in the terms of animals' posture and movements. Consequences were manifested by animals' behaviour effects on surroundings, on other animals, on the animal itself or on the owner. Behaviour was also described after conversations with owners of the animals, which were hospitalised in Sarajevo Veterinary Faculty Clinics. The largest number of animals (cats and dogs) showed fear and anxiety before the shelling, and deep depression and shock after the shelling.

85. A REVIEW OVER THE LAST 40 YEARS OF BEHAVIOURAL TESTS IN DOGS. C. Diederich, J. M.Giffroy. Facultés Universitaires Notre-Dame de la Paix, Département de Médecine Vétérinaire, Laboratoire d'Anatomie et d'Ethologie des Animaux Domestiques, 6, rue Muzet, 5000 Namur, Belgium.
Standardized experimental situations are used to determine the temperament of a dog thanks to its behavioral answers (movements, postures, vocalizations) that are statistically compared with those of other dogs placed in the same situations, what allows to classify the tested animal. A bibliographical review enlightens us on the test quality criteria as they are applied in experimental researches (standardization, reliability, sensitivity, internal and external validity), the choice of races (according to physical and behavioral characteristics), the ages of the animal tested and the stimuli used to test puppies or adult dogs (social and environmental stimuli). This analysis puts in evidence a huge lack of uniformity as regards the purposes pursued by the authors, the characteristics of the stimulus employed, the behavioral data and their interpretation. Behavioral tests on puppies try to predict their adult behavior: absence of behavioral problems (aggression, fear, separation anxiety,...) or training ability (guide-dog for the blind, police dog). Behavioral tests on adult dogs concern especially the study and the parents’ selection for breeding to produce pets or working dogs. Some of them try to select dogs in shelters to reintroduce them as pets or more recently, as service animals. Results are more encouraging than to the puppy.
Monogenea class is the most common parasite in fishes which has involved most of cultured fishes in Iran and in the world. Most of monogenea are, specifically, parasite of some species of fishes and own a high host specificity. The new research is a project done in order to prepare some informations on different kinds of monogenea parasite of wild fishes living in Sepidroud river in Guilan from the back part area of the Sangar dam and the left branch canal branching out of the dam (that irrigates extensive part of the tenteraI and western area of the province) to international Anzali pondage (that is the final destination of the canal) and also it irrigates fish culture ponds that are located in the path of this canal. It’s important to note that more than fifty percent of these harm water pond fishes live in the Sepidroud river which is Guilan’s longest river and it is part of the ecological system known as”ponto-Aralo-caspian”. During thirteen month from July, 1998 to August, 1999 in 27 sampling times that were done from six station, 367 fishes with 16 different spices were examined including 283 cultured fishes and 84 1 wild fishes. The process was done in a way that after the preying and delivering it in alive to condition laboratory, a wet mount of gill was supplied and after observing the parasite and primary diagnosis in order to find out its species it was taken from gill lamella by use of special niddles and then it was transfered on a clean slide by pasteur pipette and by use of special method (Ammonium picrate method) samples were fixed and provided in order to take photographs and to draw the parasites’ copulatory organ and opisthaptor by camera lucida microscop then, parasitologists identified the provided species of parasites. Consequently, five family monogenea from two sub classes mono pisthocotyle and polyopisthocotylea including five Genus and eighteen species were indentified. In this study the genus ligophorus with two unrecognized species Lspl & Lsp2 and two species. of D. wunderi & D.achmerowi were reported for the flTst time and, were presented as the new species of parasitic fauna in Iran. Meanwhile, two unrecognized species for diagnosis were sent to Hungary scientific academy. The recent research says although the monogene parasites are l, specified for different species of fishes, some species are common in \, some parasites for example D.anchoratus that is provided eigher from the cyprinus carpio or carassius auratus gibelio (which is a kind of wild fish), is a proof to transfer the monogene parasites from the wild fishes to the cultured fishes.

One of the important infectious diseases of cultured fish such as cultured rainbow trout of the world is Streptococcosis enterococcosis that recently has been diagnosed in Iran. Streptococcosis causes economic losses to fish culture especially during warm seasons and happens in acute form with or without clinical signs. Blackening, bilateral exophthalmia mainly with hemorrhage and hemorrhages in the internal organs are major clinical signs of the disease. The bacteria was biochemically identified and compared with the known Streptococcus iniae (with 95.5% similarity) and Enterococcus seriolicida (with
Eradication of the disease is preferred over use of antibiotics. For this 3 groups of 100 (95 g mean weight) rainbow trout (Oncorhynchus mykiss) in each were vaccinated intraperitoneally with formalin killed, heat killed cells with 10 with super script of 7 cells and control fish were injected only by saline. All fish including control were challenged with 10 superscript of 2 of the pathogenic bacteria (LD 50 of 60% in control). Relative percent of survival of formalin killed immunised fish was 89% whereas that of heated killed vaccine in the other group was 75%. In this paper the importance of the disease and its eradication with regard of the superiority of formalised vaccine is discussed.

88. IMMUNIZATION OF FISH (Cyprinus carpio) AGAINST INFECTON WITH AEROMONAS HYDROPHILA. S. ABDL AZEZ, M. N. AL OBADI. Department of pathology and poultry disease, University of Baghdad, collage of vet medicine, Alamria, Baghdad, Iraq.

The study was conducted to investigate the pathogeneses of Aeromonas hydrophila which was isolated from many infected cases of the fish common carp (Cyprinus carpio) and also to evaluate the immune response against prepared killed antigen of this organism. The antigen was killed by formalin and was injected into fish intramuscular (IM) in three concentrations (1010, 109 and 108) cell/ml. Also hypersmotic infiltration (HI) was also carried out. All concentrations of antigen have the ability to stimulate the humoral immunity but in different values as there were significant differences in (IM) an (HI) injected fish pre and post immunization with the antigen whereas there were no significant differences in the control. After (35) days of injection the antibody mean value was (198 ±55.2) for the (IM) injected group with the concentration (1010) cell/ml and (41.6±6.4) for the group treated by (HI) with the concentration (1010) cell/ml compared with the other group and the control and the significant value was on the (P < 0.05) level. Challenge was carried out to evaluate the protective ability of the antigen, giving 100LD50. The percentage of protection was (90%) in the (IM) injected group with the concentration of (1010) cell/ml and (50%) in the (HI) group with the concentrations of (1010) and (109) cell/ml.

89. RELATIVE IMPACT OF METAL ION CONTAMINATION ON FUNCTIONAL CAPACITY OF GILL CELLS IN CARP (Cyprinus carpio L.). M. Arabi, M. S. Heydarnejad. Department of Biology, Shahrekord University, Shahrekord-88186, POB 115, Iran.

The metal ions are commonly used to combat algalblooms, phytoplanktons and aquatic weeds in water media. The extent of cellular damage was investigated after in vitro addition of metal ions Viz. Copper sulphate and mercuric chloride in various concentrations 300-3000 micromolar to gill cell preparation of freshwater Fish Carp. The objectives of current investigation were to determine the influences of these metal ions on the levels of TBA-RS/Lipoperoxidation (LPO) and reduced glutathione (GSH), also to evaluate the role of BSA & DMSO as two scavengers of reactive oxygen species (ROS) to encounter the relative processes. The outcomes of this report are: 1) Copper and mercury augmented the rate of LPO dose-dependently (r = + 0.995 and r = +0.993,  p < 0.001; respectively). 2) The GSH content was marginally affected (r = -0.787 and r = -0.844,  p < 0.05; respectively). 3) Depleting of GSH molecules by copper had a wider range than mercury. 4) In the highest concentration of metal ions, both DMSO and 1.0% BSA showed a pro-oxidative potential to elevate the levels of TBA-RS (p< 0.001) and damage to fatty acid chains in gill cells. Collectively, these findings indicate that copper and mercury have deleterious influences on membrane integrity and defence system in Carp gill cells, a dose-dependent manner, towards dysfunction and cells death.
The histological exam of 6 samples of clams taken along a period of one year in two sites of production in the lagoon of Bizerte: Faroua and Menzel Jemil, revealed the presence of protozoa: Perkinsus atlanticus and Ciliates, metacercairiae and rickettsies in variable prevalencia. Although the parasite: Perkinsus atlanticus, is not considered an agent of notifiable bivalve’s diseases, its study proves to be necessary because in certain conditions, it could cause losses in the live-stock. For a similar period of sampling, its prevalencia is different in both sites. This probably suggests the intervention of in situ factors in the clams infestation.

Histological examination of cuts of oyster gill collected from various medium marine sites has revealed a parasite attached or located near the epithelium. This ectoparasite, belonging to the cilia group is identified as a peritrichous protozoa belonging to the Trichodina genus. It has discoïdal shaped form around 60µm in diameter and 25 to 30µm in height. Prevalence of Trichodina sp. parasite varied widely among the samples studied, depending on the season and site. The heavily infested oysters occurred at one of the more polluted site. Histopathological studies revealed that oysters heavily infested with Trichodina sp. exhibited an inflammatory response of gill. Superficial epithelium could be deformed and altered when it carried several ectoparasites. The observation of bacteria in the cytoplasm of Trichodina sp. asked the interesting question in relationship to cilia, especially with the nutritional level.

The 5 OIE-listed diseases of molluscs, and the 10 pathogens that cause them, are reviewed. They are, bonamiosis (Bonamia ostreae, Bonamia exitiosus), haplosporidiosis (Haplosporidium nelsoni, Haplosporidium costale), mikrocytosis (Mikrocytos mackini, Mikrocytos roughleyi), marteiliosis (Marteilia refringens, Marteilia sydneyi), and perkinsosis (Perkinsus marinus, Perkinsus olseni). All are protozoans and all are diseases of oysters, but M. refringens also infects mussels, and P. olseni infects a wide range of molluscs. Extant molluscs are ancient and not closely related, and different mollusc groups are susceptible to different groups of pathogens. B. ostreae was introduced into Europe from the USA in the late 1970s, resulting in devastating epizootics among flat oysters, destroying the European oyster industry. H. nelsoni was introduced into the USA from Japan oysters (Crassostrea gigas), but in the USA it jumped host into eastern oysters (Crassostrea virginica), destroying that industry. P. olseni was probably introduced into Spain and Portugal in Manila clams (Ruditapes philippinarum) imported from Southeast Asia for assessment as an aquaculture species. It jumped host into cultured carpet clams (Ruditapes decussatus) in which it causes epizootics. Currently there are two major problems with these
mollusc pathogens. The first is how to control spread of *P. olseni* when it occurs in many wild and cultured mollusc species throughout the Pacific, Australasia, Southeast Asia, and Europe. The second is the lack of basic biological, particularly epidemiological, data on these pathogens, making import risk analyses very difficult. The life cycles of *Haplosporidium spp.* and *Marteilia spp.* outside the molluscan host are unknown. *M. roughleyi* is a small (2-3 mm) parasite, but only its appearance under light microscopy has been reported, and little else is known about it. Emerging diseases, such as a putative viral disease among pearl oysters in western Japan, and herpesviroses of larval molluscs, will also be discussed.


A bacteriological diagnosis carried out following the death of reared fish, allowed to isolate strains of Vibrio suspected to be the infection agents. These same germs were also isolated from seawater out of mortality periods. In a total of thirty-nine isolates, three species of Vibrio were identified: *Vibrio alginolyticus*, *Vibrio vulnificus* and *Vibrio parahaemolyticus* with predominance of *Vibrio alginolyticus* (twenty six of the isolates strains). The evolution of antibioresistance according to the Chabbert methods revealed an increasing multiresistance towards the oxolinic acid, the furantoïne and a total resistance towards the oxytetracycline in most of the strains. The study of the plasmidic and proteinic profiles of the resistant and not resistant strains of *Vibrio alginolyticus* in order to determine the correlation between the resistance to antibiotics and the characteristics of these profiles didn’t allow us to observe any differences.

94. A SURVEY ON PREVALENCE RATE OF DIPLOSTOME SPATACEUM METACERCARIA IN CYPRINUS FISHES OF BABOL-ROOD RIVER, IRAN. S. Naem, S. Meshkini. P.O. Box 1177, Nazloo Campus, Department of Pathobiology, Faculty of Veterinary Medicine, Urmia University, Urmia, IRAN.

*Diplostomum spataceum* metacercaria disturbs fishes by invasion to different part of eye and makes exophthalmia, keratitis and blindness. There were few observations dealing with this parasite in Iran (Jabbari, 1990; Shaabani, 1994; Nikzad-Ask, 1996; Sattari and Shafiee, 1997; Nezam-Jbadi, 1997; Ghoroghi, 1997; Jalali, 1999; Mohammad-Zadeh, 1999). This study was carried out to determine the prevalence rate of *Diplostomum spataceum* metacercaria in *Cyprinus* fishes of Babol-Rood river in northern part of Iran from March 1998 to March 1999. A total number of 104 fishes were examined and 78 fishes were infected with metacercaria of this trematode (75%). The prevalence rate of *D.t.li spataceum* metacercaria in spring, summer, autumn and winter was 63.88%, 78.57%, 82.6% and 73.68% respectively. The results of this survey showed that 65.38% of infected fishes had metacercaria in both eyes and 34.61% in one eye.

95. KHAWIA BARBI SP. N. (*cestoda Caryophyllidae*) FROM THE COMMON FRESHWATER FISH, BARBUS LUTEUS FROM RIVER TIGRIS, MOSUL, IRAQ. Z.I.F. Rahemo, S.A. Mohammad. Department of Biology, College of Science, University of Mosul, Iraq.

A new species of caryophylid cestode is described from the common freshwater fish, *Barbus luteus* Heckel caught from River Tigris, Mosul, Iraq. The main distinguished feature of the present worm is the
absence of any loculi or specialized structure in the scolex, presence of a distinct constriction at the level of cirrous pouch, cirrous pouch well-developed, testes numerous, vas deferens convoluted, vitelline follicles pre- and post-ovarian. The species is designated as *Khawia barbi* after the name of its host, *Barbus luteus*.

96. SURVEY OF THE HEALING EFFECTS OF THREE DRUGS PHENYTOIN SODIUM, ZNIC OXID AND VITAMIN A OINTMENT ON THE GOLD FISH CUTANEUS LESIONS. D. Shahshavani, A. Movassaghi, G.H. Sahebi, 1Department of clinical Science, Faculty of Veterinary Medicine, Mashhad University, Mashhad-Iran. 2Department of Pathobiology, Faculty of Veterinary Medicine, Mashhad University, Mashhad, Iran. 3Organization Veterinary of Ghochan city.

Skin lesions on fishes induced by Viruses, Bacterial, Parasite, Mechanical and Chemical agents are very common. These agents increase infectious severity and mortality in fishes there are a few research about skin lesions healing in fishes. In this study the healing effects of three drugs vitamin A, zinc oxide and phenytoin sodium ointment are compared on the Gold fishes lesions induced by surgical incisions. In this study 132 Gold fish disinfected by 3% salt solution as for as 15 minutes, then fishes divided in 4 groups of 33 fishes. One group as a control and others as test groups and were treated by Vitamin A, zinc oxide and Phenytoin sodium ointment. Firstly in all of fishes an incision as long as 1.5 cm and 2 mm deep were induced fishes in therapeutic group were cured a day with special drug locally during the study 3 times of histological samples were prepared 5, 7 from lesions. At day 5, 5 at day 10, 7 and at day 20, also 7 samples were randomly selected. The group which were treated by phenytoin sodium showed rapid resolution of lesions in comparison to the other groups. Include completely epithelial tissue regeneration, mature granulation tissue generation and regular collagen filament generation were made soon at day 10 inflammation cells were minimal at this time. Where as in the control group and also group which treated by Vitamin A, epithelial tissue regeneration has been occurred moderately. In the curative group by zinc oxide, epithelial tissue regeneration occurred moderately to completely. Healing and genered on of lesions in the phenytoin sodium group occurred more rapidly in comparison with the other groups.

97. DISEASES PROBLEMS IN CULTURED FISH AND SHELLFISH IN JAPAN. H. Wakabayashi. HW Fish Health Laboratory, 717-3-22-11 Sendagi, Tokyo, 113-0022, Japan.

In 1999, annual aquaculture production in Japan totaled 1.3 million tons, and was valued at 608 billion yen (approximately US$5 billion). The principal fish and shellfish species used in aquaculture are as follows: (in freshwater farms) Japanese eel, common carp, ayu, rainbow trout and native trout species (in marine farms) coho salmon, Japanese amberjack, Japanese seabream, olive founder, kuruma shrimp, oyster and scallop. Although there is no publication of official statistics, diseases are estimated to account for a loss of 5 to 10 percent of total aquaculture production annually. Apart from ubiquitous or endemic pathogens, a considerable number of exotic micro organisms and parasites are suspected to have accompanied fish eggs and larvae imported for aquaculture purposes. The sudden outbreaks of IHN in 1971, BKD in 1973, and coldwater disease around 1985 were thought to have originated from salmon eggs imported from North America. Since 1991, a monogenean parasite, Neobenedinia gigrellae, has been found among amberjack fry imported from Hong Kong and Hainan, China. In 1993, outbreaks of a viral disease occurred on all kuruma shrimp farms where seedlings imported from Fuku University had been introduced. In order to prevent the importation of exotic pathogens, "Fishery Resources Conservation
Law” was amended in 1996. The person who intends to import seeds of aquatic animals for propagation or aquaculture purposes shall obtain license issued by the Minister of Agriculture, Forestry and Fisheries. The person who applies for the license shall present application to the Minister, accompanied with certificates issued by the government authorities of exporting country.” Law to Ensure Sustainable Aquaculture Production” was established in 1999 with a view to promote sustainable aquaculture by improving environmental condition, and by preventing the spread of fish diseases. When the Governor recognizes it is necessary for preventing contagious disease of aquatic animal and plants subjected to aquaculture, he can have his officials to make on-the-site inspection in aquaculture farms and other site.

98. SURVEY OF (Ichthyophthirius multifilis) ABONDANCE IN WATER COLD FISH FARMS IN WEST AZARBAIJAN IN IRAN. M. Yakhchali, Department of Pathobiology, Veterinary medicine faculty, Urmia University, Iran Nazlu campus, POBOXI177.Iran.

This survey was carried out to determine the role of water sources, seasons and temperature range on infestation rate of I. Multifilis. In regard to this aim, 373 samples from 38 cultivated water cold fish farms were collected and transferred to Hygiene and feeding lab of Shilat office from June 2000 to June 2001. This survey showed that infestation rate was 11.2% and main source of fish infestation and distribution within the pools was river water. This finding by A nova test was significant (P< 0.05). Role of temperature and season on infestation rate by t-test was significant, as well (P < 0.05). So these findings were proved to have directly effects on infestation rate specially in summer (14 %) and temperature of 14.5 C (50 %).


Microcystins (MCs) are naturally occurring cyclic heptapeptides produced by cyanobacteria blooming in nutrient-enriched reservoirs and lakes. MCs have hepatotoxic and tumor-promoting activity in animals and are cited as a potent human health hazards in drinking water. Immunohistochemical method for MCs detection in fish organs was developed, using monoclonal anti-microcystin (M8H5) antibody and polymer peroxidase system. Oreochromis niloticus, widely cultivated in Brazilian aquaculture was used as experimental animal. Fish with six months age (500g) were inoculated i.p. with 2 mg/Kg of MCs. After death (56 h), liver, kidney and muscle were immediately sampled and the tissues were fixed in 10% buffered formalin (24 h) Paraffin embedded sections were incubated in a 1:100 diluted monoclonal anti-MCs antibody solution, and submitted to polymer peroxidase system immunohistochemical reaction. The liver showed higly positive reaction, with thoroughly diffuse stained hepatocytes. MCs reactivity was negative in both kidney and muscle, demonstrating the liver as the main toxin target of this tropical fish. The developed immunohistochemical method may be an efficient tool in the quality control of commercialized fish.
100. LES VIBRIOSES HUMAINES TRANSMISES PAR LES MOLLUSQUES BIVALVES : CAS DES PALOURDES (Ruditapes decussatus) DES CÔTES TUNISIENNES. S. Dhaoui. Ecole Nationale de Médecine Vétérinaire. 2020 Sidi Thabet, Tunisie.

Les bactéries du genre *Vibrio* peuplant habituellement les milieux marins peuvent être causes de pathologies humaines en particulier par ingestion de Mollusques Bivalves (diarrhées, septicémies) ou par contact (infections cutanées). A partir d’un échantillon de 2520 palourdes (*Ruditapes decussatus*) prélevé de 1994 à 2000 en mer de Bougrara-dans le sud tunisien, plusieurs espèces ont été identifiées dont les principales sont *Vibrio parahaemolyticus*, *V. alginolyticus*, *V. vulnificus*, *V. harveyi* et *V. fischeri*. L’étude de leurs relations avec la flore totale et les indicateurs traditionnels de la pollution et de l’influence de certains facteurs de leur survie (température de stockage; purification physique à l’UV et chimique à l’eau de javel) a montré que : - il n’existe pas de corrélation entre les indicateurs traditionnels de la pollution et les *Vibrios* - les températures élevées de stockage favorisent le développement des souches étudiées, les procédés de purification les réduisent de façon significative après 7 jours de traitement.


Recent studies were developed on the secretion of ink by the cuttlefish (*Sepia officinalis*). Mainly on its physical and chemical composition, antiseptic and melanogenesis aspects. The morphological and anatomical aspects of the black ink envelope or pocket and the animal behaviour towards this secretion were also viewed. Japanese studies of Mochizuki (1979) and Takai and al (1993), described the inhibitor effect of cuttlefish ink to bacteria. In aim to demonstrate this antibacterial effect, we tested the cuttlefish ink of *Sepia officinalis* against different species of bacteria Gram+ and Gram-. Preliminary results, indicated that inhibitor effect non specific was obtained with bacteria of genus : *Staphylococcus*, *Streptococcus*, *Vibrio*, *Aeromonas*, *Pseudomonas* and bacillary forms of *B. thuringiensis*. We continue further studies in searching the nature of this antibacterial agent.

102. APPORT ALIMENTAIRE DES MUGILIDÉS D’EAU DOUCE ET D’EAU DE MER EN ACIDES GRAS POLY INSATURÉS. APPORT ALIMENTAIRE DES MUGILIDÉS D’EAU DOUCE ET D’EAU DE MER EN ACIDES GRAS POLYINSATURÉS. M. El Cafsi, M.S. Romdhane, F. Channusot, A. Cherif. 1Faculté des Sciences de Tunis, Campus Universitaire, 1060 Tunis. 2Institut National Agronomique de Tunisie, 43 Av. Charles Nicolle, 1082 Tunis. 3INSERM, Unité 476., 18, avenue Mozart,13009 Marseille–France. 4Ecole Supérieure des Industries Alimentaires, 58 Rue Alain Savary, 1003 Tunis.

Il est actuellement bien admis que les acides gras polyinsaturés (AGPI) de la série (n-3) et appartenant aux poissons jouent un rôle de prévention des maladies cardio-vasculaires qui constituent la première cause de mortalité dans les pays industrialisés. L’objectif du présent travail est de faire une étude comparative entre l’apport alimentaire réalisé par les muges, immatures, élevés en eau douce (retenues de barrages) et en eau de mer. Les résultats obtenus montrent pour les acides gras totaux une richesse significative (P<0,05) pour les poissons provenant de la retenue du barrage par rapport à ceux provenant...
de l’eau de mer. Nous obtenons respectivement; pour le muscle blanc : 14,60 mg/g de Matière Fraîche (M.F) et 5,80 mg/g M.F, pour le muscle rouge : 136,54 mg/g M.F et 37,65 mg/g M.F. Les variations de la masse des acides eicosapentaénoïque (C20:5) et docosahexaénoïque (C22:6) de la série (n-3) nous ont permis d’enregistrer respectivement les valeurs suivantes; pour les muges de la retenue du barrage (Muscle blanc : 1,54 et 0,68 mg/g M.F et Muscle rouge : 12,71 et 3,89 mg/g M.F). Pour les muges provenant de la mer :Muscle blanc : 0,51 et 0,52 mg/g M.F. Muscle rouge : 3,73 et 2,62 mg/g M.F. La masse des acides gras polyinsaturés de la série (n-3) enregistrée dans les tissus du Muge provenant des retenues de barrage (salinité 1,7‰) est fortement augmentée par rapport à celle des poissons provenant de la mer (salinité 37‰). De tels résultats permettent de mettre en évidence une amélioration importante de la qualité nutritionnelle des muges élevés en eau douce. Un tel produit pourrait permettre une réponse diététique appropriée à certaines affections caractérisées par un fort taux de lipides dans le sang.

103. MONITORING OF PHYTOPLANKTON TOXIC IN SFAX DEPARTMENT: RESULTS OF 6 YEARS. A. Hamza¹, M. Mahfoudhi¹, H. Dammak¹, M. Bouasida¹, M. Lazzez¹, A. El Abed¹. ¹Institut National des Sciences et Technologies de la Mer, Centre de Sfax, Tunisie. ²Faculté des Sciences de Sfax, Tunisie. ³Direction Régionale de La Santé Animale de Sfax, Tunisie.

Monitoring program of phytoplankton in Tunisian coasts is installed in march 1995. For shellfish area in Sfax department we have defined 17 sampling stations. In this coast, toxic phytoplankton species are limited for a few dinoflagellate. Gymnodinium sp. is mostly responsible in problem of toxicity and for a length times. Natural decontamination is happened only after 5 months ago. We observed also a toxicity with cysts for this specie that increase risks for shellfish contamination. This problem caused serious damage for exploitation in this area.

104. STUDY OF MICROBIOLOGICAL AND CHEMICAL CHARACTERISTICS OF IRANIAN STURGEON FISH PRODUCTS EXPORTED TO EU. M. Javanmard¹, K. Taghavi². ¹Department of food hygiene. Faculty of vet. Medicine, Tehran University, Iran. ²Laboratory technician, Gilan vet. Administration, Iran.

The Caspean sea is the greatest source of Sturgeon and it produces some 90 percent of Caviare in the world. Recently several private plants in the Gilan province of Iran have been launched for processing and exporting some products such as raw and smoked fillets, marinade, caviar and canned meat of the fish. Our objective in this study was to determine the microbial and chemical condition of these products. The aerobic plate count, total coliform count and Salmonella spp. and Staphylococcus aureus detection methods were utilized. Twenty three percent of the samples showed growth in the aerobic plate count and only one sample had a total coliform count more than (MPN>10^2 cfu/gr) the EU standard. Also no samples showed any growth of salmonella and Staphylococcus aureus. Total Volatile Nitrogen (TVN) values in the smoked fillets were lower than the non smoked ones(p<0.005). Our results could clarify that Iran is highly capable to export sea foods to EU because of its suitable quality control standards.

Within the framework of the Monitoring Program of the Sanitary Control Shellfishery Production in Tunisia, the potentially toxic microalgae have been detected (Dinophysis spp, Alexandrium sp, Prorocentrum spp, Ostreopsis sp and Pseudonitzschia sp) once a week in two sampling phytoplankton sites located North of Tunisia: T1 situated in the northern lake of Tunis and T2 in the channel of Tunis. A method for rapid and precise identification and quantification of thecate dinoflagellates using epifluorescence microscopy was elaborated during analyses. Five species of dinoflagellates (Dinophysales) have been identified: Dinophysis sacculus, Dinophysis acuminata, Dinophysis caudata, Dinophysis fortii and Dinophysis rotundata. Among these species, D. sacculus was the dominant. These planktonic species are potentially toxic microalgae which are producing Diarrheic Shellfish Poisoning (DSP). For statistical reliability, the critical level density for restricting shellfishery production has been established to 500 cells of Dinophysis per liter (Cells/l). From November 1999 to November 2001, populations of Dinophysis were more important in the northern lake of Tunis than in the channel of Tunis. In the sampling site T1, concentrations of Dinophysis spp > 500 Cells/l have been recorded from November 99 to November 2000 in November, December, May, June, August and October. They were more important from November 2000 to November 2001, the critical level have been exceeded during 9 months and concentrations >1000 Cells/l have been recorded in January, March, June, July, September and November. Concerning the sampling site T2, concentrations > 500 Cells/l have been raised in May and September from November 99 to November 2000. From November 2000 to November 2001, these concentrations were reached in May, June and July. Maximum density in T1 and T2 were respectively about 13 600 ± 2332 Cells/l in November (8/11/01) and 4980 ± 446 Cells/l in June (11/06/01).

106. ISOLATION AND IDENTIFICATION OF FUNGAL FLORA OF SHRIMP LARVAE STAGE (P. INDICUS) IN PROPAGATION HATHERY AT SOUTHERN IRAN. A. Zargar1, A. R. Khostavi2.
1Department of health and disease of Aquatic animal disease, Veterinary Faculty, University of Tehran. 2Department of Mycology, Veterinary Faculty, University of Tebran, Iran.

This study was carried out to indicate the fungal flora of shrimp larvae and their aquatic environments at Bandar Emman hatchery in Southern Iran (Khouzestan province -1998-2000). Fungal diseases is economically devastating shrimp disease in larval stage that was caused by different species fungi in propagation centers. Samples were obtained from the surface and the whole body of larvae and water. 29 species of fungi were isolated with yeasts as the dominant species (25.2 %) and Dematiacious fungi as the lowest number (5.6 %). Other fungi varieties were also isolated as Aspergillus (12.2%), Penicillium (7.5%), Fusarium (11.2%) mocurr (16.8%), etc (21.5%). This is the first report of an isolation of saprolegnia parasitica and fusarium solani from iranian shrimp propagation centers.


Mussel aquaculture is s significant component of shellfish farming in Tunisia. It is practised in Bizerte Lake for the specie Mytilus galloprovincialis (Lmk,1819), since the beginning of the sixties, according to the farming technique of suspension which offer a total capacity of about 400 T /year. However, the control of this farming and its success remain limited to Bizerte Lake which presents optimal thermic and trophic conditions propitious to continuity in the reproductive cycle. Moreover, these factors allow a fast
juvenile recruitment, a significant growth of adults with consequently an important profitability of the culture. Aquaculture potentialities must be an encouragement to the development of mussel culture in the north of Tunisia which constitutes a natural limit of geographical distribution of *Mytilus galloprovincialis* in the south of Mediterranean sea. However, a detailed attention must be allotted to the environmental conditions on which depends farming cycle. Indeed although regarded as particularly resistant to the environmental stresses and little subjected to serious infections, mussels can carrier several infectious agents. As a consequence, prospecting the farming’s possibilities at open sea is interesting.

**108. CLONING OF BIZZ FISH GROWTH GENE AND ANALYSIS OF ITS BIOLOGICAL EXPRESSION.** A.A. Al Zaag, A. M. Al Saadi. *Institute for Genetic Engineering and Biotechnology; University of Baghdad, Al- Jadiriya, Baghdad, Iraq.*

RNAs from pituitary glands of the Bizz fish (*Barbus esocinus*) were fractionated using affinity chromatography. cDNA was synthesized using prepared mRNA as template then cloned into pUC19. Following transformation into *E.coli*, the Bizz fish growth hormone gene was detected by colony hybridization using human growth gene as heterologous probe. Southern blot analysis have indicated the presence of two genes (or copies) encoding for the Bizz growth hormone. The production and purification of Bizz growth hormone was accomplished using a unique bacterial expression system. The coupled T7 RNA polymerase / promoter system was used by inserting 2.1 kb representing the growth hormone gene under the O10 promoter on the expression vector pT7-4 and transformation into *E.coli* K38 containing pGP1-2 (encoding T7 RNA polymerase). The selected culture was incubated at 32C° then a temperature shift to 42C° was applied with the addition of rifampicin to shut off host polymerases. The product was electrophoresed on SDS gel (PAGE). The molecular weight of the fish hormone produced by *E.coli* K38 was found to be 22Kd. The bacterial culture yielded 8mg purified growth hormone per liter culture media. The biological activity of the recombinant hormone was assayed by interval injection into Carp fish. The increase in body weight was significant indicating direct effect of Bizz hormone on the Carp growth.

**109. AN OVERVIEW OF FISH RESOURCES IN IRAQ WITH SOME EMPHASIS ON PARASITIC AGENTS.** A.N. Balasem, J.M. Jawada, K.R. Asmar, T.K. Adday. *Fish Research Center, P.O. Box 765, Tiwaitha, Baghdad, Iraq.*

Fish resources in Iraq consist of three main sub sectors i.e. catches form inland waters, aquaculture and costal fisheries. Fish consumption in Iraq is about 1.5 kg per capita in 2000. The endogenous species of fishes represent the main catches from inland water. However, in the recent years the percentage of *Cyprinus carpio* (common carp) in the inland fisheries has been steadily increased. In aquaculture, three species, of fishes namely, common carp, grass carp and silver carp, have been cultured. The costal fisheries is restricted to the short coast in the southern part of the country where the traditional way of fishing has been used. A survey on the parasitic infection of fishes from inland fresh water and fish farms were conducted between 1992 and 2001. A total of 2411 fishes belonging to 31 species were examined. These species were: *Acanthobrama centisiquama*, *Acanthobrama marmid*, *Alburnus caeruleus*, *A. capito*, *Aspius vorax*, *Barbus barbus*, *B. belayewi*, *B. esocinus*, *B. grypus*, *B. kersin*, *B. luteus*, *B. sharpeyi*, *B. subquncinclus*, *B. xanthopterus*, *Carassius auratus*, *C. carassius*, *Chalcaburnus mosulensis*, *Chondrostoma regium*, *Ctenopharyngodon idella*, *Cyprinion kais*, *C. macrostomus*, *Cyprinus carpio*, *Garra rafa*, *Heteropneustes fossilis*, *Hypothalmichthys molitrix*, *Leucisus lepidus*, *Liza abu*,
Mastacembelus mastacembelus, Mystus peliusius, Silurus triostegus, Varichorinus trutta. Microscopical examination revealed that there were 100 species of parasites and two species of fungi were found in the examined samples. A total of 19 species were recorded for the first time in Iraq. They were: Cryptobia sp., Chloromyxum sp., Myxidium macrocapsulare, M. pfeifferi, M. rhodi, Myxobolus braeae, Epistylis solida, Ancylodiscoides siluri, Dactylogyrus anchoratus, D. caballaro, D. dulkeiti, D. minutus, Discocotyle sagittata, Haploplectus gomitus, Schistocephalus solidus, Camallanus lacustris, Cystidicola sp., Diotophyma sp., Paulisentis fractus. A total of 191 new hosts (fishes) were observed for 56 species of parasites. The highest number of parasites was found on Barbus luteus and Liza abu. They were followed by B. xanhopterus, B. grypus, B. sharpeyi and B. esocinus.


Enzootic mortality in tropical aquaculture may represent a heavy treat for growing aquaculture production, but sector-based studies could not able to detect multiples origins of this kind of mortality. This paper report the global approach of fish disease undertaken during the year 2001 in order to improve knowledge about the mortality of Pangasius spp. reared in floating cages in the Mekong River and proposal new health management strategy. The main objectives of this work were: - Epidemiological description and analysis of observed mortality across the month and the years - Elicit risk factor and risk markers of enzootic mortality - Diagnosis and incidence of fish pathogens affecting fish in growth-out steep of production.

These objectives were attempted in different way. Essentially by retrospective analysis of data obtained from the health account books of several floating cages; by the conduction of cross sectional ecopathological survey over more than 120 floating cages and with a diagnostic screening of diseased fish from floating cages randomly chosen. Epidemic curve obtained with the recorded daily mortality showed that the fish mortality encountered by aquaculturist have increased in the recent past, but she never reaches the epidemic threshold. This fact support the hypothesis of enzootic mortality as responsible of lost provoked by the fish disease. Enzootic mortality appears strongly influenced by the time of the production and almost 70 % of total mortality are focused in the firstly 30 days following stocking the fish. The mortality prevalence rate (mpr), appear related to seasonal changes of water quality, especially temperature, but also pH and speed river stream. The ecopathological survey allows appreciating that the specie of Pangasius reared is a risk marker for the increase of daily mortality incidence rate (midr). Main risk factors has been identified and they are inherent to the cultural practises and structural features of floating cages, as for example the distance between the cages, number of stoked fish, origin of fish, kind of food, rate of fish to surface exposed to the river stream and others. Some risk factors are common to the two species reared in floating cages, but someone of risk factors depending by the specie of cultured fish. Clinical finding of diseased fish was dominated by necrotic hemorrhagic septicaemia and the bulk of bacterial isolates were composed by different strain of bacteria belonging to the Aeromonas hydrophila complex and Vibrio spp. The two most important species of reared fish showed a different susceptibility to these two bacterial families. Isolation of Vibrio spp typically from sea water in diseased fish, as well as the strong Vibrio spp contamination of trash fish used as protein source for self-made feed, suggest that the latter could play an important source to spread fish disease and increase the enzootic mortality in fish. The results
issued by this global approach and the propositions of a new health management of *Pangasius* are discussed here

**111. COMUNITY ALERT RELATED TO FISH PRODUCTS IMPORTATION FROM THIRD COUNTRIES FROM 1999 to 2002 (1/01-31/03).** G. Gandini¹, L. Anichini¹; A. Guidi², D. Gianfaldoni². ¹Ministry of Health, U.V.A.C. Emilia Romagna. ²Department of Animal Pathology Prophylaxis and Food Hygiene, University of Pisa. Romagna.

The aim of this contribute is the orientation of Competent Authorities and International Organisation involved in fish products safety concerning risks coming from importation in EU. The awareness about the seizures reasons of imported products is extremely important to concentrate efforts and better utilise human and financial resources to improve the respect of normative concerning productive conditions. Veterinary controls carried out by BIP on EU importation from Third Countries are regulated by the directive 97/78/EC that contemplates three different kind of controls (documents, identity an physical conditions) and asserts that whenever importation conditions are not satisfied the appropriate measures must be taken and risk communication course be started. This procedure is regulated by Reg.(EC) 178/2002 that establishes the European Authority for food safety; in particular the art.50, chapter IV, provides the crisis and emergencies management procedures arisen after risk notification from a EU Country, using the rapid alert system, which includes a reserved network (RASFF) managed by the Commission. In this work we have examined community alert concerning fish products during 1999,2000, 2001, 2002 (until 31/3) detailing the risk’s type, its incidence and the Thirds Country of provenience and notification. Data analysis indicates a dynamic variation of risk’s type characterised by an augmentation of irregularities about pharmacologically active molecules (nitrofurans, CAF) and a decreasing of microbiological contamination, especially in aquacultural products. Nitrofurans and CAF are broad-spectrum antibiotics that have been extensively used in aquaculture, actually banned in EU and with no residue level tolerance. Nitrofurans have antibacterial and antiprotozoal activity; their use has declined as their potential carcinogenicity have been proved. Chloramphenicol is a broad-spectrum antibiotic but the association of its use in human with aplastic anaemia and the readily developing resistance has led to its banning in many Countries. Governmental authorities and the scientific community play important roles to ensure the current normative respect and the protection of environment and human health.

**112. THE FIRST REPORT OF HISTAMINE POISONING CAUSED BY CONTAMINATED CANED FISH IN IRAN.** E. Mostafavi. School of veterinary medicine, Shiraz University, Iran.

Histamine poisoning is a chemical one and is a worldwide problem that often occurs in countries where people eat fishes and caned fishes containing a high amount of histamine. This poisoning is a mild event and its signs appear in a short time fallowing eating. Its main symptoms are cutaneous malasia such as face erfhema, itching and edema. In a hard poisoning the GI system signs such as cramp, nausea, diarrhea and the neural signs such as headache, prickly sensation, and mouth combustion occurs. In a very hard poisoning, Heart damages may occur and occasionally results in death. In foods, Histamine is made by decarboxylation of histidine. Scombroidae fishes and some other fishes such as mahi-mahi and sardin have so many free histidines in their muscle tissue that is a proper media for bacterial histidine decarboxylase. This enzyme is round most in species of Enterobacteriaceae, some clostidium spp.,
Lactobacilli and Vibrio. The species of fish, maintenance time and temperature, type of microbial flora and their metabolic ability can influence the acuteness of poisoning. Unfortunately, there is no contraindication amount of histamine in foods in Iran. In the past ten years the canned fish production has been increased to 2.5 and fish consumption to 3.5 as much. According to the fact that 200 ppm of histamine shows beginning of deceleration and 500 ppm of that causes the poisoning, this matter should be specifically concerned. In May 2001, following eating the canned SkipJack Puna of Persian Gulf, twelve histamine-poisoning cases were seen in Tehran. Its signs were unusual taste (100%), face erythema and itching (88%), headache and diarrhea (66%), vomiting and tachycardia (58%), cramp (50%), urticaria and gid (25%) and guttural burn (16%) that appeared in 2 hours following consumption. This poisoning is discussed completely in the paper.

113. DETERMINATION OF SOME BLOOD PARAMETERS FINGERLING STURGEON (Huso huso) IN GUILAN PROVINCE. D. Shahsavani. Department of clinical science, Faculty of Veterinary Medicine, Mashhad University, Mashhad, Iran.

Blood sample were collected from 260 fingerling (3-5gr) sturgeon (Huso huso). The fish were apparently healthy and captured from fish farms of Guilan province (Sangar dam) during summer in blood smears, the mature erythrocyte were oval with and abundant pale pinky cytoplasm and a centrally positioned oval nucleus. A slight number of immature erythrocytes (polychromatocytes) were observed. These cell appeared more rounded and have slightly basophilic cytoplasm. The totale RBC was $0.881 \times 10^6 \pm 0.02$, per mm$^3$, respectively and hematocrit $30.00 \pm 0.70$, percent and hemoglobin $6.73 \pm 0.15$ g/dl respectively. The total WBC was $4284.28 \pm 172.18$, per mm$^3$ and Heterophil $21.60 \pm 2.26$, percent and lymphocyte, $75.82 \pm 1.71$, percent and monocyte, $0.342 \pm 0.12$ percent and Eosinophil, $2.20 \pm 1.31$, percent and Band ceg $0.742 \pm 0.20$ percent and metamyelocyte $0.342 \pm 0.15$ percent respectively.


The lagoon of Tunis is composed of three zones: the northern part, the canal of navigation and the southern part. Clams Fishing is currently practised in the canal of navigation and the northern part of the lagoon. In the canal, this practice has dated for several decades. On the other hand, it was begun in 1993 in the lagoon northern part. The main part of this production is intended for exportation. There is a regulation applied for clams fishing: it organizes the clams fishing period going from 1st October to 15th May and fixes the smallest size of the fished clams at 35mm. In 1996, the Ministry of Agriculture set up national Monitoring network of the Alive Molluscs Bivalve (RMBV) fishing area along the Tunisian coasts. It aims to know the sanitary condition of each fishing area regarding to harmful bacteriological, biological and chemical contaminants. The dynamics of the exploited populations is a discipline which has as a fundamental role the demonstration which makes it possible to manage to optimise the outputs of the activities of fishing, while envisaging the impact of exploitation on condition and the sanitary quality of the resource. In this study, the application of methodology relating to the dynamics of the populations will be tried on the population of Tapes decussatus which lives in the lagoon of Tunis. This methodology is that of the models referring to approach global, namely the models of production of Shaefer and Fox. The data used are statistical series.
of production and fishing effort which appears in the files of the Regional Delegation of Goulette, for the period going of 1989 to 2000. The fishing effort calculated, represents the number of fishermen who worked indeed in the area during each fishing period. The curve of equilibrium of the two quoted models was established and the remarkable parameters of the production curves were calculated. Modelling was carried out from fishing period which began in 1989 to 1995. Since 1996, the exploitation conditions became dependent on the results found by the network (RMBV). For this reason, the data collected from 1996 are treated separately. The adjustment of the models during the first period showed that the canal of navigation is fully exploited and (it is almost reach the maximum of equilibrium since 1993), with an fishing effort of 264 fishermen and 15000 operations of fishing approximately. During the later years, the situation of overexploitation was camouflaged by the contributions of the northern part of the lagoon and its appearance was progressively with time. The regressions of the productions of the canal of navigation during the three last fishing period make only confirm this observation. Thus, of the restraint measures, of follow-up of fishing effort and sanitary condition of the clams in this area is recommended.

115. CONVERSION AND USE OF THE NON EDIBLE PARTS OF THE CUTTLEFISH SEPIA OFFICINALIS IN POULTRY AND AQUACULTURE FISH FEEDING. A. Abdelmouleh1, A. El Abed1, J. Rekhis1, A. Bouin1. 1Institut National des Sciences et Technologies de la Mer: Tunisie Ecole Nationale de Médecine Vétérinaire,2020 Sidi Thabet, Tunisie. 1 Faculté des Sciences de Sfax, Tunisie.

The cuttlefish Sepia officinalis is an important target species of the freezing industry of the fishery products in Tunisia. The annual national production of this cephalopod is between 6000 and 8000 tons which represents about 7 and 8% of the whole production of all species. The freezing industry uses the most part of this production and exports about 6000 tons. The non edible parts - eyes, skin, viscera, beak, ink sac, cuttle-bone - of this cephalopod comprise about 30 to 35% of the total weight of the animal, are estimated to over 2000 tons by year and they are casted away in the public dust-bin without any valorization. The composition study of these non edible parts shows us that they are composed of proteins (16,24%), fats (2,54%), minerals (1,98%) and water (77,20%) and they contain the most of the indispensable amino-acids: lysine, methionine, threonine, tryptophane, arginine, glycine, serine and valine. These results conduct us, following the Japanese processing of Tanikawa, to convert these non edible parts of cuttle-fish Sepia officinalis into a new product in the form of a black flour similar to the fish meal. This product has an important chemical composition: it is composed of proteins (36,30%), non nitrogene extractive (29,71%), fats (4,6%), minerals (10,00%), cellulose (9,00%) and water (8,60%). We’ve used this black product in the poultry and aquaculture fish feeding: we’ve incorporated it into the habitual food used by tunisian chickens and fish farmers with variable proportions and then it has been tested on the growth of chickens (Gallus gallus) and aquaculture fishes (Dicentrarchus labrax). We found that our product is well accepted and not refused by the animals. It has, otherwise, showed that the growth and the survivorship of the animals which took it in their ration, are better than the growth of those which had not taken it.

116. CONTENT OF THE COPPER, ZINC, CADMIUM AND MERCURY IN MUSCLE TISSUE OF THE TROUT (Salmo trutta. ml.) AND NASES (chondrostoma nasus L.) COUGHT IN RIVERS UNA, VERBAS DRINA. B. Alic1, A. Milanovic1, A. Smajlovic2, F. Caklovica1, L. Saracevic1, D. Krupić1, N. Karadza1. 1Food Hygiene Department. 1 Department of Pharmacology and Toxicology. 1Department for radiobiology Veterinary faculty Sarajevo. 1Cantonal Veterinary Inspection Sarajevo, Bosnia and Herzegovina.
In the paper, authors are giving results of the research of the essential (Cu and Zn) and toxic (Cd, Pb and Hg) elements in the muscle tissue of trout and nases caught in rivers Una, Vrbas and Drina. Total number of caught fish was 419 (338 trout and 81 nases), 230 from river Una, 154 from river Vrbas and 35 from river Drina. Content of the Cu, Zn, Pb and Hg was determined by flame atomic absorption spectrophotometer (AAS) method (Cd-standard addition method and Hg-Magos’s’s method), concentrations have been calculated from calibration curve and given in mg/kg of the fresh sample. Average value in the muscle tissue of caught fish from river Una was for Cu 1,08 mg/kg, Zn 13,03 mg/kg, Cd 1,32 mg/kg, Hg 0,095 mg/kg and Pb 0,57 mg/kg. For the fish caught in river Vrbas: Cu 1,19 mg/kg, Zn 13,90 mg/kg, Cd 1,52 mg/kg, Hg 0,20 mg/kg and Pb 0,35 mg/kg and contents of these elements in muscle tissue of the fish caught in river Drina were: Cu 0,92 mg/kg, Zn 12,30 mg/kg, Cd 1,54 mg/kg, Hg 0,082 mg/kg and Pb 0,44 mg/kg. In the muscle tissue of the fish caught from rivers Una, Vrbas and Drina, average value for the Cu were approximately similar, average value for the Zn was slightly higher in the muscle tissue of the fish from rivers Una and Vrbas, average value was also higher for the values of the Cd in rivers Vrbas and Drina, values for the Hg were close in rivers Una and Drina, but higher in muscle tissue of fish from river Vrbas and finally, values of the Pb were similar in all rivers.

117. IMMUNE AND ENDOCRINE RESPONSES OF THE MULLET (Mugil cephalus) TO VARIATIONS OF TEMPERATURE AND SALINITY IN THE LAKE ICHKEUL. H. Attia-El Hili1, M. El Bour1, P. Deschaux2. 1Unité de Pathologie des animaux aquatiques, INSTM, 2025 Salammbô, Tunis, Tunisie. 2 Laboratoire de Physiologie Animale, Université de Limoges, 87060 France

The study of the seasonal variations effects of the water temperature and salinity as stress factors on the immune and endocrine responses of an euryhalin fish: Mugil cephalus living in a lagoon (the lake of Ichkeul) enabled us to show that the seasonal temperature represents a stress factor for Mugil cephalus, so, the activity of the lysozyme could be considered as an immunological indicator for the temperature of the water. However, the seasonal variation of the salinity does not represent an environmental stress factor, which proves the easy adaptation of this kind of fish to different water salinity. Moreover, we noted a weak activity of the lysozyme among the individuals affected by bacteriosis, which justifies at least partially that the immunodepression predisposes fishes to diseases. By taking into account the direct and indirect effects of the high water temperatures on fishes and in order to guarantee the favorable conditions of survival and growth for Mugil cephalus, not to close the lock during the summer season and to release the exchanges of water between the lake of Ichkeul and the lagoon of Bizerte.

118. BACCIGER BACCIGER (Trematoda, Fellodistomidae) INFECTION IN Donax trunculus (Bivalvia, Donacidae) FROM SANDY BEACHES OF GULF OF TUNIS. R. Ben Kheder Dhaoui1, N. Aloui-Bejaoui2. 1Institut National des Sciences et Technologies de la mer, INSTM, 2025 Salammbô, Tunis, Tunisie. 2 Institut National Agronomique de Tunis, Tunisie.

During the study of sexual cycle of Donax trunculus in Kalaât Andalous and Raoued sandy beaches (Gulf of Tunis) an unusual orange colour and a tangle of filaments are distinguished on the gonadal tissue of some individuals. Microscopic examination revealed parasitism in those specimens. It deals with Fellodistomidae Trematoda Bacciger bacciger, which is reported for the first time in Donax trunculus population of Gulf of Tunis. This Trematoda was found in male and female, size of which ranges between 13,39 to 29,28 mm. According to the histological study, it seems that this parasite affects a little the
gametogenesis since the presence of the cyst on the level of the gonad does not present any detectable influence on the processes of the sexual differentiation. However, some authors announce that the gametogenic cycle can be arrested, the gonadal tissue can be completely destroyed and indirect effects can appear by the disturbance of the vital functions implying a diversion of the animal energy. This preliminary study, being on only description of sporocysts and cercariae of *Bacciger bacciger*, must be deepened during the totality of the sexual cycle in order to know better the influence of the infestation on the reproduction, the sex – ratio and the fecundity of the individuals.


Since the disease that affected the commercial sponge grounds population of the Mediterranean Sea at the end of the 80s, several marine campaigns took place to follow the evolution of this phenomenon. This field work program allowed us to know the sponge species and to localize the sponge grounds affected by the disease. The follow up of this watching program off the Tunisian coast during the last 3 years (1999 - 2001) was the occasion to verify the disappearance of this epidemic disease notably in the main sponge bancs situated off Zarzis; nevertheless the phenomenon of mortality continues to touch several species of sponges and gorgonian from coralligenous to pre-coralligenous assemblages. Even though, both biota shows signs of recovery in the north, the problem still occurs in same areas of the southern coasts.

120. VARIATION SAISONNIÈRE DE LA COMPOSITION EN ACIDES GRAS POLYINSATURES (N-3) CHEZ DIPLODUS ANNULARIS DU GOLF DE TUNIS: INTÉRÊT NUTRITIONNEL. A. Chaouch¹, I. Bouhlél¹, I. Chraief², M. Hammami³, A. El Hani³, M.S. Romdhane³, M. El Cafsi³. ¹ Faculté de Médecine de Monastir : Département des Sciences de Base « A » 5019 Monastir - Tunisie. ² Institut National Agronomique de Tunisie : Agrocampus, 43 Av. Charles Nicolle 1082 Tunis - Tunisie. ³ Faculté des Sciences de Tunis : Département de Biologie, Campus Universitaire 1060 Tunis - Tunisie.

Les sparidés sont très appréciés par le consommateur Tunisien malgré leur petite taille. L’intérêt accru pour les acides gras polyinsaturés (AGPI) de la série (n-3) du poisson est d’autant plus évidente que l’espèce *Diplodus annularis* fait partie intégrante de l’alimentation méditerranéenne qui constitue une référence dans la prévention et la protection d’un grand nombre de maladies particulièrement cardiovasculaires. Dans le présent travail nous nous sommes proposés de suivre l’évolution de la masse des acides gras polyinsaturés de la série (n-3) chez une espèce de sparidés immature du golfe de Tunis (*Diplodus annularis*) en fonction des saisons. Les résultats obtenus par chromatographie gazeuse en colonne capillaire revèlent une variation significative (P < 0,01) des acides gras totaux en fonction des saisons : 0,49 ; 2,93 ; 1,55 et 0,77 mg/g MF respectivement pour l’automne, l’hiver, le printemps et l’été. Les acides gras polyinsaturés de la série (n-3) l’acide α- linolénique (C18:3), l’acide eicosapentaénoïque (C20:5) et l’acide docosahéxaénoïque (C22:6) subissent également des variations saisonnières. Nous avons obtenu les résultats suivants respectivement pour l’automne, l’hiver, le printemps et l’été pour les AGPI (n-3)
(C18 :3): 0,013 ; 0,079 ; 0,068 et 0,024 mg/g matière sèche (MS)
(C20: 5): 0,15 ; 0,90 ; 0,58 et 0,23 mg/g MS
(C22: 6): 0,30 ; 2,60 ; 1,47 et 0,83 mg/g MS
L’analyse statistique des résultats obtenus montre une différence significative toujours en faveur de la saison hivernale (P < 0,05). En conclusion de tels résultats mettent en évidence une meilleure richesse en acides gras polyinsaturés de la série (n-3) durant la saison d’hiver chez Diplodus annularis (immature) du golfe de Tunis.


A national network for monitoring the shellfish production area in Tunisia has been established in 1995 in collaboration with Agriculture Ministry. The principal aim is to preserve marine ecosystem, living resources and human health. Studies on cockles chemical quality assessment was conducted. For that, ten coast fishing areas were defined. From each area, the commercial sized specimen collected during the autumn usually after reproduction period, was studied. Mercury (Hg), cadmium (Cd), and lead (Pb) concentrations in the shellfish flesh specially *Tapes decussatus* locally called “palourde” were determined using the Varian Spectra 220Z Atomic Absorption Spectrophotometer. The average years concentrations recorded in different areas were below the limit level admitted by the World Health Organization (WHO). In fact, the shellfish production area is not contaminated by any of these metals and remains among the healthy area according to the reference established by IFREMER (France).

122. EVALUATION OF EPIDEMIOLOGICAL RISK ASSOCIATED WITH CONSUMPTION OF VIRAL CONTAMINATED SHELLFISH. D. Essebai El Amri. *Institut National des Sciences et Technologies de la Mer, INSTM, 2025 Salammbô, Tunis, Tunisie.*

A side their function to concentrate a big volume of sea water, the shellfish can also accumulate in their tissu many infectious agent present in water in small quantities such as the hepatitis A virus (HAV), the Astroviruses (AV), the Norwalk-like virus (NLVs) and the Enteroviruses (EV). Frequently, shellfish was a common causes of viruses mediated in less for man. Development of simple and reliable method of viruses detection were necessarily to prevent human health. Gracefullness, to new molecular techniques, shellfish’s viruses became easly detectable. The aim of this study was to develop an extraction and elution method of viruses from mussels and clams tissu in order to optimize viruses detection by molecular techniques. Thus an RT-PCR using specific primers for each viruses and followed by an molecular hybridation was applicated on samples of shellfish collected monthly since 2000 from different sites on Bizerte lagoon.


In Tunisia, the fishing activities are a very important sector for the economy of the country. In fact, the Tunisian coasts enlarge, from north to the south, upon 1 300 Km on which were installed many ports for trawling and artisanal fisheries. Theses activities require about 50 000 fishermen and ensure an average annual production of almost 95 000 tons. These production are mainly coming from a diversified fishing fleet using a considerable kind of fishing gears (trawl, traml nets, purseine, dreft line and others). The main aim of this study is to assess the principal benthics exploited stocks in tunisian waters and to diagnose
their state exploitation. To attend this objective our research program was based on five complementary operations concerning the following species: the hake *Merluccius merluccius*, common pandora *Pagellus erythrinus*, red mullet *Mullus barbatus*, striped red mullet *Mullus surmeletus*, striped seabream *Lithognathus mormyrus*, annular seabream *Diplodus annularis*, bluespotted seabream *Pagrus caeruloeostictus*, salemia *Sarpa salpa*, gilthead seabream *Sparus aurata*, common dentex *Dentex dentex*, sole *Solea aegyptiaca* and *Solea senegalensis*, horse mackerel *Trachurus trachurus*, common cuttlefish *Sepia officinalis*, common octopus *Octopus vulgaris*, musky octopus *Eledone moschata*, grooved carpet shell *Tapes decussatus*, king shrimp *Penaeus kerathurus* and pink shrimp *Parapeneaus longirostris*. In this work we present a descriptive study on the fisheries in tunisian coasts mainly those concerning benthic exploited species and we give also the most important stocks assessment results obtained recently by the research programs done by the Lived Marine Resources Laboratory of National Institute of Marine Sciences and Technologies.

124. THE MOST IMPORTANT SALMON DISEASES IN BOSNIA HERZEGOVINA. A. Jazic, A. Zuko, J. Omerajic. Faculty of Veterinary Medicine, Center of Fish Diseases Zmaja od Bosne 90, 71000 Sarajevo, Bosnia and Herzegovina.

The most important diseases of salmon in Bosnia and Herzegovina (*Oncorhinchus mykiss*, *Salmo trutta* *morpha fario*, *Salvelinus fontinalis*, *Thymallus thymallus*) which are induce health problems and enormous economic losses breeding, are bacterial *Yersinia ruckeri*, *Aeromonas salmonicida*, *Renibacterium salmoninarum*, *Flavobacterium branchiophilum* and parasite aetiology Ichtyobodo necator, *Hexamitasalmonis*, Ichtyophthirius multifiliis, *Gyrodactylus salmonis*. Follow the first preliminary examinations, there are not diagnostic virus diseases on the salmon species in fishpond.


Within the framework of the co-operation between Tunisia and France a first campaign of census and identification of Cetacean was realised from October 29 until November 11-2001. It has interested water of the area of the Sahel, from Sousse to Chebba, within the limit of the 15 miles. The effective effort of prospecting rises with 126 miles (233 kilometers). We carried out 9 observations of Bottlenose dolphin *Tursiops truncatus* including 8 primary observations and 1 secondary observation.

126. MARINE VEGETAL SPECIES IN TUNISIA : THEIR USE IN CHICKEN NUTRITION. J. Ksouri, F. Mensi, J. Rekhis, A. Abassi. 1Institut National des Sciences et Technologies de la Mer (INSTM) Tunisie. 2Ecole Nationale de Médecine Vétérinaire (ENMV) Tunisie.

In this work we study the incorporating effect of *Ulva rigida* and *Ruppia maritima* on the performance of chicken. These two vegetal species were chosen on the basis of their chemical composition and with adequation towards the nutritional needs of volatils. Four food nutriment were used: A (witness), B (20% *Ulva*), C (10% *Ruppia*) and D (10% *Ulva* + 5% *Ruppia*). The obtained results show that the incorporating of these seaweed in chicken nutrition is accompanied with an increase of eaten quantities (A: 162 g/day, B: 192, C: 198 and D: 210), the individual average weight of animals (912 g, 1105, 1057 and 1130). On the contrary, it gives a similar consumption for the four fields.
127. AQUACULTURE AND FISHING IN SICILY: DISTRIBUTION OF FISH FARMS AND WHOLESALE FISH MARKETS WITH EUROPEAN UNION IDENTIFICATION. E. La Cavera¹, F. Castiglione ¹, G. Maggio², L. Mancuso¹. ¹Istituto Zooprofilattico Sperimentale della Sicilia. ²Sicily Fish Farm.

In the activity of Fish-pathology Laboratory of the Istituto Zooprofilattico Sperimentale della Sicilia the authors describe the distribution of Fish markets in the sicilian area; in the North of the Island: Palermo, Messina, Termini Imerese, in the East : Catania, Acicastello, Siracusa, in the South: Portopalo (country side of Capo Passero), Vittoria, Licata, Porto Empedocle, in the West: Mazara del Vallo, Trapani. Moreover an up-to-date census of fish farms producing valuable sea water fishes breeded and grewed in basin and/or in off shore floating cages for food was made. This production includes Sea bass (Dicentrarchus labrax L., 1758), Sea bream (Sparus aurata L., 1758), and another species of Sparidae family with Diplodus puntazzo, Diplodus sargus and Pagrus pagrus, and Sciaenidae family with Umbrina cirrosa in small quantity. The dislocation along the coasts of Southern Sicily was studied and compared with the sites where new fish farms have recently been set in the North of the Island. The geographical site of fish farms and their production in Sicily are displayed in the map, in which in the North side are shown Milazzo, Eolie Islands and Termini Imerese, in the West side Castellammare del Golfo, Trapani (in the salines), Birgi, Petrosino and Mazara del Vallo, in the South is Porto Palo, Licata, Pachino and Lampedusa.

128. PARASITOSIS TO (Stephanostomum) OF THE RED MULLET OF CLIFF OF THE TUNISIAN COAST. M. M’hetli¹, F. Maâmouri². ¹Laboratoire d’aquaculture, Institut National des Sciences et Technologies de la Mer, INSTM, 2025 Salammbo, Tunis, Tunisie. ²Laboratoire de parasitologie, Faculté des Sciences de Tunis, Tunisie.

During 1988’s autumn, a parasitose started, in an epidemic way, in certain areas of the gulf of Gabes (Tunisia). This parasitose shows an endemic way in other region of the Tunisian coast. The responsible agent is a trematode of the Stephanostomum genus whose the biologic cycle contains two intermediate hosts: A mollusk: where the trematode make the embryonic asexual reproduction ending in the production of numerous cercairiae, forms of dispersal, A fish : where cercairiae penetrate and encysted in metacercairiae, infesty forms. The adult is a mesoparasite in the intestine of carnivorous fishes. The in situ study of the metacercairiae did not allow to recover from differences between them. After « dekystement » and observation in light microscopy, we were able to highlight certain morphological criteria which allowed to differentiate 5 types of metacercairiae, classified by the authors in type A, B, C, D and E. this classification was facilitated by the adoption of a technique allowing a better observation of the thorn’s crown.


Within the framework of national program of protection of the marine species in danger or in process of extinction, the National Institute of the Sciences and the Technology of the sea (INSTM), in association with the Ministry of the Environment and the Management of the Territory, started since 1993 a research program aiming to study the biology of the sea turtles, in particular Caretta caretta, in Tunisian. This project consists mainly in following and in studying the nesting of these turtles in the islands of Kuriat,
which constitute the only nesting site in Tunisia. To consolidate the efforts, a second project, with the same partners, created in the INSTM a centre specialized in first aide, rescue and rehabilitation of sick and injured sea turtles. This centre has also for mission to take and to help the wounded turtles. The principal diseases met were pneumopathies, mycoses, fishhook fixed in the mouth or in oesophagus, injuries.


The carpet shell clam called commonly clovisse makes primarily the subject of fisher fishing in the south of Tunisia. The production reached 1083 tons in 1994 against 1741 tons in 1993, it is only one hundred tons currently. This fall is due to the closing of fishing in the gulf of Gabes which was caused by the presence of toxic alga *gymnodinium spp*. The artificial reproduction of this species is a solution to circumvent this problem. Indeed, the spats produced in hatchery will be sown in unharmed sites. Research tasks carried out in INSTM aiming to control the artificial production of this species. The cycle of breeding is looped: Conditioning with shift of the laying, breeding larval, metamorphosis, post-larval and ongrowing. The conditioning in controlled medium for obtaining eggs is one of the capital phases for the succes of the artificial reproduction and thereafter of the management of the hatchery. A protocol of conditioning is developed and consists in lowering salinity (30), to maintain the clams in open circuit to a temperature of 20°C, with a feeding algale day of 600 million cells per individual during the phase of sexual reproduction and 1 billion cells per individual during the phase of sexual rest. This protocol allowed us the development of the gonades in a synchronous way and to cause emissions of eggs after the second thermal shock. The larval duration of breeding is 13 days with a temperature of 24 °C and 9 days with a temperature 27 °C. The antéro-posterior length passes from 70 to 180 µm. The rate of survival is 70 %. This phase of breeding needs to be optimized. The metamorphosis is a delicate phase since the larvae passes from a planktonique life to a benthic life. The duration is 3 to 5 days at 24-27 °C. The rates of survival vary from 50 to 70 %. The post-larval breeding is characterized by two stages: early ongrowing 1 (PG1) and early ongrowing 2 (PG2). In early ongrowing 1 antéro-posterior length passes from 180µm to 0.5 mm in 20 to 45 days, the survival rate obtained is 50 %. In Early ongrowing 2 the antéro-posterior length passes from 0.5 to 3-14 mm, the survival rate is variable, it is 8.4 to 20 %. The mortality affects the size between 0.5 and 4 mm The technique of breeding on sand as substrate has allowed to reduce the mortality in PG2. Indeed survival rate passes from 40 to 93 % (with substrate) against 10 to 20 % (without substrate). In ongrowing the antéro-posterior length of the spats produced in hatchery, passed from 6.9 ±2.1 mm to 33.6 ± 3.8 mm; 0.106 g to 7.97 g after 27 months of breeding. Whereas in natural setting the antéro-posterior length passed from 29.6 ± 2.1 mm to 35.3 ±2.3 after 13 months of on growing with a survival rate about 50% and both artificial and natural settings. In conclusion, the cycle of breeding of the carpet shell clam is looped with a perfect control of the conditioning phase through the shift of the laying. The optimisation of the other phases of breeding such as: the larval breeding, post larval and on growing deserve to be pursued.

131. ACANTHOCEPHALA WORMS IN INTENSIVELY BRED FISH OF (*Oncorhynchus mykiss*). D. Piergili Fioretti, A. Moretti, G. Tacconi, M. Diaferia. University of Perugia-Faculty of Veterinary Medicine-Department of Biopathological Veterinary Science-Via S. Costanzo, 4-06100 Perugia, Italy.
In the last decades aquaculture become more and more important in the production of fish in Italy. In intensively breeding fish parasitic infections are considered to be an emerging economic problem. *Acanthocephala* are important parasites of the sylvatic and extensively bred fish because of their high prevalence and of pathological alterations due to the penetration of their presoma through the host’s intestinal wall. However little informations are available on these parasites in intensively bred. Aim of this research was to report the results of a study performed in Central Italy in two great intensively bred of rainbow trout conducted with different management with regard to parameters as hygiene, density of fish population, temperature, water supplying. During late spring (2001) were examined a total of 240 rainbow trout, mean length 30-32 cm. (n. 120 from each bred). In bred n. 1 the observation of the entire intestine gave these results: a prevalence of acanthocephalans of 60%; mean parasites/fish ± SD=93 41; mean weight positive fish ± SD= 318 ±34; mean weight negative fish ± SD= 340 ±29. In bred n.2 the results showed: a prevalence of 45%; mean parasites/fish ± SD=84 ±37; weight positive fish ± SD= 286 ±63; mean weight negative fish ± SD= 380 ±47. This last difference in weight was statistically significative (*P < 0.05). *Echinorhynchus truttae* was the parasite present with higher prevalence in both bred (ranged from 90 to 94%); few parasites of the species *Pomphorhynchus laevis* were observed. The results confirm the different effect of a similar parasitic burden on the same species of fish. The importance of other biological and not biological factors influencing the pathogenicity (intensity and periodicity of light, water temperature, chemical and biological characteristics of water, availability of food and space) must be considered.

132. PATHOLOGICAL CHANGES IN THE EYES OF CARP (*Cyprinus Carpio*) INFECTED WITH METACERCARIA OF (*Diplostomum spp*). S. Prasovic, H. Besirovic, E. Satrovic, A. Dzuvic. Pathology Department-Veterinary Faculty of the Sarajevo University. Bosnia-H.

The carps (*Cyprinus carpio*) of the different age, from three fishponds in Bosnia and Hercegovina, were used to examine the micro morphological changes in theirs eyes infected with a metacercaria of the trematode, (*Diplostomum spp*). Extracted eyes from eyes orbit (from the total of 90), were fixed in mixture of formaldehyde, absolute alcohol, glacial acetic acid and distilled water 30, 20, 10, 30, respectively. Paraffin section was stained with Haematoxiline-eosin method. Characteristic micro morphologic changes were documented by Leitz microscopy equipped with camera. The most characteristic changes in the eyes of the cyprinid fish were thickening of the lens capsule with vacuolation and clefting of the lens cortex, rupture of the lens capsule with evagination of its contents, liquefaction of the lens fimbre, findings some metacerkaria at the lens periphery, surrounded by eosinophilic granules (Morgagnian globules). Retinopathies, such as ablation, extravasations and hyper pigmentation of the retina, were common micromorphological alterations in the cases of diplostomiasis, but cells activity in the corpus vitreum was not found.

133. SQUAMOUS CELL CARCINOMA OF ORAL CAVITY IN *RUTILUS FRISII* OF CASPIAN SEA (THE FIRST CASE REPORT). A. Tavassoli, B. Moghir. Dept of pathology and Dept of fish hygine and diseases, Facutly of Veterinary Medicine,University of Tehran, P. O.Box: 14155-6453, Tehran, Iran.

Squamous cell carcinoma (SCC) is a malignant tumor of squamous epithelial tells. It b a common neoplasm affecting human and ail domestic animals, but it is mostly prevalent in dog, cat, horse and cow. S C C is a rare tumor in the fish, but do occur in a wide variety of fish species. They accure mainly on the
lips and oral mucosa, but may occur anywhere on the body surfaces. This is the first case report of SCC of oral cavity in *Rutilus Frisii* of Casiao sea. The tumor mass was spherical and had 1.5 cm diameter macroscopically. The tumor mass could be seen clearly in the oral cavity. The tumor sample was fixed in 0.10 buffered neutral formalin solution and sectioned at 6 micron and stained with H & E. Histopathology revealed that the tumor cells were keratinocytes, that proliferated downward invading the submucosa. Large number of barn pearls were present. The tumor was well differentiated, but malignancy characteristic such as pleomorphism, hyperchromatism and mitotic figures were present. Other authors also believed that the SCC was an important carcinoma of fish that were reported from a wide variety of fish species. In one survey of many fishes from *Hamilton* Harbour, Lake Ontario, out of 25 brown bullheads necropsied because of grossly visible skin lesions, 10 were subsequently diagnosed as having early SCC. Founie, Jw *et al* in 1987 reported the first case of SCC from the golf of Menhaden.
Sept chameles (Camelus dromedarius) adultes ont été maintenues en stabulation pendant la saison d’activité sexuelle pour étudier i) chez 4 femelles (groupe 1) les bases endocriniennes gonadiques (œstradiol-17ß et progestérone) et hypophysaires (LH) et ii) chez 3 femelles (groupe 2) l’effet d’une imprégnation, pendant 7 j, par de la progestérone exogène (implant Crestar®) sur ces hormones de reproduction. Le comportement de recherche du mâle pour accouplement, ou comportement œstral, a été également suivi chez toutes les femelles mais seules celles du groupe 1 ont été effectivement présentées au mâle pour la saillie. Des prises de sang simples et/ou sériées ont été réalisées quotidiennement dans les 2 groupes et le plasma obtenu a été conservé à –20°C jusqu’aux analyses radioimmunologiques (RIA). Durant cette étude, la ration quotidienne d’une femelle se composait de 3 kg de paille et 2 kg de concentré. Chez les chameles du groupe 1, 3 des 4 femelles (soit 75%) ont accepté l’accouplement chaque 15 j jusqu’à la conception. La quatrième femelle (soit 25%) n’a accepté l’accouplement qu’après un mois de la dernière saillie. Le comportement œstral chez les femelles du groupe 1 dure en moyenne 5,3 ± 2,1 j. Chez les femelles du groupe 2, l’apport exogène de la progestérone a supprimé ce comportement pendant 5,0 ± 1,2 j après lesquels il est repris pendant 7,9 ± 2,8 j. Le total des saillies réalisées/saillie fécondante chez la chameleon est égal à 3. Les résultats préliminaires des dosages hormonaux montrent qu’au cours de la saison d’activité sexuelle, le niveau basal de la sécrétion d’œstradiol-17ß est très faible. Cependant, des pics de cette hormone qui se maintiennent 3 j et qui peuvent atteindre une valeur maximale de 38,2 pg/ml sont observés. Avant la saillie, la sécrétion de la progestérone est inférieure à 0,1 ng/ml. Sept jours après, la concentration de cette hormone dépasse 0,6 ng/ml montrant la présence d’un corps jaune fonctionnel.
Colostrum intake is important for health and postnatal development of neon ruminants. The level of colostrum intake and its subsequent passive immunity transfer were evaluated in 93 Two blood samples were collected from each animal. At birth time before suckling (T0 hour), then after suckling of colostrum at one day old (T24 hours) after centrifugation, sera was harvested for determination of glutamyl transferase activity (GGT EC 2.3.2.2) and a concentration and electrophoresis separation of proteins. The results demonstrate. The highest concentration of these parameters were observed at 24 hours of age. A highly significant correlation was found between globulin levels and GGT activity r=0.592 (newborn calf) and 0.747 (newborn dromedary) and between total proteins and GGT activity r=0.505 (newborn calf) and 0.541 (newborn dromedary).

137. COMPARISON OF THE TREATMENT EFFECTIVENESS OF IVERMECTIN 1P100 (S.C), IVERMECTIN 0.2 p100 (P.O) AND CIDECTIN 1p100 (S.C) IN TWO CAMEL HERDS SUFFERING FROM ACUTE FORM OF Sarcoptes scabei var. Camelie. H. Shojaeemehr. Iran.

In this research, two camel herds, affected by Sarcoptes scabei Var. Camelie in an acute form were observed in Varamin (South-East of Tehran). Two doses of Ivermectin 1% (S.C) were injected within the interval of 15 days, but it wasn’t effective, and in this period, the contagiousness and severity of the disease increased. In the first herd, Ivermectin 0.2% (P.O) resulted in complete treatment only with one dose, and in the second herd, two doses of Cidectin 1% (S.C) was used within the interval of two weeks and it resulted in a complete treatment.

138. L’ALLAITEMENT EN DOUBLE: UNE NOUVELLE TECHNIQUE POUR AMÉLIOER LA PRODUCTIVITÉ DE L’ÉLEVAGE CAMELIN. M. Hammadi1, T. Khorchani1, T. Moslah1, M. Chamme1, A. Mahjoub1, N. Slimane1. Laboratoire d’élage et de la faune sauvage dans les régions arides et désertiques, IRA, 4119 Médenine, Tunisie. Institut National agronomique de Tunis, 1002 Tunisie. École Nationale de Médecine vétérinaire, 2020 Sidi-Thabet, Tunisie.

Dans l’objectif d’améliorer le rythme de reproduction de la chame et d’évaluer la croissance des chameaux allaités en double deux essais ont été réalisés : Essai 1 : 19 chameaux ont été répartis après la mise-bas en 3 lots. Le lot 1 : allaitement en simple (lot témoin); lot 2: allaitement en double (un chameau descendant et un chameau adopté) et le lot 3 : chameaux séparées de leurs chameaux pour adoption par les mères allaitant en double. Essai 2 : 24 chameaux ont été réparties en 4 lots. Les trois premiers lots ont été formés comme dans l’essai 1 alors que le lot 4 regroupait des chameaux dont leurs chameaux ont été séparés pour allaitement artificiel. Les paramètres suivis concernent la fertilité des chameaux : inter valle post-partum (IPP) et intervalle mise-bas-saillie fécondante (IMBSF) et la croissance des chameaux : PN, P30, P90, P120, P180, GMQ0-90, GMQ90-180, GMQ0-180. Cinquante pour cent des chameaux du lot 1 ont repris leur activité sexuelle après 40 ± 15 jours du part alors que les 50% restantes des chameaux n’ont repris leur activité sexuelle qu’au cours de la campagne suivante avec un IPP égal à 252 ± 27 jours. La durée de l’IMBSF dans le lot 1, était égale à 89 ± 33 jours et 300 ± 35 jours respectivement pour 30% et 70% de l’effectif des chameaux. Chez les chameaux du lot 2, 54% des chameaux ont repris leur activité sexuelle avec un IPP égal à 34 ± 16 jours et 46% ont été saillies au cours de la saison sexuelle suivante.
avec un IPP égal à 266 ± 31 jours. Toutefois, la saillie fécondante (IMBSF) n’est survenue qu’après 52 ±
28 jours et 304 ± 40 jours, respectivement pour 23% et 77% de l’effectif total. Quatre vingt douze pour
cent des chamelles du lot 3 ont repris leur activité sexuelle après 9 ± 4 jours du part, mais la saillie
fécondante a été enregistrée après 25 ± 15 jours de la mise-bas. Toutes les chamelles du lot 4 ont été
gestantes avec une durée d’IMBSF égale à 29 ± 10 jours. Chez ce lot, la durée de l’IPP a été de 9 ± 6
jours. Le poids moyen général des chamelons à leur naissance a été de 30,2 ± 2,9 kg et leur répartition
entre les différents modes d’allaitement n’a généré aucune différence significative (P>0,05). Après un
mois d’âge, les chamelons élevés sous leurs mères (lot 1 et lot 2) sont devenus plus lourds (P<0,05) que
les chamelons de l’allaitement artificiel et la différence de poids est évaluée, respectivement à 9,5 et 4,4
kg. Au fur et à mesure que les chamelons avancent en âge, l’écart entre les chamelles du lot 1 et les
chamelons du lot 4 se réduit pour aboutir à l’âge de 120 jours à un poids vif moyen, respectivement égal
to 107,2 ± 9,9 kg et 101,6 ± 6,6 kg. Quant aux chamelons du lot 2, ils avaient un poids moyen ne dépassant
pas 92 kg. A l’âge de 180 jours, les chamelons élevés en simple (lot 1 et lot 2) avaient des poids vifs
moyens très proches ; ils étaient respectivement, égaux à 136,7 ± 19,0 kg et 133,8 ± 12,5 kg. Les
chamelons allaités en doubles se retrouvent en queue de la liste avec un poids vif moyen égal à 117 ± 12,5
kg. En conclusion, l’adoption des chamelons pour allaitement en double est techniquement possible. Elle
a permis d’améliorer le rythme de reproduction chez plus 57% des chamelles. La croissance des
chamelons doubles jusqu’à l’âge de 6 mois est égale à 477 g/j.

139. THE RAJASHTAN CAMEL PROJECT, A WELFARE APPROACH TO THE VETERINARY
PROBLEMS ASSOCIATED WITH CAMELS IN JAIPUR, INDIA. E. Morris. India.

There are approximately 3/4 million camels in the state of Rajasthan, India. Within this population there
are breeding camels belonging to pastoralists and draught camels working in the cities and surrounding
villages. There are approximately 6000 draught camels working in and around the city of Jaipur. During
my time in Jaipur I became aware of the need for a veterinary facility devoted to camels in the city and
in June2001, a project was initiated to address this need. The project was set up and based at Help in
Suffering, an NGO providing veterinary services for the animals of Jaipur and makes use of the
infrastructure already in place there. The project receives funding from The Marchig Trust and Janine
Vogler. The lecture will cover why the project was set up, how it was set up and the work that is now going
on. It also covers the results of our work so far, the main veterinary problems encountered and our plans
for the future.

140. L’OPÉRATION CÉSARIENNE CHEZ LA CHAMELLE (Camelus dromedarius.). D.
Tainturier1, M. Mounira1, D. Ben Charif2, A. Trimeche2, I. Zaiem2, D. Chemli2, H. Slama2,1 Ecole
Nationale Vétérinaire BP 40706 44307 Nantes Cédex 03 1 Ecole Nationale de Médecine Vétérinaire 2020
Sidi Thabet Tunisie

Peu de publications concernent l’obstétrique de la chamelle. Les premières opérations césariennes ont été
pratiquées il y a environ 50 ans en 1956. Les principales indications sont la torsion utérine irréductible,
l’angustie pelvienne et les dystocies fœtales en particulier dues à la tête. L’intervention se déroule par la
voie haute, souvent par le flanc gauche sur la femelle”barakée” (couchée en position sterno-abdominale),
chaque avant bras pour les membres antérieurs et chaque jambe pour les membres postérieurs est attaché
au canon correspondant. La tête muselée est déviée dans le flanc droit. La préanesthésie est obtenue par
une injection de 10 mg / 100Kg d’acepromazine par la voie IM. Une anesthésie locale à l’aide de 100 à
120 ml de xylocaïne est pratiquée au niveau du lieu d’incision, après tonte, rasage et désinfection du lieu
opératoire. L’incision cutanée verticale ou légèrement oblique vers l’avant commence à un travers de
main des apophyses transverses des vertèbres lombaires, une douzaine de cm en arrière de la dernière
côte, sur une longueur de 25 cm. La tunique abdominale, l’oblique externe, l’interne et le transverse de
l’abdomen sont ensuite incisés (il n’y a pas de peaucier dans cette espèce). Le péritoine est souvent séparé
par une panne (une couche de graisse de 15 mm d’épaisseur). L’utérus est ensuite extériorisé en saisisant
un membre antérieur du fœtus, puis incisé à l’extérieur de la cavité abdominale. Le chamelon est extrait.
Le placenta de type epitheliochorial diffus, peut être décollé et retiré (selon la même technique que celle
qui est pratiquée chez la jument) après injection de 30UI d’ocytocine par la voie IV. L’utérus est suturé
par un double surjet au fil résorbable. Le péritoine, puis la transverse sont suturés en surjet., Chaque
oblique est suturé à points en U ou en X au fil résorbable. La peau est suturée à point séparé ou en U avec
un fil irrésorbable comme la série n°6. La cicatrisation de la plaie de laparotomie est très lente, les
suppurations sont fréquentes, ainsi il faut attendre 15 ou mieux 20 jours pour enlever les points cutanés.

141. MESENCEPHALON ABSTRACT OF CAMEL. Z. Tootian, D. Airamloo. Tehran, Faculty
of veterinary medicine university of Tehran. Iran.

In this research, Mesencephalon abstract of the camel has been precisely studied and compared with the
cattle as a very good example of the ruminants. 15 camels and 15 cattles were gathered from the
slaughterhouses of Tehran ; Their brain were taken out and fixed in Formaline 10% for three days. Some
photograph’s were taken and the data have been recorded in some special tables. Cerebral peduncles were
a bit wider in cattle that was because of the bigger size of the tegmentum in the base of the peduncles, but
it was cordlike and more prominent in camel, and inter peduncular sulcus was more significant in camel.
That shows the evolution of the pyramidal tract, geniculate fascicle and corticopontine tract in camel.
Rostral colliculus were more prominent in cattle while caudal colliculus were more prominent in camel.
It may be because of the evolution of the audile reflex in camel that most be proven in supplementary
studies and researches. In lateral surfaces, the lateral mesencephalic Sulcus has more prominent in it’s
cranial part that is near to the medial geniculated thalami. Ventral borders of the aqueduct mesencephalic
duct, was less than 90° in camel while il was more than 90 in cattle.

142. ADAPTABILITY OF THE DROMEDARY CAMEL TO THE MINERAL UNDER-
NUTRITION. B. Faye. CIRAD-EMVT Campus International de Baillarguet TA 30/A ; 34398 Montpellier
cedex 5 France.

The adaptation of camel to desertic conditions leads to remarkable metabolic and physiological
mechanisms. The resistance to mineral under-nutrition is one of the faces of this adaptation. Some recent
basic researches have gone thoroughly into the knowledges on metabolism of main minerals (calcium,
phosphorus, sodium ; chloride,, magnesium) and trace elements (copper, zinc, selenium). Results show
the diversity of the involved mechanisms : increasing of the absorption capacity in scarcity periods,
higher storage capacity, tolerance for minerals in excess, maintenance of enzymatic activity in deficient
period.
143. THE EFFECT OF BREED, SEX AND AGE OF CAMEL ON SOME BLOOD PARAMETERS.

100 camel blood were examined during mid November 2000 till mid of May 2001, from different breeds (Arabian, 40; local, 14 and Nigerian, 46 heads), sex and age to observe some blood parameters, Red blood cells, White blood cells, Raemoglobin concentration and differential COURt in normal camel in Sebha provance. The results indicated differences in blood picture. The mean of RBC was $(14.4 \times 10^6/mm^3)$, and was higher in Arabian breed, followed by Local and Nigerian. The mean in Cemal $(21.9 \times 10^6/mm^3)$ was higher than the male, adult animals had more mean $(18.44\times 10^6/mm^3)$ than immature and small aged animals. The mean of WBC revealed $(8.07\times 10^3/mm^3)$ in Nigerian breed, was the higher $(9.59\times 10^3/mm^3)$ than the Local and Arabian. Femal showed lower mean $(7.87\times 10^3/mm^3)$ than the male $(8.35\times 10^3/mm^3)$. The immature camel had higher mean $(8.71\times 10^3/mm^3)$ compared with adult or small aged camel. RB concentration was $(12.29 \; gm/100 \; cm^3)$, the higher mean observed in Arabian $13.26 \; gm$, then the Local or Nigerian. While the mean in Cemal was higher $(12.64 \; gm /100 \; cm^3)$ than the male, the mature animal had higher Rb concentration $(12.77 \; gm /100 \; cm^3)$ compared with immature or small aged animal. The results of differential COURts revealed high percentage of lymphocyte $85.15\%$ then followed by neutrophils, $9.24\%$. The percentage of $5.27\%$, $0.55\%$ and $0.02\%$ were observed in monocyte, eosinophils and basophils respectity. Comparing with other normal blood parameters in other countries indicated differences these may be due to breed, sex, age, nutrition, ecological and metrological status and others.

144. CONTRIBUTION À L’ÉTUDE DU PROFIL HÉMATOLOGIQUE CHEZ LE DROMADAIRE (Camelus dromedarius) EN TUNISIE. M. Djegham, F. Limam, O. Belhadj
1 Ecole Nationale de Médecine Vétérinaire, 2020 Sidi Thabet 2 INRST, Bordj Cédria 3 Faculté des Sciences de Tunis.

Afin de déterminer le profil hématoLOGIQUE et la formule leucocytaire normaux du dromadaire et leurs variations physiologiques nous avons effectué des prélèvements de sang en décembre, mars et juillet, le matin, avant le départ du groupe apparemment sain de la région de Kairouan vivant en semi liberté. Les prélèvements de sang sont effectués par ponction de la veine jugulaire sans tranquillisation préalable. Les résultats des analyses sont présentés sous forme de moyenne: $\pm$ SD et l’interprétation statistique a été effectuée au seuil de 5p.1 00 en utilisant le logiciel Statview II Résultats: Hématies: $9.74\pm 0.86$ millions/mm$^3$ Leucocytes: $18.74\pm 5.35$ milliers/mm$^3$ Thrombocytes : $3500,19\pm 812,30$ milliers/mm$^3$ Hb: $13.45 \pm 1.21$ g/l Ht: $37.76 \pm 3.49\%$ VGM: $36.58 \pm 1.72 \mu^3$ MCH: $13.85 \pm 0.42$ pg MCHC: $13.85 \pm 1.65$ g/l100 ml à l’analyse statistique des résultats révèle que la numération des hématies et les index érythrocytaires ne varient pas en fonction de la saison, de l’âge, du stade physiologique et de l’état physiologique alors que les leucocytes et les thrombocytes présentent des variations très significatives en fonction des facteurs de variation étudiés. Il semble que les paramètres stables en fonction des variations physiologiques étudiées constituent la base d’une régulation particulière permettant au dromadaire de lutter efficacement contre la chaleur, la déshydratation et la sous-nutrition.

145. BIOCHEMICAL STUDY ON THE DISTRIBUTION PATTERN OF PROTEIN AMINO-ACIDS IN MILK OF LIBYAN CAMELS A.A. El Aried, N. Taha. Libya.
Investigations were made on the distribution pattern of pure, protein amino acids in Libyan analyzer. All samples of milk contained the highest concentration of Leucine, Lysine, Valine, Threonine, Glutamic, Aspartic and Proline, while the lowest, contents were in methionine, cystine and glycine. It has been concluded that Libyan camel milk in regard to the daily requirements and human milk contents, was nutritionally superior in their nutritive value. The could expect that the structure of camel milk protein is distinguishable from other milks as it has a high peptide interacting or carrier function

146. BLOOD VITAMIN A AND E CONCENTRATIONS IN DROMEDARY. M.N. Romdhane¹, S. Ben Romdhane¹, M. Fekih², Y. Ben Saïd¹, W. Dhaouadi¹, A. Mebazaa¹.¹ Biochemistry laboratory, Veterinary School, 2020 Sidi Thabet, Tunisia. ²Biochemistry laboratory, La Rabta Hospital, Tunis, Tunisia.

To establish blood vitamin A and E concentrations in dromedary (camelus dromedarius) and their evolution during the first two days of age of the new-born camel before and after thecolostrum intake, blood samples were collected in 164 healthy dromedaries, 1-17 years of age at different physiological stage and also in 34 she-camels and their products. HPLC was used. The results demonstrate: mean vitamin A and E concentrations of 0.38 et 1.71 ug/ml respectively. A significant statistically difference in function of age and physiological stage low concentrations in she-camels at parturition rapid evolution of new-born camel’s serum vitamin E and slow evolution of vitamin A concentration after colostral intake. These results show mainly low vitamin E concentrations and she-camels must receive vitamin supplements.

147. THE RUMEN CILIATE PROTOZOA POPULATION OF DROMEDARIES COMPARED TO SHEEP AND GOATS. H. Rouissi¹, A. Guesmi².¹ Département des Productions Animales, Ecole Supérieure d’Agriculture, 7030 Mateur, Tunisie. ²Laboratoire de Nutrition Animale, Institut national Agronomique, 1002 Tunis Belvédère, Tunisie.

To determine and compared the protozoa populations, we used four dromedaries, four rams and two rumen fistulated male goats. All animals were maintained on two different diets (low and high fiber). This study showed that the rumen content of dromedaries contained less protozoa than sheep and particular goats but contained some protozoa genera that are very efficient in cell wall degradation (Epidinium and Eudiplodinium) and a specific genera (Butchlia).


L’étude a été réalisée de 2000 à 2002, dans trois troupeaux totalisant 330 têtes situés dans trois régions différentes appartenant toutes au gouvernorat de Tataouine. L’intervention dans la gestion des troupeaux a consisté à séparer précocement les chamelons et à les allaiter artificiellement avec quelques modifications sur le plan alimentaire. La surveillance des paramètres de la reproduction nous a permis de faire les constatations suivantes : Un gain journalier entre 500 et 600 grammes a été enregistré pendant un an chez les jeunes chamelons allaités artificiellement dès l’âge d’une semaine jusqu’au 4ème mois chez 109 sujets appartenant au trois troupeaux étudiés. La saillie des chamelles séparées des chamelons est enregistrée à partir du 9ème jour. Pour les 218 chamelles séparées de leur produits, l’intervalle entre le chamelage et la saillie a été calculé il est de 18+9 jours. Un groupement des naissance a été observé
dans les trois troupeaux dans un intervalle de un mois. La séparation du chamelon est enregistrée à partir du 9ème jour. Un groupement des naissances a été observé dans les trois troupeaux dans un intervalle de un mois. La séparation du chamelon nouveau né marque un arrêt d’allaitement qui est un facteur limitant pour le retour de l’oestrus pendant la période de post-partum. Les chamelles séparées de leurs chamelons peuvent retourner en chaleur dans un délai très court après la mise bas. La séparation des chamelles (nouvellement mis bas et les anciennes mises bas de l’Année dernière), le renforcement par un nouveau chameau et la supplémentation alimentaire ont favorisé un taux de fécondité quasi maximal qui s’exprime par une réduction de l’intervalle entre deux mises bas. La complémentation reste sans doute le facteur qui contrôle le plus les performances reproductives et productives chez les camélidés.


Ce travail a pour objectif de déterminer l’activité disaccharidasique dans l’intestin du dromadaire. Les intestins sont prélevés sur de jeunes dromadaires âgés en moyenne des 9 mois et élevés dans leur milieu naturel, le Sud tunisien. L’abattage est effectué dans un abattoir à proximité de Tunis. L’activité des disaccharidasases a été déterminée selon la méthode conventionnelle de Dalqhvist qui permet de quantifier l’activité maltasique, lactasique et saccharasique dans un homogénat de muqueuse prélevée par raclage des différentes portions intestinales (duodénum, jéjunum, iléon). Nos résultats rapportent une activité lactasique, maltasique et saccharasique importante dans les trois portions de l’intestin avec une activité maximale dans le Jéjunum. L’activité maltasique prédomine dans les trois portions considérées (duodénun : 53,06 ± 16,04 ; jéjunun : 92,52 ± 19,5 ; iléon : 61,22 ± 9,29 UI/g Mq) par rapport à l’activité lactasique (duodénun : 1,14 ± 0,29 ; jéjunun : 1,28 ± 0,34 ; iléon : 0,25 ± 0,09 UI/g Mq) et l’activité saccharasique (duodénun : 0,98 ± 0,19 ; jéjunun : 1,02 ± 0,14 ; iléon : 1,11 ± 0,89 UI/g Mq). Ces résultats sont en accord avec ceux qui stipulent que l’intestin du dromadaire présente un grand potentiel enzymatique vis à vis de la digestion des glucides alimentaires, en comparaison avec les bovins et les ovins. Cette particularité enzymatique pourrait expliquer une meilleure assimilation des hydrates de carbones d’origine alimentaire, et par conséquent le maintien d’un niveau élevé, en capital glucose plasmatique dans cette espèce.


A study was conducted to determine the prevalence, identification of the species of ectoparasites on camel. A total of 530 camels were examined and 194(37%) were found to be infected. Only one species of mite i.e. Sarcoptic scabii war cameli was recorded. Higher incidence (68%) of mange has recorded in adult camels. Incidence of mange was found to be more in male (56%) than female (49%). During hot humid season the mange infestation was highest (57%), followed by winter (53%) season. Affected camel showed slight decrease in erythrocyte, Hb and PCV. A significant increase in white blood cells was
followed by an increase in neutrophils, esinophiles, and decrease in lymphocytes. Serum biochemical study revealed hypo albuminaemia, hyper globinaemia. Increase in GOT and ALP was evident, while GPT decrease significantly. The assessment of efficiency of the ivermectin (0.4mg/kg bw) was done on basis of parasitological recovery.

151. UNUSUAL BLIND SAC ON THE FACE OF THE ONE-HUMPED CAMEL. I. Arnautovic, H. Pobric, R. Avdic. Department of Anatomy and Hystology with Embryology, Faculty of Veterinary Medicine, University of Sarajevo; Bosnia-Herzegovina.

There is no reference in the literature concerning an interesting structure on either side of the camel`s face. Following the terminal branches of the dorsal buccal nerve under the facial muscles there lies a blind sac. The fundic extremity is caudo-dorsal near the infraorbital foramen. The anterior narrow part opens into the anterior part of the nasal cavity. Ten heads of camels, seven females and three males, of freshly killed middle-aged animals were used in this study. Primarily, the structure is outlined by dissecting away the muscles thus determining the exact position and relations of the sac. By the use of a syringe, water or air was injected through the opening at the nasal extremity of the sac. This operation was performed in both the living and the dead animals. The topography is then clearly defined. Pieces from different parts of the sac were fixed in 10 % formal saline and following the routine histological technique paraffin sections were stained with haematoxylin and eosin for general histology, with Alcian blue for mucin and Weigert`s haematoxylin for elastic fibres. The sac is lateral in both male and female and consists of three parts: a) blind caudal part, b) middle part or body (3-4 cm wide and 8-10 cm long), c) neck or terminal part (0.5 mm wide and 6-8 cm long). The following hypothesis of the functions of the sac may be deduced from its position, shape and structure: 1. Giving a soft bed to the infraorbital nerve. 2. When the sac is depressed a vacuum is produced and sucks the secretion from the naso-lacrimal duct for reabsorption. 3. Another possibility is that it may participate in producing sounds. 4. The most probable is that the secretion of the sac moistens the anterior part of the nasal cavity.


دراسة تشريحية للرغامي والرئتين في الجمل ذي السنام الواحد

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**جمعي الجراحة والتوليد - كلية الطب البيطري/ جامعة بغداد

بغداد العراق

يمتلك السطح الظهري للرغامي جدار ليفي عضلي بحيث يجعل السمن الأثري مفتوحا أثناء حركة رقبة الجمل الطويلة وتتراوح طولها بين 135-145 سم وعدد الحلقات الضغوية 28-48. والرئتان متساويتان في الطول و بسبب وجود القص الإضافي في الرئة اليمنى مما يجعلها أكبر سماكاً من الرئة اليسرى و تنتمي الرئتان في الجمل ذي السنام الواحد بوجه الرواتب العينية على امتداد الحافة القاعدية وهي أشبه بخصلة الشعر و غنية بالأوعية الدموية لها علاقة بنقل الدم من الرئتين إلى القلب و تنظيم درجة حرارة جسم الجمل و مسار الأوعية الدموية الشريانية مع تفرعات القصية والقصبات الهوائية بينما الأوردة مسارها بين أجزاء الرئتين و تشبع حول الأسنان بشكل كثيف.

**دراسة نسيجية شكلية للرغامي والرئتين في الجمل ذي السنام الواحد**

**شاهر محمود مرحسن** رزاق جعفر محمد **فرع الدائم عمر** فرع الترشيح و الأنسجة والأجنبة - كلية الطب البيطري - جامعة بغداد **فرع الجراحة والتوليد البيطري - كلية الطب البيطري - جامعة بغداد**

**الخلاصة**

استخدمت 26 عينة رغامي ورئة مأخوذة من (31 ناقة و 31 جملا) بعمر تراوح 8-12 سنة وأجريت عليها تقنية تحضير الشرائح النسيجية وفق الأسس العلمية وتبين أن الرغامي يتألف من حقلات غضروفية زجاجية وغشاء مخاطي خالي من الصلب. وتميزت الطبقة تحت الخلية خطية رغامي وهي الطبقة الكاذبة العمودية مع الخلايا الكاسمية و كانت نوع الخلايا قرب السطح خلايا ظهارية عمودية وفروع أذينات متحركة وزيغات وأثبتت النهاية الكاسمية في المنطقة الوسطى من الظهرة ونواية الخلايا القاعدية قرب الغشاء القاعدي، وتحوي الصفيحة البلادية نسيجًا ضامنا رخوي وترتكز الخلايا المماثلة بكميات كبيرة وتوجد نسبية عينة متفرعة مصلية.

الإفراز.

**الخلاصة**

تحظى في قصبات رتيب الجمل أغشية مخاطية مبطنة تستند إلى الظهرة مع الخلايا الكاسمية الحاوية على غشاء قاعدي مبتدي و بقل ارتفاع الظهرة العمودية تدريجيا كلما اقتربنا إلى الصفات النسيجية التي تبطن بالظهرة البسيطة أو الممكية التي عليها عدد كبير من الأسنان الرئوية.

تتميز المنطقة حول فتحات الأسنان بوجود الأنياب المرنة و الخلايا العضيلية في المنطقة تحت الظهرة و تبطن الأسنان بالخلايا ظهارية السبيلة الحمرشفة خلايا ظهارية استيلة ممكية تحت الخلايا الجلدية و توجد الخلايا الفجوية المرتفعة نسبياً.

**cells epithelial alveolar Sequamous**

**cells epityelial alveolar Cuboidal Vaculated cell**


réussite sont nombreuses liées à la gestion zootechnique et nutritionnelle mais aussi pathologique des troupeaux expliquant la faiblesse de l’accroissement du cheptel. Il est impératif de porter une attention particulière à la maîtrise des techniques de reproduction pour mieux les adapter au dromadaire. La surveillance et l’amélioration de la reproduction constituent une priorité dans le cas des élevages extensifs dont le maintien est primordial pour la protection du tissu socio-économique des régions arides. L’intensification de cet élevage est susceptible d’ouvrir de nouvelles perspectives notamment de nouveaux marchés pour certains éleveurs. Ces possibilités d’améliorations peuvent s’inscrire dans deux stratégies complètement différentes. La première, c’est le retour à un système complètement nomade dans les régions désertiques permettant d’améliorer la rentabilité grâce à une diminution des coûts mais aussi de développer le couple existant sur le marché. Cette stratégie nécessite l’amélioration des parcours, une meilleure distribution des points d’eau et l’encadrement des élevages. La deuxième doit développer le couple produit nouveau marché nouveau telsque marché touristique et ventes des productions lait et viande. Cette perspective nécessite le développement des élevages semi-intensifs surtout dans les zones désertiques périurbaines. Dans cette optique, les techniques d’amélioration de la reproduction trouvent leur place. Ces deux perspectives d’évolution bien qu’elles soient différentes peuvent très bien coexister dans notre pays.

155. CONTRIBUTION A L’ETUDE DE LA MALADIE DES ABCES CHEZ LE DROMADAIRE (Camelus dromedarius) DAN LA REGION DE NEFZAOUA TUNISIE. M. Seddik, M.S. Ben Saïd, M. Benzarti, A. Amara, L. Messadi. Ecole Nationale de Médecine Vétérinaire 2020 Sidi T1Bbet Tunisie.

Les auteurs présentent les résultats d’une enquête épidémiologique, clinique et bactériologique relative à la maladie des abcès chez le dromadaire dans la région de Nefzaoua (Sud-Ouest de la Tunisie). Cette enquête a été réalisée entre octobre 2000 et février 2001. L’étude épidémiologique a concerné 33 élevages en extensif ainsi que les dromadaires exploités dans le secteur touristique, (étude clinique et bactériologique a concerné 38 animaux. Ce travail est divisé en deux parties: La première consiste en une étude bibliographique de la maladie des abcès et de l’élevage camelin dans la région de Nefzaoua. Dans la deuxième partie les auteurs présentent les résultats de l’enquête: Cliniquement la maladie n’affecte pas l’état général de l’animal et touche souvent les nœuds lymphatiques cervicaux inférieurs et prêscapulaires en un nombre de 1 ou 2 abcès par animal atteint. La morbidité de la maladie dans la région est de 9%. Cette maladie touche souvent les jeunes dont l’âge est inférieur à 1 an. Les facteurs favorisants les plus incriminés dans l’apparition de la maladie sont: le tatouage, le regroupement des animaux provenant de différents élevages et l’infestation par les tiques. Différents germes sont isolés notamment les staphylococques dans 53% des cas, Corynebacterium pseudotuberculosis dans i 8% et Actinomyces pyogènes dans 26%.

156. MAIN PARASITOIS OF THE DROMADARY IN TUNISIA. M.H. Jemli. National School of Veterinary Medecine-2020-Sidi Thabet, Tunisia.

The synthesis of the different studies and clinic observations carried out on dromedaries reveals that sicknesses are ranked among the major constaints on the development of the breeding of this animal in tunisia.The Trypanosomosis of Trypanosoma evansi and the scabies are the main parasitosis encountered among the Tunisian dromedaries at the present time. The scabies (Sarcoptes scabei) affect practically all breeding in the south of Tunisia with a clinic expression demonstrated among approximately10p100 of
the total number. The utilisation of systemic molecules (Ivermectine) has clearly limited more and more frequently the extension of this sickness in Tunisia. The epidemiological inquiries have revealed that more than 25p100 of dromedaries are positive to serological tracking at *Trypanosoma evansi* infection. This parasitosis with varied clinic manifestation is making up ground to reach the region of the Cap bon area during the last years. Other parasitosis also deserve to be pointed out namely: The infestation by ticks, the hydatidosis to *E.granulosis* and the cephalopinosis.

**157. EFFICACY OF CYMELARSAN® IN THE TREATMENT OF THE CAMEL TRYPANOSOMOSIS DUE TO *T.evansi*. M.L. Dia. CIRDES, 01 BP 454, Bobo Dioulasso, Burkina Faso.**

In the countries that dromaderies were bred, according many authors, camel trypanosomosis due *T. evansi*, was identified as the leading disease in camelids: recurrent pyrexia, anemia, declining milk yields, abortion, poor condition, oedema and sometimes death. To control this disease, many drugs were in the market used curatively or preventively. Some of drugs were good but many were no effective, no tolerated by animals, provoking local or general reactions even death or quickly the trypanosomes developed resistance. In such situation, to finalize a new effective molecule absolutely tolerated by the camels should be an excellent discovery for the camels breeders and veterinarian administration. The author reported the results of the efficacy of Cymelarsan® in *T. evansi* experimental or natural infection. Rabbits were infected by *T. evansi* isolated from Mauritania. After infection, rabbits showed an important PCV decrease, oedema of ears and the face, purulent abscess, serious depilation, purulent blepharit, poor body condition even cachexia. Basing one treatment with 0.25mg/kg body weight, one day after the treatment, no *T. evansi* were detected in the peripheral blood of the rabbits. After one week, all signs were disappeared. The rabbits grown again with an increase body weight. No relapse of *T. evansi* were detected. In the field in Mauritania a calf camel naturally infected by *T. evansi* with more 100 trypanosome by field optic was treated by one dose of Cymelarsan® at also 0.25mg/kg body weight. The day after the treatment, spectacular results were got: no *T.evansi* were detected by buffy coat examination, the calf camel laid down the day before, now can get up itself and to move to the pasture. Such results were also obtained on 26 she dromedaries naturally infected by *T. evansi* in Trarza region. All animal were cured. According these results, the author concluded that Cymelarsan® was very active and curative trypanocidal drug in the treatment of *Trypanosoma evansi* infections in camels.

**158. PATHOLOGY OF BALANTIDIASIS IN CAMELS (*Camelus dromedarius*). A. Khodakaram Tafti, M. Maleki, A. Oryan. Department of Pathology, School of Veterinary Medicine, P.O. Box 71345-1731, Shiraz. University, Shiraz, Iran.**

Considering the importance of digestive system lesions in camel, this study was done in order to investigate the pathologic lesions of intestines in 100 slaughtered camels in Iran. The results of this study indicated that one of the most important lesions was balantidiasis of caecum and colon with frequency of 19 percent. Diagnostic histopathological lesions included necrotizing or ulcerative colitis and typhlitis associated with invading of trophozoites of *Balantidium* into the mucosae and hyperplasia of lymphoid nodules in the submucosae. *Balantidium coli* recognized by large ovoid tophozoites with dense curved or kidney shaped macronucleus. Because *Balantidium coli* is probably a normal inhabitant of the alimentary tract of camels, The cause of such invasion is not clearly understood, but malnutrition, poor sanitary conditions and necrotic enteritidis are considered to be predisposing factors.
159. AN ABATTOIR SURVEY OF PATHOLOGICAL LESIONS OF TONGUE, ESOPHAGUS, FOR STOMACHS AND STOMACH OF THE CAMEL IN IRAN. A. Khodakaram Tafti, A. Oryan, M. Maleki, A. Kafiri. Department of Pathology, School of Veterinary Medicine, Shiraz University, P.O. Box 71345-1731, Shiraz, Iran.

Considering the importance of digestive system lesions in camel and considering this fact that, until date not a complete study has been performed on the diagnosis of lesions of digestive system in Iran, this study was done in order to investigate the pathological lesions of tongue, esophagus, fore stomachs, and abomasum in 60 slaughtered camels in Shiraz and Yazd abattoir. The results of this study indicate: that the musl important lesions and their abundance in the tongue, consist of sarcocystosis (%27), foreign body granulomas (%3), in the esophagus consist of sarcocystosis (%27), foreign body granulomas (%03), in the esophagus consist of sarcocystosis (%38), esophagitis (%12), nematodiasis (%2), diverticulum (%2), in the forestomach consist of rumenitis (%2), hyperkeratosis of epithelium (%03) and in the abomasum consist of abomasitis (%1 0) and nematodiasis(%2). Diagnostic histopathologic lesions in sarcocystosis included presence of small to large cysts of sarcocyst in muscular cells of tongue and esophagus that in some cases were with inflammatory reaction in affected muscles, foreign body granuloma included presence of a few giant cells, lymphocytes and connective tissue around the central plant bodies. In nematodiasis of esophagus, sections of nematode with granulomatous inflammatory reaction were observed in submucosa. In abomasitis included focal to diffuse infiltration and aggregation of lymphocytes, plasma cells and neutrophils in mucusa and between abomasal gland.

160. PREMIER ISOLEMENT DE Tricophyton verrucosum ET Tricophyton schoenleinii DANS L’ETIOLOGIE DE LA TEIGNE DU DROMADAIRE (Camelus dromedarius) EN TUNISIE. C. Maalem1, Z. El Ouadi2, M. Kilani3. 1Arrondissement de la Production Animale de Tozeur 2Ecole Nationale de Médecine Vétérinaire de Sidi Thabet.

Une étude a été menée sur une dermatose ayant sevi chez les camélins du sud-Ouest tunisien (gouvernorat de Tozeur) en 1998. Elle a intéressé vingt jeunes animaux dont l’âge est inferieur ou egal a 15 mois, vivant dans un troupeau sous un mode exclusivement extensif non transhumant. Les lesions essentiellement observées sur le cou, les épaules et les flancs ont été décrites puis classés selon leur morphologie. Elles ont été par la suite prélevées puis examinées. Tricophyton verrucosum et Tricophyton schoenleinii ont été isolés après culture comme agents causaux de la teigne du dromadaire pour la première fois en Tunisie.

161. ETUDE DE LA TOPOGRAPHIE DES VISCERES THORACIQUES DU DROMADAIRE (Camelus dromedarius). A. Matoussi1, J. Sautet2. 1Ecole Nationale de Medicine Vétérinaire. 2020 Sidi Thabet, Tunisie. 2Ecole Nationale Vétérinaire de Toulouse, 31076, France.

The authors has dissected 13 dromadaries to study topography of the thoracic viscera. A detailed description of the topography of the pleural srohs and its content, of the heart and other thoracic organs its completed by a comparative study with the other domestic animals.

162. SENILE CHANGES OF THE BRAIN IN A TWO-HUMPED (BACTERIAN) CAMEL (Camelus bactrianus). H. Nakayama, S. Nakamura, K. Uetsuka, K. Doi. Department of Veterinary Pathology, The University of Tokyo, Tokyo, Japan.
Senile plaques with amyloid belli protein as a major constituent are a conspicuous feature in the brain of aged humans, monkeys, dogs and bears. We found cerebral senile plaques of the diffuse type, but not the mature type, in an aged female two-humped (Bactrian) camel (*Camelus bactrianus*) of more than 20 years old. The camel was euthanized due to unfavorable prognosis of less activity. At necropsy, septicemia due to phlegmonous inflammation and swelling of the right axillary lymph node were noted. Ovarian adenocarcinoma and its systemic metastases were found by histopathological examination. Many diffuse type senile plaques with the demarcated border were detected in the cerebral cortex by PAM stain. The senile plaques and a few cortical capillaries in the brain were immunoreactive with anti-amyloid belli protein serum. Congophilic amyloid deposition was detected in the amyloid belli protein-positive capillaries, but not in the senile plaques. Glial cell proliferation and ceroid-lipofuscin deposition in fleurons and macrophages, and polyglucosan bodies were also observed. We believe this to be the first detailed report of senile plaques in a herbivore, and these findings suggest the possibility of senile plaque formation in a wide variety of mammalian species.


The Pharmacokinetics of ketoprofen (KP) enantiomers were studied in ten female and eight male camels after a single intravenous dose (2.0mg/kg) of racemic KP. A high performance liquid chromatographic (HPLC) method was developed for the quantitation of the R-and S-enantiomers without derivatization of the samples using a S,S-whelk-01 chiral stationary phase column. The data collected (median and range) were as follows: the areas under the curve to infinity (AUC) (ug/ml per h) were 22.4 (13.5-29.7 and 10, 8 (13.8-22.1) for R-and S-KP, respectively, in female camels while he corresponding values in male camels were 16.0 (12.9-22.4) and 14.4 (11.0-19.3). In both sexes, the AUC for the R-enantiomer was significantly larger than that of the S-enantiomer. Total body clearances (Cl_t) were 44.6 (33.7-74.1) and 50.6 (45.2-72.4) ml/kg per h for R-and S-KP, respectively, in female camels and were 62.8 (44.6-77.8) and 69.6 (51.8-91.1) ml/kg per h for R-and S-KP, respectively, in male camels. In both sexes of camels, the Cl_t values for R-KP were significantly lower than its corresponding antipode. The steady – state volumes of distribution (Vss) were 97.9 (83.8-147.2) and 102.0 (90.1-169.0) ml/Kg for R- and S-KP, respectively, in female camels and were significantly different from each other, while the respective values in male camels were 151.5 (105.3-222.3) and 150.0 (114.7-229.0) ml/kg but were not significantly different from each other. The volumes of distribution (area) followed a similar pattern where the values for R-And S-KP in female camels were 118.5 (95.6-195.2) and 137.6 (115.8-236.2) ml/kg, respectively, and the respective values in male camels were 215.6 (119.1-270) and 229.1 (143.3-277.4) ml/kg. The elimination half-lives (t1/2?) were 1.88 (1.42-2.34) h and 1.83 (1.67-2.26) h for R-and S-KP, respectively, in female camels and were significantly different from each other, while the corresponding values in male camels were 2.11 (1.50-4.20) and 2.33 (1.52-3.83) h for R-and S-KP, respectively, but were not significantly different from each other. The mean residence time followed a similar pattern. All pharmacokinetic parameters for R- and S-KP, in female camels were not significantly different from their corresponding values in male
camels. The extent of protein binding for R-and S-KP was evaluated in vitro by ultrafiltration. The extents of protein binding for R-and S-KP were not significantly different from each other when each enantiomer was supplemented separately. However, when the enantiomers were supplemented together, protein binding of R-KP was significantly higher than that of S-KP in female but not in male camels.

164. STUDY OF THE SPECIFICITIES AND THERAPEUTIC OF CAMEL MILK. M.S. Al-Shaha Orouba. Department of Physiology College of Veterinary Medicine, University of Baghdad, Baghdad-Iraq

165. LES INDICATEURS DE PERFORMANCES DES RESEAUX D’EPIDEMIOSURVEILLANCES DES MALADIES ANIMALES. P. Hendriks, J. Domenech. Cirad-envt, campus international de Baillarguet, TA30/G, 34398 Montpellier, France.

La mise en place des réseaux d’épidémiосsurveillance est une priorité pour les services vétérinaires des pays qui souhaitent s’ouvrir au commerce international des animaux et de leurs produits. La collecte de données sanitaires fiables est en effet un impératif pour conduire les activités d’analyse du risque indispensables aux échanges. La formalisation des structures et méthodologies mises en œuvre par les réseaux de surveillance est une étape essentielle pour leur reconnaissance au niveau international. Elle concerne les structures institutionnelles et l’intégration dans la réglementation sanitaire nationale des activités de surveillance ainsi que le développement de protocoles complets qui jouent le rôle de manuels de procédure pour la mise en place des activités. La qualité du système d’information mis en place pour faire fonctionner ces réseaux est enfin un point essentiel. L’élaboration et le suivi d’indicateurs de performance est une étape importante pour permettre l’amélioration des réseaux de surveillance par les coordinateurs nationaux et faciliter l’évaluation externe des systèmes de surveillance par les organisations internationales. Ces indicateurs doivent également permettre la comparaison des systèmes de surveillance entre pays. La méthodologie à suivre pour élaborer ces indicateurs doit s’assurer de respecter les spécificités nationales de la surveillance tout en s’intégrant au cadre des lignes directrices données par
l’Office International des Epizooties. Elle doit également garantir une réelle participation des principaux acteurs des réseaux faute de quoi les indicateurs ne seront pas utilisés de manière optimale. L’appropriation puis l’utilisation au niveau national est donc l’enjeu majeur des indicateurs de performance avant leur utilisation à l’échelle internationale. Un champ de recherche est donc ouvert pour proposer une méthodologie d’élaboration des indicateurs standardisée, pratique et fiable.

166. LA PÉRIPNEUMONIE CONTAGIEUSE BOVINE EN AFRIQUE : SITUATION ACTUELLE ET PERSPECTIVES D’AVENIR. R. Bessin. OUA-BIRA, P.O.Box 30786, Nairobi, Kenya.

La péripnéumonie contagieuse bovine (PPCB) est une des principales menaces pour l’élevage bovin en Afrique et dans d’autres parties du monde, en particulier dans le sud de l’Europe, en Asie et au Moyen Orient. Elle est dûe à Mycoplasma mycoides subsp. Mycoides SC (biotype bovin). L’importance économique de la PPCB est élevée dans les pays infectés, mais est quelquefois difficile à apprécier dans sa forme chronique. Le type d’élevage joue un rôle essentiel dans l’épidémiologie de la maladie. En particulier la PPCB peut se transmettre grâce aux mouvements d’animaux d’une région à une autre ou d’un pays à un autre. Dans les régions sahéliennes et soudano-sahéliennes d’Afrique où la PPCB est souvent endémique, les pratiques d’élevage impliquent le regroupement des troupeaux autour des points d’eau et le rassemblement en enclos pendant la nuit. La prévalence et l’incidence économique de la maladie varient d’un pays à l’autre. En Afrique de l’Ouest, la PPCB est surtout enzootique ou sporadique ; en Afrique Centrale, elle est peu alarmante tandis qu’en Afrique de l’Est et du Sud-Ouest, elle devient une contrainte majeure qui menace directement l’Afrique Australe. L’Afrique du Nord est indemne de la maladie. La méthode de contrôle et ou d’éradication de la maladie passe soit par le contrôle des mouvements des animaux ; la vaccination massive annuelle ; et l’abatage des animaux infectés ou exposés ou par la combinaison de ces méthodes ; la surveillance active et la sérosurveillance doivent être conduits dans les programmes d’éradication. Des contraintes majeures existent quant à l’application de ces mesures. Dans les pays indemnes ou menacés une alerte préventive et un plan d’urgence doivent être mis en place.

167. IN VITAM PERFORMANCES AND CARCASS TRAITS OF”NERO SCILIANO” PIGS REARED OUTDOOR AND PLEIN AIR. V. Chiofalo, A. Zumbo, L. Liotta, B. Chiofalo. Dept. MO. BL. FI. PA. Sect. Zootecnica e Nutrizione animale Facoltà di Medicina Veterinaria - Università di Messina Polo Annunziata, 98168 Messina, Italy.

The”Nero Siciliano” pig, is an autochthonous black pig, which lives in the rural areas of the Nebrodi mountains (max. altitude 1800 meters above sea-level) in north Sicily, characterised by high rusticity, good adaptability to often unfavourable environmental conditions, disease resistance. Thirty” Nero Siciliano” pigs (16 castrated and 14 gilts), clinically healthy, were divided in two homogeneous groups (age 3-4 months, B.W. 39±2 kg): OD reared outdoor (15 animals fed undergrowth products as: roots, tubers, acorns, spontaneous fruits and they received a partial food integration) and PA reared in plein-air system (15 animal fed commercial food). Pigs were slaughtered at 80 kg of B.W., on average. Carcass yield was calculated. Right sides were dissected into lean cuts, fat cuts, bone cuts. From loin a sample cut (Including 2nd – 5th lumbar vertebra) was isolated and dissected into the major tissues according ASPA’s method (1991). Data obtained were subjected to statistical analysis according to GLM procedure of SAS (1999). The OD group reached the slaughter weight after 250 days and PA group after 160 days from the
beginning of the trial. The slaughter yield between two groups (PA 83% vs OD 71%) was not statistically significant. The backfat thickness was higher in PA (6.4 cm ± 2.26) than OD (2.45 cm ± 0.95) group. Rearing system did not influence the composition of sample cut for lean (PA 77.67% vs OD 79.07%) and bone (PA 16.9% vs OD 17.4%) significantly, while statistical difference (P £ 0.05) was registered for fat (PA 5.16% vs OD 3.43 %). The rearing system influenced the most important characteristics in vitam and post mortem of”Nero Siciliano” pigs. Particularly PA pigs showed the best performances of growth with the highest carcass yield, while OD pigs were the best for lean of the sample cut.


La peste des petits ruminants (PPR) a été décrite pour la première fois en Côte d’Ivoire, en 1942. Depuis cette date et pendant une trentaine d’année, elle a été considérée comme une maladie spécifique des petits ruminants de l’Ouest africain. Le développement de tests de diagnostic spécifiques et une meilleure information des vétérinaires de terrain, révèle en fait, une extension plus importante de la maladie en Afrique (aire comprise entre le Sahara et l’Equateur), ainsi qu’une présence au Moyen Orient et en Asie du sud-ouest. Dans ces régions du monde, 4 lignées virales ont pu évoluer indépendamment l’une de l’autre, ce qui démontrerait une présence ancienne de la maladie dans les pays où elle est actuellement décrite. Huit cent millions de petits ruminants sont à risque et la vaccination représente la méthode prophylactique de choix pour contrôler la PPR. Un vaccin efficace existe, obtenu par atténuation de la souche Nigéria 75-1 sur culture cellulaire. Sa thermosensibilité peut cependant en limiter l’efficacité. De nouveaux vaccins, marqués ou basés sur des vecteurs thermostatables sont développés par le CIRAD. Pour la valence PPR, un des vecteurs actuellement expérimentés est le virus vaccinal capripox. Très efficace, il a fait la preuve de son pouvoir protecteur à la fois contre la variole caprine et la peste des petits ruminants. La voie d’administration orale est également étudiée grâce à des vecteurs à tropisme digestif ; elle faciliterait l’administration du vaccin PPR à la faune sauvage.

169. POINT DE VUE LOCAL, VERSUS GLOBAL DANS LA LUTTE CONTRE LA PERIPNEUMONIE CONTAGIEUSE BOVINE (PPCB) EN ÉTHIOPIE. G. Laval1,2, P. Bonnet1,2, M. Lesnoff1, B. Faye1, A. Workalemahu1 1International Livestock Research Institute (ILRI),Livestock Policy Analysis Programme, P. O. Box 5689, Addis Ababa, Ethiopie 2Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD – EMVT), TA/30A, 34 398 Montpellier Cedex 5, France.

La lutte contre la PPCB, actuellement considérée comme prioritaire par les services vétérinaires africains, fait l’objet d’un débat important en Afrique. Les stratégies de lutte envisageables dépendent du point de vue observé. Un suivi d’élevage (enquête longitudinale) en milieu traditionnel sédentaire mené en Ethiopie (West Wellega) montre que dans un contexte où l’intervention des services publics est faible, les éleveurs ont recours à une gestion privée individuelle de la maladie (automédication). En effet dans un contexte enzootique apparemment stable l’utilisation de traitements antibiotiques et l’ajustement des pratiques d’élevage, tel que l’isolement des animaux malades, permettent une forte réduction des pertes subies au niveau du troupeau individuel, en particulier de la mortalité. Les points de vue nationaux et internationaux recommandent par ailleurs une gestion publique à grande échelle de la PPCB par
vaccination de masse et contrôle des mouvements d’animaux et proscrivent les traitements antibiotiques, l’objectif final étant l’éradication de la PPCB nécessaire pour l’accès d’un pays ou d’une région aux marchés internationaux des produits bovins. La mise en œuvre sur le terrain des réglementations de l’Office International des Epizooties (OIE) pour le contrôle de la PPCB est discuté dans un contexte d’économie agricole de subsistance où les services publics disposent de peu de ressources et où le commerce du bétail reste localisé. Dans ce contexte, la prise en compte de perspectives multiples dans l’analyse et une gestion participative et privée de la pathologie visant à limiter son impact économique au niveau du troupeau d’exploitation est constatée et discutée en comparaison des actions proposées dans les réglementations internationales ou d’actions préventives collectives.


Dans le cadre du Programme Panafricain de Contrôle des Epizooties (PACE), coordonné par l’OUA/IBAR et financé par l’Union Européenne, une vingtaine de pays de l’Afrique de l’Ouest et du Centre ont défini une liste de maladies prioritaires pour lesquelles ils tentent de développer des stratégies de contrôle voire d’éradication. En dehors de la peste bovine pour laquelle des efforts soutenus ont permis l’éradication, les autres épidémies considérées comme prioritaires sont la PPCB, la Fièvre aphteuse, la PPR, la PPA et la FVR. Pour arriver à un meilleur contrôle de ces maladies, les pays ont développé différentes stratégies à l’échelle nationale, en particulier ont mis en place des systèmes de surveillance des maladies animales qui permettent d’améliorer la collecte et le traitement des informations sanitaires. La PPCB reste persistante malgré les campagnes de vaccinations. Les pays qui déclarent la fièvre aphteuse n’ont pas engagé pour autant des mesures de lutte appropriées. La peste des petits ruminants est devenue endémique surtout en Afrique de l’Ouest car la protection vaccinale touche à peine 20 % des prélevés. La peste porcine africaine a été éradiquée en Côte d’Ivoire et au Ghana, elle reste une grande préoccupation pour des pays comme le Togo, le Bénin, le Nigeria, la Gambie et le Sénégal. Des cas récents de fièvre de la Vallée du Rift n’ont pas été signalés mais cette maladie constitue une préoccupation pour le Mali, la Mauritanie et le Sénégal. Pour améliorer le contrôle de ces maladies, le PACE tente de développer des actions à une échelle sous-régionale ou régionale qui reposent notamment sur un renforcement des capacités institutionnelles des services vétérinaires des États, un meilleur accès des éleveurs aux services et produits vétérinaires et une amélioration des concertations entre les pays en vue d’harmoniser les stratégies et d’engager des actions communes.


La Fièvre catarrhale du mouton, (ou bluetongue (BT), maladie majeure non contagieuse à transmission vectorielle, a été décrite pour la première fois en 1870 en Afrique du Sud suite à l’introduction, à partir d’Europe, d’ovins de race mérinos. Le premier foyer décrit en dehors du continent Africain était en Chypre en 1943. Ensuite, la maladie a été déclarée dans plusieurs autres régions du monde. Plus récemment la maladie a été rapportée en Grèce et en Bulgarie. Des preuves sérologiques suggèrent que la maladie soit encore plus répandue. En janvier 2000, la Tunisie a enregistré les premiers foyers de BT sur son territoire. L’objectif du présent travail est de décrire la maladie en Tunisie en étudiant les particularités...

L’analyse des titres en anticorps contre le virus de la BT a révélé une différence significative (p<0,001) entre les bovins (53,4%) et les ovins (15,14%). Chez les ovins, le pourcentage des animaux positifs chez les jeunes est plus faible (17/812=2,09%) que chez les adultes (240/886=27,09%) (p<0,001) Bien que les troupeaux étudiés ne soient distants que de quelques mètres et qu’ils pâturent sur le même parcours, une différence significative (p<0,001) dans le pourcentage d’animaux séropositifs par. 1 troupeau a été observée (T 24=21,03%; T1=11,13% et T1 1=12,95%) Une différence entre les groupes d’âge a été notée dans les trois troupeaux.

172. SAFETY AND EFFICACY OF CLONE 13 RIFT VALLEY FEVER VACCINE STRAIN IN SHEEP. P. Hunter Onderstepoort Biological Products Ltd, Private Bag X07, Onderstepoort, 0110. South Africa.

The viral disease Rift Valley fever (RVF) has enjoyed a recent resurgence in some East African countries and has caused subsequent outbreaks in Middle Eastern countries. These recent outbreaks have highlighted the problems of current RVF vaccines: although economical to produce and an effective inducer of immunity, the live Smithburn vaccine causes teratology in pregnant sheep vaccinated at certain stages of pregnancy. Killed RVF vaccines on the other hand are cumbersome to produce and give optimal immunity only after 2 to 3 inoculations, which makes them less useful during outbreaks of the disease. A strain of Rift valley fever which has a large deletion of the NS gene and is avirulent in mice and hamsters, was tested for its potential as a live vaccine strain. The strain designated Clone 13, was tested for its safety and efficacy in sheep in all stages of pregnancy. None of the sheep vaccinated between 30-100 days of pregnancy showed any signs of teratology or abortions. After a single vaccination pregnant sheep vaccinated with Clone 13 strain were protected against abortion while 100 % of controls aborted, after challenge with a virulent RVF isolate. Clone 13 is therefore a safe, effective and economical alternative vaccine for current RVF vaccines.


India has the pride possession of major share of the world livestock population with about 200 million Cows, 75 million Buffaloes, 54.56 million Sheep, 102.87 million Goats, 8.7 million Pigs etc. India’s milk production is 80 million tones. Animal rearing has traditionally been an integral part of our rural economy and despite low productivity and low input, has shown an impressive sustained annual growth
rate of 6.23% and acts as an integrator of soil, crop and animal production systems, which is very eco-
friendly and therefore, sustainable. It has been generating not only food and nutrition but also raw
materials for rural and cottage industries in addition to fuel, organic fertilizer and farm power. Livestock
sectors generates massive employment opportunities, both directly and indirectly for 70 million househo~ particularly in rural areas. As per the current estimates, Animal husbalKhy sector contributes
over 1,80,000 crores annually and Rs.500 crores per day to National Gross Domestc Products (GDP).
Since Independence India witnessed remarkable progress in Animal husbalKhy Section i.e. Milk
production increased from 26 million tonnes in 1950 to 80 million tonnes at present time. India is the
largest milk producer in the world. 74.3% of our population is living in the villages and more than 62%
of it is directly dependent on agriculture including animal husbandry, which contributes nearly 30% of
the country’s GDP. Involvement of both technologists, and diligent farmers of this country, we have
‘Green’, ‘White’, ‘Yellow’ and ‘Blue’ revolutions. We are moving towards nutritional security for which
we need to achieve “Rainbow - Revolution” Our national goal is to improve the productivity, profitability,
stability and sustainability of the major animal farming systems in the present day scenario of global
competitiveness. The present scenario of animal disease in this subcontinent brings out the compulsions
to put into operation regional programme as part of global initiative for reduction, containment, control
and elimination of many diseases of economic and public health importance. In India, we have addressed
viral diseases of livestock is not different from global priorities. A National programme on Rinderpest
(RP) eradication was undertaken throughout the country in 1991. This was supported for differential
diagnosis of RP and PPR. Tissue Culture rinderpest vaccine (TCRP) has been used for this control and
eradication programme. The concerted efforts resulted in complete control of the disease and the last
outbreak was reported in 1996 from one of the southern states only. An vaccinations against RP have
been stopped in the country including the international borders w.e.f 2000. OIE has since given the status
of “Provisional freedom” from the disease to India. As the disease is no longer reported in India, the
Rinderpest vaccine is not permitted for routine use in animals including small ruminants. Sero-
surveillance studies are conducting on national basis at present. If the country maintains the negative
disease status for the next few years, RP “disease free status” is expected to be conferred by OIE.

174. EFFECTS OF HOT CLIMATE ON THE HEALTH REPRODUCTION AND PRODUCTION
IN SHEEP. D.E. Monty, H.L. Jenkins. Department of Animal Science, University of Arizona, Tucson, AZ
85721 USA.

Environmental stressors often impair the health of livestock, and good health is a prerequisite for good
production and reproduction. The responses of sheep to intense heat in hot, arid regions are often more
detrimental than infectious and contagious diseases. Many microorganisms and parasitic ova are
desiccated by hot-dry conditions. In contrast, hot-humid conditions promote their growth, and the
occurrence of disease. To adapt to chronic heat stress, sheep must reduce all processes that increase
metabolic heat production. Additional energy is then needed to dissipate the excess body heat into the
environment, in order to maintain homeothermy. Reproduction, nutrition, and immune responses to
disease suffer the most in this adaptive process. Heat stress reduces appetite and feed intake, which
lowers body heat production. Heat stress inhibits spermatogenesis and sexual behavior of the ram; and it
reduces ovulation, estrus, pregnancy, parturition and lactation of the ewe. It increases embryonic
mortality, neonatal mortality and the birth of small, weak lambs. It impairs the establishment of maternal
behavior and inhibits bonding between the ewe and her lamb(s). Large diurnal changes in temperature,
which are characteristic of hot, desert regions, add additional stress to ewes and their newborn lambs. Approximately 10% to 35% of the annual lamb crop, worldwide, is lost during the prenatal, natal and postnatal periods, and perinatal lamb mortality accounts for 80% to 90% of all preweaning losses. Prevention is accomplished by providing adequate nutrition for pregnant and nursing ewes, shade for ewes and their lambs, supervision and assistance at birth, a close source of clean water, proper sanitation and effective disease, parasite and predator control programs. Control can be greatly facilitated by implementing a program of simple necropsies of dead lambs in the field, with proper use of veterinary diagnostic laboratory services. A balance must be established between heat stress and the productivity of sheep in hot climates. Procedures must be developed that effectively control the microenvironment of sheep when heat stressor is intense, provide adequate nutrition when the quantity and quality of feed is low, develop heat tolerance within the sheep population by crossbreeding and genetic selection, and institute effective disease, parasite and predator control programs.

175. BOVINE VIRAL DIARRHEA VIRUS (BVDV), THE DISEASE, VACCINATION AND ERADICATION POLICIES. S. Imbert. France.

Bovine viral diarrhea virus (BVDV) is the cause of a complex disease syndrome with world wide distribution in cattle. The virus was originally recognised as causing acute gastrointestinal disease, but it is now known to infect almost all organ systems, with particular impact on the reproductive and immune system. BVDV infections have important immunosuppressive effects and non-specific signs such as abortion. Clinically affected animals and poor growth may indicate impending problems with regard to BVDV. Intrauterine infections can result in persistently BVDV infected (p.i) offspring. These p.i. animals can develop the same clinical signs as acutely infected animals, and there can also show strong variation in occurrence and severity of signs. Persistently infected animals often do poorly, often have a reduced growth rate and may show increased susceptibility to many common diseases. When p.i. animals develop “Mucosal disease”, lesions can be found along the mucosa of the entire gastro-intestinal tract, and it is always characterised by severe leucopenia and thrombocytopenia. The animals usually die within 3 to 10 days. Therefore, it is extremely important to know the BVDV status of a herd and to prevent BVDV infections and outbreaks. The disease, monitoring of herds, vaccination programmes and eradication policies will be discussed.

176. CHANGES OF ELECTRICAL PROPERTIES OF CHAMELEON SCIATIC NERVES AT LOW TEMPERATURE (250K): BIOSUPERCONDUCTIVITY. H. Abdelmelek1, A. M’Chirgui2, M. Ben Salem1, M. Sakly1. ‘Laboratoire de Physiologie Animale, Faculté des Sciences de Bizerte 7021 Jarzouna, Tunisia.’Laboratoire de Physique des Matériaux, Faculté des Sciences de Bizerte 7021 Jarzouna, Tunisia.

The aim of the present study was to analyze electric resistivity at different ambient temperatures between 300 to 10 K in the chameleon and frog sciatic nerves. When the electrical contacts were leaned on the sciatic nerve of a chameleon, a stability of the sciatic nerve resistivity is observed for 250 K < T < 300 K and then after a rise of electrical conductivity is apparent below 250 K. This dependence below 250 K can be regarded as a”superconductor-like” behavior. In frog, the electrical wires are just leaned on the sciatic nerve; the nerve resistivity increases with temperature and reaches a maximum relative value close to 1.5
at a temperature close to 250 K. Such dependence is generally associated with a semi-conducting behavior. The nerve resistivity decreases also abruptly at temperature lower than 250 K, to reach a low relative resistivity close to 0.1. Thus, for the first time we report the existence of a new form of electric conductivity in chameleon sciatic nerve at low ambient temperature, which in turn has many electric similarities with inorganic or organic superconductors.

177. CRESTAR® AND PMSG DON'T AFFECT SYSTEMIC INSULIN-LIKE GROWTH FACTOR-I BUT INDUCE ESTRUS IN POSTPARTUM SUCKLING DROMEDARY FEMALES. M. Hammadi1, T. Khorchani1, T. Moslah1, M. Chammem1, N. Slimane2, D. Portetelle3, R. Renaville1
1Laboratoire d’élevage et de la faune sauvage dans les régions arides et désertiques, IRA, 4119 Médenine, Tunisie. 2Ecole Nationale de Médecine Vétérinaire, 2020 Sidi-Thabet, Tunisie. 3Faculté des Sciences Agronomiques de Gembloux, 5030 Gembloux, Belgique.

In North Africa, camel (Camelus dromedarius) is a short seasonal breeder and interval between calving averages 24 months. In the objective to reduce this interval many techniques have been developed (Moslah, 1993; Hammadi, 1995). In this study we report the effect of exogenous hormonal treatment during postpartum period on the systemic concentration of insulin-like growth factor-I (IGF-I), the induction of estrus and the rate of conception in she-camel. Ninety-six dromedary females in late gestation and belonging to 13 private herds in southern Tunisia were chosen to randomly assigned at 3 to 7 weeks postpartum to 3 treatment groups. Group 1 (n=33) was treated with Crestar® and injected with PMSG (2000 IU) after removal of the Crestar® implant, group 2 (n=15) was treated with Crestar® and group 3 (n=48) was treated with PMSG (2000 UI) only. Blood samples were collected by jugular venipuncture at the end of gestation and on day 0 (before treatment) from all dams and on day 9 (implant removal) from females in group 1. Samples were centrifuged and plasma was stored at –20°C until analysis of IGF-I and progesterone. After calving, the concentration of progesterone decreased (P<0.001) and that of IGF-I increased (P<0.01). They averaged 2.5 ± 1.3 ng/ml and 39.0 ± 11.8 ng/ml vs. 0.5 ± 0.4 ng/ml and 44.9 ± 14.9 ng/ml at the end of gestation and after calving, respectively. At the removal day of implant, the concentration of progesterone was lower than 1 ng/ml and the concentration of IGF-I was statically not different (P>0.05) from the initial concentration (47.9 ± 20.9 ng/ml and 49.7 ± 21.7 ng/ml, respectively). Dams exhibited estrus 24 to 72 h after removal of implant in group 1 and group 2 or injection of PMSG in group 3. The percentage of females in heat was not different (χ² =3.4, P>0.05) in the three groups and it averaged 64.6%. However, the conception rate was less than 12.5% in the 3 groups. In conclusion, Crestar and PMSG don’t affect systemic IGF-I, but induce estrus in postpartum suckling dromedary females.

178. EFFET DE LA SAISON SUR LA TEMPERATURE ; LA FREQUENCE CARDIAQUE ET LA FREQUENCE RESPIRATOIRE CHEZ LES BOVINS LAITIERS EN TUNISIE. O. Souilem1, F. Mahmoudi1, M. Gharbi2, M.A. Darghouth1. 1Service de Physiologie - Thérapeutique. E.N.M.V. de Sidi Thabet. 2020 Sidi Thabet, Tunisie. 2 Service de Parasitologie. E.N.M.V. de Sidi Thabet. 2020 Sidi Thabet, Tunisie.

L’élevage bovin laitier représente en Tunisie une activité agricole qui contribue d’une manière non négligeable au produit national agricole. En été, la production laitière chez les bovins enregistre une baisse notable. Chez certains animaux, des modifications des paramètres physiologiques plus ou moins
importantes ont été relatées par plusieurs cliniciens. Ces derniers ont parfois du mal à scinder ce qui est pathologique de ce qui est physiologique. Le but de ce travail est de déterminer l’effet de la saison sur certains paramètres physiologiques : température centrale, fréquence respiratoire, fréquence cardiaque et paramètres hématologiques. L’étude a eu lieu durant les mois de février et d’octobre 1998. Elle a été menée dans un élevage bovin laitier situé à l’étage sub-humide à semi-aride de la Tunisie (Sidi Thabet, Gouvernorat de l’Ariana). La température et l’hygrométrie ont été relevées d’une manière continue. La température rectale, la fréquence respiratoire et la fréquence cardiaque ont été explorées trois fois par semaine (chaque mesure a été effectuée trois fois de suite). La température centrale moyenne était de 38.19 en février et de 39.19 en juillet. La fréquence cardiaque était de 67 cycles/mn en février et de 85 en juillet. Le fréquence respiratoire était de 25 cycles/mn en février et de 65 en juillet. Toutes ces variations étaient significatives sur le plan statistique (au risque de 0.05 p. cent). Cette augmentation des paramètres physiologiques doit être prise en compte par les cliniciens qui doivent faire la différence entre une réaction adaptative et un état pathologique.

179. ETUDE ANATOMIQUE DES VOIES RESPIRATOIRES ET DES RAPPORTS BRONCHIO-VASCULAIRES DU DROMADAIRE (Camelus dromedarius). A.Matoussi1, T. Ben Arous2. 
Ecole Nationale de Medicine Vétérinaire 2020 - Sidi Thabet,Tunisie. 
Msaken, Tunisie.

Les moulages des ramecences broncho-vasculaires de 15 poumons de Dromadaire sont obtenus par injection d’une matière plastidue, suivi d’une corrosion à d’une chlorhydrique, L’organisation anatomique des ramecences bronchiques des poumons, gauche et droit, et des rapports broncho-vasculaires est complété par une étude comparative avec les autres mammifères domestiques,

180. HISTOLOGICAL STUDY ON THE MAJOR SALIVARY GLANDS IN ONE-HUMPED CAMEL (Camelus dromedarius). A. Nabipur. Department of Basic sciences, scool of veterinary medicine, Ferdowsi University of Mashhad, Mashhad, P.O.Box: 91775-1793, Iran.

This survey was carried out to investigate anatomy and histology of major salivary glands of one humped camels. Histological techniques. The parotid salivary gland is the larget in camel. It is situated in the base of ear. The color of the gland is dark red and weight about 145 gm. The parotid gland is purely serous and structurally it is a compound tubulo-alveolar gland. The intercalated and striate ducts are located within the lobule and lined by low cuboidal and simple columnar epithelium, respectively. The interlobular and main excretory ducts are lined by stratified columnar epithelium that change to stratified squamous epithelium where the main parotid duct opens into the oral cavity. The mandibular salivary gland. It’s color is light brown and weights about 48gm. It is a compound tubulo-acinar gland composed of both mucous and serous acini. The duct system is like that of the parotid salivary gland. The sublingual salivary gland is thin and long that lies under the mucousa of the tongue. It’s color is light yellow. It’s a compound acinar gland with predominant mucous acini. The intercalated ducts are not prominent. The striated and interlobular ducts are lined by low cuboidal and simple columnar epithelium, respectively. The epithelium lining of the main excretory ducts was changed from stratified cuboidal to stratified squamous.
181. BLOOD BIOCHEMISTRY PARAMETERS IN TUNISIAN DROMEDARY: USUAL VALUES AND PHYSIOLOGICAL VARIATIONS. S. Ben Romdhane¹, M.N. Romdhane¹, M. Jaafar², A. Mebazza². Biochemistry laboratory, Veterinary School 2020 Sidi Thabet, Tunisia. Biochemistry laboratory, la Rabla hospital, Tunis, Tunisia.

The purpose of this study was to determine reference serum biochemistry values from dromedary (camelus dromedarius) in Tunisia and the physiological variations from the sex, the age and the reproduction stage. Usual serum biochemistry values were determined in blood samples from 165 apparently dromadaries 85 males and 80 females, aged 1 to 17. Parametric reference ranges and physiological variations are determined by calcium organic phosphate, magnesium, natrium, potassium, glucose, Triglycerides, cholesterol, urea, creatinin bilirubin total proteins and fractions and enzymes activities (ASAT,ALAT, LDH, LP, GGT and CK). The results demonstrate values which agreed with literature a significant statistically difference in function of the sex for Ca,P,K, glucose, TG, cholesterol, urea creatinune, albuminum, B and y globulins LDH,CK, ALP and GGT. Of the age for Ca, P, K, TG, bilirubin g.globulin, ASAT, LDH, CK, ALP and GGT. And of the reproduction stages for Na, TG, cholesterol ASAT, LDH, CE, ALP and GGT are detected from the ANOVA analysis (p< 0.05). They reference ranges for serum biochemical analysis of dromedary can be used as the reference basis for detecting metabolic and nutritionnel desorder in this kind in Tunisia.

182. STUDY OF COMPARATIVE ANATOMY AND HISTOLOGY OF TESTIS, EPIDIDYMIS AND DIFFERENCES IN CAMEL (DROMEDARY) COW AND SHEEP. A.R. Raji, H.Rezapure, M.Hosseini. Department of Anatomy, Faculty of Veterinary Med.Ferdowsi University Mashed, Iran, P.O.Box :91775-1793. Iran.

The camel is renowned for its ability to survive hard environment of the desert. Study of anatomy and histology of male reproductive system are very important for diagnosis of disease and increase of reproduction therefore we take a decision study about this subject. The testis, epididymis and deferens of 12 healthy camels, sheep and cow were collected at the slaughterhouse (Mashed) just after death. Then segregated and their weight, volume, color and maximum length, width and thickness were recorded. The sample collected from testis (proximal, middle, distal), epididymis (head, body, tail and deferens), the collected sample after washing by distilled water were placed immediately in 10% buffered neutral formalin. The slices were then processed to produce paraffin section (5-7 M)and sained with hematoxyline and study with light microscopy. Light microscopy showed that tunica albuginea of testis in camel is thick and mainly collagenous with isolated bundle of smooth muscle and parenchyma is brown with more trabicule. Pampiniform plexus in camel is very big but cremaster is very thin and long. Interstitial tissue in camel was composed of Leydig cell and reticular fibers. Deferens in camel was composed thick epithelium and steroctila is more and short.
VI. BUIATRICS

183. BOVINE VIRAL DIARRHEA, INFECTIOUS BOVINE RHINOTRACHEITIS AND PARA INFLUENZA TYPE-3 VIRUS INFECTION, IN THREE CATTLE HERDS IN EGYPT IN 2000: EPIDEMIOLOGICAL, CLINICAL, VIROLOGICAL AND PATHOLOGICAL STUDIES. A. Abd El Rahim¹, G.G. Shehab², N.M. Aly³.
¹Department of Animal Medicine, Faculty of Veterinary Medicine, Assiut University, 71526 Assiut, Egypt., ²Department of Pathology, Animal health Research Institute, Nadi El-Said Street, Dokki, Giza, P.O. Box 264, Cairo, Egypt, ³Department of Virology, Animal health Research Institute, Nadi El-Said Street, Dokki, Giza, P.O. Box 264, Cairo, Egypt.

This study reported mixed infection of bovine viral diarrhea (BVD) virus with infectious rhinotracheitis (IBR) virus and para-influenza type-3 (PI-3) virus in three cattle farms in Egypt. In 2000, young calves in three cattle herds in Monofia province, Fayoum province and in Governmental quarantine of Behira province, showed symptoms of enteritis either alone or accompanied with respiratory manifestations. The affected herds were visited and diseased animals were clinically examined. Many epidemiological aspects such as morbidities and mortalities as well as economic losses were calculated. EDTA-blood samples and nasal swabs were collected for laboratory diagnosis using cell culture method, Immunofluorescence (IF), hemagglutination (HA) test, hemagglutination inhibition (HI) test and immunoperoxidase (IP) technique. Both cytopathic and non-cytopathic BVDV biotypes were isolated from the obtained samples. The laboratory investigations revealed that mixed infection with BVD, IBR and PI-3 viruses is the main cause of calf mortalities. A total of nineteen dead calves from the three herds were subjected for thorough postmortem examination. Tissue samples from recently dead calves and aborted foeti were obtained for immunohistochemical and histopathological studies. The most remarkable histopathological findings were massive degenerative, necrotic and erosive changes of the lining epithelial of the alimentary tract with severe hemorrhages, congestion and vasculitis. Most of the lymphoreticular organs were depleted from lymphocytes with a marked congestion of the vasculature. The present study suggested that the immunosuppressive effect of BVD virus had predisposed the animal to secondary infection with IBR and PI-3 viruses. This study concluded that mixed infection with BVD, IBR and PI-3 viruses should be considered as one of the infectious causes of pneumoenteritis and subsequently the high morbidities and mortalities among young calves in Egypt. Consequently the preventive and control measures against these infectious agents should be adopted. All animals imported into Egypt should be free from BVD virus infection. Control programs for detection and removal of BVDV-persistent cattle should be applied in cattle herds allover the country.

184. AN OUTBREAK OF MALIGNANT CATARRHAL FEVER IN CATTLE IN IRAN. M.R. Aslani, A. Omidi. Department of Clinical Sciences, school of veterinary medicine,Ferdosi University, Mashhad-Iran, PoBox, 91775-1793, Mashhad, Iran.

Malignant catarrhal fever (MCF) is an acute, highly fatal disease of cattle and other bovidae. It occurs in two forms. One, the wildebeest-associated form (WA-MCF), is caused by infection of cattle with the wildebeest alcelaphine herpesvirus-1. The second form occurs in cattle which have been in contact with sheep and has been termed sheep-associated MCF (SA-MCF). SA-MCF generally occurs as single cases, but there are a few reports of outbreaks of multiple cases in some countries (Spain, Malaysia, Ireland and
so). This report describes an outbreak of MCF in a small herd of Holstein cattle from Mashhad, northeast of Iran. In September 26th of 2001 a cow showed the disease acutely so slaughtering was carried out. The clinical signs were high fever, excessive mucopurulent nasal discharge, salivation, severe keratoconjunctivitis, oral erosive lesions and lymphadenopathy. Then within 48 days other six animals showed the same clinical signs and were slaughtered or necropced. The affected animals’ age ranged from 1 to 10 years. Necropsy findings varied according to the duration of illness so severe involvement of the GI was present and included erosive lesions in the buccal cavity, oedema and haemorrhage of the abomasum and extensive haemorrhage and oedema of the intestines which were particularly severe in the large bowel. All lymph nodes were involved to a variable extent being enlarged, oedematous and sometimes haemorrhagic and friable. Severe hyperemia of meninges and enlargement of the liver were also recognized. The histopathological findings verified MCF. There was no contact of this herd with sheep and we couldn’t find the source of the outbreak in this herd. There was also no additional case(s) till 4 months after that outbreak.


Diarrhoea in the neonatal calf is a serious welfare problem and a cause of very important loss due to mortality, treatment costs and poor growth. Calf diarrhoea is an example of a complex or multifactorial disease, resulting as it does from an interaction between the calf, its environment, nutrition and infectious agents. Successful control of an outbreak will depend on recognition of the important factors in that outbreak and correction of the problems. Identification of the infectious agents involved is important because it permits a logical approach to disease control and prevention. Coronavirus, rotavirus, BVD-virus, Escherichia coli, and Salmonella species either individually or in association, represent the major infectious agents of diarrheic gastro-enteritis of the new-born calf. The antigenic diversity, as well as some physiological features of the new-born calf’s immunity, raises problems in the elaboration of a vaccine. The first vaccine marketed was a live attenuated for oral administration to calves at birth. It aimed to stimulate active immunity in the calf, but its efficacy in the field appeared very limited. More recently, active vaccination of the calf has been succeeded by providing enhanced passive protection to calves by vaccinating dams with inactivated vaccines. This approach has been tested intensively in challenge and field studies and showed to be very effective. The results of a combination vaccine: TRIVACTON 6© (E.coli, rotavirus and coronavirus) are discussed.

186. GROUP TREATMENT OF PAPILLOMATOUS DIGITAL DERMATITIS IN DAIRY COWS. S. Azizi1, J. Nowrouzian2. 1Department of Clinical Sciences, Veterinary Faculty, Urmia University, Urmia, P. O. Box 1177, Iran. 2Department Of Clinical Sciences, Veterinary Faculty, Tehran University, Tehran, Iran.

This study was carried out to improve lameness score in large outbreaks of (papillomatous) digital dermatitis (PDD) by group treatment in dairies. In fall and winter of 1998, a dairy in the vicinity of Tehran with a prevalence rate of 42.30% of (P)DD were selected and the total of 312 lactating cows were received the direct spray of Lincomycin Hcl solution (Lincocine 40% P& U) (1.5 g/L fresh and cold tap water) twice daily at the parlor using garden pump sprayer for one week. In each farm prior to the treatment and at the end of trial the cows were observed individually as they walked in a vacant concrete
barn and a lameness score was assigned as 0= no visible signs of lameness, J= slight lameness at some gaits, 11= noticeable lameness while walking, ill= sever lameness and limited weight bearing while standing or walking. The difference between final and initial mean lameness score was statistically analyzed by use of the pair student”t” test. The significance negative differences in mean lameness score indicated that, on average, there was a decrease in degree of lameness after one-week treatment (up to -1.11 respect to the different groups). It was concluded that spray solution of Lincomycin HCl improved lameness score in cattle with (P) DD and feasible in large outbreaks.


Among many practical problems, the clinical examination of sheep during the pan-Asiatic type O FMD outbreak in the UK outbreak gave many veterinarians great cause for concern. FMD was first identified and confirmed in pigs at an Essex slaughterhouse in the South East of England. However, back-tracing uncovered the index case, a cull sow swill feeding operation in the North of England. A ‘nightmare scenario’ then unfolded with the discovery that infection had gone undiagnosed by the farmer on this farm for several weeks prior to the tracing visit. Furthermore, it then became apparent that sub clinically infected sheep from a nearby secondarily infected farm had been sold through local livestock auction markets, including the busiest sheep market in the UK at Longtown in Cumbria. Unfortunately, the widespread trading in lambs meant that FMD virus could have been spread to any part of the UK before livestock movements could be banned. The wider veterinary profession in the UK and overseas responded to undertake the exponential increase in farm visits. This inevitably meant that not all the veterinarians had experience of endemic sheep diseases in the UK. A government policy that animals suspected to have FMD on clinical examination would be slaughtered within 24 hours was introduced. However, this required a clinical diagnosis to be made before any laboratory examinations and results were available to confirm or rule out FMD. The differential diagnosis of FMD in sheep which could be difficult due to the similar appearance of some common endemic diseases of sheep was further complicated by the presence of non-FMD oral lesions of unknown cause. Until the 2001 FMD outbreak the presence of ‘idiopathic mouth ulcers’ in sheep had gone largely unnoticed, and the potential for confusion with FMD was unknown. A photographic field guide to the differential diagnosis of FMD in sheep in the UK is in preparation and forms the basis of this paper.

188. CONTRIBUTION À L’ÉTUDE DE LA MALADIE DES FRONTIÈRES DES PETITS RUMINANTS EN TUNISIE: ENQUÊTE ÉPIDÉMIOL Clinique DANS LA RÉGION DE MENZEL BOURGUIBA. A. Nachi, M.S. Ben Saïd, M. Benzarti, S. Hammami. Ecole Nationale de Médecine Vétérinaire de Sidi Thabet, Tunisie.

Dans la première partie, les auteurs présentent des données bibliographiques récentes sur la maladie des frontières. Dans la deuxième partie, les auteurs effectuent une enquête épidémiologique dans la région de Menzel Bourguiba. Les résultats de l’enquête ont montré un taux d’avortement de 49,11%, un taux de mortalité de 49,9% et un taux de mortalité des femelles de 10,56%. Les résultats sérologiques et virologiques sont en faveur de la suspicion clinique.
189. A PROPOS D’UN PREMIER FOYER D’INFECTION HYERVIRULENTE DE BVDV. IDENTIFIE DANS LE NORD DE LA TUNISIE. A. M’zah¹, F. Thabti¹, S. Ben Romdhane², M.S. Ben Saïd¹, A. Amara¹, A. Cherif⁵, P. Russo⁶, S. Hammami⁴, ¹Service de Pathologie Bovine, Ecole Nationale de Médecine Vétérinaire de Sidi Thabet, Tunisie, ²Service de Biochimie, Ecole Nationale de Médecine Vétérinaire de Sidi Thabet, Tunisie, ³Service d’Anatomie Pathologique, Ecole Nationale de Médecine Vétérinaire de Sidi Thabet, Tunisie, ⁴Service d’Immunologie, Institut de la Recherche Vétérinaire de Tunisie, Tunisie, ⁵Laboratoire de Pathologie des Petits Ruminants et des Abeilles, Agence Française de Sécurité Sanitaire des Aliments, Sophia Antipolis, France.


190. INCIDENCE OF COPPER DEFICIENCY IN SHEEP IN MAHABAD AREA OF IRAN. B. A. Tabrizi, A. R. Ansari. Veterinary Faculty, Islamic Azad University, Tabriz, Iran.

The current study is clone in conjunction with national research institute to evaluate the amount of copper ingredient found in Mahabad, which is one of the active veterinary areas in the western part of the country. The duration of this study was about one year which started October 1998 and ended in October 1999. At each season 100 blood samples of sheep from different areas of Mahabad were taken and concentration of element copper in the serum were measured. In this research the average copper T concentration in the sheep’s serum were measured in the seasons of fall, winter, spring and summer which were found to be 0.65,0.54,0.71, and 0.55 ppm respectively. At the second phase of the study, samples were taken from the soil and pasture where the sheep under study were grazing. Copper and molybdenum content of the soil and pastures of seven areas were measured. Average copper concentration were found to be 41 ppm and that of molybdenum 34.1 ppm. Measurements were made of average copper, molybdenum and sulfur concentrations in the plant samples and they were found to be 24.75,17.75 and 1000 ppm respectively. Analysis of these serum, soil and plantation samples indicates the existence of copper deficiency in Mahabad area, but considering the abundance of molybdenum and sulfur concentration in soil and plant samples, this deficiency is of a secondary importance.
191. ORGANIC ZOOTECHNY IN LAZIO AREA. G Grifoni, N Fiorucci, C Roncoroni, A Nardoni, A Fagiolo. Istituto Zooprofilattico Sperimentale del Lazio e Toscana -Via appia nuova, 1411- 00178 Roma, Italy.

A study about organic zootechny in Lazio Region has been carried out aiming at investigating the farmer approach towards sanitary regulations as well as their applications. Data report cards have been there upon worked out for the different kinds of species to ease data collecting and to be used during surveys. All surveys were carried out by a veterinary on a pool of organic farms. We highlighted that the routine use of the so said alternative medicines reveals to be implemented only in a few farms. As for the vaccinal prophylaxis we didn’t notice different approaches between organic and conventional farms. In our opinion the competent sanitary organs should promote the use of homeopathic and phitotherapeutic medicine for the cure and the prophylaxis of the most common farm diseases. More information could be obtained through the study of: clinical exams, organic indicators, chemical and haematological parameters in relation to the species, the race, the kind of farm and the productivity. Production of Hem Substitute from Cow Blood by using Local Hydolyses Enzymes

192. DETERMINATION OF NORMAL VALUE OF GLUCOSE, TOTAL PROTEIN, TOTAL BILLIRUBIN AND CREATININE, IN NATIVE KHUZESTANIAN BUFFALOES. A.A. Papahn, S. Irankhae. Department of physiology Faculty of Veterinary Medicine University of Shabid Chamran, Iran.

In order to establish normal reference value of some serum biochemical constituents of Khuzestanian Buffaloes, the Glucose) total Protein, total Bilirubin and Creatinine levels in the blood serum were analysed in samples collected from 323 normal male and female local buffaloes classified in four age groups (04 months, 4-12 months~ 12-24 months and 2-6 years). The results were subjected to comprehensive statistical studies with regard to age and sex. Following general reference values were established for the buffaloes irrespective of their sex and age: Glucose:80.57 :±: 28.95 mg/dl Total Protein:7.51 :±: 0.86 g/dl Total Bilirubin: 0.50 :±: 0.35 mg/dl Creatinine: 1.21 :±: 0.44 mg/dl. The values of serum glucose decreased with age but the values of total protein and creatinine increased with age (P<0.05). The creatinine levels in males were more than that in females (p<0.01). There was no relation between the total bilirubin levels and the sex and age of the animal.

193. STUDY ON THE PREVALENCE OF ATRIAL PREMATURE COMPLEXES IN HEALTHY CATTLE IN IRAN. A.A. Papahn, Al. Rezakan. Department of Clinical Science, Faculty of Veterinary Medicine Shahid Chamran University Ahwaz, Iran.

The most commonly reported cardiac arrhythmia in Cattle is atrial fibrillation. Supraventricular arrhythmias other than AF are rarely reported in cattle. In present Study, the Prevalence of Atrial Premature complexes (APCs) Were identified in 5 cows Over al, 5 years period (October 1998- May 2000). In general electrocardiogram were recorded from 1122 apparently healthy cattle. A Standard bipolar. (base-apex) lead was used to evaluate heart rate and rhythm. The left forelimb lead (+electrode) was placed on the left thoracic wall at the cardiac apex, and the right forlimb lead (- electrode) was placed in the right Jugular groove, one third of the distance from manubrium to the mandible. Atrial premature complexes were diagnosed in 5 cows. Representing 0.44% of bovine population or 0.68% of the cows over 3 years old, APCs Were not seen in cows under three years old.
194. STUDY OF THE PATHOLOGICAL CONDITIONS IN THE THYROID GLAND OF BUFFALO. M.H. Movassagh Ghazani, M. Nuri, Y. Doustar. The Faculty of Veterinary Medicine, Islamic Azad University of Tabriz, Iran

The thyroid gland is the largest of the endocrine organs that function exclusively as an endocrine gland. Disease of the thyroid gland has been known for thousands of years. Both neoplastic and non-neoplastic diseases affect the thyroid. For the first time, I investigated the pathological conditions affecting the thyroid gland in the buffalos which were slaughtered at the municipal slaughterhouse of Tabriz, Iran. Study was conducted from March 2000 to March 2001. A total of 120 pairs of thyroid which showed various macroscopic abnormalities were collected for detailed examination. The measurements of the thyroid were recorded. Thyroid glands were assessed histopathologically. Of the 120 thyroid examined, 22 (18.33%) showed colloid goiter, 18 (15%) showed hyperplastic goiter, 2 (1.66%) showed ultimobranchial body cysts, 1 (0.8%) showed lymphocytic thyroiditis which resembles Hashimoto’s disease in human beings.

195. A STUDY ON SERUM ELECTROLYTES AND PROTEIN CONCENTRATION CHANGES IN COWS WITH MILK FEVER. Gh.A. Kojouri, School of Veterinary Medicine, Shahrekord University, Shahrekord, IRAN.

One of the most important disorders in veterinary science is metabolic or production diseases, that may cause Downer Cows Syndrome. Milk fever (M.F), Postparturient hemoglobinuria (PPH) and hypomagnesemia are the examples of these diseases. In this manner, we decided to determine the levels of Albumin, Globulin, Total protein and some electrolytes concentrations (Na, K, Cl) in serum of cows that suffer from Milk Fever after parturition.

196. A STUDY ON PREVALENCE OF SUBCLINICAL KETOSIS IN HOLSTEIN CATTLE OF SHAHREKORD BY THE USE OF ROTHERA TEST ON URINES SAMPLES. M. Pourjafar, E. Rahimi School of Veterinary Medicine, Shahrekord University, Shahrekord, IRAN.

Subclinical ketosis is associated with losses in milk production and increased risk of periparturient diseases (1,4). The prevalence of subclinical ketosis in lactating dairy cattle in the first 60 days lactation estimates range from 7% to 32%(2). In this study, 234 urine samples from 234 Holstein cows in Shahrekord dairy herds collected between April to September 2001. Of 234 samples examined for ketonuria, 48 samples were positive (20.5%). The data with X2, G2, t and Fisher’s exact test analyzed, and the results are as follows: There was an apparent trend of increasing prevalence of subclinical ketosis with increasing age and parity, however, only the difference between the 2-3 years old with 4-5 years old and the parity one with the parity three were statistically significant (p<0.05). There was no significant difference in prevalence of subclinical ketosis during 1st-8th postcalving weeks. There was statistical relation between prevalence of subclinical ketosis and milk production. The prevalence of subclinical ketosis in the presenting study is in accordance with Venkateshwarulu et.al. Studies (5,6). The relationship between age, parity and postcalving weeks with subclinical ketosis supports previous findings (3).

197. PURIFICATION AND EVALUATION OF THE KINETIC PROPERTIES OF SHEEP LIVER ARGINASE. M. Rashtibaf, Bathaei seiede zahra,Ph.D.,Teacher Training University, Tehran. Iran.
Purification enzymes are important procedures to obtain pure products for their physiochemical investigations such as determination of molecular weight, number of subunits, isozymes, kinetic properties and to use in immunological and serological studies.

In the preliminary comparative studies tries buffer was found more suitable than phosphate buffer and used throughout this experiment. Purification methods were as follows: 1-Homogenisation, acetone precipitation heats treatment at 60∞C, ultra filtration, CM-cellulose chromatography with gradient 0 to 0.3 molar of KCl solution ammonium sulfate precipitation. In this method the specific activity of the resultant arginase was 144 unit/mg representing 158-fold purification. 2-Homogenisation, heat treatment at 60∞C, acetone precipitation, ammonium sulfate precipitation, DEAE-cellulose chromatography with gradient NaCl from 0 to 50mM. The specific activity of the arginase obtained was 820 unit per mg protein representing a 71 fold of purification. Two fractions (a, b) were obtained, in this method. The Km for fraction a was 2.28 and its Vmax was 0.18 unit per time using line weaver Burk plot and by using Jones equation (30) Km was 2.15mM &Vm 0.16. The results for fraction b were not reportable. In addition increasing ornithin concentration and the high amount of substrate concentration inhibited the enzyme activity.

In this study realised in Trakya, part of Marmara Region which is one of the different seven regions in Turkey, it is aimed to detect trace elements as copper, iron, zinc and cadmium, and lead levels in the organism and in the land in order to obtain more efficient economical results and to get healthier sheep breeds. By this way, it is planned to give advises to breeders and 1 veterinary surgeons. 200 sheep from different areas of Trakya Region were used in this study. At the beginning, Trakya Region was divided in 5 different areas. In the tubes with bath, anticoagulant and coagulant, 10 cc. blood were taken from V. jugularis of 40 sheep chosen from each region and zinc, iron, cadmium, copper and lead levels measurement was realised by a Shimadzu AA-680 model atomic absorption spectrophotometer at the University of Istanbul, Faculty of Medicine, in the department of Biophysics. Blood sera analyses showed a few decreases in the iron levels in 2 and 4 the areas and the lowest zinc level was found in the area 1, the lowest copper level m 3 rd area, the highest lead level in the 2 end area and finally the highest cadmium level in the 5 the areas. As a result it is necessary to add these trace element in the diet of the animals and considerate attachments of trace elements with lead and cadmium in order to apply an efficient prophylactic and therapeutic program. Also the necessity of a similar study on the water, plant and solid samples in the land is revealed to detect the correlation between them.

Iodine is an essential trace element for dairy cattle. Recent studies in Iran and Isfahan province show that human endemic goitre is prevalent in many parts of Iran. In the winter 2000 and summer 2001, six dairy herds from different farms in Isfahan were selected randomly for iodine determination. According the
number of dairy cattle in each farm, some Holstein dairy cattle, that were in a similar condition (age, milk yield, ... ) was selected randomly and the total plasma (or serum) iodine and iodine in the milk were assayed by the Sandell-Kolthoff reaction. In all herds the iodine was lower than critical level in plasma (or serum) (P<0.01). There was also a significant effect of season on iodine level in plasma; except for one herd, total plasma iodine was lower in summer than in winter (P<0.05). Milk iodine level was not a good index for iodine status in dairy cattle; it was very variable because of teat dipping after every milking. This study indicated that inputs of common iodine supplements were inadequate for dairy cattle diet in these farms.

200. THE STUDY OF MAGNETIC FIELD EFFECT (BIO MAGNETS) ON LACTATION DAIRY COW. B. Kabiri. Malek- ashtarUniversity of Technology (MUT) Isfahan, shahin shahr University, Science Institute, Iran.

There are several published reports indicating the relationship between geophysics phenomena and animal and human health. It has been presented in these paper that, changes of earth magnetic field which has been caused by solar activities effect human and animal health. The magnetic field exerts torque on biomolecules of body liquid. Blood and other liquid of body are in ion form and ions of Sodium and Potassium are floating in these liquid. When body is exposed to a magnetic field, ions will be affected by the Lorentz Force with the direction of Fleming Rule. In this research, we studied the effects of magnetic field on lactation of dairy cows. Two types of cows with the same age, race and number of pregnancy but different milk gettering (medium and high) were selected. The samples were taken for one week without magnets as a reference, and compared with samples with magnets taken for another week. Small magnets were placed on thyroid gland for medium milk cow and on mammary gland of high milk cow for one week. The milk samples in addition to the cow blood were analyzed during these two weeks. The results of milk analysis indicate a considerable increase effect of magnetic field on percent protein, fat, mineral, calcium, phosphor and water. In addition, from the blood analysis, it was found an increase of thyroid hormone triiodothyronine (T3) and no changes in tetraiodothyronine (T4) and thyroid- stimulating hormone (TSH). Therefore, using magnets, in addition to an increase in amount of milk gettering, changes in blood and milk components were observed as listed above.

201. CONTRIBUTION A L’ETUDE DE LA LYMPHADENITE CASEEUSE CHEZ LES OVINS DANS LA REGION D’AGAREB, TUNISIE. M.S. Ben Said; H. Ben Maitigue; M. Benzarti, L. Messadi, A. Amara. Ecole Nationale de Médecine Vétérinaire, 2020 Sidi Thabet Tunisie.

Notre étude est réalisée sur 54 troupeaux dans la région d’Agareb comportant 2137 têtes ovines de races barbarine et queue fine de l’Ouest. Ces troupeaux sont tous connus pour avoir des problèmes de lymphadénite caséeuse. Chaque élevage est visité une seule fois et pendant chaque visite, nous avons réalisé une enquête épidémio-clinique et des prélèvements de pus pour la recherche bactériologique. A l’abattoir de la même région nous avons examiné 25 carcasses d’ovins de races barbarine et 5 de races queue fine de l’ouest, qui sont atteints de la forme viscérale de la lymphadénite caséeuse. Pour chaque carcasse nous avons décrit les lésions (localisation, taille, aspect et couleur du pus) et nous avons aussi prélevé des nœuds lymphatiques atteints pour l’étude histologique. Pour l’étude histologique, les prélèvements sont identifiés, ensuite fixés dans du formol à 10% en vue de leur conservation et leur
examen histologique. Après isolement et identification des souches bactériennes nous avons procédé à un
antibiogramme par la méthode des disques. Pour l’interprétation de nos résultats, nous avons utilisé comme
test statistique l’écart réduit. L’enquête montre que la lymphadénite caséuse chez les ovins se manifeste
cliniquement dans sa forme cutanée, le plus souvent, par un seul abcès ganglionnaire localisé surtout dans
les nœuds lymphatiques mandibulaires. Dans sa forme viscérale, elle s’exprime par la présence à l’abattoir
le plus souvent d’un seul abcès localisé dans les nœuds lymphatiques pulmonaires. Sur le plan lésionnel
macroscopique la taille des abcès est comprise entre 4 et 10cm. A la coupe le pus est de couleur blanc
jaunâtre à jaune grisâtre d’aspect soit filant, pâteux en pelure d’oignon et microscopique. Les lésions sont
caractérisées par une coque fibreuse, une membrane pyogène et un centre nécrotique. Sur le plan
épidémiologique, le taux de morbidité animale moyen dans les troupeaux est de l’ordre de 5%. La forme
cutanée touche les animaux qui sont âgés de plus de 3 mois mais fréquemment entre 1 et 2ans. Le taux de
morbidité animale moyen à l’abattoir est de l’ordre de 11%. Enfin, sur le plan bactériologique,
Corynebacterium pseudotuberculosis est le germe le plus fréquemment isolé, vient ensuite Staphylococcus
aureus subsp. anaerobius ce dernier germe a été isolé surtout chez les ovins âgés de 3 mois à 2ans.

202. PROTEINOGRAM IN LISTERIOSIS AFFECTED BUFFALOES. R. Zia-ur1, A. Yousaf2,
M.A. Sandhu1 1Department of Physiology and Pharmacology, University of Agriculture, Faisalabad,
Pakistan 2Department of Clinical Medicine and Surgery, University of Agriculture, Faisalabad, Pakistan.

Listeriosis is an infectious, bacterial disease of animals, birds and man caused by Listeria
monocyogenes. The organism is intracellular and very difficult to kill. The disease is characterized by
meningoencephalitis and may be transmitted to man from animals. In the present study, 10 ml of blood
was collected from 10 normal and listeriosis affected buffaloes. The serum was separated and subjected
to electrophoresis for fractional proteins estimation. There was a highly significant (P<0.01) increase in
total protein, total globulin, alpha globulin, and gamma globulin, albumin and albumin/globulin ratio of
the animal affected with listeriosis as compared to that of healthy buffalo. The results suggested that there
was non-significant difference in beta globulin in normal and listeriosis affected buffaloes.

203. FACTORS ASSOCIATED WITH CATTLE LAMENESS. H, Mah Peaker; Gh, Moghaddam.
school of veterinary medicine, Tabriz university, Tabriz, Iran

This research has been conducted in some dairy farms around Tabriz from 1994-1996. Fallowing factors
involved with cattle lameness specially foot rot and interdigital were determined. These are age, birth place,
lactation, parturition time, season of infection occurrence and the kind of shelter ground. The cattle witch
were older in age, imported from abroad and kept in the concrete shelters showed more infection than athers. The infection also was higher after parturition time and in lactation as well in the humid seasons.

204. PATHOLOGICAL EXAMINATION OF BOVINE ADRENAL GLANDS IN IRAN. SR,
Bahadory.. Azad university of Garmsar, Garmsar, Semnan, Iran.

Adrenal glands being a member of the endocrine system are important in regulation of various function
of body. Thus, disease of adrenal gland have vital consequences on the functioning of the body. Much
work has been dalle in human and dogs and very little information is available on the diseases of adrenal
gland of large animals specially cow. Hence, an abattoir survey was conducted to find out the diseases
affecting the adrenal gland of cows slaughtered of municipal slaughter house, Ahwaz, Iran. A total of 100
pairs of adrenal glands suspected to be pathological on grass observation were collected. After recording the measurement and gross lesion, appropriate tissues were fixed in 10% formal saline. Tissues were processed through paraffin embedding method and sections, cut at 5-6 micrometer, were stained with haematoxylin and eosin as a routine. Special stain involving giemsa stain and gram’s stain were also used wherever found necessary. Tissue sections were examined microscopically and various pathological conditions diagnosed, out of 100 pairs of adrenal gland examined microscopically, 136 glands revealed pathological condition.

205. PRODUCTION OF HEMIN SUBSTANCE FROM COW BLOOD BY USING LOCAL HYDROLYSES ENZYMES. M R A, AL KHALIDY; N. Z. YAHYA.

Cow blood was treated by local hydrolyte enzyme (Pepsin and trypsin) which previously prepared. The total amount of hemin substitute was 200 gram/Letter of cow blood. The different concentrations from hemin substitute (Growth factor X) were compared with the same concentration which using (101J.g!ml) from hemin standard on growth using haemophilis influenza serotype B after 24 hours incubation. The absorption at 600nm was 1.336 for standard hemin and for hemin substitute concentration (8.10 and 12 µ.g/ml) were used gave 1.286, 1.398 respectively. The number of cells/ml was 32x 1 07 when standard hemin substitute with concentration (8,10,12 µ.g/ml gave (6 x 107,19 x 107 and 19.8x10) respectively. This product gave a good alternative source to the Laboratories and research Centers and Hospitals.

206. ANATOMIC LOCATION OF THE CAROTID BODY AND CAROTID SINUS IN SHEEP AND GOATS. A H, Sadiq,. Department of Veterinary Anatomy and histology. College of Veterinary Medicine, Alfateh University, Tripoli, Libyan.

Sheep and goat heads were collected from a slaughter house and the bifurcation of the common carotid artery was preserved in 10% formalin solution. Specimens were processed according to standard histologic technique and stained with different stains. Due to the absence of the internal carotid artery in adult sheep and goats, different theories were put forth by several researchers concerning the rate of the carotid body and carotid sinus in these animals, However, the carotid body was round close to the muscular branch of the occipital artery and was represented by either scattered cells or masses around the vessel. The sinus was at the base of the occipital artery in both species. Therefore, we can conclude that carotid body and carotid sinus developed at these sites regardless of the presence or absence of the internal carotid artery.


Eighty per cent of the milk-producing cattle is managed by modest-size breeders. All their production converges towards milk collecting centers. For their cattle to have a better performance, it is necessary to provide them with sustained technical assistance and support. In order to achieve this, we considered the milk collection center as one single production unit pertaining to one single cattle spread over a 5 to 6 km perimeter. Therefore, the El Anaam company for Farming Services and Veterinary Assistance, SAAVET, launched the project through a center aimed at producing bovine artificial insemination semen, a center for the breeding of heifers, and a center for the collection of milk in the region of Habibia-Mornaguia. The
cattle supplying milk to the center has been identified and indexed in the ISALAIT-VIANDE software, and is subject to a healthcare assistance as well as to a reproduction follow up based on the PAVIR mode (Reproduction Integrated Veterinary Action Program). The artificial insemination is carried out through tested seeds. The ration is balanced in order to better maximize the milk production. Through a B type milk control, SAAVET saves the best calves into the heifers breeding centre for a possible subsequent supply to the breeders.

208. A STUDY OF OCCURRENCE OF JOHNE’S DISEASE IN CATTLE IN SHAHREKORD. P, Mortazavi¹; I, Shorabi haghdost.I.¹ Faculty of Veterinary Medecine, Islamic Azad University, Shahrekord, Iran. ²Departement of Pathology, Faculty of Veterinary Medecine, Islamic Azad university, Science & Research Campus, Tehran, Iran.

Paratuberculosis (johne’s disease) is an important disease in ruminant. Besides cattle, johne’s disease has been described in sheep, goats and a variety of wild and exotic ruminants. The causative bacterium is Mycobacterium paratuberculosis, that is an acid-fast bacteria. Clinically, johne’s disease presents as chronic diarrhea, weight loss, wasting and decreased productivity. The lesion is a chronic, segmental thickening of the caudal small intestine, cecum, and proximal colon and mesentric lymph nodes edematosis. Microscopically, the lamina properia and submucosa of affected portions of the intestines are distended and distorted by a granulomatous reactions. Disease has two types: lepromatosy (in cattle) and tuberclosoy in other animalles. Since, the population of cattle in Shahrekord is large, and paratuberculosis in Iran was demonstrated, a survey study conducted for one year in 1999-2000 in Shahrekord abattior in cattle. In clinical and abattoir inspection signs such as emaciation, diarrhea, thickening of the wall of the caudal small intestine, cecum and proximal colon and mesentric lymph nodes edematosis were considered. In shahrekord, from 400 cases, 17 cases had one of the above signs. After providing histopathological sections and Hematoxilin-Eosin and Ziehl-Neelsen stain, disease was demonstrated in 4 of them, and incidence of disease in shahrekord in cattle determined 1% and johne’s disease reported lepromatosy type. Beside, paratuberculosis was diagnosed in one case ewe on the basis of characteristic gross and microscopic pathology. Acid-fast staining of the intestinal tissue sections showed clumps of acid-fast mycobacteria inside the macrophages and giant cells. Giant cells was determined langhans type and disease reported lepromatosy type.

209. CONCURRENT HYPOSPADIAS AND ATRESIA ANI IN A CALF. F, Sabri Afshar; M.R, Haji hajicolaei,. Faculty of Veterinary Medicine Shahid Charnran University Ahvaz, Iran.

In this report penil hypospadias and atresia ani in 2 day native male calf were seen simultaneously. Anorexia and depression was diagnosed clinically but temperature, pulse and respiration rates were in normal ranges. Laboratory examinations revealed renal clearance was normal and atresia ani in order to save of the case was corrected surgically. Although hypospadias in sheep may be associated with atresia ani but in bovine this anomaly is very rare and in our search there was not any report about concurrent hypospadias and atresia ani in this species.

210. MISE EN ÉVIDENCE DE L’EFFET DES TANINS DU CHÊNE KERMES (QUERCUS COCCIFERA) SUR LES PARAMÈTRES CLINIQUES ET BIOCHIMIQUES CHEZ LES CAPRINS. I, Ben Salem¹; M.S, Ben Said¹; H, Ben Salem².¹ENMV service de pathologie Médicale du Bétail Sidi Thabet 2020 Tunisie. ²INRAT Laboratoire de Productions Animales et Fourragères Tunisie.
le chêne kermes (*Quercus coccifera*) est un arbuste de la famille des fagacées, largement répandu dans le maquis couvrant le littoral tunisien et le pourtour méditerranéen. Il est bien apprécié par le bétail pour ses feuilles et ses fruits. Il représente, en effet, aux environs de 26% de l’alimentation de la chèvre en élevage extensif. Cependant, cet arbuste est toxique par les tannins qu’il contient. Des cas d’intoxication spontanés ayant été rapportés sur des bovins et des caprins, nous avons voulu, dans un essai d’intoxication provoquée, étudier la valeur alimentaire de ce végétal, sa charge en tannins et autres produits toxiques et leur influence sur les paramètres cliniques et biochimiques sur des animaux astreints à ne consommer que ce végétal pendant 33 jours. L’expérience a révélé un taux élevé en tannins pyrogalliques, un taux élevé en phénols, une variation des paramètres biochimiques et une grave altération de l’état général des animaux. Le présent travail comporte également des conseils pratiques pour améliorer la qualité nutritionnelle du chêne kermes et éviter son effet toxique.

211. CLAW CONDITION AND PREVALENCE OF KERATINOPATHOGENIC FUNGI IN FATTENING BULLS UNDER VARIOUS HOUSING SYSTEMS. Ch. Stanek, P. Karall, J. Frickh, M. Keller, J. Spergser, Clinic of Orthopaedics in Ungulates, University of Veterinary Medicine Vienna, Austria, and Federal Research Farm Königshof*, Lower Austria

In central Europe, various housing systems, including older tying stall systems, boxes with solid or slatted floors and in increasing frequency outdoor paddocks, are common for fattening bulls. Also different feeding regimes are applied. Comparatively little is known about the influence of the different systems on the claw condition and on time dependent development of pathological changes. Analyses of the occurrence of keratinopathogenic fungi should lead to a better understanding of the pathogenesis of poor claw horn quality. 60 young Simmenthal bulls, purchased on auctions of the Austrian breeding organisations, were divided into two groups on one large research farm: one group was kept in a tying stall, the other group was kept in an open paddock. Each of these groups was subdivided into two subgroups of 15 bulls each. One subgroup of each housing system was fed a pelleted complete feed ad lib., the other two subgroups were fed with maize silage ad. lib. and concentrate added. The observation period followed an accommodation period, started on day 75 and ended with slaughter on day 450 of the life of the fattening bulls. Claws were scored using the system proposed by BOSMAN et al. (1989), modified by STANEK (in BRANDEJSKY et al., 1994). Using this score, factors like condition and contour of the wall, condition and relief of the sole, white line separation, severe pathological changes and heel erosio are summarised in a single numerical figure, allowing the comparison of a variety of changes. The bulls were claw-scored 3 times in regular intervals, the 4th claw scoring procedure was performed immediately after the slaughter. For mycological examination, horn samples are harvested in the coronary region after slaughtering and deep frozen. Thereafter they were cultivated on Sabouraud-glucose agar. Behaviour data, data on slaughter yield and meat quality factors were analysed as well, but are not included in this report. 22.72 53.57 20.52 17.77 Claw soundness was influenced by various factors. The feeding regime did not affect the claw score during all 4 recordings of the observation period, whilst a significant influence of the housing regime could be observed (SG 1 and SG 3 vs. SG 2 and 4). Fattening bulls kept on tying stalls developed a significant deterioration of the claw condition mainly in the second part of the study. The most significant deterioration was found with respect to severe pathological conditions, also mainly in the second part of the whole observation period. Despite the frequent removal of manure, heel erosions developed more frequently in the tying stall system in the last part of the observation period. Data are reported and discussed in detail. Results of mycological examination revealed
apathogenic, facultative and keratinopathogenic fungi in a high percentage in both housing groups. 12 different mould fungi and dermatophytes were observed, 8 of them accepted as non-keratinopathogenic in literature. Four keratinopathogenic genera (Alternaria sp., Goetrichum sp., Scopulariopsis sp., Trichophyton sp.) were found. There was no evident correlation with the general condition of the claw. On the other hand, the percentage of claws affected with keratinopathogenic fungi was significantly higher in the paddock group. Average daily weight gain was higher in both paddock subgroups compared with the tying stall system (1461 g vs. 1271 g), silage feeding was superior to the complete pelleted ratio.


The anesthetic effects of ketamine (20mg/kg) and acepromazine (0.05 or 0.1mg/kg) combinations injected, intramuscularly were examined in sheep. The combination induced smooth anesthesia with in 11 and 3 min, for 56 and 58 min respectively. Recovery from anesthesia was also smooth and uneventful. Analgesia and muscle relaxation (especially with high dose of acepromazine) were also good. The side effects of the anesthetic combination consisted of bradycardia, depressed respiration, decreased rectal temperature and ruminal atony. These side effects were temporary in nature. The results suggest the beneficial anesthetic effect of ketamine- acepromazine combination in sheep.


Compte tenu du contexte économique, la réparation des fractures chez les animaux de rente, s’est longtemps bornée à l’application du plâtre de Paris. Tous les praticiens ont alors constaté très vite les limites et les inconvénients de cette méthode. C’est pour cette raison que nous avons cherché depuis plus de 15 ans à traiter ces fractures différemment, soit en utilisant de la résine pour les pansements contentifs, soit chirurgicalement à l’aide de différents montages faisant tous appel à la fixatIon externe. Nous avons réalisé une étude de plus de 70 cas suivis jusqu’à la guérison; nous avons constaté que ces techniques chirurgicales permettent d’obtenir un cal osseux périosté solide, de formation rapide, permettant l’appui de manière précoce. De plus, le coût de cet acte chirurgical respecte les impératifs liés à l’exercice de la médecine et de la chirurgie vétérinaire” sur les animaux de rente. Cette conférence propose donc un aspect théorique traitant de la formation du cal chez le jeune et plus particulièrement chez le veau et de l’intérêt biomécanique des montages de fixation externe pour arriver à la consolidation osseuse; elle aborde ensuite une partie très pratique décrivant la technique elle-même à l’aide d’une imagerie très démonstrative; enfin, une série de cas cliniques témoigne de l’utilisation des divers montages sur l’os canon, le radius et l’ulna, le tibia et la mandibule. Les résultats et les complications font l’objet d’un dernier chapitre.

214. SECOND-DEGREE ATRIOVENTRICULAR BLOCK IN A BUFFALO CALVE AFFECTED WITH RESPIRATORY DISEASE. B. Dalir-Naghadeh. Department of Large Animal Medicine, College of Veterinary Medicine, Urmia University, Box 1177, Urmia, Iran.

A 2-month-old riverbuffalo buffalo calve (Bubalus bubalis) was admitted with the history of anorexia, profound depression, coughing and nasal discharge. Physical examination revealed irregular cardiac
rhythm. On the basis of findings of an arrhythmia an electrocardiogram was recorded. Rhythm evaluation revealed second-degree atrioventricular block. The study of calcium and potassium status of patient showed any notable changes from normal values. Evaluation of hematological parameters revealed increased hematocrit, leucopenia, and increase in total protein and fibrinogen levels. The affected calf eventually died during therapy. It is concluded that sepsis process aroused from respiratory tract infection resulted in cardiac arrhythmia in this patient.

215. COMPARATIVE ANATOMICAL STUDIES OF OS CORDIS WITH EMPHASIS ON MORPHOLOGICAL STRUCTURE OF HEART IN CROSSBREED AND NATIVE IRANIAN COW BREEDS. A.A.M Poor. Veterinary college, SHAHR-E-KORD University, Iran.

Os cordis is one of the visceral skeleton bones in ruminant. It is located in fibrous rings of atrium and ventricle. A. In this study 80 cattle hearts (each sex of breed 20 heart) were used. The following aims were followed: a-To define the exact location of Os cordis in cattle. b-Comparing of Os cordis in right and left side of heart. c-Its comparison in two sexes and breeds. Comparing the morphology of heart in native and crossbreed breeds. After collecting hearts from SHAHR-E-KORD abattoir, many factors such as length and diameter of heart, length of ventricles were determined. By dissecting the hearts, thickness of ventricle, atrium and Os cordis in both sides were measured. After comparing of results in two sexes and breeds we concluded that: a-Right side Os cordis in two breeds was larger and elongate with a notch in midportion. Its dorsal border was in contact with aorta and the caudal border was flatter than cranial and in near with coronary sinus. The cranial border was continued in near angular cusp of tricuspid valve. Its length was 37-42 mm in crossbreed and 30-31 mm in native breeds. b-Left side Os cordis was present in 60% and 20% of crossbreed and native breeds respectively. Its length was 10-17.5 mm in crossbreed and 6-8 mm in native breeds.

216. IN VITRO ULTRASONOGRAPHY OF SHEEP KIDNEY. Gh. Moghaddam1, H. Karimy2 1Dept of animal science, Faculty of agriculture Tabriz University, Tabriz-Iran Faculty of veterinary medicine, Tabriz University, Tabriz-Iran

The kidney is important organ in body; this organ is not available in alive animals for manipulation. The ultrasonography is the best method for study normality’s and abnormalities of kidneys structure, without surgery approach and with at least stress for animals. Sheep kidney is bean-shape without lobulation. It is surrounded by multiplayer capsule. This in vitro experiment was conducted to study the structure of normal kidney by using ultrasonography method. The waves of ultrasound were entered in three axes, longitudinal transverse and dorsal ventral. The kidney capsule, pelvis and Berlin’s columns were appeared more echoic than cortex and medulla.

217. CHARACTERIZATION OF A SERIOUS PRRS-PRDC OUTBREAK IN A LARGE PIG UNIT IN ROMANIA. G Ontanu. Institute for Diagnosis and Animal Health(Romania)

In the biggest pig unit from Romania, during a period of five months of autumn and winter, (September-January) a very serious respiratory disease outbreak have been recorded. The falling ills involved a high rate of mortality and a moderate depreciation of reproductive parameters and induced severe financial losses. Very extensive epidemiological, chemical, morphathological...
investigations correlated with detailed laboratory examination (virological, bacteriological, serological and paraclinical) have been carried out by Romanian veterinary experts together with pig pathologists from Instituto Sperimentale Lombardia (Italy), Euribrid (Netherlands) and Hoffman la Roche (France). At the same time a tractability study of origin livestock and achieved animals, a differential diagnosis using epidemiological, clinical and morphopathological findings as well the feedingstuffs, water and microclimate parameters evaluation have been made. Epidemiological studies, chemical and morphopathological evidence collaborated with laboratory results and preventive and control measures in connection with the rectifying of some environmental factors concluded that a classical outbreak of PRRS occurred in the first stage of illness followed by a severe PRDC (porcine respiratory disease complex). The severity of this respiratory was negatively influenced by some management errors and an inadequate veterinary approach of the protection measures and early control measures. They were pointed out at least ten risk factors which have influenced the course and the developing of the diseases to all categories of animals, creating a real financial shock for a long period of time.

218. FREQUENCY OF BACTERIAL INFECTIONS CAUSED CATTLE MASTITIS IN TEHRAN, IRAN. N. Atyabi, M. Vojgani, F. Gharagozloo. College of Veterinary Medicine, University of Tehran, Iran

Bacterial culture was performed on cow milk which all were positive with CMT (California Mastitis Test) during a period of 4 years (March 1997 to December 2001). There were 2904 milk samples. From these, bacterial species are as follow: *Stereptococcus agalactiae* 642 cases(22.11%), *St. disgalactiae* 332(11.43%), *Staphylococcus aureus* 84(2.89%), *Staphylococcus beta haemolytic Dot aureus* 161(5.54%), *Staphylococcus* non haemolytic 718(24.72%), *Actinomyces pyogenes* 31(1,07%), *Bacillus cereus* 51(1.76%), *E. coli* 295(10.16%), *Kelebsiella peneumoniae* 4(0.14%), *Pseudomonas aeroginosa* 6(0.21%), *Pasteurella multocida* 1(0.03%), *Mycoplasma sp.* 1(0.03%), and there were no growth from 578 samples(19.98%). 31 animals which involved with *St. aureus*, showed acute infection. This survey revealed that the involvement of milk with *Staphylococcus* non haemolytic are the most frequent in cattle around Tehran, and also it is in subacute form. The frequency of *St. agalactiae* and *St. disgalactiae* are in the second and third stage, respectively.

219. A CHARACTERISTIC CASE OF THE FIBRINUS-PURULENT PNEUMONIA IN CATTLE CAUSED BY *PASTEURELLA* SPP. H. Besirovic, S. Pasic, S. Prasovic, E. Satrovi. Pathology Department - Veterinary Faculty of the Sarajevo University.

During a period of 18 months, the carcasses of 44 cows and 20 calves, Holstein-Frisian breed, from a dairy farm near Sarajevo, were examined using gross, microscopic and microbiologic methods. All the animals were in a very poor condition. There was exudative fibrinous-necrotic pneumonia, with the characteristic histological changes in the alveoli and the bronchi. A marked hemorrhagic-necrotic enteritis was found in younger animals, besides the fibrinous pneumonia. The microorganisms from the genus Pasteurella were isolated (*Pasteurella haemolitica*).

220. A PROPOS D’UN CAS DE COENUROSE CHEZ UN BOVIN. A Amara¹, M Kilani², S Ben Younes², M El Amouri³, A Rejeb¹ ‘Ecole Nationale de Médecine Vétérinaire de Sidi Thabet. ² Circonscription de Santé Animale. SOUASSI. ³ CRDA. Mahdia.
Les auteurs décrivent un cas de coenurose bovine découvert dans le cadre du projet national pour la mise en application du réseau d’épidémiosurveillance des encéphalopathies subaiguës spongiformes transmissibles (ESST) des ruminants. Au cours de cette étude il est démontré que cette maladie est relativement rare chez les bovins ; sur le plan clinique, elle peut poser des problèmes de diagnostic différentiel avec l’encéphalopathie spongiforme bovine (B.S.E). Ils insistent enfin sur l’importance du diagnostic nécropsique et parasitologique dans ce genre de maladie où il a été démontré dans ce cas que l’atteinte est occasionnée par Coenurus cerebralis, larve de Taenia multiceps.

221. A PHYSIOLOGICAL STUDY OF INDUCED LACTIC ACIDOSIS IN SHEEP. Gh. Moghaddam¹ M.Ebrahimi². ‘Department of Animal science, faculty of Agriculture,Tabriz university, Tabriz, Iran’¹-Practitioner.

Lactic acidosis is associated with over-eating of rapidly fermentable concentrate feed or the sudden change to a diet containing higher level of rapidly fermentable feeds. This experiment was conducted on 20 male kazel sheep. Firstly, the sheep were examined physically and their healthy were confirmed. The samples were taken from rumen content tube, blood and urine, and then their relative parameters were measured. Lactic acidosis was induced with drenching 800 gram of grainded barley by stomach tube two times. Infestation of acidosis associated with clinical signs such as, Acidotic sheep were completely off feed, and have elevated heart beat and respiratory rate, and rumen movement have been ceased. Rumen contents were taken by stomach tube. The effects of acidosis on rumen content pH, color, smell, bacterial flora, protozoa number, methylene blue reduction time, and the sedimentation and flotation period were determined and were significant (P<0.01). The predominantly Gram-negative bacteria flora of the rumen was replaced by a Gram-positive one. Ruminal protozoa were absent. In acidotic animals, the amount of calcium, glucose and ALP significantly decreased, despite, phosphorus, urea, hematocrite, RBC, WBC, SGot increased (P<0.01). Urine pH was 5.4 ± 0.025. These findings were agreement with others reports. Finally 8 sheep were slaughtered and necropsied, tissue samples were taken for histopathological study. Necrospy and histopathologic findings were dehydration, the blood were dark and Thick, liver were enlarged and its border were rounded. The contents of rumen and reticulum were thin, porridge- like and bulky. The mucosa of rumen and reticulum were browny and cornified epithelium were soft and peels off easily. Rumen papillae were enlarged, leathery, dark in color and often adhered to form clumps. Presence of microvesicle in rumeno-reticular mucosa, microscopic lesion in liver, engorgement of meninges blood vessele, perineurons edema, demyelination. These necropsy and histopathological findings were agreement with other’s.Clinical findings and significantly changes of rumen ecosystem, blood biochemical and haematologic findings, necropsy lesions, histopathologic findings and decreased urine pH have indicated the infestation of Lactic acidosis in sheep. Principal purpose of this study was timely diagnosis of lactic acidosis by emphasis on changes in rumen ecosystem and urine pH, until it was prevented timely.

222. APPLICATION OF CYTOGENETIC ANALYSIS TECHNIQUES FOR DETECTION OF MUTATION IN SHEEP. E.K Shubber. Agricultural and Biological Research Directory IAEC. P.O.Box.765 Baghdad. Iraq.

Cytogenetic analysis are techniques used for detection of impairment of cellular replicative activity and abnormal structural and numerical changes may occurred in the chromosomes of animal cells after
exposure to chemical, physical or biological mutagens and carcinogens. These analyses are including cellular division (mitotic index) and cell cycle progression (replicative index). These two indicators are widely used for detection the toxic effects of mutagens- carcinogens on living cell in exposed animals. These two indicators are successfully used for detection of the immunogenicity and the potency of proteins purified from pathogenic organisms for immunization of sheep against viral bacterial or parasitic infections. Also, Cytogenetic analyses are including chromosomal aberrations and sister chromatid exchanges (SCE) tests. These two tests are expressing the alteration of DNA structure and initiation and promotion of mutation and cancer development post exposure to mutagenic-carcinogens. This analysis could be run in vitro, in vivo and/or in vivo-invivo. The importance of these two assays is debecated in their efficacy for detection of the genotoxic effects of many drugs and pharmaceuticals that to be avoided before being used for treatment of pathogen- infected animals. Furthermore, cytogenetic analysis assay could be applied for detection of genetically diseased and genetically resistant animals in livestock breeding programs. These analysis were applied on sheep from different breeds for detection of their susceptibility to infection with fascioliasis. Also, they have been applied on other blood lymphocytes pre and post treatment with antiparasitic drugs Albendazole and Triclabendazole of detection of drug genotoxicity. Cytogenetic analysis where applied in vivo on mice infected with protoscoleose which were isolated from sheep infected with E. granulosus. Karyotyping of blood lymphocytes from Awasi breed sheep was performed to detect genetic disease such as Robertsonian translocation. Finally, blood lymphocyte culture techniques were used for detection the antigenecity of some fractions of F. gigantica mature and immature worms before starting animal immunization.


L’incidence de la réticulo péritonite tromatique et de la péritonite tromatique des bovins ont connu une nette augmentatoin durant ces dernières années an Tunisie, c’est pourquoi, nous avons jugé utile de rechercher des moyens simples de confirmation biochimique permettant au clinicien de préciser son diagnostic et surtout de choisir la conduite à tenir la plus convenable. Dans ce but, nous avons travaillé sur 70 vaches de différentes races, âgées de 2 à 9 ans, issues de différentes régions de la Tunisie et élevées en système semi-intensif. Le matériel animal a été réparti en trois lots : Le premier lot est constitué de 32 vaches suspectes cliniquement de R.P.T. ou réticulo péritonite traumatique. Le second lot est constitué 18 vaches suspectes de péricardite traumatique. Le troisième lot est composé de 20 vaches témoins. Les prélèvements à analyser sont constitués de sang total et du sang E.D.T.A pris à la veine jugulaire des animaux de l’expérimentation. Les analyses comportent le dosage sérique et plasmatique de certains éléments biochimiques tels que : Ca, P, Mg, les fractions protéiques, le glucose, l’urée et la créatinine et enfin certains enzymes musculaires et d’autres hépatiques. L’appareillage utilisé est celui service de biochimie de l’E.N.M.V de Sidi Thabet. Les résultat des examens ont montré une augmentation statistiquement significative malades, une diminution du rapport Albumines/ Globulines et une chute de la glycémie. Nous avons aussi noté une diminution statistiquement significative de l’albumine chez les animaux suspects de précardite traumatique. Les paramètres biochimiques étudiés n’ont pas révélé de variations significatives. Ces résultat concordent avec ceux d’autres auteurs. L’hypoglycémie peut s’expliquer par le manque d’appétit chez les animaux malades présentant une douleur gastrique inhibant la prise alimentaire.
224. QUELQUE CAS DE TERATOLOGIE CONSTANTE CHEZ LES RUMINANTS; ETUDE COMPARATIVE AVEC LES CAS HUMAINS. A. H. Bounab, Algeria.

Quelques cas de monstres que nous avons observé sur le terrain, nous permettent de penser qu’il existe plusieurs types (non recensée) chez les ruminants en Algérie, car il est très courant d’écouter des éleveurs et même des confrères vétérinaires qui sont confrontés à différentes types de monstruosité. Pour cela il serait intéressant que des spécialistes se penchent sur ce problème pour essayer d’identifiés les principales causes de ces anomalies congénitales.

Notons que, l’étude des monstres qui au paravent se limitait à établir la liste des monstruosités, est devenue actuellement une science dont l’intérêt est essentiel en raison des possibilités de prévention qu’elle permet.

225. COMPARATIVE MORPHOLOGICAL CHARACTERISTICS OF THE PELVIC LIMB MUSCULATURE OF SMALL RUMINANTS. H. Pobric, R. Avdic, K. Arnautovic, K. Caklovica, A. Biber. Department of Anatomy, Histology with Embryology Faculty of Veterinary Medicine University of Sarajevo, Bosnia and Herzegovina.

By this research is encompassed the musculature of the pelvic limb of the lambs of both sexes, of approximately the same age and their morphological correlation with corresponding musculature of the kids. The mentioned animals were authochtonous - domestic Bosnian sheep (“Pramenka”) and Herzegovian Goat. For this research 11 lambs were used (6 males and 5 females) and 10 kids (5 males and 5 females). The animals were around 6 months old, healthy and in good condition, and they stayed with their mothers on a grassy surfaces. The animals were slaughtered at the slaughterhouse of the Department with adequate sanitary measures. After the laparotomy, the trunk was cut in halves through the middle of the vertebral column and pelvic symphysis (on the left half were left spinous processes of vertebrae and the root of the tail - the heavier half). After the cooling of the trunk, the muscles of pelvic limb of male and female animals were separated, the fet tissue and the fascia of the muscles being taken away, and after that the section was done of the musculature depending of their function. Each muscle was measured in volume, length, width and weight, and a comparison of muscles was done regarding their function. It was found out that the total muscle’s mass of pelvic limb of male lambs amounts to 1645.7 g (extensors 84.6%, flexors 15.4%), while the corresponding muscle mass of male kids was 1027.4 g (extensors 80.1%, flexors 19.9%). However, the corresponding muscle mass of female lambs was 1281.2 g (extensors 82.36%, flexors 17.64%), while the kids had 1831.9 g (extensors 81.3%, flexors 18.67%). Based on the data given above it can be seen that the male lambs have heavier musculature of the pelvic limb for 22.15% regarding the female lambs, while the musculature of the female kids has a greater mass for 44% in relation to the male kids. On the other side, the musculature of the pelvic limb of the male lambs in relation to the male kids was heavier by 37%, and on the female lambs it was lighter by 43% in relation to the female kids. The relationship was established also, of the investigated animals, of the individual muscles of pelvic limb of male and female lambs and kids.

226. CORRELATION IN DIFFERENT INVESTIGATION IN FORE STOMACH OF CATTLE’S WITH METABOLIC DISEASES M. Pilmane¹, A. Jemeljanovs², I. Zitare². ¹Medical Academy of Latvia, Institute of Anatomy and Anthropology, Dzirciema street 16, Riga LV 1007, Latvia ²Research Centre”Sigra” of Latvia University of Agriculture, I Instituta Street, Sigulda LV-2150, Latvia.
The changes in content of food effect forestomach’s structure and metabolism in cattle' organism, what realises in animal digestive disturbances clinically. In our previous investigations regional inflammation, atrophical villi were detected as a typical feature for the above mentioned animals. Biologically active substances - neuropeptides are known to regulate cleaving and absorption of food, muscle contractions, local immune reactions of digestive system. Thus, in this work we investigated connection between morphofuncional changes in rumen of calves and cows, and disorders in common neuropeptide–containing innervation within rumen. Results demonstrated atrophy, parakeratosis and inflammatory cells in rumen of animals with metabolic diseases. Neutrophils were detected in epithelium among granular and stratum corneum. Moderate number of SOM-containing cells was counted in both – in epithelium and intramuscular nerve plexus only in calves. Numerous SOM-containing fine nerve fibres or nerve trunks were found in muscular layer of rumen in inflammation disordered wall of rumen in calves. Staining of nerves with myelin and neurofilaments (NF) showed heterogeneous results in calves and also in cows. Rumen displaying atrophy possessed nerve fibres with scarce amount of both markers. Interestingly, intramuscular ganglionic cells were vacuolized and degenerative in these cases. Weakly stained myelin-containing nerve fibres were found only in some animals. Generally, myelinated nerves and moderate number of NF-containing nerves around blood vessels and smooth muscle were detected mainly in healthy animals. We conclude on the variability of immunoreactive innervation and decreased quality of neuronal elements in structurally changed rumen (atrophy, degenerative ganglions) of calves and cows with metabolic disorders. Developmental differencies seem to affect peptide distribution, but not quality markers appearance of neuronal structures in rumen. However, only inflammed ruminal wall may present rich staining with myelin and neurofilaments in nerves.

227. CURE CHIRURGICALE DES HERNIES OMBILICALES CHEZ LES JEUNES BOVINS PAR SUTURE DE L’ANNEAU HERNIAIRE À L’AIDE DES POINTS EN U DE MAYO. M-R. FRIKHA. Unité Pédagogique de Pathologie Médicale et Chirurgicale des Ruminants, des Porcs et des Volailles. Ecole Nationale Vétérinaire de Lyon, 1 Avenue de Bourgelat, B.P. 83 # 69 280 Marcy l’Etoile, France.

Les hernies ombilicales chez les jeunes bovins se présentent sous la forme d’une grosseur en région ombilicale dont on peut parfois sans grande difficulté palper l’anneau herniaire. Ces hernies peuvent être irréductibles parce qu’elles se compliquent d’adhérences ou d’une infection. Ces affections posent un problème de diagnostic différentiel avec les infections des vestiges du cordon ombilical. En pratique rurale, le traitement chirurgical avait fait couler beaucoup d’encre : mise en place de casseaux, ligature du sac herniaire, hernoplastie... La mise en place d’une prothèse exige une asepsie draconienne dans son exécution, condition irréalisable en pratique chirurgicale en milieu rural. Chez les bovins, la cure chirurgicale des hernies ombilicales pose en réalité le problème du choix du type et du matériel de sutures. Là encore, les techniques de herniorraphie sont très nombreuses. Ce grand nombre est l’aveu des difficultés et des limites de chacune d’elles. Parmi ces techniques, nous avons choisi celle qui nous paraît la plus radicale et la plus adaptée aux différents types de hernie ombilicale. C’est la technique de suture à l’aide de points en U de MAYO, inspirée du procédé de MAYO et JUDD (1912, en France) dans le traitement chirurgical des éventrations latérales ou sous-ombilicales chez l’homme. Cette technique a pour objectif de traiter chez les jeunes bovins les hernies ombilicales quel que soit leur diamètre et qu’elles soient ou non compliquées d’une infection.
228. DIAGNOSIS OF PARATUBERCULOSIS IN GOATS BY AN ELISA DEVELOPED FOR USE IN CATTLE. J. Kaba1, G F. Gerilach2. 1Department of Clinical Science, Faculty of Veterinary Medicine, Warsaw Agricultural University, Grochowska 272, 03-849 Warszawa, Poland 2Institut für Mikrobiologie und Tiersuchen, Tierärztliche Hochschule Hannover, Bischofsholer Damm 15, 30173 Hannover, Germany

An enzyme-linked immunosorbent assay (ELISA) with a lipoarabinomannan as an antigen, developed for diagnosis of bovine paratuberculosis was adapted for use in goats. 1074 goat sera were screened. The cut-off value was calculated using the results from the screening of 653 negative samples (serving as a negative population) and by the comparison of the ELISA results of 59 negative, 33 inconclusive and 41 positive samples with the results of complement fixation test (CFT). The cut-off of 40 ELISA units gave a Kappa value of 0.41 indicating moderate agreement between CFT and the adapted ELISA. The results of this study show that the investigated ELISA test may be useful for diagnosis of *Mycobacterium paratuberculosis* infections in goats.

229. HISTOMETRICAL STUDIES OF BUFFALO LARGE INTESTINE LYMPHOID PATCHES IN DIFFERENT AGES. N. Alboghobeish, Shahid Chamran University, Faculty of Veterinary Medicine Department of Histology, Ahwaz, Iran.

The macroscopic results showed that the buffalo large intestine contains two lymphoid tissue patches: A- Ileocaecal lymphoid patch (ICLP) which is located in ileocaecal entrance and it has an elliptical shape. B- Colonic lymphoid patch (CLP) which is located in proximal loop of colon. It was finger or crown shape and it has 24.99+ 1.27 cm distance from ICLP. The patches were well developed in 6-12 months old and after this age, the regression of the lymphoid tissue patches were stared but the regression was more significant in CLP. The height of CLP and ICLP were decreased but their area were increased by age significantly (p<0.05). Microscopic results showed that two types of patches were consisted of numerous lymph follicles which are located mainly in submucosa, but some of them were extended to lamina propria and subepithelial tissue. A diffuse lymphoid tissue were connected the lymph follicles together. The number and size of lymphoid follicles of ICLP were more than CLP. The number and diameter of lymph follicles were decreased in two types of patches by age but the interesting finding was observation of more significant regression in CLP (P<0.05).

230. INFLUENCE OF THE DIFFERENT SOWS LIVING CONDITIONS ON SUCKLING OF PIGLETS. Susic, V. Pavicic Z.1, Suzana Hadina1, Marija Vucemilo1, Alenka Tofant1, Tomislav Balenovic2. 1Department of Animal Hygiene, Environment and Ethology. 2Department of Stockbreeding Faculty of Veterinary Medicine, University of Zagreb, Heinzlova 55, 10 000 Zagreb, Croatia.

The living conditions of sows can have a significant influence on the behaviour and maternal care towards suckling piglets. Thus the influence of various sows living conditions on their behaviour and the suckling of piglets during the 1., 10. and 20. day of their life was investigated. For the experiment 30 Swedish Landrace sows in three different types of farrowing crates were used. Sows in the first group were placed in farrowing crates with clutches and slatted floor, the sows of the second in farrowing crates with bedding and the sows of the third in farrowing crates with clutches and solid floor. During the experiment microclimate
factors were recorded as well as particular behavioural reactions of sows and their effect on the suckling of piglets. The investigations indicate that poor living conditions in farrowing crate with clutches and solid floor, and inadequate microclimate factors can negatively influence on the behaviour of sows. They negatively manifest themselves on an increased number of short or terminated suckling, resulting in piglets with hunger and weak progress. In such living conditions one can expect a significantly lower production and a loss of piglets in excess of 20%. Therefore these types of investigations may help in the discovery and reduction of negative environmental influence, which can definitely have a positive effect on the physical comfort of sows and then corresponding maternal care toward their own litter.

231. INVESTIGATION ON SHEEP MILK CLOTTING ABILITY YIELDED IN SICILY. M.L Scatassa, M Todaro, M.A Cascio, A.M. Randazzo. "Istituto Zooprofilattico Sperimentale della Sicilia” A. Mirri - Palermo, Italy 2Department S.En.Fi.Mi.Zo. -sez. of Animal Production -University of Palermo, Italy

In order to evaluate sheep milk clotting ability a lattodinamografo method was studied by Zannoni e Annibaldi (1981). At the moment, this method, despite of some technical problems (Caroli e Cauvin, 1995), still represents the reference method. To evaluate sheep milk clotting ability yielded in Sicily, n. 1065 milk samples were collected from 85 Sicilian flocks and tested for the following parameters: fat (%), proteins (%), lactose (%), somatic cell count, total bacterial count, urea, titratable acidity. Clotting time (r), firming rate (K20) and clot firmness (a30) were also measured by Formagraph (Foss Italia). The percentage of non reactive milk was monthly recorded and least square means of r, K20 and a30 parameters by ANOVA model were determined. Milk quality were distinguished by reactive and non reactive milk and computing by a two factors ANOVA model; a multivariate approach was used too (Proc CANDISC -SAS 8e, 1999). A total of 30 % of non-reactive milks were found. Non-reactive milks were mostly observed in September, in the period between December and February and in July; in these periods, a lower milk clotting ability was found by r and a30 parameters. The analysis of milk quality relate to reactive and non reactive milk samples showed significant differences for all considered parameters. The analysis of canonical correlation confirmed results of univariate analysis and showed a Mahalanobis distance statistically significant between reactive and non reactive milks.

232. LEPTOSPIROSIS IN DAIRY CATTLE FROM THE NORTHERN REGION OF PORTUGAL. L.M Cavaco, 1 J Niza Ribeiro, 2 V Almeida, 1 R Bexiga, 1 C.L Vilela. 1, CIISA. FMV, Portugal, 2Agros, Portugal.

Leptospirosis is a recognized zoonosis that affects all mammals, including Man. According to OMS recommendations, microagglutination testing of sera, using live antigens, is the test of choice for diagnosis. However, this method is difficult to implement, time consuming and expensive, as it is performed with live antigens. As alternative for the diagnosis of *Leptospira hardjo* infection, other immunoassays have been developed, with the advantage of allowing testing the bulk tank milk to identify infected herds. In the present work, a total of 97 dairy farms were screened (Ceditest LeHa) for the presence of anti-*Leptospira* Hardjo antibodies in the bulk milk tank. Positive herds were then screened individually, to evaluate the prevalence of infection in the farm. Results were correlated with herd management and husbandry factors.
233. PATHOLOGICAL FINDINGS IN A CASE OF CONGENITAL MALIGNANT MESOTHELIOMA - A VERY RARE CASE IN NEWBORN CALVES. M. Pourjafar, A. Derakhshanfar. School of Veterinary Medicine, Shahrekord University, Shahrekord, Iran.

Tumors arising from the serosa are called mesotheliomas, sometimes qualified as malignant. The malignant capability is nearly always exhibited as implantation rather than metastasis. Mesotheliomas are not common. (2). A case of malignant peritoneal mesothelioma in a 45-year-old female Holstein – Friesian Calf is described. This calf had shown progressive abdominal distension for two weeks. On admission, the calf showed signs of abdominal discomfort. Hemorrhagic fluid was obtained by paracentesis. At necropsy a disseminated mesothelioma with involvement of all organs in the peritoneal cavity was found. They appear as multiple small firm nodules on thickened mesentery and serosal surface. Histopathological examination of the lesions revealed malignant mesothelioma, cuboidal neoplastic mesothelial cells with a distinct border and abundant pink cytoplasm. Mesotheliomas are not common. They occur with greatest frequency in cattle and dog but occasionally in other species. There is an association between asbestos fiber and mesothelioma in humans. This association has not been made in animals and in this case there was no history of exposure to asbestos fiber even in her dam. This case was obviously a congenital malignant mesothelioma.

234. PATHOLOGICAL FINDINGS OF PESTE DES PETITS RUMINANTS IN GOATS IN KAZEROON (FARS PROVINCE; IRAN), M Pourjafar, A. Derakhshanfar, Contact details: School of Veterinary Medicine, Shahrekord University, Shahrekord, IRAN.

Following original description of peste des petits ruminants in West Africa by Gargadennee and Lalanne in 1942, peste des petits ruminants (PPR) has been reported from most countries. This report is the first pathological confirmed outbreak of PPR in kazeroon (Fars province, Iran). On December 1985, serious illness and mortality were seen in several native goats flocks in suburbs of Kazeroon. They were examined and initial clinical signs were depression and inappetance with pyrexia of 40.4 to 41.5 degree centigrade. Affected animals then developed necrotic stomatitis, mucopurulent nasal discharge, diarrhea and dyspnoea. None of the animals on the flocks had been vaccinated with rinder pest vaccine and the morbidity rate approached 95 percent. White cheesy necrosis uniformly covered virtually the entire inside of the dorsum and sides of the tongue. This then completely sloughed off exposing inflamed mucous. Three animals were examined postmortem for gross pathological changes. They had epithelial necrosis throughout almost the entire upper alimentary tract from the lips to the middle of the esophagus, congestion of the abomasum and various parts of the lower alimentary tract, and dark congested lungs. Microscopic pathological changes consist of purulent interstitial pneumonia, hemorrhage enteritis, villus atrophy, cryptitis and lamina propria collapse and necrosis of the intestine. There was also acanthosis, necrosis, cellular syncytia and intracytoplasmic inclusion bodies in epithelium of the lip.

Based on the clinical signs, gross and microscopic pathological lesions, a presumptive diagnosis of peste des petits ruminants was made. Confirmation of the diagnosis requires detection of antigen.

235. PERFORMANCES DE PRODUCTION ET DE REPRODUCTION DE QUATRE RACES BOVINES A VOCATION MIXTE DANS LES ELEVAGES TUNISIENS. B. Rekik, A. Ben Gara, A. Ben Younes, Y. Boukadida. Ecole Supérieure d’Agriculture de Mateur, Mateur, 7030, Tunisie.
Les performances de production et de reproduction ont été étudiées à partir de 1315, 186, 108, et 374 lactations réalisées respectivement par des vaches Brunes, Tarentaises, Montbéliardes, et Simmentales. Les quantités de lait total à 100 jours, 200 jours et à 305 jours ainsi que l’allure des courbes de lactation ont été déterminées. Les taux butyreux et protéiques moyens et leur évolution au cours des lactations de référence (de 305 jours) ont été estimés. Les vaches Brunes, plus nombreuses parmi les autres, ont donné des quantités de lait à 100, 200 et 305 jours (4856 kg à 305 jours, n=237) comparables à celles des Simmentales. Les quantités de lait produites par les vaches de ces deux races sont intermédiaires par rapport aux à celles produites par les vaches des deux autres races. Le lait des Brunes est moyennement riche en protéines (3.34 %) et matières grasses (3.78 %). Les Montbéliardes ont produit plus de lait pour les mêmes périodes (5766 kg à 305 jours) avec les teneurs en protéines (3.29 %) et matières grasses (3.32 %) les plus faibles. La production de lait a varié (P<0.05) avec le numéro de lactation, l’âge au vêlage, la saison de vêlage et l’année de vêlage. La production maximale pour toutes les vaches a été enregistrée en 2ème lactation. Les Montbéliardes ont enregistré un pic (22.9 kg) et une persistance (6.44) plus élevés que les autres. Les vaches de race Simmental ont montré un pic de lactation faible (19.2 kg) mais ont maintenu un niveau de production relativement important tout au long de la lactation (persistance=6.27). Les paramètres de reproduction ont été comparables pour les quatre races, les intervalles vêlage – première insémination et vêlage – insémination fécondante ont été respectivement de 63 à 88 et de 100 à 139 jours et l’indice coïtal de 1.8 à 2.1.

236. VARIOUS PHYSICAL INJURIES AND COMPLICATIONS DUE TO *Hordeum murinum* IN SHEEP AND CATTLE. M. R. Aslani. Department of Clinical Sciences, School of Veterinary Medicine, Ferdowsi University of Mashhad, Pobox 91775-1793, Mashhad, Iran

*Hordeum murinum* (mouse barley) is an annual weed of Graminaceae grows in pastures, agri farms and gardens. It also contaminates the forage such as alfalfa. Different physical injuries were observed in sheep and cattle due to penetration of seeds of this plant. Outbreaks of otitis media were diagnosed in two flocks of sheep with 3–4 % morbidity; during July of 2001, caused by penetration of seeds of *H. murinum*. The disease manifested by purulent inflammation of ear canal with frequent discharge accompanied by myiasis in some cases. Ocular lesions including corneal and conjunctival ulceration resulted to keratitis; blindness and purulent discharge were observed in one of that flock. Penetrated seeds of the plant to ocular tissues were also observed in these cases. Sheep with otitis media and or ocular lesions were treated by removal of plant seeds from affected tissues and systemic and local administration of antibiotic plus subcutaneous injection of Ivermectin in cases of myiasis. Four cases of buccal ulcers in milking cows and 3 cases of pharyngitis in 4-5 months old calves were observed which associated with penetration of *H. murinum* seeds to the mucus membranes. In cows forward insertion of seeds in labial-lingual junction, gingiva and lingual frenulum had caused mechanical ulcerative stomatitis. Calves with pharyngitis showed severe dysphagia and salivation that was unresponsive to routine treatments. Postmortem examinations revealed pharyngitis with penetration of seeds of *H. murinum* in pharyngeal mucosa. The alfalfa hay fed to the calves and cattle severely contaminated with *H. murinum*.
237. PREPARTURIENT VACCINATION OF MARES TO ENHANCE PASSIVE IMMUNITY TO RHODOCCUS EQUI PNEUMONIA IN FOALS. S.A. Al Izzi, M.A.A. Al Graibawi, K.A. Khalifa. The National Project for Control of Brucellosis & Tuberculosis, Ministry of Agriculture, Baghdad, Iraq. Faculty of Veterinary Medicine, Al-Fateh University, Tripoli, Libya. College of Veterinary Medicine, Baghdad University, Baghdad, Iraq.

The present study was performed to increase passive transfer of specific *Rhodococcus equi* humoral and cellular immunity to the newborn foals by preparturient vaccination of their dams. Attenuated autogenous vaccine was prepared from a Congo-red-negative *R. equi* local isolate, tested for safety, sterility and potency before vaccination. Six apparently healthy *R. equi* free pregnant mares were vaccinated subcutaneously with the prepared vaccine twice at six and four weeks prior to their calculated foaling dates. The first dose was five ml and boosted with three ml of vaccine containing 2x10^7 bacteria per ml. Similarly, three *R. equi* free pregnant mares were injected subcutaneously with adjuvant and phosphate buffered saline and kept as controls. Blood samples were collected from the dams at zero time and after vaccination and from their foals to monitor humoral immune response using tube agglutination and passive hemagglutination tests. The cell-mediated immune response was evaluated by the skin test using *R. equi* soluble antigen. Vaccination increased humoral and cellular immune responses in mares. Humoral and cellular immunity were transferred to their foals via colostrum, which provided protection against challenge with virulent isolate of *R. equi*. Foals of vaccinated mares had high concentration of *R. equi* specific antibody (1/320-1/1280) and developed delayed type hypersensitivity response to *R. equi* soluble antigen. These results suggest that vaccination of pregnant mares is a successful method to protect their foals against *R. equi* infection.


En France, en 1985, la première transplantation embryonnaire équine non expérimentale a été couronnée de succès. Et donc depuis cette date, l’institut du cheval a recensé plus d’une centaine de produits issus de transplantation. Selon LAGNEAUX en 1998, il y aurait eu, en France 198 donneuses suivies et 311 transferts effectués. Ces chiffres quoique faibles, soulignent l’essor de ce mode de reproduction qui demeure cependant réservé à des juments d’exception. En effet bien que la technique soit par elle-même relativement simple, elle est associée à de lourdes contraintes pour obtenir des résultats qui sont par conséquent limités du fait des particularités physiologiques de cette espèce. Ainsi un des principaux facteurs limitant actuellement la diffusion de la technique de transfert d’embryon dans l’espèce équine, est la lourde gestion des femelles receveuses dont le cycle oestral doit être synchroné de celui de la donneuse. Donc après avoir souligné les intérêts et les possibilités qu’offre cette technique, les auteurs en retracent les différentes étapes à savoir : la préparation, le suivi gynécologique, la collecte de la jument donneuse et le transfert chez la receveuse. Enfin, cette technique nécessite un suivi gynécologique de ces animaux par échotomographie. Contrairement à la vache la technique de polyovulation n’est pas maîtrisée, la collecte d’embryons est très facile, mais couronnée de succès une fois sur deux et le transfert d’embryon ne donne qu’une gestation pour deux mises en place soit en moyenne 4 récoltes pour obtenir une gestation.
239. DIAGNOSTIC DE GESTATION CHEZ LA JUMENT PAR ECHOTOMOGRAPHIE.

L’échotomographie représente un moyen d’investigation très intéressant en gynécologie équine, en particulier lors du diagnostic de gestation. Les particularités du développement embryonnaire équin explique à la fois la précocité du diagnostic de gestation chez cette espèce à partir du 14ème jour voire même parfois dès le 10ème - 12ème jour. De la même manière, il est important de pouvoir reconnaître une gestation gémellaire le plus précocement possible avant l’immobilisation de l’embryon afin de choisir la conduite à tenir la plus adéquate. Si un écrasement manuel est décidé, le suivi échographique de cette intervention est indispensable. Dans le cadre du diagnostic de gestation, il est important voire obligatoire de connaître l’existence éventuelle de kystes utérins qui peuvent offrir des images équivalentes à celles des vésicules embryonnaires ou des images difficiles à interpréter lors d’un examen unique. Enfin, des aspects échographiques d’accumulations liquidiennes pathologiques ou non dans la cavité utérine seront présentés afin de consolider les critères à prendre en compte dans le cadre d’un diagnostic différentiel.

240. CIRCULATION OF DIFFERENT EQUINE HERPES VIRUS STRAIN IN BULGARIA.
I. Chenchev1, G. Georgiev1, S. Yordanov1, N. Nedelchev1, A. Romvary2. 1 National diagnostic and research VeterinaryMedical Institute, Sofia, Bulgaria, 2 Fort Dodge Animal Health, Austria.

The herpesviruses infections in horses are caused by eight different serotypes of viruses, belonging to family Herpesviridae – 5 in horses and 3 in donkeys. In the last six years we performed a large number of serological and virological investigations on blood samples and internal organs of aborted fetuses from different categories of solipades /stallion, mare, donkey, young horses, mules/. Employed were a Complement Fixation Test (CFT) and Enzyme Linked Immunosorbent Assay (ELISA) for detection of antibodies and antigens of equine herpesvirus 1 (EHV1) and equine herpesvirus 4 (EHV4), virological methods for isolation and cultivation of the pathogens, direct electronmicroscopic methods. The results obtained showed that in some farms and horse riding clubs there were clinical manifestations - respiratory symptoms – in adult animals, abortions – in pregnant mares in last two months of gestation and neurological symptoms – in mares after delivering of colts. A large number of seropositive reactions in all categories of animals were established. The highest percent (85,7%) of seropositivity was established in three farms, where were observed clinical symptoms - acute or chronic rhinopneumonitis. The data by ELISA test showed the presence of two serotypes of herpesviruses - EHV1 and EHV4. As a new for the country serological and epidemiological finding was the detection of EHV4 antibodies in horses, donkeys and mules in the investigated regions. We regularly estimated the prophylactic schemes against herpes viral infections that are specific in different categories in Solipades.

241. REPEATED FOLLICULAR PUNCTURES OF THE EQUINE OVARIUM. I. B. Bøgh1, P. Brink2, H. E. Jensen2, H. Lehn-Jensen1. T. Greve1. 1Department of Veterinary Clinical Studies and 2Department of Pharmacology and Pathobiology, The Royal Veterinary and Agricultural University, Bülowsvæj 17, DK-1870 Frederiksberg C, Denmark.
The ovarian function and morphology in mares after repeated follicular punctures were studied. During a period of eight years, 14 to 26 follicular puncture sessions were conducted on each of four Norwegian pony mares. The ovaries of these mares were recovered by bilateral ovariectomy or at post mortem and subjected to macroscopic and histological examination. In all mares, the ability to ovulate, develop follicles, and formation of corpora lutea was still normal during their last breeding season. Gross examination and histology showed that normal follicular and corpus luteum development was accompanied by fibrosis and normal local haemosiderosis of the ovarian stroma. In one mare, chronic apostematous oophoritis had developed in one ovary, while an epithelial-lined cystic structure with a cartilaginous capsule was present in the other ovary. It seems that repeated ovarian punctures do not influence folliculogensis, ovulation and corpus luteum formation. However, it seems most likely that the punctures caused the development of apostematous oophoritis in one mare.

242. REGISTER OF EQUINE-DRAWN CARGO-CAR. V. Cardoso De Mello, Rua Almte. Wandenkolk, 66 28030=210 Campos dos Goytacazes, RJ-Brazil.

In this paper, the Author presents a pilot program to improve the health of about 5,000 equines which pull around 1,500 two wheels cargo-cars in Campos dos Goytacazes, State of Rio de Janeiro, Brazil and to decrease the incidence of zoonosis and other infecto-parasitary diseases they could spread. The Zoonosis Control and Environment Surveillance Center”Dr. Arnaldo Rosa Vianna” (CCZ), from the Health Secretary of Campos dos Goytacazes developed the Register of Equino-drawn Cargo-cars, identifying the animals with micro-chips implants and instructing their owners regarding to their wellbeing. All the equine undergo to veterinary examination, blood and feces laboratory examination and receive medication when indicated. Afterwards they receive anti-rabies vaccine every year, horse-shoes every month, ecto and endoparasiticides when indicated and they are free to be taken for veterinary consultation any time 24 hours every day.

243. HÉMORRAGIE PULMONAIRE INDUITE PAR L'EFFORT CHEZ LE CHEVAL DE COURSE : CONTRIBUTION À L'ÉTUDE DU MÉCANISME PATHOGÉNIQUE. A. Chabchoub1, F. Landolsi1, Bourathine2. 1Ecole Nationale de Médecine Vétérinaire, 2020 Sidi Thabet, Tunisie. 2Institut Pasteur de Tunis, Tunis 1010, Tunisie.

Le syndrome épistaxis du cheval de course induit des contre performances et : limite souvent la carrière sportive de l’athlète. Son mécanisme étiopathogénique est mal ! élucidé malgré de nombreux travaux consacrés. Les auteurs déterminent la numération formule leucocytaire, l’électrophorèse des protéines sériques. Ils procèdent, par la technique de Dubois, à des enregistrements électrocardiographiques sur 26 chevaux atteints d’Epistaxis induite par l’effort et 42 chevaux sains participant à des courses à l’Hippodrome de Kassar Said, qui leur ont servi de témoins. Les auteurs ont alors étudié, notamment dans la dérivation bipolaire Dn, la durée, l’amplitude et la morphologie des ondes de dépolarisation auriculaire (P), ventriculaire (QRS) et repolarisation des ventricules (T) ainsi que la durée des intervalles PR et RT. Il s’avère qu’il existe entre les deux lots des différences statistiquement significatives concernant la durée de l’espace PR et du complexe QRS, l’amplitude de l’onde R et l’onde T2.

Dans un deuxième temps, les auteurs recherchent les antécors précipitants, dirigés envers Aspergillus Fumigatus (AF) et des extraits totaux de foin moisi (Fo. Moi.) par électrosynérèse sur membrane d’acétate de cellulose. Fo. Moi. a été obtenu selon la technique de Pepys, AF sont des antigènes commerciaux
Les malades, au nombre de 30, sont des chevaux de course présentant des épisodes d’épistaxis répétés après l’effort. Le diagnostic a été réalisé sur la base des commémoratifs, de l’examen clinique associé systématiquement à une endoscopie. Les témoins, au nombre de 49, sont des chevaux sains participant à des courses dans les mêmes conditions que les chevaux malades. Pour chaque sérum, un score total a été attribué par antigène. Il tient compte de la qualité, de l’intensité et du nombre des arcs de précipitation. Les scores nuls obtenus envers les 2 antigènes sont comparables chez les chevaux témoins et malades. Néanmoins les scores moyens positifs envers Fo.Moi présente une différence significative entre les 2 lots (chevaux à épistaxis présentent des taux de (3,0:1,6) statistiquement supérieur aux témoins (1,6:0,8)). La répartition des scores Fo.Moi. en fonction de l’intensité de la réponse révèle que les chevaux à épistaxis ont plutôt une réponse fortement positive: 86% des malades ont un score supérieur à 2, alors que 55% des chevaux témoins ont une réponse du type faiblement positive. Aucun cheval à épistaxis n’a réagi envers AF. Les phénomènes d’hypersensibilité du type III envers Fo. Moi. seraient l’une des causes intervenant dans l’installation de l’épistaxis du fait qu’on trouve plus de précipitines anti Fo. Moi. avec des réponses du type fortement positif.

244. CONTRIBUTION À UNE CARACTÉRISATION MORPHOMÉTRIQUE DU CHEVAL BARBE ET DU PONEY DE MOGODS EN TUNISIE. F. Landolsi, A. Chabchoub, Y. Jary, S. Sabbagh. Ecole Nationale de Medecine Vétérinaire, 2020 Sidi Thabet, Tunisie.

The Barb horse is north Africa autochthone horse. It represent the most numerous horse population in Tunisia. This population is an important patrimony. It’s distributed in all the Tunisian territory with some morphological variations tied to environment. The present total number is about 2500 pur breed horses and 40000 cross breed horses (arab-barb…). The study carried out on controlled horse population testifu that there are important regression in number of horses, this may be explained by the climatic conditions, the rise in price of food products especially in food shortage period and by a consecutive fall in price what have urged breeders to cast a great part of their animals or, at list, to stop brood mare reproduction. Barb horses and their cross breed ‘Arab-Barb) are excellent for sadle. They are well-known for their sobriety, their robustness, their rusticity and their resistance to the tiredness and to the rearing and climate hard conditions. Barb horse have a numeriouse use, notably the sadle, animal pull-up and races. The pur barb breed is situated in its cradle which is the west of Tunisia near the Algerian border zones, at the Atlas foot. It decreases in number toward Kasserine, Thala and Kef plains, in Frechich and Ourdane ribes. In northern Tunisia there are a variety of barb that Tunisia poney or the Mogod poney of which the Mogods are its territory. It constitutes a special breed. For many people, it is the primitive autochtonous horse that takes refuge with its owner for to be sheltered from successive invasions. It becomes mountain dweller and it was purified by consanguinity and excess imbreeding. The autors study 25 quantitative parameters relative to pur breed barb horse and mogod poney. The quantitative parameters are withers and rump heights, scapulo-ischial length, scapulo-iliac length, head length, distance between the two eyes, internal angles, neck length, shoulder length, armlenght, forearm length, cannon length, ilium length and the thigh length. Likewise the circumferences; chest measurement, forearm distance round, front cannon distance round. The profile bodily clue, the compacity clue just as qualitative parameters, coat and cephalic profile, were determined.
Bulgaria is free of African Horse Sickness (AHS) and West Nile fever (WNF) of horses. Contacts and the proximity to countries, in which it is assumed that there are cases of the disease necessitate surveillance of equine animals near the border, strict control of outgoing and in-coming animals, especially of animals returning to the country after a long stay abroad or participation in races. Instructions for carrying out veterinary activities in instances when the disease occurs in Bulgaria have been worked out, since last year in regions bordering with Turkey, Macedonia and Yugoslavia there were occurrences of Blue tongue disease (the disease has the same epizootiological vectors of spreading). Stringent control must be in place regarding equine animals in these regions - 100% within the 30 km zone bordering with Turkey and 50% in the interior of the country respectively. All importation and exportation of animals must also be placed under strict control. In last five years Romania have the cases of WNF in humans and horse. In our country to this moment we have only cases of WNF in humans. We also have the same vectors (mosquito’s and other ticks). The objective of this investigations is to present etiological, entomological, faunistic and epizootiological situation in our country and discuss about possibilities of penetration of tick-borne diseases. summarized and discussed in the light of known facts.

246. EFFICACY OF OMEPRAZOLE (GASTROGARD) FOR THE PREVENTION AND TREATMENT OF EQUINE GASTRIC ULCER SYNDROME. Fayet, G. France.

Equine gastric ulcer syndrome (EGUS) is a very common disease particularly in performance horses and also in foals. It results from an imbalance between mucosal aggressive factors (hydrochloric acid, pepsin, bile acids) and mucosal protective factors (mucus, bicarbonate). Several factors have been implicated in causing ulceration and these include, fasting, stress, strenuous exercise, gastric acid clearance (gastric motility and emptying), aggressiveness of the gastric juice (acid, pepsin, bile acids) and the process of desquamation. Omeprazole (Gastrogard), an acid pump inhibitor, has been successfully used to treat and prevent recurrence of EGUS. One hundred Thoroughbreds showing gastric ulcers were involved in a controlled study, 25 received a placebo and the remaining 75 horses were administered with Gastrogard, an omeprazole paste, at 4 mg/kg per day once daily for 28 days. On day 28, gastric ulcers were totally healed in 77% of omeprazole-treated horses and 92% were significantly improved, however 96% of the control horses still had EGUS at D28. On day 28, 25 of the treated horses continued on the same dosage (4 mg/kg/daily), 25 on a half dose (2 mg/kg/daily) and 25 on a placebo. On Day 58 the improvement of gastric ulcers was maintained in horses that continued on omeprazole treatment at 4 or 2 mg/kg. However, in horses that were removed from omeprazole treatment at Day 28, the incidence and severity of EGUS at Day 58 were similar to untreated horses.

247. A STUDY ON DETERMINATING ELECTROCARDIOGRAPHIC NORMAL PARAMETERS OF KURD HORSES IN BASE-APEX LEAD. S. Fakour1, A.A. Bahari2, M.R. Mokhber-Dezfouli3. 1Faculty of Veterinary medicine, AZAD University, Sanandaj-Iran. 2College of Veterinary medicine, Bu-Ali Sina University, Hamadan-Iran. 3Faculty of Veterinary medicine, University of Tehran, Tehran-Iran.
In this study various electrocardiographic parameters were investigated in 50 resting and clinically normal Kurd horses for the first time in BA lead. Recorded electrocardiograms were evaluated from point of the cardiac rhythm, heart rate, ECG intervals, duration, amplitudes and waves form (P, QRS and T) and also relative frequencies of Q, R and S waves. Obtained results from this study indicated that: The mean and standard deviation of the heart rate in all horses were $37.87 \pm 5.05$. The duration of P, QRS and T waves in all horses were resulted $0.130 \pm 0.017$, $0.128 \pm 0.014$ and $0.163 \pm 0.040$ second, respectively. The duration of PQ interval and QT interval were calculated in order of $0.288 \pm 0.041$ and $0.486 \pm 0.047$ second. The mean and standard deviation of amplitude for P, Q, R, S and T waves were $0.384 \pm 0.087$, $0.058 \pm 0.047$, $0.375 \pm 0.312$, $2.152 \pm 0.669$ and $0.991 \pm 0.409$ mV, respectively. The relative frequencies for P wave were resulted $16.67\%$ for positive monophasic and $83.33\%$ for biphasic waves. The relative frequencies for T wave were calculated $43.33\%$ for negative $43.33\%$ for negative/positive (-/+), and $13.33\%$ for positive waves. The relative frequencies of RS, qRS, QS, rS and QRS pattern were $43.33\%$, $20\%$, $13.33\%$, $13.33\%$ and $10\%$, respectively. The means of heart rate were not statistically significant between males ($37.83 \pm 5.26$) and female ($37.92 \pm 4.96$) ($p=0.05$). In comparison of calculated parameters for Kurd horses, with Thoroughbred and Turkoman (Persian Akhal-Teke) horses demonstrated that: The mean of heart rate and duration of waves were similar. Amplitudes for P, R, S and T waves in Kurd horses were higher and Q wave amplitude was lower. The qRS pattern ratio in Kurd horses was more than that in the other horses. Unlike the Thoroughbred and Turkoman (Persian Akhal-Teke) horses, T wave pattern have a similar relative frequency for negative/positive (-/+ and negative pattern in Kurd horses.

248. ELEVAGE ET PRODUCTION DES CHEVAUX DE COURSE DE RACE PUR-SANG ARABE EN TUNISIE; IMPORTANCE DU CHOIX DES REPRODUCTEURS. J. Hellal, A. Ben Younes. Ecole Nationale de Medecine Vétérinaire, 2020 Sidi Thabet, Tunisie.

Dans ce travail l’auteur présente une étude rétrospective du choix des reproducteurs de race Pur Sang Arabe en Tunisie. En effet, il en déduit que la population tunisienne de cette race est dominée par trois lignées mâles, ce sont celles de Nasr, Hellal et Dynamite II. Chacune de ces lignées est représentée par des étalons marqués par des niveaux de production élevés. Cette présentation globale de ces lignées permet de mettre à la disposition des professionnels de l’élevage des bases de connaissances concernant l’histoire et éventuellement l’avenir de cette race. L’étude des accouplements réussis des étalons chefs de race a permis de distinguer essentiellement deux lignées maternelles génératrices des meilleurs accouplements. Ce sont celle de Dynamite II et Nasr. La réussite de la lignée Nasr avec celle de Dynamite II est remarquable. Cette étude des accouplements réussis peut trouver son application dans un programme d’accouplement raisonnés.


Selon les plus récentes études, les différents agents pathogènes impliqués dans l’ERU n’interviennent vraisemblablement dans le développement de la maladie que par l’intermédiaire du système immunitaire, dont le mécanisme immuno pathogénique explique également le caractère récidivant. Les cellules
sensibilisées, principalement les lymphocytes T CD4, 5 et 8, s'accumulent en particulier dans le tractus uvéal et peuvent passer dans le vitré ou ils forment des structures ophalmoscopiquement visibles pouvant être réactivés à l’occasion d’un nouveau contact antigénique. Ces caractéristiques sont à l’origine des derniers traitements chirurgicaux maintenant validés dans le traitement des ERU et la prévention des récidives. Deux modalités sont utilisées : la vitrectomie postérieure : extrapolée des techniques utilisées chez l’homme, consiste à retirer mécaniquement (vitréotome) les éléments intra vitréens irritants, gênant la vision, pouvant par leur immuno compétence réacteriver l’inflammation. Proposée en 1989 par Werry, Gerhards et coll. comme traitement chirurgical de l’ERU, la vitrectomie postérieure connaît un essor important depuis qu’en 1991, la même équipe a démontré la fiabilité de l’abord postérieur par la pars plana pour la vitrectomie chez le cheval. L’implantation intra vitréenne de cyclosporine A (CsA) a été développée aux U.S.A. par Gilger, Davidson et coll. dans le cadre de la fondation pour la recherche sur l’ERU, dans le cadre de l’université de Caroline du Nord. Dans les cas ou les lésions provoquées par l’uvéite ne sont pas trop invalidantes, l’implantation dans le vitré d’une molécule immuno suppressive est de nature à stopper les récidives de la maladie. La CsA inhibe la production des interleukines par les lymphocytes T auxilliaires, et s’oppose ainsi à la mise en place des réponses immunitaires cellulaires et humorales. L’équipe de Caroline du Nord est à l’origine de la mise au point d’un implant libérant la CsA dans le vitré à raison de 4 à 6 ?g par jour pendant 5 années. Ces deux techniques chirurgicales peuvent être complémentaires, voire associées dans le même temps opératoire. Nos résultats obtenus en pratique courante améliorent de façon très sensible le pronostic de l’ERU ; le bilan clinique aboutissant à l’indication chirurgicale doit néanmoins être complet et tenir compte sans complaisance des déficits fonctionnels (cataracte, kératites par exemple) qui ne pourront être améliorés par ces techniques.


Il est bien connu que les récepteurs β3-adrénergiques (β-AR) sont impliqués dans la vasodilatation des veines digitées de cheval (VDC). L’objectif de cette étude est de rechercher in vitro l’expression fonctionnelle du récepteur β3-AR. Les VDC sont suspendues dans des cuves à organes isolés. Les résultats sont exprimés en % de relaxation par rapport à la contraction initiale. Sur des VDC contrôles précontractées à la phényléphrine, l’isopréénaline (agoniste β-AR non sélectif), le SR 58611 et le ZD 2079 (agonistes β3-AR préférentiels), produisent une relaxation concentration-dépendante. L’effet obtenu à la plus forte concentration (Emax) est de 92,8 ± 3,2% (n=6), 66,2 ± 4,1% (n=6), 56,8 ± 4,3%; (n=6) respectivement. En présence de nadolol (antagoniste β1 β3-AR), la réponse relaxante au SR 58611 n’est pas modifiée mais la réponse à l’isoprenaline est significativement diminuée (Emax = 41,8 ± 5,4%, (n=6), p<0,05). En présence de 2 mM de ZM 215001 (antagoniste β3-AR), la relaxation induite par le SR 58611 est fortement réduite (Emax = 33,1 ± 3,3%, (n=5), p<0,05). Dans le but de rechercher le rôle de l’endothélium et du monoxyde d’azote (NO) dans la relaxation β3-AR, certaines expériences sont réalisées sur des anneaux ayant subi une abrasion mécanique, ou sur des anneaux intacts incubés en présence d’un inhibiteur des NO-synthases (L-NMMA). En absence d’endothélium, ou en présence de L-NMMA, la relaxation induite par le SR 58611 est significativement diminuée, suggérant que le
récepteur β3-AR est localisé en partie dans l’endothélium et implique la voie du NO. En absence d’endothélium, la relaxation endothélium-indépendante due au SR 58611 est significativement inhibée par le ZM 215001. En conclusion, ces résultats montrent que, dans les VDC, le récepteur β3-AR est fonctionnellement exprimé. Il est localisé, en partie, dans les cellules endothéliales et dans les cellules musculaires. son mécanisme d’action endothélial implique la voie du NO.


Le rôle des récepteurs β3-adrénergiques (β-AR) dans la fourbure aiguë est peu connu. L’objectif de cette étude est de rechercher in vitro les effets directs d’une endotoxine sur les relaxations induites par les agonistes β3-AR sur les veines digitées de cheval (VDC). Les VDC sont suspendues dans des cuves à organes isolés. Les résultats sont exprimés en % de relaxation par rapport à la contraction initiale. Sur des VDC contrôles précontractées à la phényléphrine, le SR 58611 (SR) et le ZD 2079 (ZD) (agonistes β3-AR préférentiels) produisent une relaxation concentration-dépendante. L’effet obtenu à la plus forte concentration (Emax) est 66,2 ± 4,1% (n=6) et 56,8 ± 4,3% (n=6) respectivement. Afin d’évaluer les effets directs des endotoxines d’E Coli, des expériences ont été menées sur des VDC préalablement incubées pendant 16 h avec des LPS. Dans ces conditions, la relaxation au SR est significativement diminuée (Emax = 32 ± 5,4%, (n=6), p<0,05). Des résultats similaires sont obtenus sur des VDC provenant de chevaux fourbus. En présence de cyclohexémide (inhibiteur de synthèse protéique) ou d’ibuprofène (inhibiteur des cyclooxygénases) la relaxation des VDC préalablement incubées avec les LPS est rétablie, suggérant l’implication des métabolites de l’acide arachidonique dans les effets de l’endotoxine. En conclusion, ces résultats montrent que, dans les VDC, l’altération de la réponse β3-AR en présence d’endotoxine serait la conséquence, en partie, de l’activation des cyclooxygénases. Cette altération contribuerait à la pathogénie de la fourbure aiguë chez le cheval.

252. THE CROSS SECTIONAL AREAS OF NORMAL SUPERFICIAL DIGITAL FLEXOR TENDON OF PALMAR METACARPUS DETERMINED ULTRASONOGRAPHICALLY IN CASPIAN HORSES. M. Masoudifard1, A. Veshkini1, A.R Vajhi1, Soroori S2. 1Department of Clinical Sciences, Faculty of Veterinary Medicine, Tehran University, P.O.Box: 14155-6453, Tehran-Iran. 2Department of Clinical Sciences, Faculty of Veterinary Medicine, Mashhad University, P.O.Box: 91755-1793, Mashhad-Iran.

The Caspian horse is an ancient breed previously believed to have been extinct for over one thousand years. Superficial digital flexor tendonitis is a common cause of unsoundness and loss of use in equines. The objective of this study was to determine the normal size of the SDFT as cross-sectional area (CSA) ultrasonographically in the metacarpal region of normal Caspian horses. Fifteen Caspian horses free of lameness were chosen for this study. Left forelimb between the carpus and metacarpophalangeal joint was prepared. A 7.5 MHz linear transducer and Pie Medical 200 machine was used to obtain five transverse images. The levels named A, B, C, D and E corresponded to zones IA, 2A, 3A, 3B and 3C described previously. The cross-sectional areas were measured by tracing around the outline of the tendon using a
software pro gram and the values were obtained for CSA expressed in square millimeters. Mean :!: SD
cross-sectional area of the SDFT at levels A, B, C, D and E were 50.3 :!: 6.65, 46.7 :!: 10.11, 49 :!: 7.9,
60.3 :!: 9.27 and 72.6 :!: 14.12 square millimeter, respectively. The variation of size with level for SDFT
was drawn. The cross-sectional areas measured in fuis study may be useful for determining increased
tendon size in cases of tendonitis of SDFT in Caspian horses. The values were statistically smaller for
Caspian horses when compared to other smilies in CSA measurements ofSDFT at the same levels for
other breeds.

253. A STUDY OF DENTAL DISEASE IN THE HORSE. W. Nuri Said, Faculty of veterinary
medicine, Al-Fateh University, Tripoli, Libya.

During a period of 3years, a study of dental disease in the horse was conducted using 355 fresh horse
skulls. The age, sex and breed of each case were recorded. Examination for gross pathological changes
was carried out in all specimens. Selected cases were photographed, radiographed and dissected. A total
number of 118 diseased cheek teeth were subjected to longitudinal and cross sectioning. It was found that
dental disease is very common in the horse. The most frequently recorded dental disorder was periodontal
disease and it was seen in 130 skulls (36.6 per cent). Dental caries was the second most common disease
recorded in this study. A total of 109 cases (30.7 per cent) were seen to be affected. The incidence of both
of these conditions was seen to increase with age. Instances of abnormal dental development and eruption
were found in 47 skulls (13.2 per cent). Abnormalities of wear were seen in 61 cases (17.2 per cent).
A strong association was found between the most severe lesions of periodontal disease and abnormalities of
dental development, eruption and wear. It was confirmed that dental caries in the horse is a disease, which
predominantly affects the maxillary cheek teeth, and despite its high incidence this disease was a
relatively benign disorder. Dental pulp exposure was recorded in 24 cases (6.8 per cent) and was observed
as the one of greatest clinical significance. All the periapical infections (root infections) recorded in this
study, were attributed to exposure of the dental pulp.

254. EPIDÉMIOLOGIE ET PROPHYLAXIE DES DIARRHÉES NÉONATALES DU POULAIN
EN RÉGION BASSE-NORMANDIE. C. Puyalto-Moussu1, S. Taouji1, A. Saison1, A. Peyret1, C.
Collobert1, G. Fortier2, M. Sanaa3. 1AFSSA Douzulé, LERPE route de Caen, 14430 Goustranville.
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Maisons-Alfort, France.

Les diarrhées sont l’une des pathologies prépondérantes du poulain âgé de 0 à 6 mois. Elles sont un
exemple de maladie complexe et multifactorielle et résultent d’interactions entre des facteurs propres à
l’animal, des facteurs environnementaux et des agents pathogènes. L’étiologie des diarrhées d’origine
infectieuses du poulain a été étudiée pendant 2 années (2000-2001) sur une population de 775 poulains
sains et malades localisés dans 42 haras bas-normands. Tout épisode diarrhéique survenant sur les
poulains entre la naissance et le sevrage (environ 6,5 mois) a été rapporté. La durée de la diarrhée, les
traitements mis en œuvre et les éventuelles récidives ont été enregistrés. Une recherche systématique des
agents infectieux et parasitaires suivants a été conduite à partir des fèces : Salmonella spp.,
Campylobacter jejuni, Escherichia.Coli, Rhodococcus equi, Bacteroides fragilis, clostridies, Yersinia
enterocolitica, Streptococques bêta-hémolytiques, rotavirus, adénovirus, cryptosporidies, Eimeria,
Strongyloïdes westerii. Les rotavirus du groupe A sont la principale cause des épizooties de diarrhées
infectieuses observées au cours de l’étude. Les parasites digestifs et les bactéries sont plus rarement impliqués en première intention. La recherche de rotavirus du groupe A a été effectuée dans 151 prélèvements de fèces par un test ELISA (ROTAZYME, Fort Dodge) ou un test au latex (DACOLEX Rotavirus, J2 L Elitech). Des épisodes de diarrhée (hors diarrhée sur chaleur de poulinage) ont été enregistrés sur 149 poulains la première année. Dans certains élevages, plus de 40% des poulains ont été atteints et 48% des poulains malades ont été détectés positifs vis à vis des rotavirus. La moyenne d’âge de ces poulains est de 68 jours (2 à 90 jours). Seuls deux décès de poulains consécutifs à une infection par des rotavirus ont été enregistrés en 2000. Le sérotypage des souches isolées dans 11 élevages montre que le sérotype G14 semble être prédominant.

255. DETECTION OF CARDIAC ARRHYTHMIAS BEFORE AND AFTER HIGH SPEED EXERCISE IN IRANIAN CROSSBRED HORSES. M. sakha. School of vet.medicine.shahid bahonar university of kerman, kerman, Iran.

Heart is related to other organs by vesseles,so any disorders of it, has additional effect on the other organs.lack of the rhythm or arrhythmia is one of the common disturbances of heart.animal may suffer physiologic or pathologic arrhythmias and may die from hazardous of them. Horses, especially race horses have greater chance to show arrhythmias,during the exercise heart rate may reach to 6-8 time more than resting -HR and heart should have this potential.auscultation and electrocardiography are two methods that enable us to distinguish arrhythmias carfully. This study was carried out on 19 crossbred horses of both sexes between 5-14 years old.the ECG ‘S were taken seperately before and after exercise,at the base-apex lead.hoses were exercised high speed galoop in one mile at the court.ECG’S then studied for different parameters and possible arrhythmias. Recorded ECG’S were studied with regard to the heart rate,intervals,segments and the patterns of waves in arrythmia. 1. the results pertaining to intervals in this lead were studied before and after exercise,p-p interval reduction was observed in all cases significantly(p<0.05). 2. the mean of the resting heart rate was 36.05+_6.48 bpm,the mean of heart rate after exercise was 131.89+_16.83(p<0.05). 3. different forms of arrythmias,like sinus arrhythmia,first degree A-V block,second degree A-V block and sinus arrest in ECG’S were observed at rest. because of the all arrhythmias changed into normal sinus rhythm after exercise,they classified as physiologic arrhythmias.there was no obvious pathologic arrhythmias in ECG’S either in rest or after exercise.


En fin de saison de monte, plusieurs juments, souvent âgées, restent vides, parfois depuis plusieurs années. Elles ont souvent eu pendant la saison de monte ou en dehors des traitement variés.Sur 6 d’entre elles, 24 heures après l’ovulation, un lavage, siphonnage de l’utérus a été effectué avec 1 L de soluté isotonique de chlorure de sodium pour un examen bactériostatique. Le lavage siphonnage, a été répété 2 à 3 fois de suite, jusqu’à ce que le liquide récupéré soit limpide. Puis 10 millions d’U.I. de pénicilline et 10 g de streptomycine dilués dans 1 L de soluté isotonique de chlorure de sodium sont laissés dans l’utérus. La jument reçoit 3 fois par jour par la voie I.M, 30 U.I d’ocytocine. 24 heures plus tard, un

Un examen échotomographique permet de vérifier au moment de la dernière injection que l’utérus ne contient plus de liquide. Sur 6 juments traitées, 3 se sont trouvées gestantes (l’une d’entre elle, était vide depuis deux ans et 8 cycles avaient été utilisés), les 3 autres sont vides. Une n’avait pas de bactérie dans l’utérus (l’infécondité a donc une autre origine), pour les deux autres, l’antibiogramme n’a pas été transmis en moins de 24 heures et les antibiotiques choisis étaient inefficaces.


L’insémination artificielle en post-ovulation chez la jument nécessite un suivi gynécologique par échotomographie par la voie transrectale toutes les 6 heures. Cette technique donne de très bons résultats du point de vue fécondité et permet une économie importante de paillettes de sperme congelé.


Chronic weight loss is quite frequently encountered in equine practice. Because most diseases could result in weight loss, this condition is often frustrating and represent a real diagnostic challenge to the clinician. In the absence of relevant clinical sign except weight loss, the case approach should be systematic. A standard protocol for chronic weight loss investigation has been tested on 40 horses referred to the equine clinic of Toulouse Veterinary School between october 1998 and December 2001. This protocol is built in a way going from the simplest to the more complicated. It emphasizes simple and first intention diagnosis tests like a precise and complete history, a full physical examination including a detailed rectal examination and routine hematology and biochemistry, but also repeated fecal tests. It points out the importance of second intention but simple tests like peritoneal fluid analysis, rectal biopsy, organ specific biochemistry, glucose and/or xylose absorption tests and larvicidal treatments as a diagnosis tool. Finally, it indicates when implementing more sophisticated technics like endoscopy of the upper respiratory tract and the oesophagus, gastroscopy, abdominal echography, abdominal organs biopsies, echocardiography or X-ray examination. A positive diagnosis has been made on 37 cases representing 92.5% of the total 40 referred cases documented in this study.

259. HORSE CUTANEOUS TUMOR TRATMENT BY ELECTROCHEMOTHERAPY : PRELIMINARY CLINICAL RESULTS. Y. Tamzali 1, J. Teissie 1, M. P. Rols 2. ‘Médecine Equine, Ecole Nationale Vétérinaire de Toulouse, 23 chemin des Capelles, 31076 Toulouse cedex, France.’ 2 IPBS CNRS, 205 route de Narbonne, 31077 Toulouse cedex, France.

Electrochemotherapy is a new anticancer therapy where the transient permeabilization of cells by electric field pulses induces a significant increase of antitumoral drug concentration and toxicity in tumor cells.
It has been successfully applied to the treatment of tumors in animals and humans by using antimitotic drugs. This report describes its first use in the treatment of horse skin tumors, mainly sarcoids. Several horses have been enrolled. They had several tumors located at different positions. Treatment was performed under short duration general anesthesia. Intra tumoral injections of cisplatin were followed by short and intense electric pulses directly applied on the skin at the tumor sites. Two to four successive treatments were applied at two-week intervals. Antitumor effect was obtained. To date, three horses have a two-years period of surveillance. Objective responses were obtained in 100% of the treated lesions. All horses tolerated the treatment well. No adverse effect from the electric pulses was observed even in the case of a high number of pulses, or when several consecutive treatments were applied. As a conclusion of this electro-mediated cutaneous tumor treatment of horses, antitumor effect seems to be long-lived due to the stabilization of the treated lesions as observed two years after ECT. Because ECT is observed to be safe method, results of this preliminary trial on horse skin tumors are encouraging.

260. WEST NILE IN THE WESTERN HEMISPHERE: IMPACT ON THE US HORSE INDUSTRY. P. J. Timoney, Maxwell H. Gluck Equine Research Center, University of Kentucky Lexington, KY 40546-0099, USA.

The discovery of West Nile virus in New York State in 1999 marked the first known incursion of West Nile virus into the western hemisphere. In the intervening years, the virus has successfully established itself over an ever expanding area of the USA and Canada and in 2001, was detected as far south as the Cayman Islands in the Caribbean...Since its recognition in the USA in 1999, West Nile virus has been responsible for illness and death in humans, horses and birds. The number of known cases of West Nile encephalitis in horses has risen from 25 in 1999 to well over 700 in 2001, with an attendant case-fatality rate of approximately 33%. Aside from the confirmed veterinary medical significance of the strains of West Nile virus in current circulation in North America, the virus continues to have an important economic impact on the US horse industry. Sources of economic loss currently attributable to West Nile virus include: direct losses from the death/euthanasia of affected horses; loss of potential breeding income when stallions or mares become affected and die or have to be euthanized; denied export markets for seropositive, naturally exposed or vaccinated horses; and the indirect and induced financial impact associated with occurrence of the disease on a widespread scale. It is hoped that more widespread implementation of mosquito control programs, measures aimed at reducing the risk of exposure of horses to West Nile virus, and immunization of horses against the disease will curtail the losses attributable to this infection. From the viewpoint of international trade, it is strongly urged that countries not overreact to the perceived but scientifically unfounded risk of introducing West Nile virus through the importation of seropositive horses from countries or regions in which the virus occurs.

261. THE CONTINUING THREAT THAT INFECTIOUS DISEASES POSE TO INTERNATIONAL TRADE IN EQUIDS. P. J. Timoney. Maxwell H. Gluck Equine Research Center, University of Kentucky Lexington, KY 40546-0099, USA.

The post 10-15 years has seen an unprecedented expansion in the international trade in equids and equine semen. The majority of live animal movements are horses that are shipped between an increasing number
of countries in northern and southern hemispheres, principally for breeding or performance purposes. The practice of shuttling stallions, mainly Thoroughbreds, from northern to southern hemispheres and vice versa has increased significantly, especially in the last 5 years. Concomittantly, there has been a dramatic rise in the amount of equine semen being shipped internationally; due primarily to more widespread acceptance of the use of frozen semen by nearly all of the major horse breed registries/associations. The continued growth in international trade in equids and equine semen has not been without attendant problems. It is considered to have increased the risk of spread of a wide range of infectious diseases between countries. Within the past 30-40 years, there have been numerous confirmed instances of the introduction of certain equine diseases into countries following live animal importations or resulting from the use of imported fresh-cooled or frozen semen. Not all of these diseases are restricted in host range to equids; some, such as Venezuelan equine encephalomyelitis, are zoonotic, with the potential to cause significant illness and even death in humans. A range of factors have been shown to affect or have the potential to alter the global distribution of equine infectious diseases. These include the international movement of equids and shipment of semen, multinational trade agreements, emergent diseases, natural mutation of recognized pathogens, climate-related phenomena, migration of amplifying/reservoir hosts or vectors of specific pathogens, availability of new vectors, altered land use, vaccine contamination and deliberate acts of bioterrorism. The significance of each of these factors will be reviewed in greater detail.

262. SIGNIFICANT VENEREALLY TRANSMISSIBLE PATHOGENS OF EQUIDS. P. J. TIMONEY. Maxwell H. Gluck Equine Research Center, University of Kentucky Lexington, KY 40546-0099, USA.

Of the range of equine pathogens or diseases that are known to be venereally transmitted, the majority are bacterial (Streptococcus zooepidemicus, Klebsiella pneumoniae, Pseudomonas aeruginosa, Taylorella equigenitalis, Taylorella asinigenitalis), a couple are viral (equine viral arteritis and equine coital exanthema) and one is a protozoan infection (dourine). These infections differ widely in geographic distribution, with some such as Streptococcus zooepidemicus present in most indigenous equid populations and others such as dourine, restricted in occurrence as a result of the effectiveness of international control measures over the years. In the past 15-25 years, two diseases, contagious equine metritis and equine viral arteritis, have gained a great deal of notoriety because of their impact on the international trade in horses and semen. Selected equine venereal pathogens will be reviewed and important aspects of their epidemiology, diagnosis and con

263. COMPARATIVE DISPOSITION OF TRIPELENNAMINE IN HORSES AND CAMELS AFTER INTRAVENOUS ADMINISTRATION. I.A. Wasfi, A.A Abdel Hadi, M. Elghazali, N.S. Boni, N.A. Alkatheeri, I.M. Barezaig, ; A.M. Al Muharami, A.M. Hamid, UAE.

The pharmacokinetics of tripelemnamine (T) was compared in horses (n = 6) and camels (n = 5) following intravenous (i.v.) administration of a dose of 0.5 mg/kg body weight. Furthermore, the metabolism and urinary detection time was studied in camels. The data obtained (median and range in brackets) in camels and horses, respectively, were as follows: the terminal elimination half-lives were 2.39 (1.91-6.54) and 2.08 (1.31-5.65) h, total body clearances were 0.97 (0.82-1.42) and 0.84 (0.64-1.17) L/h/kg. The volumes of distribution at steady state were 2.87 (1.59-6.67) and 1.69 (1.18-3.50) L/kg, the volumes of the central compartment of the two compartment pharmacokinetic model were 1.75 (0.68-2.2) and 1.06 (0.91-2.20)
L/kg. There was no significant difference (Mann-whitney) in any parameter between camels and horses. The extent of protein binding (mean ± SEM) 73.6 ± 8.5 and 83.4 ± 3.6 % for horses and camels respectively, was not significantly statistically different (t-test). Three metabolites of T were identified in urine samples of camels. The first one resulted from N-depyridination of T with a molecular ion of m/z 178, and was exclusively eliminated in conjugate form. This metabolite was not detected after 6 h of T administration. The second metabolite, resulted from pyridine ring hydroxylation, had a molecular ion of m/z 271, and was also exclusively eliminated in conjugate form. This metabolite could be detected in urine sample for up to 12 h after T administration. The third metabolite has a suspected molecular ion of m/z 85, was eliminated exclusively in conjugate form and could be detected for up to 27 h after i.v. administration, with about 90 % of eliminated T being in the conjugated form.

264. EVOLUTION OF THE INTEREST HOW THE KNOWLEDGE ABOUT EQUINE MANAGEMENT IN A INTERDISCIPLINARY GROUP OF HIPPOTHERAPY OF UFSM/ BRAZIL. L. Vera Regina Albuquerque1, J. Luciana Leal2, O. Vinicius2. 1Research of CCR/UFSM (Federal University of Santa Maria)/Brazil. 2Veterinary Medicine Academics of UFSM.

The knowledge about equine management is an important question to Hippotherapy professionals and the Veterinary Medical needs to know this therapy and the part of horse on it. The UFSM keeps one interdisciplinary research of Hippotherapy that involve academic of so many university studies. With the purpose of to evaluate the academic interest about equine management were interview the 15 academics of different university studies that compose the reported group (Physics Education, Medicine, Special Education, Physiotherapy, Fonoaudiology and Psychology). The academics accepted one form to fulfill with theirs suggestions of topics about equine medicine (equine management) to future conversations with the Veterinary Medicine academic. The results were: 5 suggested “Valuation of the Equine Uprightness”, 4 suggested “Equine Nutrition”, 3 suggested “The Equine Senses”, 1 suggested “The Equine Pelages” and 1 suggested “The Equine Behaviour”. The high interest of this academics demonstrate the importance of the Veterinary Medicine academic on this researches about Hippotherapy to supply to academics of the other university studies the knowledge that he purchase on their university study, motivating this academic on the research about Equine Medicine and promoting their knowledge about Hippotherapy, a new area to Veterinary Medical with ability and continued information.

265. PRESENCE OF PARASITE FORMS ON EQUINE BEDS OF THE UFSM PADDOCK/ BRAZIL. L. Vera Regina Albuquerque1, J. Luciana Leal2, O. Vinicius2. Research of CCR/UFSM (Federal University of Santa Maria)/Brazil. 2Veterinary Medicine Academics of UFSM.

The horses beds, so many times, offers propitious conditions to development of parasite forms like little luminosity, little ventilation and elevated humidity. These places are a study object since to deal about contamination fonts of horses that live on paddocks and breeding farms. This parasite forms can, occasionally, infects this animals and to cause a many types of clinic upsets as, for example, diarrheas of hard diagnostic. The present work had for objective to determine the presence of parasite forms on the 8 beds of the equine boxes actually found on the UFSM paddock. Were collected 8 samples and conducted to LDPAD to their proceeding. The utilized method was the Centrifugal-Floatation with (Na2Cr2O – 2H2O) solution, density of 1:350. The results were: of 8 collected samples, all introduced oneself
positives. The parasite forms found on this samples was: helmint larvae, adult mites, cists of *Giardia spp*, *Taenia spp* eggs, *Parascaris spp* eggs, protozoal oocists, mites eggs and Strongyloidea and Rhabdiasoidea helminth eggs. These results demonstrated the high incidence of parasite forms in equine beds and the importance of the careful and sanitary management of these places to avoid possible contaminations.

266. RESULTS OF THE COMPARATIVE TRIALS OF THE COMMERCIAL ANTIGENS PRODUCED IN DIFFERENT COUNTRIES FOR THE DIAGNOSTIC OF DURING IN CFT. V.T Zablotsky, Ch. Georgiu. The All-Russian Research Institute of Experimental Veterinary Medicine Laboratory of Protozoology. 109472, Moscow, Kuzminki, VIEV, Russia

The international standardization and harmonization of the Complement Fixation Test for the diagnostics of during in horses with the purpose to reveal sick animals both on national level and during the international movement of horses is of great importance. In this connection Office International des Epizooties (OIE) entrusted to the OIE Reference Laboratory on Dourine in the All-Russian Research Institute of Experimental Veterinary Medicine (Moscow) to carry out the comparative trials of the diagnostic value of commercial antigens produced in different countries for the diagnostics of dourine in CFT. According to our request, *Trypanosoma* antigens were sent to our laboratory from the following countries: P.R.China, Shanghai Institute of Animal Parasitology, Dr.Zhou Jinlin; France, CNEVA Alfort, Dr.Stephan Zientara; Germany, Federal Institute for Health Protection of Consumers and Veterinary Medicine, Dr.Karsten Noeckler; USA, National Veterinary Services Laboratories, Dr.David Kinker; Russia, NPO "Biocenter", Omsk, Dr.R.Epeldimova; Italy, Institute Zooprofilattice Sperimentale Dell Abruzzo e Del Molise - Teramo, Dr.Vincenzo Caporale and Dr.Giovanni Savini. All the antigens were in lyophilized form excluding the antigen from France (it was sent in dissolved form). The comparative trials of the diagnostic value of the above-mentioned antigens excluding antigen sent from France did not show the preference of any of them. Low sensitivity of the antigen from France is probably depended on the fact that it was transported in dissolved form in warm conditions for a long time. Therefore, the results received exclude possibility of any accidents in hasibility of *Trypanosoma* Kits used during international trade and transportation of horses.


Recently, emerging diseases have affected the horse population in different countries. Two diseases illustrate this concept of emerging diseases: Borna disease which is a potential emerging disease and West Nile diseases which has recently re-emerged in France in 2000. For over two centuries, Borna disease (BO) has been described as a sporadically occurring infectious meningoencephalomyelitis affecting horses and sheep in Central Europe. Over the last decade, the BO epidemiology has been discussed; its geographical distribution seems larger than what was previously thought. The disease can affect a large number of warm-blooded animal species, including humans. The aetiological agent is the Borna disease virus (BOV), an enveloped, nonsegmented negative-stranded RNA virus classified in the new virus family Bornaviridae: - (Mononegavirales order). It can induce severe clinical signs of encephalitis with striking behavioural disturbances and may cause death. BOV genome has recently been detected in France in the blood and brain of several animal species (horses, bovines, faxes). West Nile (WN) virus was first isolated
from the blood of a woman in Uganda in 1931. Mosquitoes and birds are involved in the cycle of transmission with humans and equids as sensitive hosts to the infection. Initially considered as a minor arbovirus, WN was involved in several outbreaks in the Mediterranean basin since 1994, with acute encephalitis cases and some fatal issues among elderly people. In 1997-1998, in Israel, WN was identified in migrating storks and domestic birds (geese) with encephalitis and paralysis. The same viral strain suddenly emerged in New York during the summer of 1999 killing various species of birds along with some cases with fatalities in humans. It is now established in the US. On September 6, 2000, two cases of equine encephalitis caused by West Nile virus were reported in the Southern France (Hérault province), close to the Camargue National Park where a West Nile outbreak occurred in 1962. Till November 30, 76 cases were laboratory-confirmed among 131 equines presenting neurological disorders. The last confirmed case was on November 3. No human case has been laboratory-confirmed among clinically suspected patients. All but three cases were located in a region so-called "la petite Camargue" harboring several large pounds, numerous colonies of migratory and settled birds as well as large mosquito populations. No abnormal mortality was reported in birds. A serosurvey study has been undertaken in horses in the infected area and other studies are in progress. Phylogenetic analysis of WN strains viral showed connection with sub-sahara Africa (Senegal Kenya) where studies on WN are conducted. Why only some WN viral strains are introduced in the Mediterranean basin and other only found in Africa? Is VN viral frequently reintroduced by birds or circulating in an endemic cycle in Southern Europe? Why in some outbreaks only horses or human appeared infected? An effort would be required for increasing surveillance in areas where large colonies of birds are present (deltas...). Possible emergence of WN in Northern Europe where competent mosquitoes are present is not an utopy. These points would require attention within an active international network involving European and Mediterranean countries.


The horse has a tendency toward gastrointestinal problems. Of sixteen horses that underwent laparatomies for gastrointestinal disorders which were referred to the teaching hospital of veterinary faculty:11 horses (68.7%) survived for >2 months. Age distribution of horses was between 2 months and 12 years. Among 16 horses, there were 7 mares, 2 geldings, 6 stallions and one mule. Torsion of root of mesentery was the most important problem (31%), tympany of colon (25%), obstruction by foreign body (19%), hernia (12.5%) and (12.5%) and impaction (12.5%). The breed of 50% of horses was thoroughbred, 25% mixed breed, 12.5% arab breed, 6.25% torkaman breed, 6.25% mule. One dehiscence of the abdominal wound and one laminitis were the surgical complications.

269. A CASE OF CADMIUM INTOXICATION IN HORSES IN A STRONG POLLUTED AREA FROM ROMANIA. E. Bianu, D. Nica. Institute for Diagnosis and Animal Health, Bucharest, Romania.

During October 2000 - April 2001 in a polluted region situated in the central part of Romania, more than one hundred horses have died. The death of horses was induced by a strong pollution with cadmium produced by a non-ferrous metal processing plant. We also noticed that in the period when the horses died, there was a droughty weather. Before die the horses shown nervous signs, sweat, nasal discharges, respiratory failure, cough, inapetience, regurgitation of gastric content with faetid odour. They presented...
tiredness when they made efforts and a part of them were worn out. Our research has the aim to investigate the heavy metals (cadmium, lead, zinc) concentrations in hay, grains, organs, blood and hair, to correlate these concentrations with the cause of death of horses. The samples were taken from animals in several villages situated in the neighbourhood of this plant. Very high levels of cadmium and lead have been found in hay, lucerne and maize stalks. Very high levels of cadmium (40-100 times more than normal levels) and high levels of lead (3-6 times more normal levels) have been detected in organs.

We also observed a faster accumulation of cadmium by comparison with lead in animal tissues, although in hay, maize stalks, lucerne and so on, the cadmium concentration was lower than lead concentration.


The first equine influenza virus in the world was isolated in the Czech Republic in 1956. Later it became a reference strain for subtype 1 and was designated A/Eq 1/56 Prague (H7N7). In 1963 a new subtype of equine influenza virus emerged in the USA and was designated A/Eq 2/Miami/63 (subtype 2). Significant changes in subtype 2 antigen were found in horse influenza outbreaks in Europe in 1963-79 and further changes in 1979-1989. Differences between European and American strains were observed in epidemics in 1987-1988. Another antigenic drift in European strains was recorded between 1989 and 1995. In the Czech Republic, subtype 2 influenza virus was first isolated in 1989. In this study we investigated three different influenza outbreaks that occurred between 1995 and 2000. Clinical disease was confirmed by virus isolation and the haemagglutination-inhibition test. These diagnostic methods were extended by a method of RT-PCR based on detection of the RNA-coding nucleoprotein. All isolated strains belonged to the subtype 2. The 1995 isolates showed greatest similarity to Euro-Asian strains from the turn of 1980s and 1990s. This may be explained by limited contacts between our and West European horses at that time. The 1997 isolate had antigenic characteristics of the American strains. It was the first isolate of this type in the Czech Republic and surrounding countries. The source of this infection may have come from horses imported directly from the USA. No influenza virus was isolated from diseased horses in 2000. However, positive RT-PCR results and four-fold seroconversion confirmed the presence of influenza disease. Serological examination of postinfection sera indicated that the infection was caused by Euro-Asian strains.


The superficial digital flexor tendon (SDFT) is the most often injured tendon of the horse’s hand. Tensile testes performed on isolated equine SDFT demonstrated that the stress-strain curve inflexion point, which may be related to first tendon fiber ruptures, happens for load and strain of about 5500 N and 5%. The purpose of the present study was to correlate these parameters to the circumstances of locomotion, simulated by compression tests performed on entire limbs.
Three pairs of forelimbs, from 3 horses 7 to 11 years of age, were isolated at the distal third of the humerus. After removing skin and subcutaneous tissue, a 10 cm long segment was delimited in the SDFT metacarpal area by 2 needles pinned perpendicularly to the tendon. Pins were also fixed in the IIIrd metacarpus and proximal phalanx. Reflective markers were placed at the extremities of the needles and pins, and their displacements recorded by 2 video-Hi8 mm cameras on each side of the limb. For each of these 3 mechanical tests, the SDFT reference length used to compute strains was the length at 100 N, that is less than 1 % of the average rupture load of this tendon. The stress-strain curve obtained from TTT was modeled by a 3rd-degree polynomial; the strain ($\varepsilon_{IP}$) and load ($F_{IP}$) at the inflexion point were interpolated. For both limbs, the metacarpophalangeal joint angle (MPJA)-tendon strain relationship was obtained from the LCT. For the right LCT, it was modeled using a 3rd-degree polynomial. The constant value of the latter was corrected in order that this polynomial could fit the values of the left limb SDFT strain (LCT until 4000 N). The use of $F_{IP}$ in this new equation allowed to interpolate the corresponding MPJA. Besides, knowing the left SDFT strains both during the LCT and TTT, it was possible to deduce the relation between the SDFT traction load and the compression load applied to the entire limb, from 0 to 4000 N. $\varepsilon_{IP}$ and $F_{IP}$ for the left SDFT are indicated in Table 1. They corresponded to MPJA of 123.8° to 135.7°, that is extensions from the initial angle of this joint (at 0 N) of 31.8° to 38.2°. Our study demonstrated a linear relation between SDFT traction load (y) and limb compression load (x) : $y = s \times x$ (Fig.1), with $s$ varying from 0.63 to 0.85 ($r^2$ was about 0.98 in the 3 cases). Limb $\varepsilon_{IP}$% $F_{IP}$ (N) MPJA (°)
A 4.70 6397.6 135.7  B 5.75 5870.0 125.2  C 6.42 7167.2 123.8
Table 1: Strain ($\varepsilon_{IP}$), load ($F_{IP}$) and metacarpophalangeal joint Angle (MPJA) corresponding to the inflexion point of the left SDFT stress-strain curve for each limb. Our analysis is based on the hypothesis that the left and right SDFT of a given horse should mechanically behave in the same manner, which was controlled on the experimental data. Although our in vitro conditions (slow tendon elongation speed) are very different from the circumstances of in vivo locomotion, it appears that the MPJA corresponding to the inflexion point if the stress-strain curve implies extensions which are close to the maximal extensions described on horses on a 7m/s canter. Those results are now compared with those obtained for the other equine tendons, and the individual variations are analysed in relation with the limb conformation.

272. THE CROSS SECTIONAL AREAS OF NORMAL SUPERFICIAL DIGITAL FLEXOR TENDON OF PALMAR METACARPUS DETERMINED ULTRASONOGRAPHICALLY IN CASPIAN HORSES. M. Masoudifard1, A. Veshkini1, S. Soroori2. 1Department of Clinical Sciences, Faculty of Veterinary Medicine, Tehran University, P.O.Box: 14155-6453, Tehran-Iran. 2Department of Clinical Sciences, Faculty of Veterinary Medicine, Mashhad University, P.O.Box: 91755-1793, Mashhad-Iran.

The Caspian horse is an ancient breed previously believed to have been extinct for over one thousand years. Superficial digital flexor tendonitis is a common cause of unsoundness and loss of use in equines. The objective of this study was to determine the normal size of the SDFT as cross-sectional area (CSA) ultrasonographically in the metacarpal region of normal Caspian horses. Fifteen Caspian horses free of lameness were chosen for this study. Left forelimb between the carpus and metacarpophalangeal joint was prepared. A 7.5 mHz linear transducer and Pie Medical 200 machine was used to obtain five transverse
images. The levels named A, B, C, D and E corresponded to zones 1A, 2A, 3A, 3B and 3C described previously. The cross-sectional areas were measured by tracing around the outline of the tendon using a software program and the values were obtained for CSA expressed in square millimeters. Mean ± SD cross-sectional area of the SDFT at levels A, B, C, D and E were 50.3 ± 6.65, 46.7 ± 10.11, 49 ± 7.9, 60.3 ± 9.27 and 72.6 ± 14.12 square millimeter, respectively. The variation of size with level for SDFT was drawn. The cross-sectional areas measured in this study may be useful for determining increased tendon size in cases of tendonitis of SDFT in Caspian horses. The values were statistically smaller for Caspian horses when compared to other studies in CSA measurements of SDFT at the same levels for other breeds.

273. RETROSPECTIVE STUDY ON EQUINE INFLUENZA INFECTION IN TUNISIA. A. Chabchoub¹, F. Landoslsi¹, A. Ghram², B. Ben Aoun³, A.F. Golli¹. ¹Ecole Nationale de Médecine Vétérinaire sidi-Thabet ² Institut Pasteur de Tunis ³ FNARC.

Retrospective studies conducted in 1994, 1997 and 2000 is presented. It is intended to evaluate the seroprevalence of influenza in equines in general and specifically in working horses throughout the country. From 1994 to 2000 a total of 867 sera were sampled from horses, mules and donkeys (respectively 68.98 % horses, 21.68% mules and 9.34 donkeys). They were tested for A equi 1 and A equi 2 subtypes. This population was not previously vaccinated. Detection and titration of antibodies binding to influenza viruses were determined by haemgglutination inhibition test. We found A/equi 1 serotypes are still prevalent in equines. The serological screening shows that A equi 1 seroprevalence is as high as A equi 2, respectively, 9.9% A/equi 1 and 12.8% equi 2 in all equine species. If we consider only the working equines, the seroprevalence of the 2 subtypes is, respectively, 10.7% for A/equi 1 and 16.2% for A equi 2. However, we observed the A equi 1 seroprevalence has decreased from year to year, whereas A equi 2 seroprevalence has increased. A seroprevalence of 2 influenza strain has increased from 1994 to 2000. This increase is more important for subtype A equi 2. Working horses were more affected by both subtypes (12% Aequi 1, 22.4% A equi 2) than mules (10.6% Aequi 1, 12% Aequi 2) and donkeys (17.4% Aequi 1, 6% A/equi 2). These 2 latter species were approximately equally affected. Our results show that age has no influence on A equi 1 or A equi 2 infection. We found no statistical significant difference between males and females influenza infection proportion. The serological screening in working equids bring out that seroprevalence of Aequi 2 is higher than Aequi 1 that is respectively 16.2% and 10.7%. However seroprevalence of 2 influenza subtypes has increased from 1994 to 2000. Horses were more affected by both sub type than mules and donkeys.
274. LES FRACTURES GRAVES OU COMPLIQUÉES: TRAITEMENT CHIRURGICAL ET GREFFES OSSEUSES CHEZ LE CHIEN. F. Perot, France.

L’auteur décrit les différents types de fractures graves ou compliquées pouvant survenir chez le Chien. À l’aide de nombreux exemples, il décrit les techniques chirurgicales appropriées au type de fracture ou à la complication de la fracture à traiter. Il souligne l’intérêt de l’utilisation des Greffons osseux comme support possible de partie prothétique à mettre en place, ouvrant la voie à un nouveau concept de Prothèse, tant chez l’Animal que chez l’Homme.

275. OSTÉOSYNTHÈSE DES FRACTURES DU TIBIA DU FÉMUR PAR FIXATION PARACORTICALE. P. Barreau, Clinique veterinaire Saint Maur 59110 La Madeleine, France.

Un nouveau dispositif d’ostéosynthèse a été conçu avec comme objectifs de faciliter la stabilisation et de permettre une consolidation rapide de certaines fractures. Le cahier des charges pour la réalisation d’un tel dispositif nous a conduit à réaliser un fixateur assurant la solidarisation de barres au-dessus de la corticale de l’os au moyen de coapteurs visses: pour ces raisons, nous avons appelé ce système, le fixateur paracortical. Nous décrivions la technique de pose permettant de respecter les structures jouant un rôle dans la formation du cal (vascularisation, périoste) et de les préserver. La fixation paracortical permet notamment de traiter certaines fractures à foyer fermé de façon à interférer à minima avec les mécanismes de la cicatrisation osseuse. L’objectif est d’obtenir une cicatrisation osseuse optimale tout en facilitant le traitement de la fracture sur le plan technique. Pour ces raisons, dans les cas de réparation à foyer ferme, il semble que la fixation paracortical puisse entrer dans le cadre des systèmes d’ostéosynthèse dits biologiques au même titre que la fixation externe. Une étude clinique rétrospective menée sur 6 ans (1994-2000) a été réalisée à partir de 79 cas de traitement de fracture du fémur et du tibia par fixation paracortical. Les animaux sont repartis en 19 chat et 60 chiens, 3 d’entre eux présentaient une fracture sur plusieurs membres. Dans 4 cas, la fracture est ouverte: un tibia avec fracture ouverte de degré 2 suite à une morsure par un congénère, un tibia avec un degré 1 et deux fémurs présentant des fractures multiesquilleuses ouvertes de degré 3. Les fractures correspondent aux différentes classes décrites dans la littérature. L’accès au foyer de fracture est réalisé de façon classique par voie latérale dans 45 cas. Le foyer de fracture est ouvert à minima dans 14 cas: 11 fémurs et 3 tibias. Une stabilisation a foyer ferme est réalisée dans 20 cas: 13 fémurs, 7 tibias. Tous les cas traités sans ouverture du foyer ou avec une ouverture minimale permettant juste le contrôle de l’alignement osseux, l’ont été dans les 3 dernières années de l’étude. Les résultats sont évalués sur différents plans: facilité de mise en œuvre de la technique, évaluation radiologique du cal osseux et résultats fonctionnels. Sur le plan de la technique opératoire, l’évaluation est subjective, elle dépend du matériel, de la fracture, de l’os sur lequel on applique le matériel et du chirurgien. Une formation et une certaine habitude sont nécessaires. Les difficultés rencontrées ont été : L’évaluation correcte de l’axe diaphysaire lors de la mise en place des 2 premières embases de coapteurs, L’ajustement de l’axe diaphysaire à l’axe du montage, L’obtention d’une bonne conformation de barres par rapport à la surface de l’os et aux coapteurs lorsqu’une conformation des barres est nécessaire. Dans la grande majorité des cas les barres sont laissées rectilignes et n’ont pas besoin d’être pliées. Les seuls cas ou une conformation particulière a été nécessaire sont ceux où un
coaptateur est fixé au niveau du grand trochanter. Certaines difficultés sont en relation avec le moyen de fixation complémentaire au fixateur paracortical. Dans 4 cas d’intervention a foyer ferme sur des fractures simples transverses du fémur, la difficulté a été de réduire la fracture et d’implanter le clou centro-médullaire en l’absence de contrôle per opératoire par amplificateur de brillance. Paradoxalement, les fractures simples transverses du fémur nous ont semblé plus difficiles à réduire a foyer ferme que les fractures multiesquilleuses. Dans les cas d’accès conventionnel au foyer de fracture, l’élévation périostique n’est réalisée qu’au niveau de l’embase des coaptateurs et non sur toute la longueur de la diaphyse. L’hématome fracturaire est ménagé totalement ou au moins sur la face de l’os opposée a celle sur laquelle est fixé le montage. Les barres sont glissées dans les rainures des embases des coaptateurs en respectant les insertions musculaires des fragments osseux et leurs apports vasculaires. Des moyens de fixation complémentaire ont été placés dans 51 cas : 42 fémurs et 9 tibias. Ces moyens de fixation ont été pour les fémurs : 12 vis de traction, 2 vis de traction et cerclage, 2 enclouages centro-médullaires et cerclage, 26 enclouages centro-médullaires rétrograde ou direct. Pour les tibias : 5 vis de traction, 1 cerclage, 3 hemifixateurs externes. Dans tous ces cas, nous avons essayé de préserver au mieux les tissus mous parifracturaire pour tendre vers une ostéosynthèse biologique. Sur le plan radiologique, l’aspect du cal a été satisfaisant dans de nombreux cas. Les fixateurs paracorticaux, associés ou non a d’autres moyens de fixation, ont permis la formation d’un cal de type périosté homogène. Le caractère semi-rigide élastique des montages est favorable a la formation de ce type de cal. La cicatrisation osseuse est relativement rapide : le cal a ponte la fracture en moyenne a 138. Ce cal est également présent en regard des implants qui ne semblent pas interférer avec sa formation. Le délai de formation du cal varie en fonction de l’âge et de la fracture (115 a 180). 11 nous a semblé satisfaisant par rapport a l’expérience que nous avons dans l’utilisation des modes de stabilisation conventionnels. L’ablation du matériel orthopédique a généralement été possible précocement. Le retrait d’implant est réalisé très facilement avec une voie d’accès restreinte. Aprés retrait des implants, l’os présente une densité radiologique normale. Dans deux cas, la zone d’appui restreinte des coaptateurs est plus radiotransparente en raison d’une légère réaction ostéolytique. Le retrait du matériel orthopédique a pu être effectué entre 21 et 100 jours avec une moyenne de 57 jours. Cependant un cal pontant fixant est souvent formé en 20 à 30 jours même en cas de fractures complexes multiesquilleuses sur les segments osseux distaux. Quelle que soit la technique utilisée, la récupération fonctionnelle des animaux a été bonne ou très bonne dans 71 cas : très bonne 42 fémurs et 13 tibias, bonne 12 fémurs et 4 tibias. La reprise d’appui du membre s’est effectuée dans tous ces cas dans les 2 à 15 jours suivant l’intervention. L’animal a été rendu a ses propriétaires après 2 a 5 jours d’hospitalisation. Dans 7 cas, la récupération a été moyenne ou mauvaise (moyenne pour 1 fémur et 2 tibias, mauvaise pour 3 fémurs et 1 tibia). La plupart d’entre eux ont été opérés en début d’étude. Ces mauvais résultats sont la conséquence soit de contre-indications ou d’erreur technique de montage, soit d’erreur de surveillance de la part du propriétaire. Les complications ont été : la migration ou le glissement de broches dans 3 cas la déformation des barres dans 1 cas la rupture des barres dans 1 cas, la formation d’un cal périosté exhubérant dans 2 cas la nécrose cutané en regard d’un coaptateur dans 1 cas le mal positionnement d’un enclouage centromédullaire a foyer fermé dans un cas. L’étude clinique a montré que la fixation paracorticale permet la stabilisation et la consolidation des fractures diaphysaires du fémur et du tibia. Ce matériel permet en outre d’intervenir dans les conditions d’ostéosynthèse dite biologique dans la mesure où il peut être implanté a foyer fermé en interférer à minima avec la vascularisation des fragments osseux et des tissus mous perifracturaire. 11 s’agit d’un système semi-rigide dont la résistance notamment en flexion est inférieure à celle d’une plaque. La rigidité du montage est améliorée par
l'utilisation de matériel d’ostéosynthèse associé en particulier un enclouage centromedullaire pour le fémur et un hemifixateurs externe pour le tibia.


At The Clinic for Surgery and Small Animals of the Veterinary Faculty in Ljubljana we investigated the possibility of surgery treatment of the cranial cruciate ligaments rupture by the extra capsular technique. We stabilized the ligament by transposing the origin of m. popliteus and fixing it to the tuberositas tibiae. In the first part of the research we stabilized ten preparations of dogs brought in for euthanasia. In the second part of the research we used three experimental dogs whose cranial cruciate ligaments we stabilized after a desmotomy and later made several controls until euthanasia (after three and six months).

After the operation stability of the joints was measured by the special instrument in the Center for the Experimental Mechanic in the Faculty for Mechanics in Ljubljana. After the operation of test animals we measured the stability of the knee tie, followed the function of the affected legs, control the sinovial fluid and the changes on the ligament surfaces. We found that the dogs tended to use the leg the fifth day after the operation, the third week they used the leg while running. Six months after the operation, when the function was complete, the legs of the operated animals were oriented slightly backwards. Fourteen days after the operation in the sinovial fluid of the operated knee joints the majority of cells were inflammatory. Two months after the operation there were only few inflammatory cells. Measuring the stability of the joint immediately after the operation we found it weaker comparing to the healthy knee. Three months after the operation it was close to the state of the healthy knee.

277. FIXATION OF TUBULAR BONY IMPLANT WITH INTRAMEDULLARY PIN. H. Shnain, S.I. Salih, Sudan.

Twenty dogs were used in this experiment. Tubular bony implants are used to substitute part of their femurs. Threaded and non threaded intramedullary pins have been used to fix these implants. Sixty percent of threaded and 33% of the non threaded pins are successful in comparison with the bone plates and screws splints in which the highest rate in dogs is 36%.

278. THE SACROILIAC JOINT IN VENTRODORSAL RADIOGRAPHS OF THE CANINE PELVIS. B. S. Knaus, W. Künzel, E. Mayrhofer, Austria.

Canine sacroiliac joints were investigated by obtaining radiographs of cadaveric pelves (n = 40) in multiple angled positions to identify those views most appropriate for radiographic diagnosis. To assist in radiographic interpretation, cadaveric pelves and bone specimens (n = 40) were marked with radiopaque paint to demonstrate the orientation of the sacroiliac joint in various radiographic views. A pair of symmetric ventrodorsal radiographs showing the sacrum in a "central projection" and an "angled projection" respectively is recommended. Standard ventrodorsal radiographs, which are taken for hip dysplasia evaluation (hind limbs are pulled caudally) are of high diagnostic value, whereas transverse views provide little diagnostic information. Radiographs of the pelvis are preferable to selective oblique views of the sacroiliac joint, since additional information about the hip joints, proximal femurs and
lumbosacral junction will be available. In a retrospective radiographic study (n = 290 joints), the degree of "central" or "angled" projection of the sacrum obtained in standard ventrodorsal radiographs was noted to be significantly (P<0.05) associated with age, body conformation, anaesthetic status, and presence of spondylosis deformans at the lumbosacral junction. In contrast, degenerative alterations of the sacroiliac joints or sex did not affect the view of the sacrum achievable in ventrodorsal radiographs. In normal sacroiliac joints, central projections of the sacrum were noted to ease the identification of the dorsal, middle and ventral joint components, whereas angled projections of the sacrum had advantages when assessing the cranial joint components. Radiographic assessment was already successful in juvenile dogs older than 5 months. Failure in delimitation of the outlines of the joint space of the sacroiliac joints is not consistent with alteration of the sacroiliac joint. It was rather felt that alterations would have assisted in identifying the contours of the sacroiliac joints because of an increase in mineralisation.

279. CLINICAL AND RADIOLOGICAL EVALUATION OF BONE MARROW GRAFTING FOR FILLING OF SEGMENTAL ULNAR BONE DEFECT IN DOG. A. Baniadam, A Ghadiri, A. Shavakhi. Department of Clinical Sciences, Veterinary School, Shahid Chamran University, Ahwaz, Iran.

The purpose of this study was to evaluate the osteogenic effect of autogenous bone marrow for filling a 2.5 cm segmental bony defect. Nine adults Iranian dog with an average age of 3.67 years and weight of 18.11 kilograms were surgically treated to create diaphyseal defect in the right ulna. After fixation of bone with intramedullary pinning, the defects were (group 1) filled with autogenous bone marrow, (group 2) didn’t filled. Autogenous bone marrow was obtained by aspiration with a needle through the tip of the greater trochanter into the medullary canal of the femur. All animals were followed clinically and radiographically for 13 weeks and then euthanized. Radiographic union based on bone formation in the gap and remodeling was graded on scale of 0 -VI. Radiographic union was designated at a score of V when the gap filled completely with the bone. The study showed a significant difference (P<0.05) between two groups according to the rate of osteogenesis and condition of lameness, and no significant difference between two groups according to the rate of soft tissue swelling and periosteal reaction. The rate of osteogenesis was greater in group 1 and lameness disappeared sooner. The result of this study showed that the autogenous bone marrow could be used for filling of segmental bone defect in dog.

280. PROTHÈSE TOTALE DE LA HANCHE CHEZ LE CHIEN. F. Perot, France.

L’auteur décrit la technique de Prothèse totale d’articulation de la hanche chez le chien. Initiateur de la Prothèse totale de hanche à cupule rétente, il décrit le matériel, la technique chirurgicale, les indications, les résultats concernant plus de trois cent cas de Prothèse totale de la hanche chez le chien et dresse un bilan de la technique.

281. LÉSIONS LIGAMENTAIRES DU GENOU CHEZ LE CHIEN. F. Perot, France.

282. LAPAROSCOPIE ET THORACOSCOPIE EN CHIRURGIE DES PETITS ANIMAUX. 
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Avec un «retard» d’une petite quinzaine d’années sur leurs homologues humains, les chirurgiens 
vétérinaires peuvent mettre aujourd’hui à disposition de leurs patients les avancées technologiques de la 
chirurgie endoscopique. Grâce à un matériel et des instruments spécifiques- sources de lumière, optiques, 
caméras, insufflateurs- les ouvertures sont réduites et la morbidité opératoire est diminuée. De nombreux 
gestes diagnostiques et thérapeutiques deviennent alors réalisables dans la cavité abdominale et dans la 
cavité thoracique. Pour cette dernière, l’auteur décrit un abord original, sans exclusion pulmonaire. De 
nouvelles connaissances anesthésiques, un monitorage performant, une formation spécifique et une 
progression programmée sont autant d’étapes qu’il convient de franchir avant de proposer la chirurgie 
endoscopique comme alternative à une chirurgie traditionnelle.

283. MÉGACOLON CHEZ LE CHAT. P. Barreau. Clinique vétérinaire Saint Maur La Madeleine, 
France.

Le mégacolon correspond à une dilatation importante d’une partie ou de la totalité du colon. La portion 
dilatée présente une absence d’activité péristaltique. Le contenu digestif n’est pas évacué activement vers 
la partie distale du colon. Il subit une déshydratation conduisant à la formation de matières fécales très 
compactes obstruant la lumière intestinale. Une altération de l’état général en résulte dans les cas 
chroniques. Il existe deux formes de mégacolon :. Une forme congénitale, très rare, observée à deux 
reprises pour notre part chez des chatons de 3 mois. Elle se rapproche de la forme congénitale chez 
l’enfant et correspond à l’absence de cellules ganglionnaires intra-murales au niveau du plexus sous-
muqueux de Meissner et du plexus myentérique d’ Auerbach. Une forme acquise pour laquelle la 
dilatation peut résulter d’une obstruction mécanique de la lumière intestinale ou d’un déficit neurologique 
ou musculaire. Dans certains cas l’étiologie n’est pas connue. On parle alors de forme idiopathique. 
Sur le plan clinique le mégacolon se traduit par une constipation et un tenesme chroniques. La dilatation 
du colon est facilement mise en évidence par palpation abdominale. L’état général de l’animal peut être 
altré. L’examen radiographique confirme la présence du mégacolon et permet parfois de localiser les 
lésions à un segment spécifique de l’organe. Un traitement médical peut être institué lors des premiers 
épisodes de constipation. Il consiste en des lavements délicats à 12 ou 24 heures d’intervalle à l’aide d’eau 
savonnée tiède qui peut être additionnée de glycérine ou de polyvinylpyrrolidone iodée en solution 
moussante à 10%. A cette évacuation mécanique des selles peut être associée la administration orale de 
substances laxatives: huile minérale (huile de paraffine), dioctylsodium sulfo succinate (Norgalax R), 
ibicasydil (Ducolax R). En cas de récidive, un traitement chirurgical est alors indiqué. La technique 
chirurgicale correspond à l’exérèse de l’ensemble de la portion dilatée du colon. Il s’agit de colectomie 
partielle lorsqu’une partie seulement du colon est éliminée ou de colectomie totale lorsque l’ensemble du 
colon et du cæcum sont retirés. Selon l’extension de la resection, une, iléocolostomie ou une 
colocolostomie est réalisée. a Suite à la resection colique, des modifications fonctionnelles interviennent 
systématique et cela d’autant plus que la resection est large et interesse éventuellement le cæcum et la 
jonction iléo caecale. La fréquence des défécations augmente avec des selles diarrhéiques pendant au 
minimum 3 à 5 jours. Le transit digestif redevient normal en une à quatre semaines. Cette récupération 
correspond à une modification et une adaptation de la muqueuse intestinale permettant une amélioration

284. INTUSSUSCEPTION OU INVAGINATION. P. Barreau. Clinique vétérinaire Saint Maur 19 avenue de Saint Maur 59110 – Lille - La Madeleine, France.

Une invagination intestinale correspond à l’engagement d’un segment du tube digestif dans le segment adjacent. Elle peut se produire à tout niveau du tube digestif avec toutefois une fréquence plus élevée au niveau du jéjunum ou de la jonction iléocoecale. Elle intervient généralement sous l’effet d’un hyperpéristaltisme sur un segment intestinal alors que le segment voisin est relâché. L’invagination se fait donc le plus souvent dans le sens du péristaltisme normal c’est-à-dire du segment proximal vers le segment distal. Cependant, elle peut avoir lieu dans l’autre sens sous l’effet d’un péristaltisme rétrograde. Les affections responsables d’une hypermotilité intestinale peuvent favoriser une invagination (entérite bactérienne ou virale, parasitisme, alimentation inadaptée …). Cependant, dans la plupart des cas, la cause n’est pas connue. Dans sa forme aigüe, l’invagination d’une partie du tube digestif entraîne une obstruction partielle puis complète. Le mésentère s’invagine également sur une distance plus ou moins longue. Les vaisseaux irriguant la portion invaginée se collabent. La vascularisation est altérée puis interrompue. Il peut se produire une extravasations de sang dans la lumière intestinale. La paroi digestive devient œdémateuse puis ischémée et à terme se nécrose. Suite à la réaction inflammatoire et à l’ischémie, une contamination de la cavité abdominale se produit ; elle est secondairement responsable d’une péritonite septique. Une forme chronique avec une invagination passagère, récidivante et une altération modérée de la vascularisation est également décrite.

285. PET-THERAPY AND NEUROREHABILITATION. L. Famulari, C. Staropoli, A. Pugliese. 1Neurorehabilitative Center A.I.A.S, San Filippo del Mela, Messina. Ausl n°5, Messina. 2Department of Veterinary Medical Sciences, University of Messina, Italy.

The studies about neuronal plasticity allowed to extend the knowledges in rehabilitative neurology and his future possibilities. Recently the development in the evolutional age of the neurorehabilitative technics permitted the use of AAT (Animal Assisted Therapy). This alternative therapy was adopted in chronical, geriatric and psychiatric pathologies. This is already known and has obtained good results. In our experience the AAT is used in motorial and logopedical diseases.

286. COMPARATIVE EVALUATION IN THE CHOICE OF ANIMAL IN REHABILITATION THERAPY. A. Pugliese, S. Di Pietro, Italy.

The knowledge of the relationship between men and animals and its therapeutic purpose has antique origin: already in 1792 the animals were introduced in a mental hospital to alleviate the human suffering and to enhance the patient’s autonomy. The animal doesn’t recognize the handicap of patient and it has the capacity of communicate always in the same way. It allows that the patient has a greater acceptance of himself, a greater perseverance in treatment and a improvement of attention. In the our experience we effected a
project of pet therapy with some children affected by backwardness and difficulty of movements, some patients with attention deficit and disorder of memory, and moreover with children affected by behavioural disorders (hyperactivity). In every kind of pathology we selected various species of animals to assist the patient and particularly we used the dog, the rabbit and the turtles, that with physical and behavioural characteristics allows to achieve the pre-established therapeutic purposes. In the patient affected by psychological and motor impairment we selected all the three animals because the aim of the therapy was to stimulate the perception of himself, the organization of the space and the time and to develop the sense of touch. In the children with deficit of gross motility we selected the dog and the rabbit to stimulate the movements of patient. In the subjects affected by tetraparesis and emiparesis we wanted obtain a muscular relaxation with dogs and rabbits. In the children with deficit of fine motility and with impairment of coordination thought-movement we selected dogs, rabbits and turtles to stimulate the small movement of the hands. In the cases of behavioural disorders we selected the dogs and the turtles to improve the time cognition and to stimulate the attention. In the patient with interaction disorders we selected dogs and rabbits, such as in the children with autism syndrome. The results of this study show the importance of the choice of animals in a project of pet therapy: every animal, with its qualities, can help the patient to improve own state of health on condition that it is selected considering the kind of pathology to treat.


Dyspnea is the sensation of difficult breathing. Because dyspnea is a subjective phenomenon it is not easy to evaluate and it has to be inferred by the clinician in companion animals. The timing and pattern of respiration helps to determine the structure most likely responsible for the dyspnea. Dyspnea may occur during inspiration, expiration or both (mixed). Clinically, pure inspiratory dyspnea implies a lesion in the respiratory tract outside the thorax, whereas expiratory and mixed dyspnea occur in patients with thoracic or metabolic disease. Mixed or expiratory dyspnea should be further classified as obstructive or restrictive. Patients with obstructive disease have decreased expiratory flows and hyperintlated lungs. Intrathoracic obstructive disease occur in the tracheobronchial tree. Patients with restrictive disease have a rapid shallow breath caused by diseases in the pulmonary parenchyma or pelural cavity. Distended abdomen and some metabolic disease can also cause rapid shallow breaths. Absence of respiratory sounds indicates a pleural cavity disease, whereas presence of pulmonary sounds occurs in patients with parenchymal pulmonary disease, metabolic diseases or abdominal distention. Inspiratory Dyspnea Inspiratory dyspnea occurs with extrathoracic lesions in the respiratory tract. Patients with isolated pure nasal problems are able to breath normally when the mouth is open. Presence of abnormal respiratory sounds may help to localize the problem. Stridor is a loud musical inspiratory sound of constant pitch associated with laryngeal (and occasionally tracheal) alterations. Rhoncus is a rattling in the throat associated with pharyngeal/proximal tracheal diseases. Cough may occur in patients with inspiratory dyspnea. Cough receptors are located in the larynx, pharynx and large airways and diseases in any of those locations may be associated with cough. In patients with extrathoracic disease, cough is usually paroxystic and loud. Direct visual inspection or bronchoscopy is necessary determine the cause. Obstructive expiratory dyspnea occurs in patients with intrathoracic airway diseases (table 2). Patients may have wheezes and cough. Wheezes are continuous musical sounds generated by air forced to pass through a narrow region abruptly into a wider region in the larger airways. Good quality chest radiographs and
tracheal wash are necessary to rule in or rule out specific diagnosis. Silent restrictive expiratory dyspnea occurs in patients with pleural cavity disease (table 3). Pulmonary sounds are absent or may be heard at specific locations (e.g. dorsallung fields in patients with pleural effusion). Cough is usually absent. Chest radiographs and thoracocentesis are necessary to rule in or rule out the differentials. Noisy Restrictive Expiratory Dyspnea Noisy restrictive expiratory dyspnea occurs in patients with parenchymal pulmonary diseases (table 4). Pulmonary sounds are audible and abnormal sounds like crackles might be heard. Crackles are short, explosive, non-musical sounds that are a non-specific sign of small airway disease. Cough may occur if small airways are also involved and is usually not loud. Chest radiographs and tracheal wash or bronchoalveolar lavage are necessary to rule in or rule out the differentials. Careful interpretation of the information obtained in the history and physical examination determining the timing and pattern of the dyspnea allow the veterinary practitioner to anatomically locate the origin of the dyspnea in most cases. Direct inspection visually or endoscopically, radiographs, and cytology are necessary to determine the cause of the dyspnea.

**288. WHERE IS THIS MURMUR COMING FROM ?** H.A. De Morais, P. Mendes Pereira. Departamento de Clinicas Veterinarias Universidade Estadual de Londrina Londrina, Parana, Brazil.

Murmurs are sounds originated from vibrations that can be auscultated during a silent time in the cardiac cycle. Murmurs indicate turbulent blood flow inside the heart or great vessels. A murmur should be classified based on timing, grade, point of maximum intensity (PMI), and radiation before its origin can be determined. Murmurs can occur during systole, diastole, or be continuous. Systolic murmurs occur between SI and S2, whereas diastolic murmurs occur between S2 and SI. Continuous murmurs can be heard throughout the cardiac cycle. Systolic murmurs can be further divided in regurgitant and ejection murmurs. In regurgitant murmurs the intensity of the murmur does not change throughout systole, whereas ejection murmurs are usually louder in the middle of the systole (crescendo-decrescendo type murmurs). Systolic regurgitant murmurs are caused by mitral regurgitation, tricuspid regurgitation or ventricular septal defect. Ejection murmurs can occur in patients with pulmonic stenosis or (sub)aortic stenosis. The PMI is the place where the murmur is best heard. Usually PMI is describedas a valve focus (tricuspid, mitral, aortic, pulmonic), heart region (apex, bas~ subaortic region) or place in the thorax (sternal border). Many murmurs radiate and can be heard in places other than the PMI. Radiation is very important in determining the origin of an ejection murmur because both pulmonic stenosis and aortic stenosis are best heard at the heart base. Murmurs of aortic stenosis radiate cranially and to the right, whereas murmur of pulmonic sënosis radiate dorsally. The audibility of a murmur can be quantified into 5 or 6 grades. The most commonly used system divide the murmurs in 6 grades Classification in grades is subjective and has a wide variability between examiners. The grade of the mJrmur does not correlate with the severity of most diseases. Correct identification of the murmur is very important to establish an etiological diagnosis in companion animals with heart disease. First, timing, PMI, and radiation of the murmur, should be determined. This information restricts the number of differentials to three or less in the majority of the cases. Organic murmurs with hemodynamic consequences may cause secondary changes in the cardiac chambers and great vessels. Chest radiographs therefore can be used to assess cardiac enlargement helpingto determine the origin of the murmur: Echocardiography also can asses changes in cardiac chambers as well as cardiac anatomy and blood flow being the best clinically available method to determine the origin of a murmur. In puppies and kittens, confirmation of the origin of the murmur usually
requires echocardiography. In adult dogs murmurs are usually caused by endocardiosis or dilated cardomyopathy. Most radiographs usually suffice to differentiate between these two diseases. Adult cats usually have mitral insufficiency due to a myocardial disease. Echocardiography is necessary to establish the cause of the murmur in cats.

289. BOXER SUBAORTIC STENOSIS: EPIDEMIOLOGY STUDY IN FRANCE, FIRST RESULTS. J.P. Corlouer. Clinique Frégis, 43 Avenue Aristide Briand, 94110 Arcueil, France.

Subaortic stenosis (SAS) is one of the most important congenital heart diseases in the dog. It is characterized by the presence of a systolic pressure gradient across the left ventricular outflow tract (LVOT), a high aortic velocity, turbulences above the stenosis, frequent ascending aortic dilation and left ventricular hypertrophy. At this time, the mode of transmission is not well understood. An autosomal dominant trait with modifying genes or a polygenic mechanism is suspected. Slight or mild SAS is generally well tolerated and diagnosis is difficult.


Evaluation methods of external antiparasiticides against fleas in dogs and cats are indicated in the guideline of the European Agency for the Evaluation of Medicinal products. No guideline for culicides and sandflies is available. Evaluation methods of external antiparasitic drugs should take the active ingredient and the galenic form into consideration. They govern the rapidity of action and the residual activity of the formulation. Products used on animals contain an aduticide or/and an IGR. Aduticide and IGR combination is more and more indicated either to extend persistence of activity (fipronil-methoprene or permethrin-pyriproxyfen) or either to add a knock-down effect to an IGR (nitempyram-lufenuron).

Aduticides are neurotoxic insecticides which often act rapidly either by contact or after a systemic action, in this case the product is present in the blood at a sufficient concentration for destroying fleas which are feeding on the treated animal. When testing a product which act by contact, it is necessary to distinguish those which are applied on the entire coat (powders, shampoos, sprays…) from those which are applied in a restricted zone (collars, spot-on, line-on…); these latter need some time before obtaining a full efficacy.

Insecticidal activity: a product has an insecticidal activity if it kills fleas after a 48 hours contact. Guideline is not available for mosquitos and sandflies. They are usually enclosed in the cage during 2 hours with an anesthetized dog. Then mosquitos are observed 48 h. later. Preclinical in vitro tests are performed to calculate LD 50 and LD 90. In vivo evaluation should be performed in controlled trials by comparing the evolution of flea or mosquitos populations 48 hours after experimental infestations on treated animals and controlled ones. The number of animals is usually 10 treated and 10 controls for flea trials. For mosquitos and sandflies we use only 4 to 6 dogs per group. A multicentric field trial should be performed to confirm results of controlled flea trial on an important number of various breeds. It also allows to verify the good tolerability of the product in normal using conditions.

Repellent activity: no guideline are available for this claim. For a diptera, a repellent product causes orientation away from its source. A flea-repellent is a substance which prevents the flea jump towards its direction or if a flea goes on a treated surface, it leaves it immediately. To appreciate the repellent effect of a product in vitro, fleas are placed on the center of an aquarium and their jump distribution between treated and control zones is
observed. In vivo, evaluation should be performed in controlled trials by comparing the evolution of flea population 5 minutes after infestation on treated animals and control ones. For sandflies and mosquitos, insects’ behaviour should be observed after introduction of one or two samples in the cage of treated and control dogs. Antifeeding activity: No guideline is available for this claim. « Control of blood sucking by phlebotomine sandflies (P. perniciosus) » is registrated in several european countries for a deltamethrin collar. The evaluation is performed by comparative examination of sandflies females one or two days after a 2 hours contact with treated or control dogs. One hour after infestation, near all fleas are engorged. To appreciate antifeeding effect, it is necessary to compare engorged flea number of treated animals with that of control animals one hour after experimental infestation. IGR activity: In vitro, eggs or larvae should be placed on supports which are treated or not. A nutritive substrate is added. A comparative study of adult emergence is performed after 45 days at 27 °C and RH 70%. In vivo evaluation of IGR activity can be realised by the study of the evolution of eggs laid by fleas haboured by treated/control animals or by the study of the evolution of adult flea populations haboured by treated /control animals. In this case, animals are housed in semi-household conditions which allow full complete flea cycle. It is necessary to deal with an homogenisation of claims to allow the vet to choose a product with a full knowledge of advantages and limits.

291. EFFECT OF HE-NE LASER ON SURGICAL SKIN WOUND HEALING. M.R. Rahimnejad. Department of animal husbandry of Qazvin county, P.O.Box 34185 – 1999 Qazvin, Iran.

Parallel the use of laser beams in different branches of industries and Technology. These beams use very effective for medical applications such as laser surgery and Wound healing. in this study to investigate the effect of 10mw He - Ne Laser beam on skin wound healing, a incision (3 cm length) Created on the skin of midline region under Aseptic condition and general anesthesia and immediately sutured in 15 mice and then, incision area of the 10 mice were treated with He - Ne laser beam radiation for one week (5 mice were not treated for control group). macroscopic study of the wound showed a mean decrease in healing time, inflammation, infection, bleeding and abnormal scar and histopathological study showed less infection and better vascularization and better structure of collagen and fibroblasts in the wound area if wounds were treated with He - Ne laser.

292. ANALGESIC EFFECT OF MELOXICAM IN CANINE ACUTE DERMATITIS-A PILOT STUDY. O.V. Höglund¹, J. Frendin². ¹Amirg Djurklinik, RitarsJingan 18, 18766 Taby, Sweden. ²Department of Large Animal Clinical Sciences, (SLI of Agricultural Sciences), P.O. Box 7018, SE-750 07 Uppsala, Sweden.

A double-blind trial was performed on twelve client-owned dogs suffering from acute and painful dermatitis. Clinically the cases represented pyotraumatic dermatitis and pyotraumatic folliculitis. Six dogs were injected with meloxicam and six were given placebo. Signs of pain were recorded on a visual analogue scale before administering the drug. This was repeated over the following 2-3 days. All dogs were treated with cephalaxin orally. Six dogs given meloxicam and cl−phaļexin showed an average decrease of pain on day two exceeding 25%, whereas the six dogs given placebo cephalaxin showed all average decrease of pain on day two of less than 10%. When compared in the Wilcoxon. Two Sample Test, using change in percent and absolute change, the two groups yielded p<0.020 and p<0.064 respectively. These findings indicate that meloxicam has an analgesic effect on acute dermatitis in dogs.
293. ANALGESIC EFFECT OF MELOXICAM IN CANINE ACUTE DERMATITIS: A PILOT STUDY. O.V. Höglund¹, J. Frendin². ¹Amirg Djurklinik, Ritarsjögan 18, 18766 Taby, Sweden. ²Department of Large Animal Clinical Sciences, (SLI of Agricultural Sciences), P.O. Box 7018, SE-750 07 Uppsala, Sweden.

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294. A CASE REPORT OF EOSINOPHILIC GRANULOMA IN A MIXED IRANIAN CAT AND EFFECTS OF TREATMENT ON IT. S. M. Rafie. Shahid Bahonar Kerman University.

Case Report: A one-year-old male mixed Iranian cat was presented with non pruritic lesions on upper lip for two weeks. Clinical Signs: Two ulcers without any redness or inflammation were seen and appeared to progress. Cat was anaesthetized with Ketamine and scraping test performed and prepared with Gimsa. The owner opposed to performing blood test and biopsy procedure. On microscopic study many eosinophil cells were observed. Thus diagnosis of Eosinophilic Granuloma was established. Cat was treated with prednisolone at 1.5 mg/kg. Follow up: Cat was under clinical management for 2 months. Then dosage of drug was reduced to 1 mg/kg. But ulcers were appeared again. Thus dosage was fixed on 1.5 mg/kg. Side Effects: Due to continuous use of glucocorticoid, the hairs of cat were become abnormal in appearance. With use of calcium and vitamin D complements, osteoporosis was prevented.


Cats proliferate and gather according to abundance of food and shelter; therefore they are a frequent urban problem worldwide. Many different methods of controlling those populations (humane or not) in most cases instituted without previous knowledge of the population, have been established with no or limited success. The study of feral cats is a true source of scientific and epidemiologic knowledge and undoubtedly can aid measures to be used besides providing data to evaluate its efficacy. A population of feral cats from Rio de Janeiro was studied during 2001. A total of 47 animals was captured using mark-recapture methods. Animals were examined for gender, age, weight, coat markings, general inspection and for the presence of ectoparasites. Each animal had a blood sample drawn for complete blood count, hemoparasites and retroviruses detection. From these cats, 55% adult females, 27% adult males, 14% female kittens and 4% male kittens. Since the estimated cat population was 59, it was possible to infer that the real population was composed by 40 females and 19 males. This suggested the possibility of high mortality of kittens, associated to a natural young animal migration. The only ectoparasite found were
fleas, infesting 28% of the animals. Blood counts showed that the majority of cats had normal counts. The hemoparasites found were Cytauxzoon like organisms (22/47) and Haemobartonella felis (18/47). Females were more susceptible to Cytauxzoon like organisms infection than males. No cat was found infected by FeLV, although FIV antibodies could be detected (10/47). FIV infection did not determine higher susceptibility to other infections, in fact, FIV infected animals were less infected by either hemoparasite found. This epidemiological survey led to the knowledge of some pathogens and will allow to draw effective populational control measures, especially suggesting that castration efforts should be concentrated upon adult females (larger stratum). Populational composition, domestic cats, sanitary conditions.

296. CANINE PARVOVIRUS TYPE2-CURRENT STATUS OF A RECENTLY EMERGED VIRUS OF CANIDS. L.E. Carmichael. USA.

Canine parvovirus-type-2 (CPV) emerged as a truly new pathogen of wild and domestic dogs in 1978. It spread rapidly worldwide and is now endemic in canid populations. The original CPV was present in nature for only about 1-2 years, when it was replaced by variant CPVs (CPV-2a and -2b). CPV-2a was first detected in 1980 and CPV-2b appeared around 1987. Those variants, detected by monoclonal antibodies and DNA sequence analysis, differed in only 3 or 4 amino acid substitutions. Those changes resulted not only in small antigenic differences, but also modification in the nature of the disease and changes in the original virus’s host range. The true ancestry of CPV is unknown. The emergence of new CPV ‘types’, and studies of their subsequent evolution by Colin Parrish and his colleagues at the Baker Institute, indicate that CPV is a useful model for understanding the emergence of new viruses with extended host ranges. The discussion will briefly describe the evolution of CPV to CPV-2a, -2b and focus on the significance of the genetic changes in the nature of the disease caused by those viruses and implications to vaccination.

297. LA PARVOVIROSE CANINE ENQUÊTE ÉPIDÉMILOGIQUE ET CLINIQUE DANS LA RÉGION DE TUNIS. L. Messadi1, M. Ben Fetah1, A.Ghorbel1, A. Bouassida2, F. Landolsi, A. Chabchoub1. 1ENMV,2020 Sidi thabet, Tunisie. 2Clinique veterinaire, Le Bardo, Tunis. Tunisie.

Le parvovirus canin de type 2 (CPV2) est un virus responsable de gastroentérite hémorragique associée à une mortalité élevée chez les chiots non vaccinés. Une enquête épidémiologique et clinique a concerné 117 chiens atteints de diarrhée, de tout âge et de toute race. A partir d’écouvillons rectaux, une recherche d’antigène de CPV2 est réalisée par une technique rapide d’immunochromatographie, à l’aide du kit Speed Parvo. Les résultats suggèrent que le parvovirus canin est une cause fréquente de diarrhée en Tunisie, puisque 58% des diarrhées sont associées à une excrétion de ce virus et ce, essentiellement chez les chiens âgés de moins de 6 mois, non vaccinés, présentant une diarrhée hémorragique et des vomissements.

Recently, several cytostatic drugs used in the therapy of different modalities of neoplasias such as busulphan (Myleran), doxorubicin (Adriblastine), vincristine sulphate (Oncovin) and methotrexate (Methotrexato), among others, are also being employed as causal agent for bone marrow failures models. All of these drugs are characterized for presenting an extraordinary non-selective cytostatic effect. Their cytopenic actions can be pointed out with relation to the cell system of rapid renewal such as those of the hematopoietic, espermatogenic and epithelial tissues, and other ones. In the present study, vincristine sulphate, a well know antineoplastic agent used in the treatment of round cell tumors (lymphosarcomas, histiocytes, matocytes, canine transmissible venereal tumors, carcinomas of basal cells and etc), were used with the main objective of evaluating their cytostatic action, by monitoring central and peripheral blood cellularity. For this, clinically healthy mongrel adults dogs, males and females, were separated into two treatment groups, five animals in each group, and treated with eight applications of two different levels of vincristine sulphate, at weekly intervals, Group T1 (0.010 mg/Kg of weight) and Group T2 (0.025 mg/Kg of weight). Studies of erythro, leuko and thrombometric parameters at the peripheral level and the mature and precursor blood cell at the central level were carried out. The results obtained for the erythro, leuko and thrombometric characteristics, under the tested experimental conditions, confronted with the data obtained from the myelogram, showed that vincristine sulphate produced peripheral and central hematotoxic effects in animals treated with the greater dosage of the drug (0.025 mg/Kg of weight). The lower dosage of vincristine sulphate (0.010 mg/Kg of weight) showed efficiency in the stimulation of thrombopoiesis, after one or two applications. Finally, 35 days after the suspension of the injections of vincristine sulphate the average values obtained for the erythro, leuko and thrombometric parameters reached levels considered normal for the canine species, attesting the reversibility of the hematotoxic effects of the used cytostatic drug.

299. GENETICS: A NEW TOOL FOR VETERINARY MEDICINE. Leslie A. Lyons. Department of Population Health & Reproduction, School of Veterinary Medicine, University of California, Davis, Davis, CA 95616 USA.

Genetics and genome projects have been developing for a plethora of species including many that are common to veterinary medicine. Both companion animals and agricultural species have been cloned and intensive genome projects exist for cats, dogs, horses, cattle, sheep and pigs. The projects are designed to assist the health of each species and help to eradicate both inherited and infectious diseases. Genetics are also used to improve meat and milk production and quality. Veterinarians are vital to genetic researchers and the successful implementation of tools developed by geneticists. The veterinarian is key to identifying genetic diseases, providing proper clinical diagnoses and collecting the samples required for scientific study. Veterinarians need to be able to identify inherited diseases and attributes and interpret genetic tests. Cloning has many implications to veterinary medicine, as does the use of genetic maps. The role of the veterinarian in genetic research will be reviewed as well as the implications of the recent genetic developments in companion animal and agricultural species.

300. DIAGNOSIS AND TREATMENT OF COMMON REPRODUCTIVE PROBLEMS IN DOGS
M.A. Memon, A. Tibary, Department of Veterinary Clinical Sciences, Washington State University, Pullman, WASHINGTON, USA.
Diagnosis and treatment of the following clinical cases seen at veterinary teaching hospital will be discussed. Pyometra is a common disease of the uterus noticed 4-6 weeks after last estrus. Canine pyometra, an outcome of cystic endometrial hyperplasia and bacterial infection results in severely diseased uterus -enlarged, inflamed and filled with mucopurulent material. Clinical symptoms may include sluggishness, anorexia, distended abdomen, vomiting, diarrhea, enlarged/flaccid vulva, polyuria and polydipsia. Diagnosis of pyometra is made by combination of historical events, clinical signs, abdominal palpation, complete blood count, blood chemistry, and radiography/or ultrasonography. Ovariohysterectomy is the recommended treatment. Young and valuable breeding bitches may be treated medically with series of prostaglandin F2a injections and antibiotics. Vaginal discharge in a pregnant bitch can be diagnostic challenge for a practicing veterinarian. Pregnancy should be confirmed to differentiate the vaginal discharge caused by pyometra. The appearance of the vaginal discharge may be mucus/pus, purulent, hemorrhagic, or a postpartum discharge. A systematic diagnostic approach is important, including history, a thorough physical examination, and ultrasonography for determination of the fetal health. The clinical management of these cases will depend upon the symptomatic and diagnostic findings. Vaginal prolapse is a protrusion of edematous vaginal tissue through the vulva of the sexually intact female during the time of estrogen stimulation. Most of the cases are seen during proestrus and early estrus stages of the cycle. If the affected animal is not treated, the prolapse typically regresses and resolve at the end of the estrous cycle. Chronic vaginal prolapse in a pregnant bitch will be discussed. Benign prostate hypertrophy (BPR) is one of the common prostate problems seen in the intact male dog. The prostate depends on dihydrotestosterone (a metabolite of testosterone) for growth and secretion. Men (>50yo) and dog (>5yo) have an increase in prostate size with increasing age. Dogs with BPR usually are presented with urethral bleeding as the only clinical sign, but also may have dysuria, hematuria and constipation. Diagnostic techniques may include digital rectal palpation, urine analysis, radiography, and prostate biopsy. Castration is the recommended treatment for BPR. In research studies, dogs with BPR were medically treated successfully with Finasteride (proscar®), a human product. Finasteride, synthetic steroid prevents conversion of testosterone to dihydrotestosterone. Dogs treated with Finasteride will be discussed.

301. ACUPUNCTURE: A HELP IN DIAGNOSIS FOR ALL. F. Gonneau. France.

We can’t ask an animal where he suffers, so we will directly ask his body by taking the temperature, auscultating, looking on mucous membrane. The theory of the acupuncture is that an acupuncture point suffers when the corresponding organ suffers. We can select some points in order to have finest diagnosis in our everyday consultation. 1: What is an acupuncture point? An Acupuncture point is usually located in a little hollow. It is a privilegiate place of exchange between the inside and the outside of the body. The point perceives the modification of environment, especially climatic.In the other hand the point is a physiologic witness of one organic function. The chinese name of acupuncture point is”hsué”, the”shaft”, the mediator between the dept of the body and the outside. It can regulate locally, regionally, distantly or with a général effect. There is a histologic and physiologic reality of the acupuncture point. There are many nerves ending often baroreceptor of Pacini. The mechanism of acupuncture is medullar and supramedullar. 2: How to find a point; The point suffers when the organ suffers. When the trouble is chronic, we can see modifications of the skin, hair, or local temperature. So we have to search warm or cold areas, dysesthesics, browns or red, hairless or painful zones. Read the animal! Before all, palpate the
back and limbs, as a blindman, spotting the hollows and humps. For the beginners, back points compose a simple semiologic keyboard. 3. Yu points The acupuncture points of the back of an animal are directly related to the sympathetic system. There is a particularly interesting paravertebral line of acu points: the Yu points of Bladder function. This function is the exhaust pipe of the body. Mésotherapists, physiotherapists and masseurs have to know this group of points well. 4. Canine Keyboard Experimental and bibliographic elements give us a little atlas of Yu points, very useful in consultation. There are some differences between the diverses authors because it is difficult to translate Chinese atlas. In the Chinese traditional medicine the Liver is not exactly the same in occidental medicine: we can find in this function the classic liver but we also find the muscular system! We have to examine those particular meanings of functions, most often for the sequence from L1 to L7 which is clearly described by all the authors. - Lung Yu (between T3 and T4): it is the mirror of the lungs, throat, trachea and skin -Péricardium Yu (T4/T5): it is showing trouble of the orthosympathetic system, for example in epileptic troubles -Heart Yu (T5/T6): it reveals cardiac function, but also emotionalism -Diaphragm Yu (T7/T8): it is not described in the Chinese medicine, this point is modified in problems of pleurisy, bloats, womb infections... -Liver and gall-bladder YUs (T8/T9/T10) suffer when there is hepatic trouble and big muscular trouble -Spleen Yu (T11/T12): reveals immunity trouble, spleen or diabetis, it is the mirror of endocrinology and inter liquids -Stomach Yu (T13/L1): very reactive when there are digestive troubles -Triple energizer Yu (L1/L2): a parasympathetic mirror, reactive when organism suffers from chronic disorders in gynecology, respiratory or digestive system -Renal Yu (L2/L3): reactive with Kidney and bones pathology as described in Chinese medicine -Large intestin Yu (L4/L5) is warm and painful when there is constipation, diarrheas -Genital Yu (L5/L6) is in relation with womb or testes -Small intestin Yu (L6/L7) is warm when there is obstruction of the bowels -Bladder Yu (L7/S) is suffering in case of cystitis, stones or locomotion troubles of hindlegs -Jade Ring Yu (under sacrum) is in relation with vagina, vulva or penis. 5. Practice: when? When a dog is sick, we can estimate the level of the pain, for example if we want to know if kidney suffers in case of womb infection. When a dog is peaky, Yu palpation is useful for diagnosis. When a dog is in good health, we can discover a little trouble before clinical phase occurs, which is kind of early diagnosis. 6. Practice: How First we welcome the animal with a stroke on the back in order to spot perturbated areas; there can be warm, cold, hairless or red skinner areas. Then we palpate both side of vertebral column with middle finger and thumb under the paravertebral muscular line from the last rib to the sacrum, and then from the last rimb to the first rimb. 7. Limits We can make a mistake with a somatic local pain, for example after a knock. We can use every acu point for diagnosis but this Yu-points-group is easy to spot and to palpate. Conclusion: stroke your patients,”read” the dogs: it is an easy way to begin in veterinary acupuncture.

302. TWELVE POINTS FOR BEGINNING VETERINARY ACUPUNCTURE. F. Gonneau. France.

Some points which can be useful to a beginner in the fight against pain, in reanimation or in gynecology the western viewpoint. For who Acupuncture is a medical tool, which obtains “distinctly superior results than with the administration of a placebo”. The way acupuncture works is described in neural physiology. Certain points have a specific effect centered on one organ and other produce a more widespread result on the whole organism, for example they can trigger off a discharge of enkephalines. The oriental viewpoint. Traditional Chinese medicine developed a general formula to represent the organism. It drew
up rules based on the observation of natural cycles. We must picture a vital force running through the body in a 24 hours cycle, corresponding to 12 functions (or meridians). Acupuncture points are privileged places for exchanges between the interior and the exterior of the body. **Twelve points for beginners.** One Stomach (S) point: The Stomach is the place of entry of food and ideas. There is both a somatic and a psychological meaning in all an organism’s functions. **S36:** below the knee - 10mm in depth, to treat the stomach as well as anxiety. Five Bladder (B) points: The Bladder serves to evacuate, it is the organism’s exhaust pipe. There is also a locomotive meaning for all the organism’s functions; in this case it is the kick of the rear limb. **B-D13:** against the edge of the last rib - from 10 to 30mm in depth. to treat gastritis **B23:** just behind L2 -from 10 to 30mm in depth. for renal or bone disorders **B28:** just behind L7 -from 10 to 30mm in depth. to treat bladder troubles, it can also be useful in case of complications in delivery as well as for constipation or paralysis. **B40:** just behind the knee -from 10 to 50mm in depth. good against all back pains. **B60:** in the hollow of the hock - 3mm in depth. Also referred to as Chinese aspirin, it treats all types of inflammation Tree Governing Vessel (GV) points: it’s is the median dorsal meridian, as well as that of the central and the sympathetic nervous system. **GV2bis:** between L7 and the Sacrum - 10 to 30mm in depth. For all dorsal problems and paralysis. **GV20:** on the top of the head, between the ears - 2mm in depth. useful for many behavioural disorders. **GV26:** in the middle of the nose -2mm in depth. This is the reanimation point. You have to strike this point in case of apnea, however, after first ascertaining that the mouth is empty in order to prevent swallowing wrong One spleen (S) point: this chinese function groups together all the internal fluids and endocrine glands **S6:** against the tibia, between two thirds along the bon and the distal end -2mm in depth. it’s linked to the ovarian function and treats many oedemas. A Small Intestine (S I) point: The function of all the assimilations: food, ideas, images... **SI3:** just above metacarpo-phemgian joint of finger 5, laterally. This is the tonic point of the small intestine but strangely enough, it is also a commandment point of the governor vessel and, as such, a useful point for dorsal disorders. **But where is the twelfth point?** This is the point you yourself find on your sick animal. There is no dogmatic formula in acupuncture. Of course if you want to begin, you must know some easy points, however before anything you have to inspect your animal carefully, then read the points and you will find many with wich to diagnose and treat it.

**303. PRELIMINARY EVALUATION OF ACUPUNCTURE EFFECT ON FRACTURE HEALING**  
D. Sharifi,; J. Bakhtiari, A. Ranjbar, H. Marjanmehr. **Department of Clinical Sciences and Pathology,**  
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The science of acupuncture as a modality of therapy has been used to prevent and alleviate pain fi man and animals,thus it may play an important role as far as fracture healing is concerned,that is why this study was conducted in 6 non desc pt clinically healthy adult dog weighing 25+ 2.65 Kg and having 32.6+8.4 months of age which subsequently divided into two groups(I&II) of3 animals each.A piece of 1 cm of full thickness of right radial mid_shaft cortical bone was removed in all animals and the limb was immubili:L:t;ù with null limb cuaptatiun ~plint.On 3rd day, acupuncture therapy was given to group II animalsdaily for 10 minutes for 15 days by locating proper acupoints LI-ll,TH-5 and HT-3,whereas no treatment was given to group 1 animals which acted as a control one.Clinical sign, radiography on 0,15,30,45,60 and 90 days was taken.the callus biopsy was collected on 90 days for histomorphological changes. There was irregular,pale with uneven surface of mass of callus was observed grossly in all animals of both groups but comparatively more in t” group 1 animals. Microscopically, fibrocartilage,
bony cells and tissue in animals group I whereas the compact fibro cartilage with trabeculae and bony tissue in group..} J animals were indication for positive stimulatory effect of acupuncture treatment on callus formation which further facilitate fracture healing and faster re-organization of callus. It is highly recommended for speeding-up normal and delayed union. I do prefer to have oral presentation for this research work

304. A COMPARISON BETWEEN ANALGESIA AND HEMODYNAMIC ALTERATIONS FOLLOWING EPIDURAL INJECTION OF MEDETOMIDINE AND XYLAZINE IN DOGS.
M.R. Sedighi, M. Mohri, B. Ahmadi. Dept. of vet. Surgery & anesthesia, Faculty of vet. med., Ferdowsi Univ. of Mashad, POBox 91775-1793, Mashhad, Iran.

As one of the most important factors in epidural anesthesia is the type of the drug combination and alfa2adrenoceptor agonists have a significant role in new epidural techniques, the purpose of this study was to compare the analgesic and hemodynamic effects of xylazine (group A) with a recently introduced medetomidine (group B) in dogs. The study was performed on 6 dogs from both sexes (mean weight; 27.5 ± 3.39 kg, mean age ; 5.6 ± 1.42 years) in two steps by a one-month interval. For sedation and restraint facilitation, diazepam (0.5 mg/kg-IM) and acetylpromazine (0.1 mg/kg-IM) were used. After 20 minutes xylazine (0.25 mg/kg) was injected in the epidural space in each of the animals of the group A. One month after that, following a similar sedation, medetomidine (15mg/kg) was used in substitution of xylazine for epidural analgesia (group B). The obtained results were analyzed by nonparametric paired t-test and Non parametric independent t-test in SPSS computer program in each group and between two groups and P<0.05 was considered significant. Statistical analysis in both groups showed a significant decrease in the heart rate and mean arterial blood pressure in comparison with basal values. But there was not any significant difference in these factors between two groups. Based on recorded electrocardiographs, after epidural prescription, 50% of dogs of the first group and 33% of the second group had atrioventricular block I and 33% of dogs of the first group and 66% from the second one, had atrioventricular block II and 50% from the first group and 66% from the second group had sinus arrest. So the effects of both drugs on the circulatory system are relatively similar. Respiratory rate was decreased significantly in both groups following the epidural anesthesia but in intergroup statistical analysis, a significant difference showing similar effects on respiration was not observed. With the respect to the changes in rectal temperature, this parameter in xylazine group was significantly reduced in comparison with the basal time. But in medetomidine group, there was not any significant reduction in this parameter. In intergroup statistical analysis, in different minutes, this factor had not any significant difference. Based on the studies of subcutaneous stimulation threshold which was checked by measured electrical impulses through hypodermic stabled needles in different caudal areas of the animals, similar anesthetic effects and duration were recorded in both groups. The mentioned results showed that xylazine and medetomidine have relatively identical cardiovascular, respiratory and analgesic effects in epidural anesthesia in dogs. Meanwhile further studies on the mentioned drugs in future, using other levels of sedation and other doses especially under surgical conditions are recommended.

305. MANAGING THE UREMATIC CRISIS. H.A. De Morais, P. Mendes Pereira. Departamento de Clinicas Veterinarias Universidade Estadual de Londrina Londrina, Parana, Brazil.
Uremic crisis results from a sudden loss of renal function in acute renal failure, or more commonly from decompensation of chronic renal failure. The first step in approaching an uremic patient is to determine if the azotemia is pre-renal, intrinsic (renal) or post-renal. Presence of azotemia and isosthenuria, strongly supports the diagnosis of intrinsic renal failure. The second step is directed toward differentiating acute from chronic disorders and reversible from irreversible processes. Patients with chronic renal failure may manifest one or more of the following signs: history of polyuria and polydipsia, weight loss, anemia, small kidneys (by palpation, radiography or ultrasonography) and decreased bone radiopacity. Treatment starts with correction of dehydration within 6 to 8 hours. Curable causes of renal failure (e.g. infection) should be pursued and treated. Manageable complications (e.g. vomiting and anorexia, hyperphosphatemia, hypertension, anemia, malnutrition, etc) should also be treated. Correction of dehydration is the first and most important step in dealing with an uremic crisis. Large doses of fluids are usually necessary in order to reestablish normal hydration. Rehydration is started with intravenous crystalloid solutions at 150 ml/kg/h. Improvement of clinical signs and increases in body weight are used to assess rehydration. Polyuric patients that are not gaining weight may need larger amounts of fluids. Fluid dosage should only be decreased when creatinine stabilizes at lower concentrations and the pre-renal component is successfully corrected. Every attempt should be made to induce diuresis in patients that remain oliguric after rehydration. If oliguria persists, an additional IV fluid volume equal to 3% to 5% of body weight is used to unmask undetected mild dehydration. This much dehydration may be missed easily owing to the inaccuracy of clinical estimations of dehydration. Diuretics or dopamine are indicated if the additional volume expansion does not result in diuresis. Rehydration MUST be completed before administration of diuretics. Acutely uremic patients are prone to infection. Infections should be aggressively pursued and treated. Vomiting is also common in dogs with uremic crisis. Decreasing gastric hyperacidity is often successful in reducing the severity or frequency of vomiting. H2-blockers are the initial agents in managing vomiting. Metoclopramide may be helpful when H2-blockers alone are not successful. Patients that developed electrolyte disorders (hyperkalemia, hypokalemia, hyper-phosphatemia, metabolic acidosis) should be treated. Transfusion should be performed in all patients with severe anemia (hematocrit below 25%). Erythropoietin should be started in patients with chronic renal failure after released from the hospital. Systemic hypertension occurs commonly in dogs and cats with chronic renal failure. Hypertension must be identified and promptly treated. Nutritional support is very important and favors recovering of the patient. During the uremic crisis, a high palatable diet is ideal. Low-quantity, high-quality protein diets for chronic renal failure patients are preferred, but care must be exercised with patients with nausea or vomiting. Patients with nausea may associate nausea with the diet and never again eat that food. Nasogastric or gastric feeding may be indicated in anorexic patients that are not vomiting. Total parenteral nutrition is also an option in selected patients. Patients with acute renal failure have a guarded to poor prognosis whenever the animal is in the maintenance phase with severe uremic signs or have persistent oliguria. Animals with decompensation of chronic renal failure have a better short-ferro prognosis, but will eventually die of renal failure.

306. SOME CASES OF FUS SYNDROME IN CATS REFERRING TO THE CLINIC OF VETERINARY FACULTY OF TABRIZ. E. Gogerdchi. Iran.

FUS, is referred to as the disease of lower parts of urinary system which causes serious problem for cats, specially the males resulting in inflammation of epithelium of urinary bladder and ureter through forming crystals.
**Etiology:** nutritional factors plus infections of urinary system and so on. Most of these crystals include struvite and calcium oxalate but the former is more prevalent. L’Oxalate crystals are formed in old cats when there is an acidic condition of pH plus low magnesium amounts in diet. Struvite crystals are formed in young cats and under the alkaline pH circumstance plus high levels of dietary magnesium. Consumption of high levels of cortisone likely increases the forming of these crystals. The disease has got obstructive and non-obstructive appearance, each one having the specified clinical signs and treatments. The history taken from the cats referred to the clinic showed stranguria, dysuria, hematuria, polyuria, lack of appetite due to non-obstructive form and plaque formation, pain, cry, dysuria in obstructive form specially in male cats. In advanced conditions, vomiting, dehydration, abstention form feeding and depression was reported. The non-obstructive form was changed to obstructive form in mast cases. More acute condition, leads to kidney injuries, cardiovascular infarction and death. After carrying out the examination, X-ray photographs were taken in lateral and ventral positions. In order to detecting the casts, urine samples were collected and sent to laboratory. Treatment: After approving and determining the type of the crystals and diagnosis of the disease itself, treatment was set about through applying a diet of acidic pH (when struvite crystals are assured), anti-inflammatory, agents and tranquilizers plus muscular antispasms. In obstructive form, treatment was carried out through intravenously fluid therapy plus urethral catheterization and also surgery under full obstructive circumstances by incision of ureter through perineal approach and putting out the casts. **Prevention:** maintaining the animal in active condition, enough fluid applying and also feeding with low levels of dietary magnesium and changing the pH to acidic state are efficient approaches in preventing the struvite crystals to be formed.


Methotrexate (MTX) is an antimetabolite that occupies a special place in antineoplastic chemotherapy. It is classified as an antimetabolite drug and its mechanism of action is relationed with inhibition of the dihydrofolate reductase enzyme. This fact leads to the depletion of the tetrahydrofolate cofactors that are required for the DNA synthesis. As with most antimetabolites, MTX’s cytostatic effect is not selective for tumor cells and its hypoplasia-inducing effect can seen on rapidly renewing cell systems such as those of hematopoietic and gastrointestinal tissues. The aim of this study was evaluated the hematotoxic, nephrotoxic and hepatotoxic effects of different doses of MTX on healthy dogs. The essay was carried out on 16 adults dogs, males and females, divided into four groups: Group zero (control), injected with placebo, intravenously, every week, during five weeks. The animals from Groups 1, 2 and 3 received 5 mg/mO, 10 mg/mO and 15 mg/mO respectively, in five applications separated for weekly intervals. Peripheral blood parameters and biochemical profiles (urea nitrogen, creatinine, alanine aminotransferase, alkaline phosphatase, serum protein, albumin, bilirubine and gamme-glutamyltransferase) were determined at seven days intervals, and were collected 48h after application of MTX, and five weeks after its suspension. The results showed, under the experimental conditions, were normal.

308. COMMENT RÉUSSIR SES SUTURES DIGESTIVES. G. Dupré. Service de chirurgie, Clinique Frégis, Arcueil, France.
Les principes de sutures digestives sont simples. Il s’agit d’apposer le plus anatomiquement possible les couches les mieux vascularisées, la sous-muqueuse en particulier. En cas de déhiscence ce n’est pas le fil qu’il faut incriminer mais la technique. À ce titre, l’essentiel est de respecter les règles de la chirurgie atraumatique: il faut penser vascularisation avant de penser étanchéité. Les fils ne sont pas là pour assurer l’étanchéité de ce qui vient d’être fermé. Ils sont là pour permettre l’apposition des lèvres de la plaie et le dépôt précoce d’un caillot de fibrine qui, lui, assurera l’étanchéité. Augmenter le diamètre des fils, et le nombre de passage ne fait qu’accroître les risques de déhiscence !


L’amélioration régulière du pronostic chirurgical de la cataracte chez le chien, essentiellement grâce à la chirurgie en incision étroite permise par la phacoémulsification, permet aujourd’hui aux ophtalmologistes vétérinaires de revendiquer une fiabilité dépassant 95%. De plus, le recours systématique au bilan échographique et électrophysiologique pré opératoire a pratiquement éliminé les échecs fonctionnels imputables aux maladies de la rétine. Il restait à franchir le dernier stade technique, celui de l’installation dans l’œil d’une lentille destinée à corriger le déficit fonctionnel de la vision aphaque. Le concept n’est pas nouveau puisque H. Simpson réalise en 1956 les premières implantations de lentilles intra oculaires (LIO) chez le chien; néanmoins, les caractéristiques anatomo physiologiques de l’œil du chien (puissance du cristallin, dimension du sac, réactivité du tractus uveal notamment) ont longtemps retardé la validation de l’implantation dans cette espèce. L’utilisation de LIO rigides, satisfaisante sur le plan de la biocompatibilité du matériau (PMMA) imposait l’agrandissement de l’incision de phacoémulsification de 3,2 à 7,5 mm avec les conséquences habituelles sur la barrière hémato aqueuse, l’astigmatisme iatrogène et la fragilité de la suture. A la fin de l’année 1998, J.Gaiddon présente à Paris (Vèmes Journées d’Actualité de la SFEROV) le Cani-JAG, LIO souple, pliable, réalisée en polymère hydrophiles (acrylique) d’une puissance de 41 dioptres pour un diamètre optique de 5 mm. Dans le même temps, P.-F. Isard travaille sur un concept de LIO injectable et présente au congrès de l’ARVO (Association for Research in Vision and Ophthalmology) à Fort Lauderdale (Floride. USA) en mai 2000, le PFI2000, première LIO injectable canine qui préfigure l’évolution actuelle qui prend en compte les différentes dimensions de sac comme la prévention de l’opacification de la capsule postérieure (OCP). Les PFI 12 SE et 14 SE voient le jour au début de l’année 2002, en même temps que le 6Dog, réservé aux sacs fragiles ou abîmés; toujours en acrylique hydrophile et injectables, elles ont une partie optique à bords carrés (SE=Square Edge), portée à 6 mm, des haptiques angulées de 10° vers l’arrière et s’adaptent aux plus grands sacs dans la version 14 mm. La puissance reste de 41 dioptries. La technique d’implantation par injection permet de respecter l’incision de phacoémulsification (3,2mm), limite le traumatisme des structures environnantes et diminue considérablement le risque de contamination endo oculaire. Utilisée en routine par la majorité des ophtalmologistes vétérinaires en Europe comme aux USA, la phacoémulsification avec implantation souple obtient aujourd’hui des résultats en tous points comparables à ceux de l’ophtalmologie humaine. Cani-JAG fabriqué par Ioltech. PFI2000 et SE fabriqués par Cornéal et distribués par Dioptrix, Sévrier / Annecy. France

L'étude porte sur 47 chiens (85 yeux) atteints de cataracte d’origine diabétique traitée chirurgicalement par la technique de phaco-émulsification. Le diabète sucré s’accompagne fréquemment d’une cataracte d’évolution souvent rapide, responsable d’une baisse de la vision des animaux et de complications intra-oculaires graves.

311. REPAIRS OF CORNEAL ULCERS. B. Clerc. Service d’Ophtalmologie, Ecole Nationale Vétérinaire – 94700 MAISONS, ALFORT, France.

Corneal ulceration is one of the most common ocular diseases in the dog. Uncomplicated ulcers heal readily with minimal scar formation in five or six days if the environment of the cornea is optimal if there is no infection. This is known from the follow up of experimental ulcers in the dog. It is usually accepted that ulcers with a depth smaller than 1/3 of the corneal thickness do not need surgical repair. When ulcer does not heal spontaneously and quickly, repair of corneal ulcers is essential in animals. It restores the integrity of the eye, it suppresses the pain, always present in ulcerations, it should get back the transparency of ocular media in order to permit a clear vision. The purpose of this presentation is to draw the attention to some type of ulcers who do not heal quickly if not subjected to an appropriate technique. The purpose of this presentation is to make a survey of the cases of ulceration in dog and cat cornea seen at the referral clinic of Maisons-Alfort in order to help practitioners to treat ulcers adequately.


Sense of vision is not considered being the major sense in the dog. However, loss of vision impairs the dog behaviour. Handicap is more pronounced with a sudden blindness and the clinical signs are different in case of progressive or sudden blindness. Some of the cases can be treated successfully and the purpose of this presentation is to help practitioner in the exploration of acquired blindness in order to make an accurate diagnosis and a quick successful treatment when it is possible. Clinical signs of blindness We describe separately the two clinical situations of sudden and progressive blindness. Clinical signs: Sudden blindness, Progressive blindness, Behaviour disturbance, Stay, Aggressive behaviour, Increase food intake, Menace reflex (-), Cotton ball test (-), PLr (-) or (+), Small behaviour change, Often unremarkable from the owner, “Clumsy” dog, Handicap during the night walk, Menace reflex (±), PLr often (+), Behaviour in mesopic condition impaired, Lesions causing blindness; Lesions are localized either on the transparent media (cornea, lens, vitreous) or on the retina, or on the optic nerve, or in the brain. Clinical examination A careful clinical examination gives a lot of information. Functional test with behaviour in photopic and mesopic conditions, the examination of the eye before and after mydriasis is essential. Some defects of the retina or of the optic can be detected by the direct exam and the echography. ERG and VEP may be very helpful for localization of lesions. The possible treatment of lesions will be reviewed during the presentation.

So far the available picturing methods to explore the lacrimal drainage system allowed only an indirect visualization of this apparatus. Lacrimal endoscopy play a important role in visualizing inside the lacrimal pathway with retrograde motion; in fact for the first time there is the possibility of receiving a direct morphological picture of the tissue of the lacrimal system, allowing a n optical evaluation of the its mucosa. So the endoscope examine the upper and lower puncta and their respective canaliculi, the lacrimal sac and the naso-lacrimal duct, evaluating their anatomic structure. Furthermore the technology of optic fibers allows to diagnose and to treat pathologies of the lacrimal drainage system, as functional and mechanical stenosis. AIM: The present study describe a new method of observation using a miniature fiberoptics to view the entire lacrimal excretory system.

314. THE FEATURES OF SOME FACTORS INFLUENCE ON ANIMAL INTRAOCULAR PRESSURE. D.S. Silin. Odessa State Agrarian University, Ukraine.

Schlemm’s channel absence at majority of animals requires a discussion about necessity of atropinization refusal, as uveal outflow is not hindered in cycloplegia, and, theoretically, even should be facilitated. At majority of animals the chamber moisture outflow happens, mainly, on back uveal path, that is through ciliary body, which relaxation should reduce a hydrodynamic resistance. Some physical factors can also influence to neuroregulatory and IOP-supporting mechanisms with distinctions during physiotherapeutical procedures in animal, thank to these morphological and regulatory features. In this connection there was necessity of determination of atropine cycloplegy and some physical factors influence to IOP at an animal with a dominance back uveal path of chamber moisture outflow, to which almost all home and agricultural animals concern. It was demonstrated essential distinctions of such influence at animal in compare human and was denied some contra-indications of eye physiotherapy.


The lipid keratopathy was described in several species including man, rabbit, cat and dog. It is caused by lipid accumulation in the corneal epithelium and stroma. The clinical appearance and course are understood, the lesion may be associated with systemic diseases with lipid metabolism abnormalities or secondary to local and systemic pathological conditions.


Les otites externes du chien constituent un motif de consultation très fréquent, mais le clinicien ne fait appel au laboratoire que pour les cas graves, chroniques ou rebelles au traitement. Une étude épidémiologique, clinique et micro biologique a intéressé un échantillon de 112 chiens atteints d’otite externe. Elle révèle l’atteinte préférentielles des berges allemands et des caniches, ainsi que la tranche
d’âge comprise entre 2 et 5 ans. Ces otites sont plus fréquemment chroniques qu’aigues (77% versus 23%) et plus souvent érythémato-cérumineuses que séreuses (69% versus 31%)


One of the potential causes of otitis externa in sm/Ill animal is fungal infection. The sim of present study; was to evaluate the prevalence of external ear canal fungal contamination in 110 dogs (76 males, 34 females) referred to the Veterinary Teaching Hospital of Urmia University from 1181 Sept. 1999 to 2581 May 2000. The dogs were clinically examined and none of them showed any signs of apparent ear disorders. Swab samples were obtained from each dog’s ear canal separately. for identifying microorganisms, smears prepared from the collected swabs were cytologically examined and then cultured for further microbiological studies. From the 110 dogs 52 dogs (47.2%) had laboratory evidence of fungal infestation and the 58 other dogs (52.8%) were Cree of fungi. The most common microorganisms among isolated ODES, were Aspergillus spp. (50%), Candida spp. (17.5%) and Alternaria spp. (10%). As normal, our results were in accordance with investigations carried out by the other researchers (Smith, 1989; Damoser, 1992; Pavlenco, 1993).

318. CATS ARE NOT DOGS ON EMERGENCY WHERE IS THIS MURMUR COMING FROM ? H.A. De Morais, P. Mendes Pereira. Departamento de Clinicas Veterinarias Universidade Estadual de Londrina Londrina, Parana, Brazil.

Many diseases are different in cats. Clinical signs differ from those seen in dogs, whereas some diseases may be more prevalent in one species versus the other. Unlike dogs, cats with pancreatitis are not prone to vomiting, whereas arterial thromboembolism is a manifestation of heart disease in cats, but not in dogs. Hypoadrenocorticism may occur in cats, but is extremely rare when compared with its prevalence in dogs. A few disease are specific of cats (feline viral leukemia, feline viral immunodeficiency, hyperthyroidism). Cats also respond differently to acidosis and shock and go from being a stable patient to a critical one much faster than dogs. A cat in the emergency room CANNOT be treated as a small dog. Cats react poorly to shock. The sympathetic response is blunted and hypotension is often accompanied by bradycardia. Cats are also prone to hypothermia and hypoglycemia during shock. This conjunction of factors creates a feedback loop where hypotension leads to hypothermia and bradycardia, which furthers decrease arterial pressure. Cats also have a smaller circulatory volume than dogs that limits the maximum rate of fluids that can be safely given during shock limited to 45 to 65 ml/kg/h. In some cats in critical condition, it might be very difficult to maintain adequate blood pressure. The main differentials for a cat who has hypotension that is resistant to fluid therapy are Systemic Inflammatory Response Syndrome (SIRS), hypoxia, hypothermia/bradycardia or occult cardomyopathy. Inotropic support may be necessary in selected patients. Systemic Inflammatory Response Syndrome is the common inflammatory response mounted by the organism against several different stimuli. Sepsis is the SIRS secondary to bacterial infection, whereas severe sepsis is sepsis that is accompanied by organ dysfunction (Multiple Organ Dysfunction or MODS), hypoperfusion or hypotension. Septic Shock occurs when severe sepsis is accompanied by hypotension refractory to fluids. Human criteria for diagnosing SIRS have been adapted to cats. SIRS is diagnosed in cats whenever three of the following criteria are met: Temperature > 39,7°C
or < 37.8°C Heart rate > 225 or < 140 bpm Respiratory rate > 40 rpm White blood cell count > 19,500/ml or < 5,000/ml or > 5% bands Like in humans, there is a tendency to overdiagnose SIRS in cats by strictly following these criteria. Any cat that fits the criteria for SIRS should be closely evaluated and monitored even when the cat is not "too sick". Cats do not have the classic hyperdynamic phase of sepsis. There is no hyperemia of the mucous membrane, tachycardia or evidences of vasodilation During severe sepsis, cats may have pale mucous membranes, diffuse abdominal pain, tachypnea, bradycardia, hypothermia, jaundice, anemia, and hypoalbuminemia. Some laboratory abnormalities are unique in cats. **Hypoglicemia** is associated with hypotension, whereas **hyperglycemia** may occur with stress. Hyperglycemia is much higher in stressed cats than in dogs and can even surpass renal threshold (250 mg/dl in cats). **Hypophosphatemia** occur in cats after prolonged anorexia or in patients just started in insulin for diabetes mellitus leading to hemolytic anemia, if severe. **Hypokalemia** causes muscular weakness (especially in the neck with ventroflexion of head) and polymyopathy, decrease in consciousness and renal failure. The main cause of hypokalemia in cats is renal failure. Bradycardia in cats with **hyperkalemia** is less pronounced than in dogs. Cats with hyperkalemia and bradycardia are usually dying. **Hyperammonemia** is much more common in cats than in dogs as a cause for decreased consciousness. Cats are also less efficient than dogs to compensate for **metabolic acidosis**. It is not clear if they compensate at all. During renal failure, hyperphosphatemia appears to be an important reason for metabolic acidosis in cats. Cats with renal failure that are depressed, acidic, and hyperphosphatemic must be treated with sodium bicarbonate, because bicarbonate drives phosphorus inside the cell, increasing pH. Maintenance of adequate oxygenation and ventilation is very important in cats. A common mistake is to wait until the cat is severely distressed before starting oxygenation. Nasal oxygen or oxygen cage are adequate for most cats. In case it is deemed necessary, cats can be sedated with butorphanol 0.2 to 0.4 mg/kg IV or IM. Cats have a hyperreactive bronchial tree and can have bronchoconstriction during stress. They should be manipulated with care to avoid stress-induced bronchoconstriction. Subcutaneous terbutaline (0.01 mg/kg) is very effective inducing bronchodilation within minutes. Heart rate increases and respiratory rate decreases after the injection. Aminophylline can also be used parenterally to induce bronchodilation, but it should be used carefully because it may induce vomiting in a dyspneic cat. Cats may develop pulmonary edema due to increased vascular permeability during SIRS. This pulmonary edema may be clinically silent until it is too late. Patients with SIRS should be closed monitored for signs of respiratory distress. Pleural effusion is also very common in cats. Thoracocentesis should be attempted in all cats with an expiratory or mixed dyspnea with decreased respiratory sounds. Cats show pain by becoming depressed, anorexic, restless and irritable. Tachycardia may occur, but it is rare. Pain control is mandatory. Moderate pain can be controlled with butorphanol (0.2 – 0.8 mg/kg q2h – q8h). Morphine (0.1 mg/kg IM) associated with diazepam (0.2 mg/kg IV) or epidural morphine can be used in more severe pain. Cats are small. Frequent blood withdraw can cause or worsen a pre-existent anemia and should be avoided. Cat’s red blood cells tend to clump together (“rouleau”) and this can be confused with auto-agglutination. Addition of a few drops of saline is necessary to differentiate between rolleau and auto-agglutination. Hemoplasmosis caused by **Mycoplasma haemofelis** (formerly **Haemobartonella felis** Ohio) can exacerbate during stress causing hemolytic anemia. Careful evaluation of the blood smear for presence of hemoplasmae is very important in all cats with acute anemia. Presence of macrocytosis in the absence of anemia, suggests that the cat has feline leukemia virus infection or hyperthyroidism. Blood transfusion should be considered in all cats with PCV < 15% or in cats with acute anemia and PCV < 20%. Cats with type B blood can never receive blood type A. There is also a chance of reaction when type A
cats receive blood type B in about 30% of the cases. Because prevalence of blood types varies among different regions and breeds a cross-matching should be performed before transfusing a cat. It is important to remember that cats are not dogs on emergency. Physiology, metabolism, and diseases are different. Hypothermia, bradycardia, hypoglycemia, and hypotension refractory to fluids are serious problems that are common in critical cats.


The author makes out, at first, an exposition of anatomical, histological and physio-pathological knowledge of intestine in dog, and a bibliographic actualization of intestine suture techniques and of intestine wound healing. Then, he present a technique of intestines suture used in human surgery by extra-mucous membrane overcast stitch in mono-plan (one plan), he studies its cicatrisation and bring out its efficiency in veterinary surgery. The realization of intestine suture by extra-mucous membrane overcast stitch in”mono-plan” offers a rapid intestine reparation, while the simplicity of execution surpass much more the classic techniques of suture by ensuring a similar and satisfying healing.

320. CHEMOSENSITIZING ACTIVITY OF THE MEDROXYPROGESTERONE ACETATE (MPA) ON IDARUBICINE-INDUCED APOPTOSIS IN CANINE CHRONIC LYMPHATIC LEUKEMIA CELLS. DEPARTMENT OF STRUCTURES, FUNCTIONS AND BIOLOGICAL TECHNOLOGIES. L. Crispino, U. Pagnini, R. Cicarcia, G. Pagnini, S. Florio. Dept of Pathology and Animal Health - University of Naples Federico II - School of Veterinary Medicine, Via Delpino 1,80137, Naples, Italy.

The use of anthracyclines in treatment of malignant tumours is restricted by a dose limiting cardiotoxicity as well as by the appearance of drug resistance. Recently, for these reasons, several experimental approaches have been performed in order to reverse drug resistance. Various compounds such as calcium agonists-antagonists have been used at this purpose, moreover several authors demonstrated that hormone active drugs such as tamoxifene and MPA posses a direct antitumoral activity as well as chemosensitizing activity both on hormone receptor positive and negative tumours cells. Our previous studies demonstrated a chemosensitizing role of MPA in canine mammary tumour cells (Pagnini U. et al., 2000 Res. Vet. Sci.) and in human chronic lymphic leukaemia cells (Pagnini U. et al., 2000 Anticancer Res.). The aim of the present research was to evaluate the chemosensitizing activity of MPA on idarubicin (IDA) induced apoptosis in canine chronic lymphatic leukaemia cells (CLL). For this reasons we used leucocytes drawn from a dog affected with chronic lymphatic leukaemia, cultured for 21 days and suitably treated with IDA alone or associated with MPA. Apoptosis was evaluated cytofluorimetrically by propidium iodide assay as well as by an immunoenzymatic method, assaying intracytoplasmatic levels of mono and oligo-nucleosomes (Cell Death ELISA plus -Roche Diagnostics). The results obtained, demonstrated that the treatment with IDA significantly increases the number of apoptotic cells since the concentration of 0.3 mM and such effect was dose dependent. IDA at the concentration of 10 mM reached the maximum effect increasing the percentage of apoptosis of 110%. MPA used alone significantly increased apoptosis at the dose 5mM. When the two drugs were used in association using IDA at the dose of 1mM in presence of increasing concentration of MPA (0.3-10 mM), the percentage of apoptotic cells significantly increased
over 20% since the equimolecular dose of 1 mM MPA versus IDA used alone. MPA at the concentration of 10 mM increased IDA induced apoptosis of 67%. Cytofluorimetrical analysis results agreed to immunoenzymatic assay. In conclusions, MPA, even though didn’t significantly increase apoptosis in CLL cells when used alone, in association to IDA was able to chemosensitise tumour cells to IDA induced apoptosis. These results are consistent with our previous results which showed that MPA sensitise tumour cells to anthacyclines providing evidences that such effect is related to increases in anthracyclines-induced apoptosis.


Une étude lésionnelle des principales causes de mortalité chez le chien réalisée dans le cadre de l’activité du service d’anatomie pathologique de l’Ecole Nationale de Médecine Vétérinaire de Sidi Thabet, s’est étalée sur une période allant de l’année 1990 à l’an 2000. Cette étude montre, pour les chiens dont l’âge est supérieur à 3 mois qu’il y’a une prédominance des lésions des organes hémolymphopoeïtiques avec pour origine surtout des parasitoses, essentiellement la leishmaniose (25,9%) suivies des lésions digestives (24,81%) de Gastroentérite d’origine virales provoquées essentiellement par la maladie de Carré (6,67%), la Parvovirose (2,05%) et l’Hépatite de Rubarth (1,1%) et d’origine bactérienne provoquées surtout par la Leptospirose (6,48%). Pour les chiens dont l’âge est inférieur ou égal à 3 mois, on note une prédominance des lésions digestives (54,2%) de Gastroentérite avec pour principale cause les maladies virales des jeunes chiens surtout la maladie de Carré (27,8%) et la Parvovirose (15,28%).

322. BRAIN AMYLOIDAL IN AGED DOGS IS ASSOCIATED WITH A DECREASE IN RELATIVE INTRACRANIAL ARTERIAL VOLUME AND WITH SIGNS OF OXYDATIVE DAMAGE. E. Gruys¹, J. Rofina¹, K. Singh¹, A.M. Van Ederen¹, I. Van der Meer¹, M. Goossens¹, M. Terlou¹, N. Papaioannou², P. Fraser³, H. Yamaguchi⁴, A.Vesela ⁵, J. Wilhem². ¹Departments of Veterinary Pathology (a) and Image Processing and Design (b), Utrecht University, Utrecht, The Netherlands. ²Department of Veterinary Pathology, Aristotle University, Thessaloniki, Greece. ³Centre for Research of Neurodegenerative Diseases, University of Toronto, Toronto, Canada. ⁴Gunma University School of Health Sciences, Showa-machi, Maebashi, Japan. ⁵Second Medical School, Charles University, Prague, Czech Republic.

A questionnaire was designed to interview owners about cognitive deterioration of their dogs. Brains of dogs in different age classes were perfused with barium sulphate and X-rayed. Paraffin sections were stained with Congo red for amyloid. Immuno- and lectin histochemistry were performed for different A(protein fragments, A(precursor protein (APP), tau and 4-hydroxynonenal (HNE), and to stain capillaries, macrophages and glia cells. On serial sections double staining for A(and capillaries, macrophages or HNE was applied. With a computer programme the relative surface amounts of barium filled arteries and immune stained capillaries were measured. A 3D-spectral fluorescence analysis was used to measure extracted lipofuscin-like pigments. The questionnaire appeared to reveal different classes of severity, of which the most advanced one was considered as demented. With increasing age a brain arterial volume decrease was found, while amyloid deposits in vascular walls and in brain tissue increased. There appeared to be a spatial relationship of small blood vessels and diffuse (pre-amyloid) and
dense (amyloid) plaques. With age astrocytic staining increased, whereas no increase of microglial cells was observed. Positive staining was observed for APP in different types of cells, tau in neurons and for 4HNE in neurons and plaques. Around blood vessels ceroid/lipofuscin pigment containing macrophages were obvious. Extracted pigment fractions revealed fluorescent peaks. It was concluded, that the aged pet dog with its loss of cognitive functions and intraneuronal accumulation of tau protein and its increasing masses of cerebrovascular amyloid and plaques can be considered as a canine counterpart of Alzheimer’s disease. From the reduction in relative arterial volume with age and its association with A(amyloid deposition and accumulation of oxidative damage products (4HNE and lipofuscin-like pigment) a relationship between these findings was suggested. The oxidative processes may be involved in upregulation of A( precursor protein formation and amyloid deposition.

323. MALASSEZIA YEAST IN THE EXTERNAL EAR CANAL OF HEALTHY DOGS AND CATS. A. Moretti, D. Piergili-Fioretti, G. Taconni, M. Diaferia. University of Perugia- Faculty of Veterinary Medicine-Department of Biopathological Veterinary Science-Via S. Costanzo, 4-06100 Perugia, Italy.

Otitis externa is one of the most frequent reasons for small animal veterinary consultation (15 -20 % in dogs and 4-7 % in cats) (Gotthelf L.N., 2000) and aetiological responsability of the fungal flora have been often reported. Particularly, opportunistic yeasts of the genus Malassezia are associated to clinical findings when predisposing factors host-related contribute to micotic overgrowth and the their passage from commensal state to pathogenic role. The responsibility of Malassezia pachydermatis (M. p.) as causative agent of clinical micotic otitis was ascertained with extremely high values in canine species (till 80 %) as regards feline species (Bollier S. et al, 1996). Aim of the present study is to value the prevalence of M. p. in the swab of external auditory canal of healthy dogs (n. 100) and cats (n. 60) belonging to public kennel of Perugia (Central Italy) by citological evaluations and fungal cultures. The morphological and physiological characteristics of yeast isolates were studied using methods described elsewhere (Guillot et al., 1996; Kurtzman C.P. and Fell J.W., 1999). M. p. was present in 11% of dogs and in 8.3% of cats; the low number of yeast cells present in smears was discriminative for its commensal role. The results showed that the yeast is similarly present in normal conditions in the two animal species and that the passage to a pathogenic role is subordinated to anatomy and physiology of the host’s ear canal that established a favorable climate for the proliferation of yeast. The recent isolation of M. sympodialis, M. globosa and M. furfur (species recognized as part of the normal skin flora of man) from ear canal of healthy pet cats (Bond et al., 1997; Crespo et al., 1999) is an aspect very interesting for eventual zoonotic relations.

324. INFLUENCE OF DIET REGIME IN THE DEVELOPMENT OF PANSTEATITIS IN CATS. M.M.R.E. Niza, C.L. Vilela, L.M.A. Ferreira. CIISA-Faculdade de Medicina Veterinária, Pólo Universitário do Alto da Ajuda, Rua Prof. Cid dos Santos, 1300-477 Lisboa, Portugal.

Pansteatitis or yellow fat disease is a recognized nutritional disease of cats, usually associated with diets based on oily fish. The present work describes two cases of pansteatitis in cats fed mostly of pig’s brain. A comparison of clinical signs, haematologic values and lesions of pansteatitis present in these two cats and others fed mainly oily fish is presented. The cats which diet consisted mainly in pig’s brain did not show any abnormal clinical signs and the haemogram revealed a normal profile. Pansteatitis was suspected when these animals went through a routine surgery where yellow abdominal subcutaneous fat
was patent. Diagnosis was confirmed by histological examination of subcutaneous tissue. Therapeutic and prophylactic approaches of feline pansteatitis are also discussed.


Transitional cell carcinoma (TCC) is a malignant tumor arising from the transistional stratified epithelium of the urinary trac. TCC is the most common malignant tumor of the urinary bladder in the dog. Ultrasound is ideally suited for evaluation of the urinary bladder.
326. GLOBAL HARMONIZATION OF LABORATORY ANIMAL CARE AND USE PROGRAMS. M. R. Kechrid. Animal Program Coordinator; National Institute on Alcohol Abuse and Alcoholism National Institutes of Health, Bethesda, MD, USA.

Although most biomedical research is performed in developed nations, laboratory animal facilities in developing countries must also strive to ensure correction of any deficiencies, and that minimum standards are met, regardless of a country’s regulatory requirements. Due to the new multinational structure of pharmaceutical companies that develop and test new drugs, regulatory approvals are now processed on a global basis. Drugs may be studied for efficacy in one country, tested for safety in another country, undergo clinical trials somewhere else, and have approval processed simultaneously in every regulating jurisdiction they are meant to be marketed. This paper will discuss harmonizing procedures and practices of animal care and use that optimizes the quality of science, addresses the need of similar standards to govern the care and use of animals in international research protocols, thereby bringing a degree of equivalence to the data or information generated, facilitates the movement and exchange of research animals and animal products, and addresses the need for efficiency in costs of research. Harmonization of areas such welfare of animals, guidelines relevant to the production, maintenance, and use of laboratory animals, animal health surveillance standards, biosafety requirements, and training are driving factors for global harmonization of laboratory animal quality standards. The concept of an international accreditation program is also addressed in this paper.

327. LABORATORY ANIMAL SCIENCE AND SERVICE ORGANIZATIONS. G. Demers. - Conseil canadien de protection des animaux 315-350 Albert, Canadian Council on Animal Care Ottawa, On, Canada K1R 1B1

In parallel with the development of biomedical research, laboratory animal science and service organizations have been in constant evolution and development over the last 40 years. Demands for a higher quality of animals together with a greater concern for animal welfare have been the driving force behind the development of organizations that provide support for people working in the field of laboratory animal science. The first laboratory animal organizations were created in the 1950’s and 1960’s in North America, Japan and Europe: AALAS (formerly ACP) in 1950, JALAS in 1952, LASA in 1963, ICLAS in 1967 and CCAC in 1968. Since then, increasing levels of biomedical research in other countries, mainly from Asia and Central and South America, has created an explosion of new laboratory animal science and service organizations around the world. The role of the International Council for Laboratory Animal Science (ICLAS) as an international umbrella organization has been very important in this worldwide development. In several parts of the world, regional organizations have been created to maintain links between national scientific organizations and to lead the field in providing policies and guidelines related to laboratory animal care and use. FELASA in Europe has played an important role in this respect. Several countries now have more than one laboratory animal science organization serving different goals, viz. continuing education, training, production of guidelines, scientific communication, accreditation and certification programs.
The author will give an overview of the principal laboratory animal science organizations around the world according to their primary aims and scope, i.e. international organizations, laboratory animal science associations, professional organizations, animal care and welfare organizations and miscellaneous associations.

328. EFFET DE LA PRIVATION HYDRIQUE SUR LES FONCTIONS INTESTINALES CHEZ L’ANIMAL DE LABORATOIRE. Souilem Ouajdi 1, Béji Raja 2, Hamrouni Hanène 1, Zhioua Amel 3, Harzallah Latifa 4, Guemira Fethi 4, Ben Mansour Abderraout 5. ‘Laboratoire de Physiologie - Pharmacologie, Ecole Nationale de Médecine Vétérinaire, 2020 Sidi Thabet, Tunisie.2 Service de Physiologie, Faculté de Médecine de Tunis, Bab Saadoun, Tunisie.3 Service d’Histologie, Faculté de Médecine de Tunis, Tunisie. 4 Service de Biologie Clinique, Institut Salah Azaiez, Tunis, Tunisie.

Cette étude rapporte les principaux résultats issus d’une série de travaux réalisés chez l’animal de laboratoire (rat, souris) privé d’eau durant trois jours consécutifs. Ce protocole est à l’origine d’un état de déshydratation confirmé tant sur le plan biochimique que clinique. Les fonctions intestinales étudiées chez le rat privé d’eau sont :

1- La réactivité contractile duodénale, évaluée selon la technique classique d’organe isolé in vitro.
2- L’absorption et la sécrétion d’eau, d’électrolytes et de glucose, par la technique des flux jéjunaux déterminés sur une anse ligaturée et perfusée in situ.
3- L’activité des disaccharidases intestinales a été déterminée selon la méthode conventionnelle de Dalqhivist qui permet de quantifier l’activité lactasique, maltasique et saccharasique dans un homogénat de muqueuse prélevée par raclage du jéjunum (stripping).


Recent advances in genetic manipulation of the mouse genome have resulted in an increasing population of transgenic, targeted, and mutant mouse lines. Furthermore, with the completion of the HGP and the availability of the mouse genome sequence, there will be an extraordinary need for new rodent models to identify gene functions and to test new therapeutic strategies for human and animal disease. The availability of these research models has resulted in a tremendous requirement for the importation and exportation among many research institutions. To better facilitate the humane transfer of these animals and to protect our invaluable transgenic and mutant stocks, the NHGRI has refined protocols for receiving mice into a clean barrier facility. Additionally we have established cryopreservation protocols for protection in the event of a disaster, as well as, preserving important stocks for investigators who have completed present experimental analysis of the transgenic line but would like to maintain or store the line for future use. In our institute we are utilizing both frozen embryos and sperm to safeguard transgenic lines. Re-establishment of transgenic lines using frozen sperm necessitates the use of in vitro fertilization or intracytoplasmic sperm injection. Methods and considerations in establishing these programs will be discussed.

330. THE INVASION ROUTES OF NEUROVIRULENT A/HONG KONG/483/97 (H5N1) INFLUENZA VIRUS INTO THE CENTRAL NERVOUS SYSTEM AFTER RESPIRATORY INFECTION IN MICE. C. H. Park1, M. Ishinaka1, A. Takada1, H. Kida1, T. Kimura1, K. Ochiai1, T. Umemura1. 1Laboratories of Comparative Pathology. 2Microbiology, Graduate School of Veterinary Medicine, Hokkaido University, Sapporo, Japan. 3Division of Virology, Institute of Medical Science, University of Tokyo; Tokyo, Japan.

A/Hong Kong/483/97 (H5N1) influenza virus (HK483) isolated from the third patient during the outbreak of chicken and human influenza in Hong Kong in 1997 was shown to be neurovirulent in mice. HK483 was inoculated intranasally to mice, and the invasion routes of the virus in the central nervous system (CNS) were investigated by immunohistochemical and in situ hybridization. The pathological changes consisted of bronchopneumonia, ganglionitis, and nonpurulent encephalomyelitis of the brain stem and the anterior part of the thoracic cord. Viral antigens and viral nucleic acids (RNA and mRNA) were demonstrated in the pterygopalatine, trigeminal and superior ganglions prior to or simultaneously with their detection in the CNS. The antigens and nucleic acids were also observed in the olfactory bulb from an early stage of the infection. In the spinal cord, virus-infected cells were first demonstrated in the grey matter of the thoracic cord. The virus, which primarily replicated in the lungs, was considered to invade the thoracic cord via cardiopulmonary splanchnic nerves and sympathetic nerves. These findings indicate that the virus reached the CNS through afferent fibers of the olfactory, vagal, trigeminal, and sympathetic nerves following replication in the respiratory mucosa.
331. CHANGES IN THE LECTINHISTOCHEMICAL PATTERN IN THE VAGINA OF FEMALE MICE EXPERIMENTALLY INFECTED WITH *Tritrichomonas foetus*. C.G. Barbeito, C.E Monteavaro, P. Soto, H. Echevarría, M. Catena, E.L. Portiansky, E.J. Gimeno. Institute of Pathology, Veterinary School, UNLP, P.O.Box 296, 1900 La Plata, Argentina. Department of Histology and Embryology, Veterinary School, UNLP, P.O.Box 296, 1900 La Plata, Argentina. Laboratory of Clinical and Experimental Microbiology, Veterinary School, UNICEN, Tandil.

The tricomonanid are flagellated protozoa that can be found in wild and domestic animals. Among this family, parasites of the genus *Tritrichomonas* are important pathogens of domestic animals (Felleisen 1999). Bovine genital trichomoniasis (BGT) is a venereal disease caused by the *Tritrichomonas foetus* (*T. foetus*). It is characterised by endometritis, embryonic death and abortions, causing important economic losses (Rhyan et al. 1988, Rhyan et al. 1995). The pathogenesis of pregnancy loss in the BGT is not well understood. The protozoa live in the glandular lumen and is generally noninvasive at the epithelial surfaces (Corbeil and BonDurant 2001). The adhesion of the parasite to the vaginal epithelium could play an important role in the survival of the protozoa in the host. In vitro, *T. foetus* adheres to bovine vaginal epithelial cells (Singh et al. 1999). The carbohydrate residues of cell membrane of parasite and host are involved in this process (Felleisen 1999). In the last years susceptible laboratory animals have been used to analyse the pathogenesis of the disease (Van Andel et al. 1996, Mutwiri and Corbeil 1998). In the Laboratory of Clinical and Experimental Microbiology of the Veterinary School, UNICEN, Tandil, Argentina, an experimental model of non-estrogenized *T. foetus* infected BALB/c female mice was created (Monteavaro et al. 2000). In the present study, we used this latter model, to evaluate the carbohydrate expression in the vagina of normal and infected female, using lectin histochemistry (LHC). Female BALB/c 6-8 weeks old mice weighing approximately 20 g, maintained with 12 h light per day and 24°C were used. Eight animals showing colpocitological estrous were selected. Four of then were inoculated with a suspension of *T. Foetus* var. Belfast. All the animals were located with a male mice and sacrificed in day 9 of pregnancy. Sample of vagina were fixed in formaline, embedded in paraffin and cut at 5 µm. Slides were stained with H-E and PAS. The expression of glycoconjugates was examined using the LHC technique on non stained slides. The avidin-biotin peroxidase complex technique (ABC) was used with the following biotinylated lectins: jacalin (JAC), Glycine max (SBA), Ricinus communis-I (RCA-I), Concanavalia ensiformis (ConA), Dolichus biflorus (DBA), Triticum vulgaris (WGA), succinilated WGA (sWGA) and Arachis hypogaea (PNA) on paraffin sections. The lectin-binding pattern was characterised in the glandular epithelium. Positively stained cells showed a golden dark brown 3,3'-diaminobenzidine tetrahydrochloride-H₂O₂ reaction product The intensity of stain was determinate with a semi-quantitative criteria.

332. THE ROLE OF AUTOGENOUS FREE GREATER OMENTAL FAT IN EXPERIMENTAL BONE HEALING IN RABBIT, A PRELIMINARY SHORT TERM HISTOPATHOLOGIC STUDY. M.M. Oloumi, A. Derakhshanfar, M. Tayyebi. Faculty of Veterinary Medicine, Shahid Bahonar Univ. of Kerman, Kerman, IRAN.

The role of greater omental fat as a free non-vascularized flap is evaluated in bone healing. The study was carried out on 10 white Newzeland rabbits in the same condition. Following anesthesia and surgical
preparation, a 2 mm hole was drilled in medial cortex of both tibial diaphysis. A small piece of greater omental fat (about 3x3 mm.), was obtained through a small midline incision and put over the left tibial hole. All the incisions were closed routinely. The animals were sacrificed 14 days after operation and histopathologic sections were taken from the bones at the site of the holes (H&E staining).

Results: On treatment group (left tibia), the fat was changed to a dense soft tissue. Histopathologically, the soft tissue consisted of granulation tissue with severe angiogenesis and hemorrhage. Bone sections in treatment group showed mild hemorrhage with thickened granulation tissue, whereas, in control group hemorrhage and early granulation tissue could be seen. Conclusion: It seems that autogenous omental fat can augment bone healing by its angiogenic ability.

333. STUDING THE ELIMINATION OF PATHOGENIC AGENTS IN LABORATORIES ANIMALS DIET BY USE OF NUCLEAR TECHNIQUE G. Shahhosseini 1, S. Amanpour 2 M.K. Marashi, 1Animal Production and Health Section-Nuclear Agriculture Division- Nuclear Research Center for Agriculture and Medicine-Karaj- I.R.of IRAN. Reproduction and Breeding of Laboratory Animals Division - Razi Vaccine and Serum Research Institute- Karaj- I.R.of Iran

Laboratory animals are being used all around the world for different kinds of experiments in biological and medical sciences and related fields for the purposes such as prevention, control, diagnosis and treatment of various diseases in livestock,poultry, human, reproduction, breeding, etc. This is very important to keep in the breeding and reproduction enviroment of laboratory animals, pathogenic microorganisms as low as possible or completely remove them. The most prevailing and important way of such contamination is through feeding laboratory animals. In this research work, it is tried to use gamma radiation as a useful nuclear technique for decrease or resolve the problem. Two kinds of standard forms of diets consumed by rabbit and guinea pig in the form of small pellets and by mouse, rat and hamster in the form of big pellets (with different feed formula) and also two kinds of additive food i.e. dry milk and vitamin C have been examined. Unirradiated samples have been used for control. Total of 226 samples were irradiated, among which optimum doses were found 25 kilogray for both small and big pellets, 18 kilogray for dry milk. Since there was no contamination in vitamin C unirradiated samples, irradiation was done only to observe the effect of gamma radiation on vitamin C compounds.

334. ZEARALENONE INDUCES MICRONUCLEI IN MITE BOUE MARROW PREVENTION BY VITAMIN E. Z. Ouanes, R. Anane, S. Ablo, E.E. Crepy and H. Bacha 1Laboratoire de Recherche sur les Substances Biologiquement Compatibles (LRSBC), Faculté de Médecine Dentaire, Rue Avicenne, 5019 Monastir, Tunisia. 2Laboratoire de Toxicologie et d’Hygiène Appliquée, Faculté des Sciences Pharmaceutiques, Université Victor Segalen Bordeaux 2, 146, rue Léo-Saignat, 33076 Bordeaux, France.

Zearalenone (Zen) is a mycotoxin synthesized by several species of Fusarium. Zen is occurring on a worldwide basis in cereal grains, animal feeds and forages. Tunisia is concerned as well. Indeed, a screening of mycotoxins in animal feeds and human foods showed that Zen is present with other mycotoxins in large number of analyzed samples. Zen was considered to be of particular importance in animal health and reproductivity. In fact, Zen acts as non steroidal oestrogenic compound and causes reproductive disorders in ruminant and non-ruminant animals. Many surveys have shown that Zen
provokes in female animals anoestrus, decreased luteinising hormone and progesterone secretion and reduced embryonic survival. Whereas in males, it induces depression of serum testosterone levels and sperm counts. Moreover, it was reported to be hepatotoxic, nephrotoxic and disrupter of biochemical and haematological parameters. Controversial results were reported concerning genotoxicity of Zen. But current researches underlined the involvement of Zen in several genotoxic aspects. Indeed, Zen was found to induce the SOS repair system in lysogenic bacteria and to bind covalently to DNA (DNA-adducts). To consolidate the genotoxicity of Zen, we were interested on the mice bone marrow micronucleus assay. The frequencies of micronucleated polychromatic erythrocytes (MNPCE) were evaluated after treatment with 2%, 4% and 8% of lethal dose 50% (LD50%) of Zen by gavage route. These MNPCE incidences were significantly increased in a dose dependant manner comparing to the vehicle group (olive oil). In the same conditions, a group pretreated with a unique dose of vitamin E, then, 24 h later, treated with 8% of LD50% of Zen showed a significant decrease of MNPCE. Thus, Zen appears to be genotoxic; the processor behind may be either DNA breaks or mitotic disruption. Vitamin E can reverse partially genotoxic effects of Zen; this is may be due to its anti-oxidant proprieties and/or to its structural similarities with Zen. Key words: Zearalenone, Micronuclei, Genotoxicity, Prevention, Vitamin E.


La présente étude éthologique consiste d’une part à analyser puis décrire la séquence copulatoire chez des souris mâles et femelles et d’autre part à mettre en évidence le rôle des hormones sexuelles dans la correction du comportement sexuel. Ainsi, la première étape de ce travail est une étude de l’attractivité des mâles par des souris femelles à différents stades du cycle œstral. Ces mâles appartiennent à quatre lots différents : inexpérimentés, expérimentés, castrés puis castrés et soumis à un traitement hormonal. Elle sera suivie d’une description des phases de la séquence copulatoire des souris mâles en fonction de la présence ou de la privation de testostérone. La deuxième étape consiste à étudier les aspects comportementaux de souris femelles témoins, castrées et castrées traitées par l’œstradiol. L’analyse de la séquence copulatoire de la femelle a permis de mettre en évidence les deux composantes : proceptivité et réceptivité. En outre, l’effet global des œstrogènes sur le comportement proceptif et réceptif et les effets spécifiques de l’œstradiol ont pu être également analysés. En conclusion, cette étude a permis de confirmer à l’aide de méthodes d’observation et d’analyse quantitative de données recueillies- que la manifestation du comportement sexuel est dépendante de l’état hormonal de l’animal.

336. THE EFFECT OF ELECTROMAGNETIC FIELDS ON PAIN THRESHOLD IN MICE. M. Rahimnejad. Faculty of vet. medicine.Islamic Azad university,urumie, Iran.

In this study to find the effects of plused electromagnetic fields (PEMF)on pain threshold,20 mice (10 Male,10female)were examined for 5 times in the first test (control) phasic pain threshold of mice were determined by”Tail Immersion test” and time of” Tail Immersion latency”or” Til”. in the four later tests, all of the mice were exposed by for different frequency PEMF(50 Hz, 60 Hz, 5KHz, 5MHz) with duration one week between two tests and then, the effects of these fields on the phasic pain thershold were determined by”Tail Immersion test” and the results of these test were compared with the Control group.
Results were analysed by (T-test for paired samples) by "PASS" (statistical package for social science) showed a mean increase in pain threshold if mice were exposed by pulsed electromagnetic field with 60HZ frequency (p<0.05). In addition, "Tail-test for independent samples" showed that the sex of mice is not involve on the results in this study. According to the results show that pulsed electromagnetic field therapy is an effective method for pain relief. But can not clearly tell about mechanisms of action of PEMF and must be studied by further in future.

337. CONTRIBUTIONS OF DIADINAMIC AND FARADIC CURRENT ON THE NERVE REGENERATION: AN EXPERIMENTAL STUDY. O. Besalti, A. Ozak, H.O Sener, K. Pamuk, Z. Guleryuzlu, S. Uulkatan. Department of Surgery Faculty of Veterinary Medicine, Ankara University 06110 Ankara-Turkey.

The effects of diadinamic and faradic current on the nerve regeneration after the repair of sciatic nerve cuts were investigated clinically and electrophysiologically in rabbits. Thirty New Zealand rabbits in different sex and four month old are subjected in the study. Physiological nerve latency, nerve amplitude, muscle latency and muscle amplitude were determined in all rabbits preoperatively. The left sciatic nerve was cut 6 cm proximal to the bifurcation area and was repaired under operation microscope. The cases were allocated into faradic diadinamic and control groups in equal numbers. Physical therapy applications were carried out for 3 months at 15 day intervals and EMG (Electromyography) values were obtained at the end of each month. The physiological EMG values of sciatic nerve were statistically compared between groups, and initial EMG values to values of 1st, 2nd and 3rd months. In conclusion, it was observed that faradic current provided more positive progressions than the other groups.

338. CONTRIBUTIONS OF LASER IRRADATION TO THE REGENERATIONS OF SCIATIC NERVE INJURIES: AN EXPERIMENTAL STUDY. A. Ozak, O. Besalti, S. Uulkatan, Z. Guleryuzlu, K. Pamuk, H.O Sener. Department of Surgery Faculty of Veterinary Medicine, Ankara University, 06110 Ankara-Turkey.

The effects of GaAs laser irradiation on the nerve regeneration after the repair of sectioned sciatic nerve cuts were evaluated clinically and electrophysiologically. Twenty New Zealand rabbits in different sex and 4 month old were subjected in the study. The physiologic nerve latency, nerve amplitude, muscle latency and muscle amplitude were determined preoperatively in all rabbits. The left sciatic nerve was cut 6 cm proximal to the bifurcation area, and was repaired under operation microscope. Cases were equally allocated into control and laser groups. Control group received no therapy, while GaAs laser was applied on the repair site in the laser group. Laser applications continued for 3 months at 15 day intervals and EMG values were obtained at the end of each month. The physiological EMG values of sciatic nerve and the values obtained in the 1st, 2nd and 3rd months were compared between the two groups.

Ce travail a pour objectif d’étudier l’effet de la privation hydrique pendant un, deux et trois jours sur certains paramètres indicateurs de stress.

Les animaux sont des rats wistar, mâles et adultes de 250 grammes, élevés et nourris dans des conditions standards de laboratoire : la température de l’animalerie étant comprise entre 20 et 22°C. Les rats sont répartis en quatre lots (n = 12.) Un premier lot témoin (T), un deuxième lot, privé d’eau pendant 24h, un troisième lot, privé d’eau pendant 48heures et un 4ème lot privé d’eau pendant 72 heures.

Les paramètres évalués sont : le poids corporel, l’indice de consommation, certains paramètres plasmatiques (glucose, cortisol, prolactine et TNF). Les principaux résultats rapportés dans cette étude sont :
- Une diminution significative du poids corporel et de la consommation alimentaire enregistrée à partir du deuxième jour de privation hydrique,
- Une augmentation significative de la prolactinémie, alors que la cortisolémie reste constante.

Le TNF-et la prolactine semblent constituer des indicateurs plasmatiques fiables.

L’étude histologique a révélé des lésions non spécifiques de vasodilatation de la médullaire après un jour de privation hydrique relayée par une vasoconstriction permanente au cours du 2ème et 3ème jour d’expérience.

340. INFLUENCE OF ESTROGEN TO NEURONE’S MORPHOLOGY OF INDIVIDUAL PARTS OF BRAIN. J. M. Verica, ovi?i?,; D. Dijana jeli?; D. Dmitar. Faculty of veterinary medicine, Belgrade, 11000 ; Bulevar JA 18, Serbia.

Steroids, especially estradiol, are playing quite important part of activity and organisation in central nervous system (CNS). Facts about localisation of marked steroids (containing ?H etc.) in individual parts of brain are the results of experiments showing that steroids are getting accumulated, metabolised and aromatised in the neurones and the glia cells. Central nervous system is the most sensitive on external steroids during the neonatal part of its development. Final target of this work is to explore implanting of ?H-thy in cells of individual parts of brains of the rats who were treated with estradiol in neonatal part of their development. Wistar rats of both sexes are treated on the thirth day after they were born with 30µCi ?H-thy or with 30µCi ?H-thy and 1 mg of estradiol combined. Both groups are sacrificed on the 10th day after birth. Parts of brain which contain corpus amygdaloideum (AMY), gyres dentaty (GD) and ventricular zone (VZ), just like as subventricular zone (SVZ) of the lateral ventricul are fixed in Bouen’s fixative, fixed in paraffin and tested with help of autohistoradiography. Cross sections ov 5 µm are covered with emulsion (IL FORD L4) and held on temperature oh 4°C for six months. After development, preparations are coloured with hematoxilin. Dark granules are indicating to the places where is implanted ?H-thy (neurones and the glia cells).The width of zones which is taken by marked cells are analysed AMY, GD, VZ, and SVZ. Density of the granules in some cells worked as a parameter which gave conclusions about the replication of DNA- mitotic activity of the cells in the time of initiation of the hormones. Controlled rats males and females showed fact that the greatest number of neurones and the glia cells with implanted ?H-thy in ventricular zone and subventricular zone. There are less neurones in SVZ, GD and the least number of neurones in AMY. Density of these granules in individual cells is not uniformed what can have for a meaning a fact that the process of cell division is not finished. In all tested parts of brain of the animals treated by estradiol there is higher number of cells marked than controls, and the sequence of the sizes is the same. In GD the width of SGZ which are marked cells taking is much higher
than with controls. Cells containing dense capacity of granules are specially coloured in philogenetically older part of AMY. Also, there are differences between sexes in the number of marked cells and the density of the granules. Final results are discussed from aspect of possible influence of estradiol to the process of morphogenesis and neurogenesis with rats in neonatal part of their development.

341. THE INFLUENCE OF LEAD ON HISTOPHYSIOLOGICAL CHARACTERISTICS OF THE LIVER IN PRIMIPREGNANT RATS. M. Kadic¹, Z. Mornjakovic², L. Babic¹, M. Katica¹. ¹Veterinary Faculty, University of Sarajevo. ²Faculty of Medicine, University of Sarajevo, Bosnia-H.

It is well known fact that intake of lead via drinking water causes change in the structure and functioning of a number of organs. Under the conditions of intoxication, the liver has a great importance for its detoxication capacities. The aim of this work has been to investigate the influence of relatively low doses of lead on the structure of the liver in primipregnant rats with regard to the status of the animal being exposed to intoxication during pregnancy. The experiment involved primipregnant rats of Wistar race which were watered with de-ionized water (Pb: 0 mol dm⁻³ - control group) and primipregnant rats watered with lead-acetate solution (Pb: 0,0049 mol dm⁻³ - experimental group). Samples from both groups were analysed on day 21 of pregnancy.

Histological analysis proved that intake of lead via drinking water during the stated time of pregnancy resulted in the change of hepatocytes, vacuolation of cytoplasma, glycogen deficiency and areal degenerative changes. Other remarkable thing is the stimulation of Kupffer/s cells, a moderate dilatation of gall and venous blood vessels.

On the basis of the found changes it could be concluded that lead alternates morpho-physiological characteristics of the liver during pregnancy.
342. IMMobilisation of Three Adult Male red-capped Mangabeys (Cercocebus torquatus) A. O. Ajao, Z. J. Tooze. Cercopan, 4 Ishie Lane, Housing Estate Post Office, P. O. Box 826 Calabar, Cross River State, Nigeria.

Immobilisation of three adult male red-capped mangabeys (Cercocebus torquatus) is described. Three adult male red-capped mangabeys were immobilized with Intramuscular medetomidine as premedicant at a mean ± SD dose of 94.9 ± 3.9 μg/kg (range = 91.6 - 99.2 μg/kg) followed by intramuscular ketamine at a mean ± SD dose of 2.9 ± 1.0 mg/kg (range = 2.3 - 4.1 mg/kg). The effect of medetomidine was reversed with atipamezole at five times the dose of medetomidine given. In two cases atipamezole reversal was followed by the administration of intramuscular diazepam. Induction of immobilization was smooth and rapid and the immobilization produced was adequate for the procedure carried out. Recovery was of better quality in the animals that received low dose ketamine for induction and intramuscular diazepam after atipamezole reversal than in the animal that received a higher dose of ketamine without diazepam following atipamezole reversal. It is concluded that the immobilization protocol is suitable for short non-painful procedures in adult male red-capped mangabeys.


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Typically, aviculture of the Houbara bustard (Chlamydotis undulata) is based around artificial insemination of females and artificial incubation of eggs. Success rates under artificial incubation are not always as good as is expected (Hémon et al., 2000). The reasons why hatchability is poor are not clear although eggshell quality could be important. Houbara eggshells exhibit variability in the degree of pigmentation from almost white to dark brown, heavily spotted but how this affects ultrastructure is not known. In pheasants (Phasianus colchinus) colour of the eggshells is correlated with their ultrastructure (Richards & Deeming, 2001). Blue eggshells are significantly thinner and have ultrastructural defects compared with more typical olive green–brown shells. Blue eggs lose more water vapour under standard incubation conditions suitable for olive-brown eggs and hence have a significantly lower hatchability (Richards & Deeming, 2000). However, surface pigmentation of eggshells of the red-legged partridge (Alectoris rufa) do not correlate with the presence of shell accessory material (Fraser et al., 1999). Weight loss of Houbara (C. u. macqueenii) eggs incubated by females is higher than previously recorded in an incubator (Deeming & NWRC Unpublished data). This suggests that there is a change in the functional porosity of the eggshell during natural incubation. Natural increases in the porosity are known in several species (Deeming, 2002). Removal of shell accessory material (SAM) significantly increases water vapour conductance of eggshells of penguins (Handrich, 1989; Thompson & Goldie, 1990), the Mandarin duck (Baggott & Graeme-Cook, 2001), and some domestic poultry (Deeming, 1987). Other changes in water vapour conductance are associated with thinning of the eggshell by removal of calcium carbonate by the embryo (Booth & Seymour, 1987; Booth, 1989). It is unclear whether changes in weight loss in
Houbara eggs are related to abrasion of SAM during incubation in a sandy nest, or due to thinning of the eggshell. In this study, ultrastructure of Houbara eggshells was investigated in relation to 1) degree of pigmentation and water vapour conductance, and 2) effects of natural incubation on external structure.


Projects to rehabilitate confiscated animals must carefully consider the risks of disease when determining whether to release these animals back into the wild or to incorporate them into captive breeding programs. Avipox and paramyxovirus type 1 (PMV-1) infections are important causes of morbidity and mortality during the rehabilitation of confiscated houbara bustards (Chlamydotis undulata macqueenii). This paper presents key findings of an intensive health monitoring program (physical condition, hematology, serology, endoscopy, microbiology, virology) of two flocks of houbara bustards that survived outbreaks of septicemic avipox and PMV-1 respectively. Mortality in each flock from avipox and PMV-1 were 47% and 25% respectively, and the clínico-pathologic features and management of each outbreak are presented. Avipox and PMV-1 virus were not isolated from surviving birds monitored monthly for 11 mo after initial infection and neither were septicemic or diptheritic avipox and PMV-1 detected in the captive breeding collection into which surviving birds were ultimately integrated up to 24 mo later. Adenovirus was isolated from four birds during the study demonstrating that novel disease agents of uncertain pathogenicity may be latently carried and intermittently shed by confiscated birds. The management implications of the other monitoring results in relation to integration of rehabilitated birds into captive collections or release into free-living populations are.


The SAGIR network has been operating for over 15 years. Its main goals are to analyze the causes of mortality in wildlife, to determine the general health status of wild populations and to be a source of scientific work about wildlife pathology. The network is based on hunters and hunting federations, submitting the animals found dead to local veterinary diagnostic laboratories. Whenever poisoning is suspected, samples are send to the toxicology laboratory in the veterinary college of Lyon. The data presented herein cover the 1995-2001 period. The number of suspected poisoning cases has been increasing constantly over the period. The major species concerned are game species, but raptors and predators are more and more submitted to the network. Among raptors, buzzards account for more than 80%. The products incriminated are mostly insecticides such as cholinesterase inhibitors and anticoagulant rodenticides. Alpha-chloralose is also frequently encountered. Most cases occur after a “normal” use of a pesticide, but this may vary greatly. In predator species, illegal use of pesticides is more common, but the data may be biased. In criminal baits, cholinesterase inhibitors and chloralose are the major products found. In several mammal and bird species, specific poisoning cases are regularly recorded. An overview of the most common situations and accidents recorded will be presented.
In March 1999, as part of the implementation of the Action Plan for the recovery program of Sahelo-Saharan antelopes (Djerba Declaration, Tunisia, under the auspices of UNEP/CMS, 1998), fourteen scimitar-horned oryx (*Oryx dammah*) were sent from six participating European zoos to Sidi Toui National Park, in Southern Tunisia. Formerly widespread throughout the arid grassland of the Sahel, the scimitar-horned oryx wild population has declined rapidly due to over-hunting, habitat loss and competition with domestic livestock. The species is listed in CITES Appendix 1 since 1983 and has gained Extinct in the Wild (EW) status in the IUCN Red List of Threatened Species since 1999, which was confirmed in the year 2000 report. A captive-breeding program was started in the 1960s to contrast the species rapid decline, and its success is testified by the thousands of individuals now present worldwide. Veterinary monitoring represent an essential component of the multidisciplinary approach to re-introduction projects, primarily aiming at preventing disease transmission to and from the re-introduced animals and to safeguard animal welfare at any stage. The veterinary monitoring protocol established for the oryx re-introduction to Southern Tunisia in March 1999 comprised: a) a co-ordinated pre-export health assessment, b) health and welfare monitoring during transportation from Europe to Sidi Toui National Park, c) pre-release quarantine and acclimatisation period activities d) sedation and monitoring for translocation of animals to other parks and e) a post-release health check with immobilisation and examination of two individuals in May 2000.

La faune sauvage tunisienne est particulièrement riche en mammifères terrestres; la plupart d’entre eux sont représentés au Parc Zoologique de la Ville de Tunis. Dans le cadre du suivi vétérinaire quotidien de ces animaux, le recours à l’anesthésie est souvent une nécessité. Les divers protocoles anesthésiques mis en pratique au sein de ce parc depuis plus de dix ans sont ici exposés.

L’aspergillose est la plus fréquente des infestations mycosiques chez les oiseaux de cage et de volière. Elle s’installe à la faveur de la concomitance de mauvaises conditions hygiéniques et de facteurs de déficience organique. La difficulté du diagnostic clinique et surtout du traitement donne toute leur valeur aux mesures prophylactiques.
349. EVALUATION OF A VACCINATION PROGRAM FOR NEWCASTLE DISEASE IN A CAPTIVE FLOCK OF HOUBARA BUSTARD (Chlamydotis undulata undulata). C. Faccon¹, F. Lacroix¹, J-L. Guerin².

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Newcastle Disease caused by Paramyxovirus type 1 is a major infectious disease in the captive-breeding of *houbara bustard*. The classical vaccination regimen for Newcastle Disease prevention used at the Emirates Center for Wildlife Propagation (ECWP) is based on a live poultry PMV-1 vaccine (Hitchner B1 Nobilis, Intervet), administered by nasal instillation, biannually. Despite this regimen proved to be successful (No Newcastle Disease (case recorded in 6 years), it is reported in poultry that antibody titers decline quickly when sole use of Hitchner B1 as vaccine. A comparison between immunological responses in adult *houbara bustards* vaccinated with three different commercially available inactivated and live poultry PMV-1 vaccines is undertaken. Vaccines used are the following ones: Live vaccine Hitchner B1 Nobilis, Intervet, Live vaccine Clone 30 Nobilis, Intervet and Inactivated Vaccine Newcvac Nobilis, Intervet. The experimental population is composed of 180 (90-90) captive-produced birds previously vaccinated at one and two months old with Hitchner B1 and all aged between ten and twelve months. At booster vaccination, Birds are divided in three treatment groups of 30 males and 30 females; Each bird is blood sampled every 4 weeks and first egg (non inseminated) of new laying females is collected for antibody dosage.

350. PRÉSENTATION DU RÉSEAU SAGIR. Jean-Roch Gaillet. Direction des études et de la recherche (DER), Office National de la Chasse et de la Faune Sauvage (ONCFS) saint Benois, BP20, 78612, Le Pray En Yvelines Cedex, France.

Créé en 1986 par l’Office National de la Chasse (ONC) pour remplacer l’enquête sur la mortalité anormale du gibier initiée en 1972, le réseau SAGIR est un système de surveillance sanitaire de la faune sauvage nationale. Son premier objectif est de mettre en évidence les principales causes de mortalité de la faune sauvage afin de pouvoir proposer des mesures pour les éliminer ou pour réduire leur impact (aménagement du terrain, gestion des populations, recherche). Le réseau SAGIR débouche sur une meilleure connaissance de la pathologie de la faune sauvage et de son impact sur la dynamique des populations. Le réseau SAGIR est basé sur un partenariat entre l’ONCFS, l’Agence Française de Sécurité Sanitaire des Aliments (AFSSA) de Nancy, le laboratoire de toxicologie de l’Ecole Nationale Vétérinaire de Lyon (ENVL), d’autres laboratoires spécialisés, les Laboratoires Départementaux d’Analyses / Laboratoires Vétérinaires Départementaux (LDA/LVD) et les Fédérations Départementales de chasseurs (FDC). Les deux derniers intervenants forment le couple de base indispensable au fonctionnement de tout le réseau. Ces partenaires interviennent à différents stades du fonctionnement du réseau (Cf. graphique 1). En règle générale, ce sont les chasseurs ou les gardes nationaux de la chasse et de la faune sauvage qui signalent les animaux malades ou morts découverts sur le terrain. Dans chaque département, un correspondant SAGIR, nommé par le Directeur de l’ONCFS, est chargé de centraliser les prélèvements et de les amener au LD AILV D du département. Chaque prélèvement est identifié et accompagné d’une fiche SAGIR pré numérotée. Le LD AILV D effectue les analyses nécessaires pour identifier la (ou les) cause(s) de la mort ainsi que les pathologies présentes (autopsie, bactériologie, parasitologie) et en communique les résultats au correspondant et à l’AFSSA-Nancy, laboratoire responsable de la centralisation de toutes les données relatives à la pathologie de la faune sauvage. Si une intoxication est
suspectée, les LDAIL VD envoient le prélèvement au laboratoire de toxicologie de l’ENVL qui fait les recherches appropriées et adresse les résultats au LDAILVD, à l’AFSSA-Nancy et au correspondant SAGIR concerné. Il m va de même pour toute recherche complémentaire que le LDA/L VD ne peut pas réaliser lui-même. L’AFSSA-Nancy procède à une saisie informatique des résultats de toutes les analyses. L’exploitation de ces données permet de répondre à différentes questions (présence de telle maladie dans tel département par exemple) mais aussi de synthétiser les résultats dans des bilans SAGIR annuels. Cette information est ensuite diffusée aux SDG et aux FDC par l’ONCFS ainsi qu’aux autres partenaires (LDA/L VD, ENVL, autres laboratoires spécialisés et DSV) par l’AFSSA.

En cas de mortalités massives, le correspondant SAGIR prévient immédiatement par téléphone l’USF à l’ONCFS qui prend alors les mesures appropriées (prescription d’analyses spécifiques, envoi d’une mission sur le terrain). Cette procédure d’urgence se superpose à la procédure habituelle précédemment décrite. Sur le plan financier, le fonctionnement du réseau SAGIR est assuré par plusieurs mécanismes. Les analyses réalisées par les LDA/L VD sont actuellement prises en charge par les FDC. Dans quelques départements, elles sont de plus subventionnées par le Conseil Général. Les participations de l’AFSSA, du laboratoire de toxicologie de l’ENVL et de certains laboratoires spécialisés font l’objet de conventions d’assistance technique financées par l’ONCFS.

351. THE EMIRATES CENTER FOR WILDLIFE PROPAGATION: A COMPREHENSIVE STRATEGY TO SECURE SELF-SUSTAINING WILD POPULATIONS OF HOUBARA BUSTAID (Chlamydotis undulata undulata) LN EASTERN MOROCCO F. Lacroix, J. Seabury.

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Houbara bustard populations have drastically declined throughout their entire distribution range during recent decades. Over-hunting, poaching and severe habitat degradation are the main recognized factors for this decline. The Emirates Center for Wildlife Propagation project (ECWP) was initiated in 1995 by His Highness Sheikh Zayed bin Sultan Al Nahyan, President of the United Arab Emirates. with the aim of ensuring a self-sustaining use of Houbara bustard populations in Eastern Morocco, The project is based in Missour, Eastern Morocco and is managing on area of about 60 000 km². Four main objectives are considered: 1) To establish and conduct a self-sustaining captive-breeding programme of houbara bustard that can produce an annual surplus of birds for release back into different managed areas. 2) To undertake research on wild populations in order to determine the status, distribution and population trend of houbara bustard. 3) To identify habitat features important to houbara and to determine suitable areas for protection and as possible release sites. 4) To conduct a release and monitoring programme of captive-bred houbara. After 6 years, the ECWP is still a young project but it has already achieved significant progress in most of its programmes and has matured its strategy to become a coherent integrated project that represents a valuable example of a possible approach for a sustainable management of houbara bustard populations.

352. LEPTOSPIRA (Leptospira interrogans) IN FREE-LIVING PLATYPUS (Ornithorhynchus anatinus), L. Loewenstein.


A serological study for Leptospira antibodies was carried out on 21 platypuses captured between May and October 2001, in the Wollondilly river 200 km south of Sydney, NSW. Positive reactions, all to the L.
hardjo serovar, were seen in 14 (66%) of the captured animals with adult males showing a higher prevalence of antibodies compared with adult females. Domestic livestock, mostly cattle, may be the major source of Leptospira infection. These serological findings demonstrate that the animals are constantly exposed to infection with Leptospira in their environment. It is, however, not known if platypuses suffer from Leptospirosis or if they can act as a reservoir for the bacteria, keeping it in the environment and re-infecting livestock. The role of wildlife in the epidemiology of Leptospirosis remains to be elucidated.


Parasitic fauna infecting different species of Saudi wildlife have been reported in Saudi Arabia. Acquisition of parasitic infestation depends mainly on the management practices and the availability of the infective stages of different parasites in the environment. Many gastrointestinal helminthic, protozoan and external parasites have been detected in different gazelle species raised at King Khalid Wildlife Research Centre. Appropriate control measures were followed in order to minimise infections with such parasites. Different methods of parasite control have been evaluated under the KKWRC conditions.


The paper is summarizing the authors experience of using traditional arabic remedies and treatment procedures in arabian falconry. It is comparing the positive and negative effects of herbal and other natural remedies on falcons health and performance. The authors review the influence of modern veterinary establishments which number started to increase in the last 10 years in the region of Gulf countries as well as the differences in falcon species distribution used for traditional falconry and the changes of falcons morbidity from the point of view of introducing new diagnostic techniques. Finally the authors discuss the role of veterinary medicine in modern captive management of falcons and the problems associated with increased numbers of captive brading projects in hot, desert-like climate condition in the Middle East.

355. VETERINARY MANAGEMENT OF THE "SEMI-FREE" RANGING POPULATION OF ARABIAN ORYX AND GAZELLES SPECIES IN UNITED ARAB EMIRATES. L. Molnar, P. McKinney. Dubai Falcon Hospital, Wild Life Protection Office, United Arab Emirates.

The mixed population of 72 Arabian oryx and different Arabian gazelles species were reintroduced in 25 square km desert environment creating Al Maha Desert Eco-Tourist Resort in 1998. At the present time the population of oryx reached the number of 155 individuals in the same area. The paper summarizes the veterinary aspects and clinical cases during creating a new population of Arabian oryx with a limited
human influence. Discussed topics are related to capture, translocation, chemical immobilization, daily routine management, feeding, seasonal fighting and inbreeding of a mentioned population. The newly created eco-tourist resort should provide a model for promoting the endogenous wild life species and possible future reintroduction in their native desert environment.


Excessive hunting has had a direct impact on wildlife populations in Saudi Arabia; some species are extinct as a result. Overgrazing is an additional factor that resulted indirectly in depletion of the natural habitats of the country. The National Commission for Wildlife Conservation and Development was established in 1986 in order to implement conservation programmes for protecting fauna and flora in Saudi Arabia. The King Khalid Wildlife Research Centre holds sizeable herds of gazelles, which are indigenous to the Kingdom of Saudi Arabia. These gazelles are managed and maintained at KKWRC for research and reintroduction purposes. Two successful reintroduction programmes for the Arabian Mountain (Gazella gazella) and Sand (Gazella subgutturosa marica) gazelles had been performed in the Ibex Reserve (Mountain gazelle) and the Empty Quarter (Sand and Mountain gazelles). Released gazelles have been monitored after reintroduction.

357. INVESTIGATION OF DISEASES IN YOUNG RACING PIGEONS. F.T. Scullion, M.G. Scullion. 16, Cranlome Road, Ballygawley, Dungannon, Co. Tyrone, N. Ireland. BT702HS.

There are over 2,100 pigeon fanciers in N. Ireland with approximately 30,000 racing pigeons. Historically, the sport has had little veterinary intervention. Fanciers rely heavily on various concoctions of routine treatments and antibiotics obtained principally by mail order from overseas. In recent years there have been increased lasses of young birds, up to 90% in some cases. Traditionally, young pigeons are known to suffer from a variety of disease conditions including, trichomoniasis, capillariasis, coccocidiosis, colibacillosis, paramyxovirus infection, chlamydiosis and salmonellosis. Recently megabacteriosis, adenovirus and circovirus infections have also been identified during routine pathology in some young birds. In the owner’s hands an ill defined ”young bird sickness” is the standard pigeon fancier’s diagnosis for what may be a multifactorial entity. This study involves the investigation of management, husbandry and disease problems in lofts where young pigeons are experiencing disease problems.


The Houbara bustard, a cursorial medium-sized bird, inhabits undulating, flat arid plains, steppe habitats, and semi-deserts, often with little Gaver except for open or scattered desert shrubs. Within its range, from the Gobi desert to the Nile Valley, annual rainfall rarely exceeds 200mm. Because of marked population
declines of Houbara in Arabia related to overhunting, a captive-breeding programme was initiated in 1986 at the National Wildlife Research Center, Taif, Saudi Arabia, with the purpose of reintroducing this species into its former habitat. I monitored the growth until 45 days of age of two cohorts of 84 and 284 chicks respectively hatched in 2000 and in 2001. At hatching Houbara chicks are nidifugous. Female parents intermittently brood chicks during the first 24 hours, and feed them bill-to-bill. When five to six day-old, the chick starts to feed independently. In this study, chicks were transferred from an incubation room to a rearing unit within 24 hours of hatching. At entry to rearing unit, body mass of chicks ranged from 26.7g to 46g in 2000, and from 26.6g to 49.2g in 2001. In healthy individuals, from hatch to about ten days of age, body mass increased as: Body mass day n = (Body mass day (n-1)). (1 +daily growth rate) where daily growth rate is the body mass gain from dayn-1 to dayn divided by the body mass at dayn-1. The daily growth rate (DGR) is related to the period from the lowest body mass (one-way analysis of variance, P=0). The lowest body mass was usually achieved one day after entry into the rearing unit when chicks were one day of age. From the time when chicks weighed the least up to six days after, daily growth rate increased according to DGR=0.029+0.016dayn from lowest body mass (r2=0.42, P=0.001). Later, up to 45 days of age, the body mass increased according to a linear regression versus the age (P=0.001) in both sexes. The mean daily growth rate during the seven days after the lowest body mass (MDGR7) is the daily body mass gain during the week from the lowest body mass calculated proportionally to the lowest body mass based on: Body mass 7 days after lowest body mass = (Lowest body mass). (1+MDGR7)/7.

359. BRUCELLOSIS AND PARATUBERCULOSIS IN A NUBIAN IBEX (Capra ibex nubiana) A CASE REPORT. A.M.M. Wazed, P.A. Mckinne. Wildlife Protection Office, P.O. Box 27942, Dubai, U.A.E.

Five Nubian Ibex were kept with 18 goats in a private collection for a period of about 7 months. All animals were tested for brucellosis (RBT) in 2000. Three serologically positive animals were culled and the rest (goats & Ibex) were vaccinated against brucellosis (B-19 strain), clostridiosis, mycoplasmosis and pasteurellosis. About 20 months after vaccination, a 5-year old male Nubian Ibex was selected from this herd because it was emaciated and serological positive for brucellosis. The Nubian Ibex was sent for investigation to the CVRL, Dubai. During detailed necropsy, samples for routine histopathology, bacteriology and parasitology were taken. The carcass of the male Nubian Ibex showed moderate body condition (43 kg). The outside adspection revealed some ticks around the navel and swollen body lymph nodes, carpal joints and testis. Both testis contained yellowish pus-like mass and both carpal joints showed chronic proliferative arthritis. In the small intestine, mildly thickened mucosa was found. Histology revealed focal proliferative enteritis with macrophages containing numerous acid-fast rods. Other locations showed marked coccidiosis with eosinophilic enteritis. Subacute proliferative and suppurative arthritis in the carpal joints and large, central necrotic abscesses with calcifications in both testis were found. Microbiological investigation revealed numerous Clostridium perfringens in the intestine. Brucella melitensis biovar 3 was isolated from testis and the carpal joints. All parenchymatous organs were sterile and the intestine was free of salmonella spp. Numerous coccidia oocyst were found in the faecel sample.

Samples of scruffy skins of animals with typical mycosis were submitted to a microbiological evaluation at the Mycology Laboratory of the UFRRJ Veterinary Institute. The evaluation constituted on direct microscopy of NaOH treated samples, selective isolation in agar for pathogenic fungi and Sabouraud-agar added of penicillin, followed by differential biochemical tests to confirm specific characteristics related to the classical taxonomy of the fungi. Of the total of 1,315 materials examined in the period from 1995 to 2000, 450 samples (34.22%) were considered negative presenting negative results for both direct microscopy and positive growth in culture media. There were 865 positive samples from which the group of Dermatophytes were most prevalent. It was isolated and characterized 299 Dermatophytes (22.73%); 212 samples Microsporum canis (16.12%); 43, Microsporum gypseum (3.26%); 33, Trichophyton sp (2.50%) and 11, Microsporum nanum (0.83%). Amongst the non dermatophites fungi, the most isolated were Cladosporium sp (163 samples or 12.39%); Aspergillus sp (68 samples or 5.17%); Malassezia pachydermatis (46 samples or 3.49%); Scopulariopsis sp and Sporothrix schenckii (42 samples each, representing 3.19% of all samples) and, Penicillium sp (2.43%). The keratonophilic fungi prevailed, as it should be expected; however a great number of Cladosporium sp. had been observed leading the veterinary prescription of fungicide. In all these cases, it was observed a decrease in the lesions, which tended to disappear, suggesting they were resulted from the pathogenesis of these organisms. The negative isolation of very suggestive mycosis strongly support the need of additional microbiological analysis.


In the paper the results of serological, bacteriological and pathohistological findings for brucellosis in wild and domestic swine held on pastures is the two regions of Croatia are presented. In the region of Djakovo the blood samples of 211 wild boars were analysed and in 29.4% of animal positive reactions were established. In the same region the blood samples of 1080 domestic swine held on pastures were analysed and positive reaction established in 12.3% of swine.

In the regions surrounding Lonjsko Polje the blood samples of 53 wild boars were analysed and positive serological reactions were analysed and positive serological reactions were demonstrated in 22.6% of swine. In the places around Lonjsko Polje the blood samples of 901 swine were serologically analysed and positive reaction established in 13.5% of domestic swine. The delivered materials of wild and domestic swine were analysed bacteriologically and Brucella suis biovar 2 isolated.

On the basis of our investigations it can be concluded that on the territory of Croatia there is a prevalence of Brucella suis biovar 2 in swine, that wild boars are the carriers and reservoirs of Brucella suis biovar 2 and that brucellosis in swine held extensively occurs rather frequently.

362. GLOBAL CHANGE AND VECTORIAL EMERGING DISEASES : ORIGINAL APPROCHES AND EXTENDED PARTNERSHIP TO FACE A SERIOUS PROBLEM. S. De La Rocque, J. Domenech. TA 30/B, Campus International de Baillarguet, 34398 Montpellier Cedex 5, France.

Over the past few years, several infectious diseases affecting animals and/or humans have emerged in regions far from their traditional endemic areas. At the same time, some critical vectorial diseases are in extension or intensification in tropical countries. These emerging dynamics can be regarded as
consequences of global change and modifications in ecosystems condition. Changes in the distribution and abundance of insects are likely to be amongst the most important and immediate effects of climate change. Locally, human growing populations, evolution in agricultural practices, land use and new activities change the landscapes and insects’ habitats and affect the epidemiological patterns. Opening up of borders, liberalisation of exchanges and an increase in contacts and movements of humans and animals for commerce and tourism break down the ecological, physical and regulatory barriers which had limited the spread of pathogens. Finally, in some countries, the lack of high-performance epidemiological surveillance structures, the degradation of research and health systems considerably increases the risks of introducing or spreading these diseases in naïve countries. Some example on actual emerging diseases (Bluetongue, West Nile Fever, Rift Valley Fever) are presented to illustrate the main topics of current researches conducted on introduction ways, amplification processes and implantation of exotic pathogens and vectors. Innovative tools (GIS, models, remote sensing data), multidisciplinary and integrated approach, co-ordinated international collaborations are deployed to inventory the most likely hot-spots, propose predictive scenario and promote surveillance and early warning tools. Recently proposed at the EU, the EDEN (Emerging Disease European Network) integrated project gathers the main partners in North and South countries to face this new challenge.

363. CONDITION OF DIFFERENT VIEWS OF ENVIRONMENT PROTECTION AND ITS INFLUENCE ON ANIMAL AND AGRICULTURE PRODUCTION. S. Seric, Z. Mehmedbasic, K. Caklovica, S. Masle, Popovic, A. Veterinary Faculty of Sarajevo University Ecology team of ASVF, Bosnia H.

Goal of our project was to visit villages around the Sarajevo which were destructed during the war events and collect data about environmental protection, which is directly connected with animal and agriculture production in these villages in the period of repatriation. During this visits we established facts about number and breeding of animals and also we took samples of water, soil, animal excrements, milk and milk products for further analysis. Beside that, we interviewed farmers regarding two aspects; first group of questions were about ecological situation of this region, and the other group were about animal and agriculture production. Samples of drinking water were analyzed considering presence of saprophyte and pathogenic microorganisms. At the same way we analyzed milk and milk products, cause theirs hygiene status as animal products is in direct relationship with ecological situation of the region. Soil samples were analyzed in radiobiological and parasitological laboratories, because they have consequences on animal and agriculture production same as on it(s products. Also parasitological analyses of animal excrement’s were done, regarding contamination of soil with certain developing forms of parasites, and it(s influence on animals.

364. FROM PIG FARMS AS AN AIR POLLUANT. M. Vucemilo, A. Tofant, S. Hadina, K. Matkovic, Z. Pavicic. Department of Animal Hygiene, Environment and Ethology Faculty of Veterinary Medicine, University of Zagreb, Heinzelova 55, 10 000 Zagreb, Croatia.

Pollution of the air by animal production can be defined as the unacceptable effect when large number of animals are kept on the limited area. Because of that it comes to the formation of odours, which spread over long distances. Odour mixtures vary with location, size, type of housing, production, practices, season, temperature and wind speed. Odours from livestock farms become more intensive and increase in
size. In some lands they are limited factors of animal housing. Traditional waste management system, involving the composting of faeces and urine from housed animals with large amount of straw are relatively less odours than semi-liquid slurries. In this respect, pig farms raise serious problems as to the spreading of slurries to the neighboring land. Livestock waste odour originates from a series of evaporable compounds which are formed by breaking down of plant fibre and protein. The most represented parts are indole, skatol, cresol, phenol, volatile fatty acids and ammonia. In this study the strategies for reduction of odour have been reported.
Since the first successful deep-freezing of bull semen by E J C Polge FRS, and the development of embryo transfer in cattle and sheep by L E A Rowson FRS and R M Moor FRS, all at The Animal Research Station in Cambridge in the 1950’s and 1960’s, developments and applications of other modern breeding technologies to ruminants, pigs and humans have moved on apace during the intervening half century. From superovulation studies with equine Chorionic Gonadotrophin (eCG; formerly known as Pregnant Mare Serum Gonadotrophin, PMSG) and a range of pituitary gonadotrophin extracts; through accurate synchronisation of ovulation in donors and recipients using prostaglandin F analogues and/or a wide range of oral, subdermal or intravaginally administered synthetic progestagens; to the rabbit or sheep oviduct, the polystyrene insulated box, the portable 37°C incubator or the liquid nitrogen tank for the storage and transport of embryos; to S M Willedsen’s dissection of 4-8 cell embryos for the production of demi-embryos and afterwards to the bisection of morulae or early blastocysts for the production of multiple monozygotic genetically identical offspring; to successful in vitro fertilisation (IVF) followed by in vitro production of viable blastocysts from abattoir-harvested oocytes; and on more recently to the application of intracytoplasmic sperm injection (ICSI) to achieve this objective; to use of the turbo-driven fluorescence-activated cell sorter (FACS) to give remarkably accurate separation of mammalian semen into X- and Y-chromosome bearing populations of spermatozoa for sex selection at the time of fertilisation; and finally to the production of DOLLY by I Wilmut and his colleagues in Edinburgh and to rapid development of cloning techniques that has followed this remarkable breakthrough. Yes, progress in the past 50 years has been fast, furious and exciting in these and the laboratory species. Advancement in the application of modern breeding technologies to the horse has been more moderate but is at last gaining pace. Artificial insemination with fresh, cooled or frozen-thawed semen is now practised worldwide in all but the Thoroughbred breed; seasonal anoestrus can be overcome and ovulation can be synchronised accurately in groups of donor and recipient mares to aid an increasing application of embryo transfer; superovulation can, after all, be achieved in donor mares by aggressive treatment with equine pituitary gonadotrophin extracts; embryo freezing is possible but is limited by difficulty in the recovery of early stage embryos; IVF also remains difficult although transvaginal ultrasound-guided oocyte recovery and ICSI can be used to replace it; videoendoscopic uterotubal insemination with as few as 1 million spermatozoa enables the practical application of sex-sorted stallion spermatozoa to determine the sex of the foal at the time of fertilisation; and gamete intrafallopian transfer (GIFT) is another practical alternative to IVF. Cloning has not yet been achieved in the horse and it remains a highly sought after goal, with many exciting future applications, in this most noble and elegant of domestic species.
California rabbits and ten fat tailed ewes were superovulated by injecting 70-80 and 1200-1400 IU of eCG to the rabbit donors and sheep respectively. These donors mated by fertile males. The collection of embryos was done surgically and tried on day 3-4 and 6-7 after mating in rabbit and sheep respectively. Ovulation, embryo recovery, and fertilization rates were 27, 83.2%, 99.6%, and 4.7, 80.8%, 97.3% in rabbit and sheep respectively. Fifty-one rabbits and 12 sheep good embryos were transferred; surgically to seven and six recipients of rabbit and sheep respectively. The conception rate in rabbit was 71.4% white in sheep was 66.6%. Three rabbits gave birth 27 days after transfer. Depending on those results that we have achieved in this study we can tell that is possible to develop effective methods of multiple ovulation and embryo transfer (MOTE) for the rapid building up in numbers of sheep carrying particular desired and heritable characteristics.

367. TRANSMISSION DU VIRUS DE L’ARTHRITE ENCEPHALITE CAPRINE (CAEV) in vitro PAR LES CELLULES EMBRYONNAIRES PRÉCOCES ISSUES D’EMBRYONS CAPRINS PRODUITS in vivo. A. Lamara1, F. Fieni1, L. Mselli-Lakhal2, G. Chatagnon1, JF. Bruyas1, I. Battut1, D. Tainturier1, C. Fornazero2, Y. Chebloune2. 1Laboratoire d’Etude des Risques Sanitaires liés aux Biotechnologies de la Reproduction, Ecole Nationale Vétérinaire de Nantes, Atlanpole-La Chantrerie, BP 40706 44307 Nantes Cedex, France. 2Virologie Cellulaire, Moléculaire et Maladies Emergentes, UMR INRA/ENVL/UCBL, Ecole Nationale Vétérinaire de Lyon, 1, Av. Bourgelat, B.P. 83, Marcy l’Etiole, France.

The aim of this study was to investigate whether cells of early goat embryos isolated from in vivo-fertilized goats interact with the caprine arthritis-encephalitis virus (CAEV) in vitro and whether the embryonic zona pellucida (ZP) protects early embryo cells from CAEV infection. Zona pellucida-free and ZP-intact 8 to 16 cell embryos were inoculated for 2 h with CAEV at the 10⁴ tissue culture infectious dose 50 (TCID₅₀)/mL. Infected embryos were incubated for 72 h over feeder monolayer containing caprine oviduct epithelial cells (COEC) and CAEV indicator goat synovial membrane (GSM) cells. Noninoculated ZP-free and ZP-intact embryos were submitted to similar treatments and used as controls. Six days postinoculation, infectious virus assay of the wash fluids of inoculated early goat embryos showed typical CAEV-induced cytopathic effects (CPE) on indicator GSM monolayers, with fluids of the first two washes only. The mixed cell monolayer (COEC+GSM) used as feeder cells for CAEV inoculated ZP-free embryos showed CPE. In contrast, none of the feeder monolayers, used for culture of CAEV inoculated ZP-intact embryos or the noninoculated controls, developed any CPE. CAEV exposure apparently did not interfere with development of ZP-free embryos in vitro during the 72 h study period when compared with untreated controls (34.6% and 36% blastocysts respectively, P>0.05). From these results one can conclude that the transmission of infectious molecularly cloned CAEV-pBSCA (plasmid binding site CAEV) by embryonic cells from in vivo produced embryos at the 8 to 16 cell stages is possible with ZP-free embryos. The absence of interactions between ZP-intact embryos and CAEV in vitro suggests that the ZP is an efficient protective embryo barrier.
Le Nord-est du Brésil est la région la plus aride et sèche du Pays. Dans cette région il y a 92% des troupeaux caprin du Brésil. Les systèmes de production caprine mixte lait et viande, deux méthodes de reproduction sont associées: la reproduction naturelle qui est la plus répandue, et l’insémination artificielle qui n’est utilisée actuellement que dans le système laitier intensif brésilien. La maîtrise de la reproduction par insémination artificielle très nécessaire dans tous les schémas de sélection est aussi une technique indispensable pour la maîtrise des risques sanitaires en élevages. Les males pour leur aptitude à produire de la semence au vagin artificielle pour les programmes d’insémination artificielle, sont maintenant très utilisés. Ces programmes de reproduction ont augmenté la production laitière des chèvres natives de 500 grammes du lait par jour pour 1.000 grammes par jour. Les races responsables de cette augmentation sont: Anglo-Nubienne, Murciano-Granadina, Parda Alpine et Toggemburg. Les chèvres ont été synchronisées par la mise en place d’une éponge vaginale imprégnée avec 50 mg d’une analogue de la progestérone (Acétate de médroxi-progestérone – MAP), qui est restée dans les vagins des femelles onze jours. Au neuvième jour ont été appliqué par voie intra-musculaire 200 U.I. d’e.C.G. (Gonadotropine Chorionique équine) qui présente une activité F.S.H et L.H., permet de stimuler la croissance folliculaire. L’injection, au même moment d’une prostaglandine synthétique (50mg de Cloprostenol) provoque la luteolyse chez les femelles qui présentent un corps jaune fonctionne en fin de traitement. Les chèvres ont été inséminées une seule fois par voie cervicale 38 à 40 heures après le retrait de l’éponge vaginale. Les résultats d’insémination artificielle sont en moyenne de 60% de taux de mise-bas et 180% de prolificité. La semence diluée à base d’eau de coco avec une concentration de 200x10^6 spérmatozoïdes par dose. La méthode de reproduction par insémination artificielle décrite ci-dessous n’est pas montrer des différences inter-troupeaux avec la semence des reproducteurs des races décrites avant. Nous avons un bilan de 680 chèvres inséminées de la façon suivante: 174 femelles avec la semence des boucs de la race Murciano-Granadina, 255 femelles de la race Saanen et 247 femelles de la race Parda Alpine. Les résultats du transfert embryonnaire, après les traitements des donneuses avec 16 mg de FSHp ont montré une fertilité de 55% avec une moyenne de 10 embryons récoltés par chèvre. Les méthodes et techniques qui ont contribuées à une amélioration des programmes d’insémination artificielle et transfert embryonnaire dans le Nord-est du Brésil, ont permis acquérir de nouvelles stratégies de reproduction pour les éleveurs de chèvres dans la région la plus aride du Brésil.
centres may be done with less sanitary risks. The Churra breed is a Spanish ovine breed which produces mainly milk but also meat lambs. The association of Churra sheep breeders and the University of León (Spain) have carried out an embryo transfer program (recovery and transfer of fresh or frozen-thawed embryos). The present work shows the results obtained in the preliminary assays before the start of the ET program of the genetic selection scheme of the Churra breed. A total of 147 Churra breed ewes was synchronized and treated with FSH to induce a superovulation, from which 70% (103 ewes) had a good response to superovulation (>5 corpora lutea). We obtained a mean of 12.8 corpora lutea per donor ewe, with values ranging from 5.0 to 16.7 CL/ewe depending on the superovulation protocol used. The best protocols were those in which 8 decreasing doses of FSH were applied during 4 days prior to sponge withdrawal. A total of 484 embryos was obtained, which is a mean of 4.7 embryos per ewe. The embryos were directly transferred (fresh transfer) or were frozen in a programmable biofreezer and thawed at the moment of transfer. We made a total of 195 transfers, with a mean of 1.66 embryos transferred per recipient. The mean fertility rate was 47.9% for fresh transfers and 25.0% for frozen-thawed embryos, values slightly lower to that obtained in artificial insemination in this breed. The mean number of lambs born per ewe was 1.41 (1.42 for fresh embryos and 1.40 for frozen-thawed embryos).

370. TEAT TIP RECONSTRUCTION BY SUPRANUMERARY TEAT AUTOTRANSPLANTATION IN CATTLE: SONOGRAPHIC STUDY. S. Saifzadeh, F. F. Ardebili, J. Farid, Department of Clinical Sciences, College of Veterinary Medicine, Box 1177, Urmia University, Urmia, Iran.

Teat lacerations in dairy cattle, specially those that involve the sphincter and streak canal, are an important economic concern of owners. The purpose of this study was to introduce a salvage procedure for reconstruction of irreversibly damaged teat sphincter in cattle. Five healthy dry cattle having either one or two supranumerary teats were used in this experimental study. The teat adjacent to each supranumerary teat was examined with an 8 MHz linear array transducer in both the vertical and horizontal plans for measuring the dimensions of teat cistem and canal. The teat tip is resected at the junction of cistem and canal. The supranumerary teat partially resected about its base to maintain its vascular supply. An end-to-end anastomosis was performed and all layers were apposed carefully. The remaining attachment of the supranumerary teat was amputated after 14 days in 2 stages of 3-day intervals. Teat ultrasonography was performed weekly, for one month. No remarkable stenosis was detected in teat cistems at the site of anastomosis. Patency of all reconstructed teats was also examined by placing metal teat cannulas. None of the cattle developed mastitis. Although this method requires additional investigations; in cattle with supranumerary teat(s), irreversible damage to the teat tip may be repaired by autotransplantation of the supranumerary teat.


Reproductive Biotechnologies have all the same objective: transfer germplasm from one individual to another. They comprise four consecutive generations: (1) Artificial Insemination, (2) embryo transfer, (3) In Vitro Fertilization and finally (4) nuclear transfer and transgenesis. The three first have been implemented in the field for several decades and on a large scale, worldwide, the last generation is still
used for experimental purposes (besides bio-pharming not dealt specifically here with). Each of those technologies has the potential to transmit infectious agents to the recipient animals and thus generate diseases in the farms, zones or countries concerned. Identifications of the risks are clearly established for the first three generations and primarily deal with animal health. New types of risks may potentially be identified for the latter generation and must deserve great attention. These are related to public health, possibly associated to contamination of animal or animal products deriving from those newest technologies and entering the food chain. It cannot be totally excluded at this stage (although nothing allows one to confirm such a hypothesis) that cytoplasm-nucleus or genes interaction after manipulation of the genome for such embryos, do not modify some nutritive characteristics, on the nutritional, infectious or allergenic levels of those. The risk analysis has been made for over 50 years as far as the first generation is concerned, and for a few decades for the two others. They allow us to draw some objective elements of control and management of those risks. Several general rules have been identified: each generation has its own characteristics and specific means of management of the risks; the means of one of those generations does not necessarily apply to the others. For a given generation of Reproductive Biotechnologies, the interaction between a pathogen and gametes or embryos cannot be extrapolated from one species to another. In the particular case of transgenesis, the analysis of the transgenote should always be made on a case by case scenario. Based on sound scientific data, regulations issued from recommendations of International Organizations such as OIE, or laws such as those from the European Union or other domestic administrations all contribute to enhance free trade of germplasm worldwide without risks to the importing zones or countries. Some recent examples such as BSE, scrapie or other diseases demonstrate that a still stronger effort is to be made to convince some administrations to draw sound conclusions from scientific data well established. This is the proper basis of the use of the risk analysis that is recognized in the international bodies of trade such as WTO (World Trade Organization). Experience gained worldwide from the use on a large scale of the first generations of Reproductive Biotechnologies in livestock has demonstrated the high level of safety when regulations in place are strictly followed. It is the general responsibility of the whole veterinarian community and of all its stakeholders that so it is.


Le diagnostic précoce de la gestation chez la chienne peut être établi en dosant la relaxine, une hormone sécrétée par le placenta, par un test E.L.I.S.A rapide. Chez 23 chiennes saillies ou inséminées après un suivi de chaleurs, la présence de relaxine dans le plasma a été mise en évidence chez 17 d; entre elles dès le 21ème ou 22ème jour st1.ivant la dernière saillie ou insémination présumée fécondante, les 6 autres étaient vides. Chez 3 chiennes gestantes, qui étaient de grande taille, les vésicules embryonnaires I’ulat l’S pu être mise en évidence le 21ème jour par échotomographie, alors que la présence de relaxine était décelée. Le taux de cette hormone chute brutalement le jour de la mise bas, mais est toujours présente dans le plasma le 3ème jour post-partum.

Ovarian status at 8 months of age, attainment of puberty, fertility and size after natural or hormonally induced early breeding and also at an adult age were compared for Queue fine de l’ouest (QFO) ewes and their D’Man x QFO contemporaries. At 8 months of age, the Percentages of ewe lambs cycling as indicated by the presence of corpora lutea were 91.6 and 20 p100 for the D’Man x QFO genotype and the QFO breed respectively (p<0.001). In a second trial, the cumulative percentage of ewe lambs ovulating at least once up to 10 months of age were 54.5 and only 5.2p100 for the D’Man x QFO genotype and the QFO breed respectively (p<0.01). Breed of sheep has the most significant effect (p<0.001) on fertility following. Natural early breeding of ewe lambs with values of 83.3 and 33.3p100 for animals of the D’Man x QFO genotype and the QFO breed respectively, after a hormonally induced early breeding (progestagen impregnated vaginal sponges +200 or 400 I.U.PMSG), breed had a significant effect on fertility, with lambing rates of 93.2p100 and 65.9p100 for ewes of the D’Man x QFO and QFO breeds, respectively (p<0.001). Though not significant, ewe lambs of both breeds receiving 400 I.U. PMSG produced 16p100 more lambs than those treated with the lower dose of 200I.U. PMSG, ewe lambs of the D’Man x QFO breed tended to yield a higher litter size than their QFO contemporaries (1.19±0.40 vs.1.06±0.26). For animals of the two breeds after natural mating at either 18 or 30 months of age, lamb production increased by 0.29 lambs per ewe lambing in D’Man x QFO ewes as compared with QFO. It is concluded that crossing with D’Man improves reproductive performances of the native QFO ewes under semi-arid, gazing systems and that hormonally treated ewe lambs of the D’Man x QFO breed, under the same conditions, are likely to achieve more satisfactory conception rates than the autochthonous QFO ones.


Consequences of stress may lead to a loss of yield or/and various infections. Veal calves are submitted to various stressors resulting in losses in quantity/quality of the meat. Both arrival at the fattener’s and the last weeks before slaughter are crucial points. To assess effect of the Bovine Appeasing Pheromone (BAP) on veal calves, we included animals fattened from two separate farms. Calves are transported to the sorting center where they are weighed, graded, purchased and sorted out. After a fattening period, calves are transported where they have to wait before stunning. Two groups are created in both farm (A: treated with BAP vs B: placebo treatment) from 662 veal calves (90% males and 95% calves of mixed breeds). Treatments have been reversed during the following batch of animals (cross-over test). Administering of BAP during the first 8 weeks and the last two weeks of a 21-weeks fattening period gives interesting results. Veterinary expenses are lower in group A, respectively (in US D), 2.62 vs 2.76 and 4.91 vs 6.40, with a mean of 3.52 vs 4.78 US D/head (t-test: t=2.75; DF=660; p=0.006). There is a difference in fatness, using a grade based on a 1 to 5 scale (respectively, for farm 1 and 2, 2.79 vs 2.93 and 3.09 vs 3.15), one can observe a mean of: A=2.93 vs B=3.02 (t-test: t=1.858; DF=636; p=0.06). Finally, total food consumption is lower for the BAP treated group (respectively for the two studied farms, in kg, 259.6 vs 263.5 and 253.9 vs 263.4): 257kg vs 263kg (Mann-Whitney: U=37433; N1=407, N2=255; p<0.0001). This trial tends proved
the positive effects of BAP on both sanitary and zootechnical (including meat quality) data, consequently on economical parameters. BAP and other appeasing pheromones should bear a popular image: toxic-free and improvement of animal welfare.

375. STUDY OF OVARIAN DEVELOPMENT IN NATIVE BUFFALOES OF KHOUZESTAN PROVINCE. R. Ranjbar; S.H. Rashidi, N. Alboghobeish, R.A. Sadrkhanloo. Faculty of Veterinary Medicine. Shahid chamran University, Ahwaz, Iran.

There is no report about ovarian development in water buffaloes in the world, specially in Iran. This research was performed on the 102 embryos and fetuses (CRL=0.33-83cm, estimated ages= less than 30 days– 267 days) and also 4 newborns buffaloes. The ovaries of embryos and fetuses were fixed at 10% formaline solution. Following histological preparation, the slides were stained by H&E and PAS methods. Then, formation of genital ridges, migration of PGCs from yolk sac to genital ridges and formation of undifferentiated gonads to primary ovary and formation of secondary sex cords, mitotic and meiotic divisions and primordial follicles were studied. Finally, the histological structure of fetal ovaries compared with newborns, were determined. Based on results, the ovarian histogenesis of water buffaloes from general developmental processes standpoints are similar to human and to mammals. But in relation to time of histological changes, It happens sooner than human and cows.

376. THE FERTILITY OF KIVIRCIK AND SAKIZ (CHIOS) & KIVIRCIK CROSSBRED F1 EWES AND SURVIVAL RATES OF THEIR LAMBS. O. Elmaz, H. Demir, B. Ekiz, A. Yilmaz. University of Istambul, Faculty of Veterinary, Department of Animal Breeding, Turkey.

This study was carried out to obtain crossbred F1 ewes having prolific birth characteristic and being appropriate dam line for commercial crossbreeding. For the fertility traits of 80 F1 (Sakız x Kıvırcık) ewes birth rate was 87.50%, prolific birth rate was 62.86% and litter size was 1.84. For Kıvırcık ewes, the number of ewes exposed was 62 and birth rate, prolific birth rate and litter size were 91.94%, 24.56% and 1.25, respectively. Survival rate at 75th day of age for 129 crossbred slaughter lambs was 75.97% and for 71 Kıvırcık lambs was 92.96%.

377. INCIDENCE OF DYSTOCIA IN BUFFALOES. R.A. Luthra. CCS HAU, Hisar 125004, India.

Partnutrient complication in dairy animals generally lead to lowered production as affect the future breeding potential. Over a period of three years a total of 291 cases of dystocia in buffaloes, with varied causative factors, were treated and the incidence of various abnormalities analyzed. The maternal and fetal causes of dystocia were observed to be 76 and 24 per cent respectively. Among the maternal causes, tosion of uterus was recorded in 52 per cent cases, followed by failure of cervical dilation 11 per cent of cases with maternal dystosia were due to uterine inertia and uterine infection. Abnormalities of fetal presentation, position and posture as a cause of dystocia were observed in 18 per cent of cases, whereas the remaining 6 per cent of fetal causes included, monsters, fetal oversize and fetal mummification. Incidence of dystocia due to abnormalites in posterior presentation was less than 1 per cent. Among fetal causes alone, 49 per cent were due to deviation of head and neck, whereas uterine torsion was the single most important condition. With highst incidence of 69 per cent among the maternal causes. Uterine torsion in buffaloes is by far the single largest factor responsible for the abnormal parturition.
378. PATHOLOGY OF UTERUS IN BUFFALOES SLAUGHTERED IN AHWAZ IRAN ABATTOIR. S.M. Moghami, M. Saiyar, M. Mayahi, R.N. Sharama. Iran.

A normal uterine environment is important in buffalo fertility and the Endometrium has a critical role in the viability and development of the Embryo, however, not all uterine abnormalities can be detected by routine Clinical examination. Therefore, microscopic studies of the infertile Reproductive tract are necessary to detect inflammatory or degenerative Reactions which may change the uterine environment. After examination of the genital system of 481 buffalo cows from Ahwaz at slaughter 101 genital system were chosen for histopathological examination. Then appropriate uterine samples were fixed in 10% formalin processed and embedded in paraffin, Sectioned at 5?m, stained with hematoxylin eosin and finally were examined under the light microscope. Lesions which were diagnosed were chronic endometritis, acute Endometritis, hyper plastic cystic endometritis, pyometra, .... the Results showed a high incidence of chronic endometritis (%67/64), a Condition known for infertility.

379. SUBSTITUTING EQUINE CHORIONIC GONADOTROPHIN(ECG)BY THE”RAM EFFECT” WHEN SYNCHRONISING ARTIFICIALLY INSEMINATED BARBARINE EWES. M. Rekik, N. Lassouad, (Tunisia). Institut National de la Recherche Agronomique de Tunisie, rue Hédi Karry, 2049 Ariana, Tunisia.

Two experiments are described where the ram effect was tested as replace of ECG in synchronising procedures. In the first experiment, a total of 380 adult Barbarine ewes in two flock (A and B) were used. In mid-April, ewes in each flock were synchronised using Intravaginal pessaries left in-situ for 12 days and at sponge withdrawal, half the ewes in Each flock were injected with 400 I.U ECG or suddenly introduced to teaser rams. All the ewes were inseminated once at 56.8% with a significant effect (P<0.01) of the interaction flock x synchronising procedure. The lowest and the highest conception rates namely 33.3 and 63.2% were recorded in ewes stimulated by the rams in respectively flocks A and B. Meanwhile in respectively flocks, the standard synchronising protocol using progestagens and ECG gave similar conception rates of 54.7 and 55.0%. In the second experiment, the synchronising efficiency of the ram effect associated to a single injection of 20 mg progesterone was tested in order to inseminate ewes at the post-induced ovulation. A total of 155 Barbarine ewes were included. At day 0, all the ewes received 20 mg progesterone and aproned rams at a ratio of 10% were immediately introduced. Oestrus was checked twice daily until day 21 and only ewes detected in oestrus between days 19 and 21 (post-induced ovulation) were inseminated at approximately 24 hours after Oestrus detection. A total of 119 ewes were detected in oestrus up to day 21 after ram introduction. Of these, 71 (59.6%) were inseminated using fresh semen at doses of 400 106 spz. Conception rate and mean litter size per lambing ewe at insemination respectively reached 61% and 1.28+0.45. The ewes in oestrus between days 0 and 18, those not in oestrus up to day 21 as those failing to conceive at insemination were naturally mated and their conception rate and mean litter size were 83.3% and 1.14+0.35. It is concluded that conception rates after insemination of ewes at the ram-induced ovulation remain variable between flocks. Presumably, other factors like the body condition or the nutritional background of the ewes are important factors that have to be considered. Conception rate reached a satisfactory level at the post-induced ovulation when the ram effect is coupled with a single injection of progesterone but oestrus spreading needs to be narrowed for insemination to be performed more practically.

L’élevage des petits ruminants en Tunisie constitue une composante essentielle de l’économie nationale. En effet, de part son importance comme source de viande, lait et laine, il constitue dans certaines régions l’une des rares activités rurales rentables. Cependant la productivité varie considérablement d’une région à un autre en fonction des modalités zootechniques et socio-économiques. Des pertes peuvent être occasionnées par des maladies qui engendrent des mortalités embryonnaires, des avortements ou la naissance de produits chétifs. Ainsi, les avortements constituent un obstacle majeur au développement de l’élevage des petits ruminants. Une synthèse des résultats des études épidémiologiques sur les avortements chez les petits ruminants en Tunisie est présenté. Une première étude prospective sur les performances zootechniques a concerné 129 troupeaux d’un organisme étatique et dans des troupeaux ayant eu des problèmes d’avortement. La recherche a concerné 6 causes majeures d’avortement à partir de prélèvements de sang et d’écouvionos vaginaux. Les résultats ont révélé une incidence sérologique de 13% en brucellose, 40% en salmonellose. 60% en chlamydiose 73% en fièvre Q et 93% en border disease et toxoplasmose. Malgré une incidence sérologique élevée, la border disease n’interviendrait que dans 27% des cas d’avortement au même titre que la toxoplasmose, la chlamydiose dans 30%, la salmonellose dans 13% et la fièvre Q dans 11% Aucun cas d’avortement ne serait lié à la brucellose. Des chlamydia abortives et intestinales ont été isolés à partir de différents prélèvements et caractérisés. Lors d’études ultérieures, des pestivirus ont été isolés à partir de troupeaux ovins. Il faut souligner l’émergence des pestivirus, de la salmonellose et de la toxoplasmose ainsi que le nombre élevé d’avortements non liés à une cause infectieuse majeure. Ces résultats doivent conduire à des complémentaires sur les causes des avortements en Tunisie.

401. PARTURITION IN BUFFALOES. V. S. Yordshahyl1 ; H. D. Talatapeh2 ; P. Hashemi1.

1 Breed center of north and north-west of Iran, Jabal, Iran. 2 Veterinary faculty at Islamic Azad university of Unnia-Iran. Student of veterinary medicine, veterinary faculty at Islamic Azad university of Unnia, Iran.

The present paper has been based on the direct observation of pregnancy of Azarbaijanian buffaloes aged. They above mentiand animals more controlled achecked from the 301 st.day. Their rectum Tempreture were recorded every 12 bourg. Initially for observing cervical changes daily Vaginal was Carried out and later this was frequently clone. The pregnancy period was divided into three phases, namely first, second and third and lasted 72.41, 21.32 and 248 minutes respectively. The pre-parturition rectum tempreture decreosese was slight and unnoticeable (37.8-38.6 c which was immdiately increesed of tempreture the parturition the average pregnancy period was about 319.4 (306-324). The fetus were in auterior position. The average meight of calves was 35.4kg whit a length 74.21cm. The placenta along whit a number of cotyledons (131.4) weightd 3833.4 gram.

402. ECONOMICS DECISION IN SURGERY OF PNEUMOVAGINA IN DAIRY COW. M. Farhoodi1, I. Noorouzian1, P. Hoavaresthi1, M.Bolourchi1, M.Gh. Nadalian1. Department of clinical sciences Faculty of veterinary medicine, Karaj, University of Azad, IR. 2 Department of clinical sciences, Faculty of veterinary medicine, University of Tehran, Iran.
Pneumovagina is an abnormal condition that can cause infertility in cows. Pneumovagina may be caused by abnormal conformation of the perineum and horizontal vulva or may follow obstetric trauma like stretched and ruptured vulva. Pneumovagina may introduce air, fecal material and urine into the vagina (particularly in older cows) leading to vaginitis, cervicitis, endometritis, failure of conception and repeated breeding. Successful surgery of pneumovagina has been done by episioplasty. Records of 69 Holstein cows with evidence of pneumovagina were reviewed in a large dairy herd. Surgical operation was done in 55 cows and 14 cows were not operated. In each group days open, service per conception, percent of pregnancy, culling rate and direct costs (surgery, vet, drugs and labor) were estimated. Then economic losses due to reproductive failure (increasing days open and service per conception) and mean of direct cost have been estimated in two groups. Financial analysis is done by applying decision tree analysis. Folding back procedure indicates that the unoperated group results in larger EMV but its deference from operated group is not so much ($837.2-822.9=14.3\$). Financially this decision tree reveals that slightly more desirable not to operate pneumovagina. Obviously increasing days open has important roll in financial losses in operated group. Delayed surgery ($107\pm82$ after calving) can be responsible for this increased days open. Sensitivity analysis of this decision tree reveals that if days open of operated group has been decreased more than five days then operated group will have advantage over unoperated group. In conclusion early diagnosis and decision making to do surgery soon has critical roll in decreasing days open in operated cases and then make it more beneficial.

403. DIAGNOSIS AND TREATMENT OF COMMON REPRODUCTIVE PROBLEMS IN DOG.
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Diagnosis and treatment of the following clinical cases seen at veterinary teaching hospital will be discussed: Pyometra is a common disease of the uterus noticed 4-6 weeks after last estrus. Canine pyometra, an outcome of cystic endometrial hyperplasia and bacterial infection results in severely diseased uterus - enlarged, inflamed and filled with mucopurulent material. Clinical symptoms may include sluggishness, anorexia, distended abdomen, vomiting, diarrhea, enlarged/flaccid vulva, polyuria and polydipsia. Diagnosis of pyometra is made by combination of historical events, clinical signs, abdominal palpation, complete blood count, blood chemistry, and radiography/ultrasonography. Ovariohysterectomy is the recommended treatment. Young and valuable breeding bitches may be treated medically with series of prostaglandin F2a injections and antibiotics.

Vaginal discharge in a pregnant bitch can be diagnostic challenge for a practicing veterinarian. Pregnancy should be confirmed to differentiate the vaginal discharge caused by pyometra. The appearance of the vaginal discharge may be mucus/pus, purulent, hemorrhagic, or a postpartum discharge. A systematic diagnostic approach is important, including history, a thorough physical examination, and ultrasonography for determination of the fetal health. The clinical management of these cases will depend upon the symptomatic and diagnostic findings.

Vaginal prolapse is a protrusion of edematous vaginal tissue through the vulva of the sexually intact female during the time of estrogen stimulation. Most of the cases are seen during proestrus and early estrus stages of the cycle. If the affected animal is not treated, the prolapse typically regresses and resolve at the end of the estrous cycle. Chronic vaginal prolapse in a pregnant bitch will be discussed.

Benign prostate hypertrophy (BPH) is one of the common prostate problems seen in the intact male dog. The prostate depends on dihydrotestosterone (a metabolite of testosterone) for growth and secretion.
Men (>50 year) and dog (>5 year) have an increase in prostate size with increasing age. Dogs with BPH usually are presented with urethral bleeding as the only clinical sign, but also may have dysuria, hematuria and constipation. Diagnostic techniques may include digital rectal palpation, urine analysis, radiography, and prostate biopsy. Castration is the recommended treatment for BPH. In research studies, dogs with BPH were medically treated successfully with Finasteride (Proscar	extsuperscript{®}), a human product. Finasteride, synthetic steroid prevents conversion of testosterone to dihydrotestosterone. Dogs treated with Finasteride will be discussed.

404. A NEW TECHNIQUE FOR SURGICAL TREATMENT OF SEVERE AND PROGRESSED LESIONS IN DISTAL END OF TEAT IN DAIRY CATTLE. S. M. Ghamsari, M. Darestani, Dept. Of Clinical Sciences, Faculty of Veterinary Medecine, University of Tehran, P.O.Box: 14155-6453, Tehran, IRAN.

Usually severe and progressed lesions in distal end of teat results to economic losses due to inability of milking of affected quarter, increase possibility risk of mastitis and early culling. The new technique was performed in three cases, with teat end severe laceration (2 cases) and teat end stenosis (1 case), in hind teats. The affected and neighboring teats were prepared for aseptic surgery. The affected teats were amputated from upper the lesions and in neighboring teats, full-thickness incisions were induced in one third of proximal of teats from the base and in lateral aspect. Anastomosis between amputated and neighboring teats was completed with two rows of sutures, simple interrupted in musocal layer and vertical mattress in intermediate and skin layers.

405. ABATTOIR STUDY OF ABNORMALITIES OF THE GENITAL TRACT IN EWES. N.S. Goorani,; Z. S. Esmail, Z. K. Sadeghi. Faculty of veterinary Medicine Shahid Chamran University, Ahwaz, Iran.

The present study was undertaken at abattoir in south west of Iran (central of the khozestan province, Ahwaz) over a period of 12 months. During the inspection, 1040 reproductive tracts (ovaries, uterine tube, uterus, cervix and anterior portion of vagina) from cull ewes were collected at abattoir. A total of 229(22%) reproductive tracts of ewe had macroscopic abnormality. 242(23.2%) specimens were pregnant. The stages of pregnancy were not recorded. The monthly levels varied between 12.7 percent in July 2000 and 34.3 percent in October 2000.A total of 209(20%) specimens had congenital or acquired abnormalities of ovaries; the most common lesion was paraovarian cyst 79(38%), but few of these appeared to have affected the ewe’s reproductive function. ovarian adhesion 120(57%), which, 34 specimens were adhesion between the ovary and bursa, ovarian cyst 4(2%) and ovarian hypoplasia 4(2%) were confirmed by microscopic examination. also two ewes had fused ovaries. Fallopian tubes abnormalities accounted for 10 percent of total acquired or abnormalities in ewes. Eight specimens, were hydrometra (3 ewes) and mucometra (2 ewes), and two specimens had pyosalpinx. Several specific conditions were recorded, including, uterus unicornis occurred in five sheep and other forms of segmental aplasia of parts of the paramesonephric duct occurred in two ewes. Result showed the overall incidence of congenital lesions was not high but this was not surprising since such abnormality have rarely been reported.
Dans 2 troupeaux infectés de Néosporose, 32 génisses sont traitées avec du décoquinate à la posologie quotidienne de 2 mg/kg entre 1,5 et 8 mois de gestation, dans le but de réduire les avortements et de diminuer l’infection des veaux à la naissance. Des examens sérologiques réalisés tous les 45 jours pendant la gestation permettent de connaître le statut sérologique des gestantes vis-à-vis de *Neospora caninum*. L’efficacité du traitement est évaluée au travers du statut sérologique des veaux avant prise de colostrum et de l’enregistrement des avortements survenus pendant les gestations. Le traitement a permis de diminuer les avortements chez les génisses infectées avant la gestation (3/14 lot traité contre 8/21 lot témoin) et chez les génisses infectées en cours de gestation (1/17 lot traité contre 3/17 lot témoin). Dans le groupe des génisses infectées avant la gestation, il naît 28% de veaux séronégatifs en *Neospora caninum* (4/14) dans le lot traité contre 5% (1/21) dans le lot témoin (p = 0,07 test exact de Fisher). Dans le groupe des génisses qui contractent la Néosporose pendant la gestation (séroconversion au cours de la gestation), il naît 59% (10/17) de veaux séronégatifs dans le lot traité contre 35% (6/17) dans le lot témoin (p = 0,15). Dans les élevages infectés de Néosporose, un traitement au décoquinate pendant toute la gestation peut être envisagé sur les génisses gestantes dans le but de diminuer les effets de l’infestation des veaux au cours de la gestation par *Neospora caninum* (veaux infectés à la naissance avortements).
408. PATHOLOGY OF UTERUS IN COWS SLAUGHTERED IN THE FARS PROVINCE OF IRAN. A. Tafti. Khodakaram, A. Nassab. Amouzesh. Department of Pathology, School of Veterinary Medicine, Shiraz University, P. O. Box 71345-1731, Shiraz, Iran.

Abnormalities in the uterus of cows resulting in infertility or sterility can not easily be detected by routine clinical examination, and bacterial, fungal or viral isolations also. Often do not correlate with these abnormalities. This study was undertaken to survey the prevalence of grops and histopathologic uterine changes of non pregnant cows slaughtered in the Fars province of Iran. Gross examination of the uterus of 125 non pregnant cows was done at slaughterhouse and then at pathology department. The uteri were opened and the inner surfaces, consistency and contents examined. After gross examination, thick sections were obtained from the uterine body and uterine horns, fixed in 10% buffered formalin, processed and embedded in paraffin, sectioned at 5J.Un stained with hematoxylin and eosin and studied microscopically. Gross lesions were present in the uteri of 25 (20%) whereas microscopic lesions were diagnosed in 64 (41 %) of the uteri. Endometritis was diagnosed in 44 cases (35%). On the basis of type of infiltrating inflammatory cells, Periglandular fibrosis and, fibrosis of mucosa, and gland situation endometritis were classified as acute, subacute and chronic. Other microscopic lesions included metritis (2%), perimetritis (2%), adenomyosis (6%), supplicative salpingitis (1%), segmental aplasia (1%) and mummified I macerated fetus (2%). From the above results, it could be concluded that endometritis is one of the most important uterus lesions of cows in this area and might be a cause for delayed pregnancy and infertility.


A study was conducted on 60 sub estrous zebu cows, to evaluate the efficacy of Luprostiol, a prostaglandin analogue to synchronize the estrous, at a lower dose rate of 7.5 mg (n=30). The results were compared with the normal recommended doses of 15 mg Luprostiol (n=30). Ultrasonographic imaging was one rive animals of each group to monitor the luteal regression and follicular development following treatment with two dose schedule of 7.5 mg,and 15 mg. Luprostiol, administered at 10 days interval. Ultrasonography wa done using Pie-250, Ultrasound scanner and 5.0 MHz linear probe before each treatment (day 0 and 10) and 24,72 and 120 hours after each treatment (Day 1, 3, 5 and 11,13and15). The follicular development, after the administration of Luprostiol at the dose rate of 7.5 mg and 15 mg, followed a somewhat uniform pattern in bath groups of the animals. Twenty fours after treatment, the largest follicle measured around 1 cm in diameter. By 36 hours, the size of follicles had increased between 1.5 cm and 1.6 cm, and by 48 hours, large size follicles of about 1.8 cm were geneially observed in almost ail the animals. The largest follicle of 2.46 cms in size v/as observed at 72 hours post-treatment in one of the cows. The cows, vwhich were observed in estrous at 120 hours, following treatment, had mature folliGles of about 2 cm in diameter, at the lime of estrous. Basically no differences were observed in the regression of the corpus luteum and the pattern of the follicular development in the two treatment groups. Pregnancy was confirmed by ultrasonographic imaging at 45 days post-insemination and in a few animais also. at day 60. In view of the almost similar estrous response, and somewhat uniform profil of fo!licular
development in bath groups of animals, the economic benefits (~owed cost per calf produced) highly recommend the extensive use of lower dose of Luprostiol over the current/y employed higher dose protocol, for synchronization’ of estrous in zebu cow.


Le diagnostic précoce de la gestation chez les petits ruminants est délicat. En effet la palpation transabdominale ne donne que des résultats tardifs et les techniques de laboratoire (dosages de la progestéronémie, de la PSPB) sont difficilement applicables dans le cadre de grands troupeaux. Cependant en raison de la saison sexuelle, il est nécessaire de connaitre rapidement l’état physiologique des femelles des petits ruminants. L’échotomographie permet dans de bonnes conditions de répondre à cette attente. En effet, chez les petits ruminants, l’échotomographie transabdominale permet de réaliser un diagnostic précoce et fiable dans des conditions compatibles avec les caractéristiques de ces élevages (grand’ troupeaux). Il sera réalisé à partir de 29 jours chez la brebis et 31 jours chez la chèvre. Néanmoins la meilleure période se situe entre 35 et 40 jours après la saillie pour concilier exactitude et vitesse de réalisation. L’échotomographie transrectale est plus précoce 17 -10 jours mais de réalisation plus longue.


Les prostaglandines jouent un grand rôle, chez la vache, au côté du post-partum. Elles interviennent dans le mécanisme de la délivrance et de l’involution utérine qui peuvent être comparées à un véritable phénomène inflammatoire. Du point de vue thérapeutique la PGF2α. ou ses analogues de synthèse peuvent être conseillés pour la prévention et le traitement de la lron délivrance de façon à diminuer la fréquent-e des retards d’involution utérine. Actuellement, elles sont déjà très utilisées dans le traitement des retards d’involution utérine à 30 jours post-partum ou les métrites à 60 jours post-partum à condition que l’utérus soit. hypertrophié.


Le taux plasmatique de progestérone présentant une chute brutale 24 à 48 heures avant la mise bas de la chienne, il serait théoriquement possible, d’un point de vue hormonal, de savoir si une chienne est effectivement à terme et éventuellement de prévoir le part. 27 chiennes ont été suivies en fin de gestation et ont fait l’objet de prélèvements sanguins à partir desquels les dosages de progestéronémie ont été réalisés : un dosage quantitatif par méthode R.I.A. et un dosage semi-quantitatif par méthode E.L.I.S.A. Cela nous a permis de vérifier la chute brutale du taux de progestérone dans les heures précédents l’accouchement et de prévoir ou non la mise bas dans les 48 heures.Un test rapide de dosage semi-
quantitatif de progestérone par méthode E.L.I.S.A. à l’aide de l’Ovulation Test®, BVT permet de détecter une chienne sur le point d’accoucher à 90%. Bien que nous disposions déjà de quelques critères comme les prodromes classiques de mise bas, l’hypothermie pré-partum ainsi que echotomographie, la prévision de la parturition chez la chienne s’affine grâce à ce type de dosage. Néanmoins, il est nécessaire que le test utilisé puisse détecter de faibles concentrations de progestérone, inférieures à 1 ng/ml, seuil au dessous duquel la chienne semble accoucher.

413. DIAGNOSTIC DU SEXE DU FŒTUS PAR ECHOTOMOGRAPHIE CHEZ LA VACHE. D.Tainturier, B. Tainturier, D. Ben Charif. Ecole Nationale Vétérinaire de Nantes, Service Pathologie de la reproduction, Atlantopole-La Chantrerie, B.P.40706, 44307 Nantes cedex 03, France.

Trente: et un fœtus ont été prélevés aux abattoirs entre 4 et 120 jours de gestation afin de réaliser des examens macroscopiques et histologiques de l’appareil génital externe. Deux vaches gestantes, portant respectivement un fœtus mâle et un fœtus femelle, ont été examinées régulièrement entre 45 et 120 jours pour suivre le développement de l’appareil génital par échographie. Deux principales périodes de sexage ont été déterminées: une période précoce (55 à 6~ jours de gestation) et une période tardive (80 à 100 jours de gestation). La technique a été appliquée en ferme sur 100 vaches pour étudier les difficultés et les risques d’erreur du diagnostic du sexe entre 55 et 65 jours de gestation.

414. INVESTIGATION OF BREEDING SPECIFICs OF FEMALE BUFFALO IN IRAN. V. S.Yordshahy1, H. D. Talatapeh2, D. Gorbannejad1. 1Breed center of north and north west of Iran (J abal). 2veterinary faculty at Islamic Azad university of Urmia, Iran.

Buffalo is one of the Iranian native livestocks and they have distributed in North and North west and south parts of Iran country to about number 500,000 population About 80 percent of this population live in North west area and 18.7 percent of it live in south of Iran (khousestan). The most majority problems of buffalos breeding in world are lack of enough and necessary familiary for specifics of breeding the female buffalo. Prolonge of pregnancy period, undetectable of oestrus signs, seasonal breeding study of experimental bas performed about specifics of breeding in female buffalo on number 210 female buffalo that present at Iran Noth and North west buffalo breeding centre and following table de scribe these specifics. Parametters Average (/day) Parametters Percent
1) average of pregnancy period 319.3 6) impotency percent 28.8 2) age of first bearing 1128.6 7) female bearing percent 46.7 3) interval among two bearing 396 8) pregnancy on first inoculation 56.8 4) length of oestrus time 24-36(avgare/hours) 9) retained placentum percent 2.7 5) length of oestrus cycle 21 10) wapping womb percent 0.9. 2) cattle breeding percent 71.3 12) miscarriage fetus percent 1.8

415. DEVELOPPEMENT RECENTS EN REPRODUCTION ANIMALE. D. Tainturier. Ecole Nationale Vétérinaire de Nantes, Service Pathologie de la reproduction, Atlantopole-La Chantrerie, B.P.40706, 44307 Nantes cedex 03, France.

Pendant des siècles la reproduction des animaux s’est résumée à la détection des chaleurs de la femelle) à la fertilité du mâle et au contrôle des maladies sexuellement transmissibles ou abortives. La maîtrise de la technique de congélation des spennatozoïdes au milieu du XXè siècle a permis le développement de l’insémination artificielle chez des bovins) au niveau mondial, tout au moins dans les pays produisant de
l’azote liquide. À la fin du XXᵉ siècle cette technique s’est développée chez les porcs, les petits ruminants, les chevaux et les chiens, favorisant la sélection, en particulier chez les carnivores, de certaines races au niveau de la planète. Le transfert d’embryons, permettant à une femelle d’avoir beaucoup plus de descendants est utilisé surtout chez les ruminants et les chevaux, mais il s’est trouvé limité par son coût dû au défaut de maîtrise des protocoles de polyovulation qui n’ont pas évolués depuis une quinzaine d’années. L’apparition du clonage chez les mammifères domestiques, méthode de reproduction connue depuis 50 ans chez les batraciens met un terme à la reproduction sexuée en autorisant la fabrication de copies du même individu, théoriquement. À l’intérieur, en posant beaucoup de problèmes d’éthique. Mais du point de vue scientifique il montre la capacité extraordinaire des protéines du cytoplasme de l’ovule qui sont capables de programmer le génome de cellules adultes pas trop spécialisées. L’embryon est un des enjeux de demain. Le transfert de gènes ouvre la perspective de traiter des maladies génétiques, de faire fabriquer des substances médicamenteuses. Dans le lait de certaines femelles laitières, d’accélérer l’amélioration génétique mais des dérivés néfastes sont toujours possibles. Les mécanismes de la vie sont de mieux en mieux connus.

416. STUDY ON FREQUENCY AETIOLOGY AND SOME ENZYMATIC ACTIVITIES OF SUBCLINICAL OVINE MASTITIS IN URMIA. R. A. Batavani, E. Mortaz, K. M. Falahian, A. Dawoodi. Department of Clinical Sciences, Faculty of Veterinary Medicine, Urmia University, P.O.Box 1177. Urmia, Iran.

A total of 209 milk samples were collected from the udder halves of 178 native dairy ewes at 2 week after lambing until 10th week postpartum. Those which were bacteriologically and California Mastitis Test (CMT) positive, were deemed to have glands with subclinical mastitis (SCM). The periodic prevalence rate of SCM was 39%. The commonest bacterial isolates from SCM cases were coagulase negative staphylococci (41%), Bacillus cereus (33%), Staphylococcus aureus (22%) and Streptococcus spp. (4%). The mean activity of lactate dehydrogenase (LDH) and alkaline phosphatase (ALP) were higher in milk from SCM udders than in milk from healthy udders (p<0.01). There were no significant differences in blood serum LDH, ALP and aspartate aminotransferase (AST) of healthy and subclinical mastitic ewes. The increment in LDH and ALP in milk of udders shows the presence of tissue damage provoked by SCM. Thus, these parameters might be suitable for use in the early diagnosis of subclinical mastitis in ewes.

417. EPIDEMIOLOGICAL APPROACH OF THE ALGA, PROTOTHECA ZOPFII, AS EMERGENT ETIOLOGICAL AGENT OF MASTITIS. E.O. Costa, Brazil.

In 1894, Wilhelm Krüger described a genus of achlorophyllous unicellular microorganisms, which he considered to be algae and named Prototheca. Although these algae were considered saprophytes, they are known to have caused different types of diseases in humans (skin lesions, gastroenteritis, bursitis, also being isolated from patients with AIDS and from a patient with cancer) and in animals. An increasing importance is being given to the genus Prototheca, mainly due to the economic losses for which they are responsible, concerning basically dairy cattle mastitis. The occurrence of bovine mastitis due to Prototheca zopfii has been rising. It occurred as outbreaks and/or sporadic cases. It must be pointed out the difficulties to control this disease by the treatments, what increase economic losses once the culling of the infected animals seem to be the unique alternative to avoid the dissemination of the microorganism
throughout the other animals of the herd. The elimination of the microorganism in milk also represents a risk to public health once dairy products when contaminated with *Prototheca* sp. can represent a potential means of transmission of this zoonosis. It was verified enteritis human cases after ingestion of cheese produced with milk from bovine mastitis cases by this microorganism. The purpose of this paper was to describe the results of studies performed to elucidated many aspects of the epidemiology of the bovine Protothecal mastitis, considering that among the animals, protothecosis assumes its main form as bovine mastitis, which is generally chronic, and the affected cows usually do not respond to routine therapy. *Prototheca zopfii* strains used in these study were identified on basis of morpho-physiological features like size; presence of capsule; assimilation of trehalose, dextrose and sucrose and ultra-structure appearance, typical characteristics of the microorganism. For that a total of 300 dairy herds and 30,000 mammary glands of bovine Holstein and crossbreed cows were studied, during the last decade. For all evaluations, fresh cultures (48 h) of *P. zopfii* grown in Sabouraud-dextrose agar were used. Studies were performed on “in vivo” and “in vitro” susceptibility of these microorganisms to antimicrobials demonstrated that they were resistant. It was observed the features of the ultrastructure on electron microscopy of these microorganisms before and after the exposure to antimicrobial drugs. It was also verified that, on the epidemiological point of view, from the start of occurrence among Brazilian dairy herds, in the early of the 1990’s, protothecal mastitis increased its prevalence the from 1,1% in 1992 to 25% 1995, after that declined to the end of the nineties, 6,3% in 1999, mainly due a better knowledge that contributed to the improvement of control and prevention measures. *Prototheca zopfii* was the most prevalent etiological agent of environmental clinical mastitis, seconded by *Streptococcus uberis*. During the Brazilian outbreaks *Prototheca zopfii* was isolated from many reservoirs and domestic and wild animals captured in these dairy herds, suggesting their potential participation in the dissemination of *P. zopfii* among Brazilian herds.

418. SANITARY STATUS OF MAMMARY GLAND: EVALUATION OF THE ADMINISTRATION OF SELENIUM AND VITAMIN E IN SHEEP. V. Cuteri¹, M. Pauselli ², E.Manuali ³, A Bolla.², M.Morgante ⁴, C. Valente¹. ¹Dipartimento di Tecnologie e Biotecnologie delle Produzioni AnimaliSez. Malattie Infettive Università di Perugia Italy. ²Dipartimento Scienze Zootecniche Università di Perugia Italy/Istituto Zooprofilattico Sperimentale dell’Umbria e delle Marche Perugia Italy. ³Dipartimento di Igiene e Sanità Animale Università di Padova, Italy.

The correlations between vitamin E, selenium and the mammary gland have been studied above all in dairy cow, while not much is known in sheep. For this reason it was decided to evaluate the effect of selenium and vit. E on the sanitary status of mammary gland in sheep. Thirty Comisana breed subjects were subdivided in 3 groups, one of them was utilised as control group (C). Of the other two groups, one received, every 15 days via parenteral, 0.3 mg of sodium selenite and 5 mg of ?-tocopherol/kg p.v. (group A) and the other group 5 mg/kg p.v. of ?-tocopherol (group B). Considering a pre-established table, samples of milk were collected with a sterile procedure from each mammary gland and submitted to somatic cell count (SCC), then transformed in Linear Score (LS), and bacteriological examination. On the basis of SCC, the samples were subdivided in 4 classes and to each of them were associated the isolated microorganisms. The data were statistically analysed using the FREQ, GLM and CORR procedures of the SAS statistic software package. The milk of treated subjects showed a LS value below average the control group (P<0,01) and a lower percentage of isolates in the group A (P<0,05). The correlation between SCC, LS and the total bacterial count (TBC) were statistically significant (P<0,01).
419. THE INITIAL PATHOGENESIS OF BOVINE STREPTOCOCCUS UBERIS MASTITIS. L.H. Pedersen¹, B. Aalbaek¹, H. E. Jensen². ¹Department of Veterinary Microbiology and ²Department of Pharmacology and Pathobiology, The Royal Veterinary and Agricultural University, Bülowsvæj 17, DK - 1870 Frederiksberg C, Denmark.

The objective of the present study was to elucidate the initial spread of bacteria and the inflammatory reactions in the bovine mammary gland infected by S. uberis. The progress of infection was studied in a consecutive experimental fatal cow-model. Infection was induced in the front quarters of nine lactating Holstein-Friesian cows by intramammary inoculation of a S. uberis strain (inoculum dose 7.0 x log 10 CFU), isolated from a spontaneous case of clinical mastitis. Six of the cows were euthanised consecutively at two-hour intervals. Progress of the infection was monitored hourly by measurement of body temperatures and palpatoratory clinical examinations of the udders. Blood and quarter milk samples were analysed for bacterial counts, and number and pattern of cells. Following euthanasia the animals were subjected to pathology. The acute inflammatory response and the localisation of bacteria were studied histologically and immunohistochemically, respectively. During the experiments, a uniform clinical response was observed in all cows, characterised by progressive signs of inflammation (raise in body temperature, oedema, swelling, and pain reaction in the infected quarters). Maximum clinical response was reached within 10-12 hours. Histological findings were dominated by accumulation of heterophils in the intralobular connective tissue, intralobular milk ducts, and secretory acini. Oedema, fibrin deposits in milk ducts, and focal epithelial necrosis in ducts and alveoli were seen, too. Bacteria were found within macrophages and neutrophil granulocytes in the lumen of alveoli. Lesions developed progressively and became widespread in less than eight hours after inoculation. From the present study it can be concluded that S. uberis possesses the capacity to spread rapidly within the bovine mammary gland and the ability to provoke a manifest inflammatory response primarily characterised by influx of heterophils. These elements in the pathogenesis of S. uberis infection may contribute to the lack of an effective prophylaxis and to the limited effect of antibiotic treatment regimes towards S. uberis mastitis.

420. APPARITION DE MAMMITES À LEVURES EN SÉRIE, CHAQUE ANNÉE AU DÉBUT DE L'AUTOMNE DANS UN GRAND TROUPEAU DE VACHES LAITIÈRES DE LA RÉGION NANTAISE. D. Tainturier¹, A. Trimeche², D. Ben Charif¹, N. Dardenne¹, S. Destrumelle¹, F. Fieni¹, J.F. Bruyas¹, I. Battut¹. ¹Pathologie de la Reproduction -Ecole Nationale Vétérinaire, BP 40706 44307 NANTES Cedex 03, France; ²Institut de Recherche Vétérinaire, Rue Djebel LAKHADHAR, La Rabta1006 Tunis, Tunisie.

Dans un effectif de 100 vaches laitières Prim Holstein de la région Nantaise, produisant 8 500 litres de lait par an, tous les ans, depuis plusieurs années, à la fin du mois de septembre et au cours du mois d’octobre, une quinzaine de vaches présentent des mammites en série, s’accompagnant d’une montée des cellules dans le lait de mélange (passage en 10 de 150 000 à 250 000 cellules par ml). Les signes cliniques les plus nets sont visibles sur les vieilles vaches, difficiles à traire, mais aussi sur les jeunes. Les examens bactériologiques et bactérioscopiques mettent en évidence de nombreuses variétés de levure, accompagnées, certaines années de germes plus classiques, responsables des mammites (soit l’environnement comme (Streptococcus uberis), soit cutané, transmis par le matériel de traite comme (Streptococcus dysgalactiae) ou (Staphylococcus aureus). Ces mammites surviennent en fait à
l’apparition des premières pluies abondantes de l’automne, lorsque les vaches sont toujours sur les pâturages. Ce tableau clinique semble très fréquent dans les troupeaux laitiers de la région Nantaise.

421. RELATION ENTRE L’ORIFICE UTERIN EXTERNE AVEC LA MORPHOMETRIE DU COL UTERIN ET LA PENETRATION CERVICALE CHEZ LA BREBIS DE RACE CHURRA. M. Alvarez1, M. Kaabi1, E. Anel1, J.C. Boixo1, J.A. Olmedo1, P. Paz2, L Anel1, C.A. Chamorro3. 1Reproduction Animale Faculté de Vétérinaire, 2 Biologie Cellulaire et Anatomie, Université de Leon. ICENSYRA (Leon).

Chez l’espèce ovine, l’étude détaillée du col utérin et de la morphologie de l’orifice utérin externe (OUE), qui se considèrent comme facteurs limitant de la réalisation d’une adéquate insémination, est indispensable pour pouvoir établir des indicateurs sur le degré de succès de l’insémination et pour pouvoir adapter la structure des cathéters à celle du col utérin. L’objectif de ce travail fut la réalisation d’une description complète des différents types d’OUE dans la brebis Churra, ainsi que l’établissement de quelques indicateurs de la morphométrie interne du col utérin et du succès de l’insémination (pénétration de deux cathéters jusqu’à l’utérus) en observant l’OUE. Pour cela, on a déterminé la fréquence des différents types d’OUE (rosette, rabat, bec de canard, spiral, cratère, fente et canal), ainsi que les mesures morphométriques du col utérin sur des appareils génitaux de brebis obtenus de l’abattoir (étude post mortem). Les résultats montrent que les OUE de type rosette et rabat sont les plus fréquents. L’étude morphométrique du col utérin montre que l’OUE a une relation significative avec la largeur externe du col utérin et que la pénétration du cathéter standard (IMV) est en relation inverse avec la longueur du col utérin et avec le nombre d’anneaux cervicaux. Les résultats de pénétration cervicale montre que le cathéter courbé présente meilleure résultats de pénétrabilité que le cathéter standard.


Les faibles résultats de l’insémination artificielle ovine (IAO) sont dus en grande partie à la structure complexe du col utérin de cette espèce, puisque c’est très difficile traverser le cérvix en but de faire des inséminations profondes comme c’est déjà le cas dans l’espèce bovine. En outre, la grande variabilité raciale peut être liée à des différences morphométriques du cérvix ovin. Dans ce contexte, on a étudié les caractéristiques du col utérin de 5 races ovines (Churra, Merine, Awassi, Assaf et Castellane), en relation avec la pénétrabilité de deux cathétiers d’insémination (standard et courbé). Pour cela, sur des cols utérins pris de l’abattoir, on a déterminé le degré de pénétration de chaque cathéter ainsi que les paramètres de morphométrie externes et internes (longueur et largeur du cérvix, nombre d’anneaux ou de plis, hauteur des anneaux, distance entre anneaux, etc.). Les résultats montrent que la pénétration, longueur et largeur du cérvix augmentent avec l’âge de la brebis avec des différences raciales, en registrant des valeurs plus élevées dans la race Merine et plus basses dans la Churra. Le nombre d’anneaux cervicaux est significativement inférieur dans la race Merine et diminue avec l’âge de l’animal. En ce qui concerne la pénétration, le cathéter courbé présente une moyenne significativement supérieure à celle du cathéter standard.
Rhodanese is sulfur transferase enzyme that is distributed in nature and is believed to participate in the detoxification of cyanid. Liver always has been considered as only source of this enzyme and responsible for cyanid detoxification. But, recent investigation have revealed activity of other organs as well. The rhodanese activity of ruminal, reticular, and omasal mucosa in ruminant is more than that of liver. In this survey the level of rhodanese of male and female urogenital systems of cattle and sheep was investigated. This enzyme is present in various parts of the urinary systems. The level of rhodanese was the highest in renal cortex as compare to other parts of kidney. The cause of this finding is explained by high level of mitochondria (principal region of rodanese) in proximal and distal convulated tubules of nephrons that are replacing in cortex. Rhodanes activity in the genital system in both species was negligible. In the male genital system testis and prostate gland have only significant activity as compared to other parts of this system. This finding may be explained in turns of the important role of testis (sertoli cells) and prostat gland in preserving the viability of spermatozoa. Also in female genital system, ovine cervical mucosa has significantly more rhodanese activity than other parts. The cause of this finding may be explained in turns of important role of cervix in prevention of enter of exotic toxine and microorganism into uterine. It is concluded that rhodanese activity of genital system of sheep and cattle is low as compared to liver and kidney. Therfore, these organs have little role in cyanid detoxification This is due to lesser exposure of this organs to cyanid. Probably the cyanid is mainly detoxified by the liver and kidney before to reaching these organs.


L’objectif de ce travail est d’étudier l’effet de la glutamine sur le sperme bovin au cours de la phase de congélation-décongélation. Pour cela, nous avons testé l’effet cryoprotecteur de la glutamine utilisée à 40, 80 et 120 mM en présence du glycérol seul (6,4%) dans un premier temps, dans un deuxième temps en présence du glycérol (6,4%) et de jaune d’œuf (20%) et enfin en présence du glycérol (6,4%) et de LDL (Low Density Lipoproteins) (8%). Les analyses de mobilité et des caractéristiques des trajectoires ont été réalisées à l’aide de l’analyseur d’images de type ATS 20. Les résultats obtenus ont montré pour la première fois que la glutamine possède une action cryoprotectrice propre au cours de la congélation-décongélation de la semence bovine. En présence de 6,4% de glycérol, la glutamine à 40mM améliore (P<0.05) la mobilité et les caractéristiques des trajectoires des spermatozoïdes par rapport au milieu témoin (22,4% contre 16,9%). Associée à 8% d’LDL et en présence de glycérol (6,4%), la glutamine à 10 et 20 mM améliore (P<0.05) la mobilité et les caractéristiques des trajectoires des spermatozoïdes. Les
meilleurs résultats ont été obtenus pour une concentration de 10 mM de glutamine, de 65% de mobilité post-décongléation contre 59% pour le milieu témoin (contenant 8% de LDL et 6,4% de glycérol).


The determination of the acrosomal integrity is very important in laboratorial tests of seminal assessment, due to its possible alteration during the process of freezing-thawing and to its direct participation in fertilization. The aim of the present work was to compare the efficiency of three methods of acrosomal evaluation. Ejaculates of 5 Churra breed rams (5 replicates) were evaluated in two preservation processes: chilled at 15 ºC (evaluated after one h and four h) and frozen (evaluated before freezing and after thawing). The acrosomal integrity (% intact acrosomes) was evaluated by phase contrast microscopy of samples fixed in 2% glutaraldehyde in BL-1 (ANM), by fluorescence microscopy (PNAM) and by flow cytometry (PNAC) in stained semen samples with PNA lectin conjugated with fluorescein and propidium iodide. The results suggest that, except in the frozen-thawed semen, there are not significant differences among the three methods of acrosomal evaluation. In thawed semen, there are differences only between ANM and PNAM methods (40,58 vs. 57,35%) while flow cytometry (PNAC) presents intermediate values (50,49%). Correlation analysis shows a special behaviour of the three techniques in thawed semen, where low correlations are observed between PNAM and the other two techniques, which present a good correlation between them (r=0,82). This may be due to the fact that thawed semen undergoes many grades of acrosomal damage, and some of them are undetectable by microscopic observation. Considering the high accuracy of the PNAC technique and its good correlation with ANM, we recommend the use of flow cytometry for the assessment of thawed semen. This is a highly objective technique which offers many advantages such as speed and repeatability.

426. EFFECT OF ALPHA-2 ADRENOCEPTORS AGONIST AND ANTAGONIST ON ENZYMATIC RELEASE FROM EPIDIDYMAL BULL SPERMATOZOA INCUBATED IN VITRO. A. H. A. Fayed. Dept. Physiology, Faculty of Veterinary Medicine, Alexandria University, Egypt.

The effect of alpha-2 adrenoceptor agonist (xylazine) and its antagonist (tolazoline) on the motility and transaminases release from epididymal bull spermatozoa incubated in vitro was investigated. Epididymal bull spermatozoa were diluted in egg yolk citrate and incubated at 37 C in the presence of 250 ug/ml xylazine or 250 ug/ml tolazoline each alone or both drugs together. Aliquots of the incubation media were obtained after 1, 2, 4 and 6 hours and analysed for transaminases activity and motility. It was found that xylazine induced a significant decrease in motility and an increase in transaminases activity after 2,4 and 6 hours after incubation. Addition of tolazoline (250 ug/ml) alone or in combination with xylazine significantly reduced the elevation induced in transaminases activity and prevented the depressant effect on sperm motility. It was concluded that stimulation of alpha-2 receptors of the sperm membrane induced damage of the cell membrane as indicated by increased leakage of transaminases in the incubation medium. This effect could reduced by the addition of the alpha –2 receptor antagonist, tolazoline. This finding could be of great importance in keeping the viability of sperms in liquid semen used in artificial insemination.
Progress at germoplasm banking and assisted reproductive techniques has become increasingly necessary in wildlife management and preservation. Postmortem recovery of semen from the cauda epididymis is a good choice, especially in hunted species such as Iberian red deer. This species shows a reproductive seasonality, which has an effect on the quantity and quality of the recovered semen. Testes from 160 hunted Iberian red deers (Cervus elaphus hispanicus) were used in this work. We collected data from several morphological parameters of the testes and epididymis. We also studied the quantity of semen extracted from the cauda epididymis, sperm concentration and seminal production. We considered the moment of the hunting season in data analysis: at the rut (September-October) or after the rut (November-February). The results of this work indicate that quantitative data is significantly higher at the rut that after the rut (testicular weight: 83.85 vs. 34.55 g; testicular volume: 79.10 vs. 37.60 ml; testicular density: 1.12 vs. 1.05 g/ml; epididymis weight: 14.38 vs. 8.46 g; cauda epididymis weight: 6.55 vs. 4.09 g). Data of cauda epididymis semen also display higher values at the rut (semen weight: 0.76 vs. 0.31 g; sperm concentration: 4798 vs. 2541 x 10^6 spz/ml). Seminal production was four-fold higher at the rut that after the rut (3871 vs. 912 x 10^6 spz). Unpublished data suggest us a little improvement in semen quality after the rut than at the rut. So we conclude that, at the rut, semen yield is much higher than after the rut, but, considering seminal quality and quantity, it is possible to carry out postmortem semen recovery programs aimed to the Iberian red deer not only at the rut but also after the rut.

428. STUDY OF PRIMORDIAL GERM CELLS (PGCS) BEHAVIOUR DURING MIGRATION TO GONADS IN THE NATIVE BUFFALOES OF KHOOZESTAN PROVINCE. R. Ranjbar S. H. Rashidi, N. Alboghobeish, R. A. Sadrkhanloo, Y. Mazaheri, Faculty orvet. med. Shahid chamran university, AHWAZ, IRAN. Faculty orvet. med. Uromia universjty Uromia, Iran : 61355-145 Ahwaz, Iran.

There is no report about PGCs of Water But’t’aJoes (Bubalus Bubalis). This study was penned with origin, migration, and morphology of water Buffaioes PGCs, from their endoderm (yolk sac) to gonadal (genital ridges) locations, by light microscopy. The yolk sacs were observed in embryos with CRL=O.38-1.8cm. PGCs were large, 12.1-18.7 minidiameter. and round shape, contain nucleus with one or more conspicuous nucleoli and acidophilic cytoplasm. PGCs migrate from yolk sac in the embryos with CRL=71 ;11 cm, via dorsal mesogaster to genital ridges in the embryos with CRL=1 ;0.13cm. Like other rnaamals, PGCs were never seen intravascular migration. At arrival the genital ridges, PGCs obtain initial characteristics, that had in the waits of yolk sacs, on the basis of results ofthis study, on comparative terms, the origin and migration of the PGCs ofwater Buffaioes seem to be like human and domestic animals, but smaller than all human PGCs.

429. MANUFACTUREDINOCUJATION ON THE EWES OF WESTERN AZARBIJAN PROVINCE IN IRAN. Vahid Shafiepour yordshahyl Aref Pilevary, Hossein dini talatapeh,. Veterinarian of Buffalo Breeding and Reformation Breed Center of north and north west of Iran (Jabal), export of assistance of farm organization ot vet in urmia-Iran. 3. veterinary faculty of Islamic Azad university of urmia, Iran.
Four hundred seventy four Makui and Gezel ewes from west Azarbaijan province, have been inseminated by intravaginal method with fresh sperm by placing sponge or cider in ewes vaginas (white sponges for lambs and gray one’s for ewes). There ciders and sponges were carrying progestrone. After 13 day These have been taken out and PMSG Hormone of the Saille time, has been used 2c.c. for lambs and 2.5c.c. for ewes intra muscularly (1 M). Before in sewination a number of ram have been selected and their semen has been taken, semen have been diluted on 1: 1 proportion with whey and stored in O.25c.c. prote and 52 hours after PMSG injection. Intra vaginal insemination has been done by restraining the ewes an opening their Vagina with vaginoscope and placing the semen the beginning of cervix. pregnancy percentage by this method is 71.6


The supplementation of the freezing diluent by three amino acids, glutamine, proline, and histidine, and one amino acid-related compound, betaine, in preserving stallion sperm diluted in INRA82 extender containing 2.5 % (v/v) glycerol and 2% (v/v) egg yolk (control extender) during freezing and thawing (FT) was studied at 0, 40, 80, 120, and 160 mM on 20 split ejaculates (10 stallions x 2 ejaculates) (experiment 1). Then, glutamine and proline were studied at 0, 10, 20, 30, 40, 50, 60, 70, and 80 mM on 20 split ejaculates (10 stallions x 2 ejaculates) (experiment 2). In each experiment, sperm was evaluated after thawing by CASA : % of motile spermatozoa (faster than 30mm/sec), velocities (VAP, VSL, VCL) and ALH. In experiment 1, only glutamine (40 mM) compared to the control extender improved significantly motility (56.0% ± 3.0 vs 49.7% ± 1.6, p<0.05) while velocities were unaffected in the concentration range 40-120mM. However, when using 160mM concentration, a significant decrease of motility and velocity was observed for all amino acids. In experiment 2, whatever the concentration used, motility in glutamine (range 41.1% ± 3.8; 42.4% ± 3.6) and proline (43.0% ± 3.7; 45.6% ± 3.8) extenders compared to the control (34.7% ± 1.6) was improved significantly (p<0.05). However, velocities were improved when concentrations used were higher than 40mM (glutamine) and 50mM (proline). In conclusion, glutamine at concentration around 40 mM in a diluent containing glycerol improved equine sperm motility after freezing and thawing. Proline is certainly equivalent to glutamine.

431. DIAGNOSIS OF EARLY PREGNANCY AND LATE EMBRYONIC MORTALITY IN THE COW. O. Szenci. Clinic for Large Animals, Faculty of Veterinary Science, Szent István University, H-2225 Úll? – Dóra major, Hungary.

The present review was undertaken to summarize the most important methods for the diagnoses of early pregnancy and late embryonic mortality in the cow. One of the most recent techniques for diagnosis of early pregnancy in cattle on the farm is B-mode ultrasonography. Under field conditions, acceptable results may be achieved with ultrasonography (using 5 or 7.5 MHz transducers) from day 25 to 30. The reliability of the test greatly depends on the frequency of the transducer used, the skill of the ultrasonographer, the criterion used for a positive pregnancy diagnosis and the position of the uterus in the pelvic inlet. More incorrect non-pregnancy diagnoses were made in cows between days 24 to 38 in which the uterus was located far cranial to the pelvic inlet, in comparison with cows in which the uterus
was located within or close to the pelvic inlet. In a recent study, some non-pregnant cows could already be recognised by the absence of a corpus luteum at the first ultrasonographic examination on day 20 or 21 after AI. With the exception of one cow, every non-pregnant cow was correctly diagnosed by day 29 or 30. False negative pregnancy diagnoses on day 29 or 30 may be corrected, if every cow with a non-pregnancy diagnosis in the presence of a corpus luteum on day 29 or 30 after AI, was re-examined 3 to 4 days later. Three to four ultrasound examinations may be beneficial for optimal calving to conception intervals under field conditions. Bovine pregnancy proteins (PSPB, PAG) are produced in the trophoblastic binucleate cells and secreted in the maternal circulation. Detection of these proteins in the maternal blood can be a good indicator of the presence of a live embryo therefore it can be used as an alternative method to ultrasonography for determining pregnancy and late embryonic mortality from Day 30 after AI onwards.

432. ROLE OF ACID-BASE DISTURBANCES IN PERINATAL MORTALITY OF NEWBORN CALVES. O. Szenci. Clinic for Large Animals, Faculty of Veterinary Science, Szent István University, H-2225 Újpest – Dóra major, Hungary.

At present, in veterinary practice the main emphasis should be paid on the prevention of asphyxia of calves to be born, since instruments suitable for a reliable clearing of respiratory passages and for artificial respiration of calves under practical conditions are not widely used and profitability factors may still play a decisive role. The most important breeding objectives can be achieved only by creating the necessary managerial conditions, which may lead to a reduction in the number of calving assistances required. In the case of difficult calvings, the mode and time of calving assistance should be chosen with regard to profitability factors and in a manner to allow the least possible shift of the calf’s acid-base balance towards acidosis. Before applying traction, the measurements of the soft birth canal should be always be considered. When dilatation of the soft maternal passages is not sufficient, they must be expanded nonsurgically or surgically (episiotomia lateralis) and obstetric lubricants should be used to avoid tractions longer than 2 to 3 min. If a prolonged traction would be expected, Caesarean section should be carried out to save the calf and to prevent injuries of the maternal birth canal. In the case of Caesarean sections, the sooner the surgical intervention takes place after the rupture of fetal membranes, the lower the proportion of newborn calves with severe asphyxia will be. The routine use of complex treatment (NaHCO₃ and glucose infusion, stimulation of circulation, prophylactic use of antibiotics) of calves born with severe asphyxia may reduce the postnatal calf losses. In addition to an adequate therapy (buffer therapy based upon the determination of acid-base balance), in the case of calves with asphyxia particular attention should be paid to the ingestion of sufficient amounts of colostrum, since the lack of colostrum uptake is accompanied by an increased susceptibility to infectious (E. coli).

433. AN OUTBREAK OF OVINE ENZOOTIC ABORTION IN MIDLE BOSNIA ASSOCIATED WITH THE ISOLATION OF Chlamydia sp. R. Velic, T. Bajrovic, M. Rifatbegovic, L. Arapovic. Institute of epizootiology, Veterinary Faculty, University of Sarajevo. Bosnia-H.

During the 2001 lambing season enzootic abortion occurred in "Pramenka" ewes in two separated flocks located in Middle Bosnia. The incidence of the abortions in first flock was 20.8% in second flock was
11.1%. The most of abortions occurred in the last month of gestation and had nonspecific changes in the fetus. The gross postmortem lesions reported infected sheep were several necrotic cotyledons and inflammation of surrounding horionic membrane. Chlamydia agents were isolated from organ pools (lung, spleen) fetuses from endemically infected flocks. Isolation of Chlamydia was done by the inoculation of tissue homogenates into the yolk-sac of 6-8 day-old embryonated chicken eggs. For the detection of Chlamydial antibodies in blood sera we used an enzyme linked immunooassay (ELISA) test. Impressions prepared from washed yolk-sac membranes were stained by Gimenez’s stain for presence elementary bodies of Chlamydia.

434. AN ULTRASOSOGRAPHIC METHOD FOR ESTIMATING MAMMARY CISTERN VOLUME AFTER DIFFERENT MILKING INTERVALS IN DAIRY COWS. M. Ayadi1, G. Caja1, X. Such1, C. H. Knight2. 1University Autonoma de Barcelona, 08193 Bellaterra, Barcelona, Spain. 2 Hannah Research Institute Ayr KA6 5HL, United Kingdom.

Mammary gland is a unusual exocrine tissue that stores its secretion extracellularly. Milk storage can be explained using a simplistic model of two anatomical compartments:
- Alveolar milk (secreted milk stored within the the lumen of alveolar tissue, or acini).
- Cisternal milk, (milk drained from acini and stored within the large ducts and the gland and teat cisterns for Sinus Lactiferus). Short-term autocrine inhibition of milk secretion in the mammary gland has been related to cisternal size, the large cisteromed animals being more efficient producers of milk and more tolerant to long milking intervals and simplified routines.

Cisternal: alveolar ratio increases with lactation stage and parity in dairy cows, but only a few reference are available and individual differences are still a main source of variation. Distribution and movements of milk between the two compartments are commonly measured by fractional milking. The aim of this work was to define a methodology for the estimation of the area of udder cisterns by ultrasonography and to study the evolution of milk stored in the gland at different milking intervals in dairy cows.


The distribution of cytosolic carbonic anhydrase isozymes(CA-I,-II, and-III)in the canine, bovine and equine male reproductive tract was studied to elucidate the location of positive cells, and to discuss cellular function using of immunohisto-cytochemical methods. Virtually no immunoreaction of CA isozymes was seen in the testis, except for Sertoli cells, in which CA-III was evident in dogs and horses. In the efferent ductile and epididymis in all kinds, some epithelial cells was detected for CA-II. The ductus deferens and ampulla of deferent duct, showed no immunoreaction for CA-I and CA-III in dogs and for CA-I and CA-II in bulls and horses. In accessory genital glands, prostate stained intensively for CA-II in DOGS. In horses, seminal vesicle, prostate and bulbourethral gland stained for CA-I, CA-II and CA-III. In contact, no or a weak reaction for CA-I, CA-III were seen in bulls. In canine epididymis, the positive-staining cells, so called narriw cells, were characterized as slender cells with numerous small vesicles in the apical region. The functional significance of narrow cells suggests that they are involved in proton secretion and luminal acidification. Thus specific immunostaining for CA isozymes in canine and equine
male reproductive organs provides epididymal epithelial cells and the accessory genital glands. In the case of bulls however, they may originate mainly from epididymal cells. Secreted proton ions change into bicarbonate in the lumen, where they are required for maintaining spermatozoal stability and may provide an ionically balanced environment at the distal portion of the vagina at the time of ejaculation.

436. COMPARISON STUDY OF THREE ESTRUS DETECTION IN THE MARE A. Ahmadi.
School of Veterinary Medicine, Shiraz University, Shiraz, Postal code 71345, P. O. Box. 1731, Iran.

The objective of the present study was to evaluate the efficiency of three methods of teasing, progesterone levels and rectal palpation in order to detect estrus and determination of best time for AI or mating in mare. Six non pregnant mares, with normal estrus cycle were selected. The mares were monitored by RIA progesterone assay, observation of estrus signs near the stallion (teasing) and rectal palpation of cervix, uterine and ovaries in May, June and July. The mean (SD) interval of ovulation to next estrus (luteal phase) was measured by the three methods mentioned above which were 15.25±1.71, 15.75±2.22 and 16.58±1.77 days, respectively. The mean (SD) interval from initiation of estrus to ovulation for progesterone level was 5.25±2.26, 4.66±2.22 and 3.83±2.21 days for teasing and 3.83±2.21 days for rectal palpation. However, it was not possible to determine ovulation time by these methods. Duration of the estrus phase in the breeding season usually was 7 days in each mare. Therefore, we propose that, AI or C mating must be done about 48 hours before the end of 1 estrus in mares.

437. COWS’ UDDER ACUTE AND SUBACUTE INFLAMMATION; ITS REASONS. A. Jemeljanovs, J. Bluzmanis, I.H. Konosonoka. Research Center Sigra3 OF Lativa University of Agriculture, † Instituta Street, Sigulda LV-2150, Lativa.

The udder inflammation problem is actual in Latvia as well as in other countries where diary farming is developed since 5-6% of dairy cows are affected by clinical, but 30% and more by subclinical udder inflammation. From all cows diseased with clinical mastitis pathogenic microorganisms were isolated in the 71.11% cases. From cows milk, which were ill with clinical mastitis, pathogenic microorganisms in the part time farms (up to 5 cows) were isolated in 100.00%, in the private farms (6-100 cows) in 83.34% and in the large-scale farms (more than 100 cows) 50.00% cases. From cows milk, which were ill with clinical mastitis were isolated Staphylococcus aureus 62.50%, Streptococcus agalactiae 21.88%, Escherichia coli 12.50% and Diplococcus 3.12% cases, but for all cows diseased with subclinical mastitis in the 61.80% cases the originators were pathogenic microorganisms. The subclinical mastitis provoked by pathogenic microorganisms for the private farms cows were established in 54.54% cases, in the large-scale farms 32.73% and in the part farms – 12.73% cases. From cows milk, which were ill with subclinical mastitis, were isolated Staphylococcus aureus in 54.90%, Streptococcus agalactiae 25.49%, Coccus and other microorganisms 19.61% cases. So that Staphylococcus aureus were the main mastitis pathogenic agents but it’s caused mastitis is hardly treated and frequently backsets are observed, we worked out experimental Staphylococcus aureus vaccines to prevent disease with mentioned above pathogenic agents mastitis. Only Staphylococcus aureus pathogenic cultivations, which produced alfa and beta toxins, were used for making experimental vaccines. After vaccination the antibodies developed in animals’ organisms and kept in all immunized animals during the five months, therefore to keep antibodies during all lactation
time the revaccination must be carried out in the fifth month after vaccination. For prophylactic treatment of the healthy cows to prevent entering in udder pathogenic microorganisms the teats after milking must be disinfected by 1% jodosept solvent.

438. DIET AND NURSING AFFECT THE VOLUNTARY FEED INTAKE; THE PRODUCTION AND ANESTRUS OF COWS IN DUAL PURPOSE TROPICAL PRODUCTION SYSTEMS. A.E.Villagomez1, G.A.Villa2, P. E. González2, M. J. Zárate4. 1C. E. La Posta CIRGOC-INIFAP. Km. 22.5 Carretera Veracruz-Córdoba, Veracruz. 2School of Veterinary Medicine and Zootecnhics-UNAM. Ciudad Universitaria, México D. F.

To study the effects of high (H) or low (L) feeding level (F) and suckling (S) on: dry matter (DM) and energy (E) consumption (C); milk production (MP including calf consumption) and d of postpartum anestrus (PPA), in dual-purpose cows (Bos taurus X Bos indicus) in tropical climate, 38 fresh cows were randomly assigned to the following treatments in a 2X2 factorial arrangement: LF-HS (T1n=10); LF-LS (T2n=9); HF-HS (T3n=10) and HF-LS (T4n=9). All cows were individually fed and had free access to water and minerals ; LF cows received freshly cut African Star grass (G) ad lib plus a low E supplement to fulfill their protein requirements; HF received, in addition, an E supplement to meet all E needs. The body condition (BC) was recorded weekly (5 points), as well as feed quality and milk fat. Variance analysis by GLM of SAS was performed (P<0.05 between ls. means with different letter). The cows in T1 consumed more DM of G than the others (T1=11.85a, T2=9.52b, T3=9.79b, T4=7.57c Kg/d SE=.55). Total DMC and the EC was higher in T3 and lower in T2 (T1=12.19a, T2=9.84b, T3=17.16c, T4=13.57d kg/d SE=.5 and T1=11.94a, T2=8.95b, T3=21.67c, T4=16.44d Mcal/d S.E=.65, respectively). F, S and FxS affected MP, with a notorious effect of S (T1=8.87a, T2=5.47b, T3=13c, T4=9.37d kg/d SE=.78), as well as milk fat and average BC (T1=3.84a, T2=3.26b, T3=2.71c, T4=2.89c % EE=.2 and T1=2.6a, T2=3.23b, T3=3.07c, T4=3.9b points SE=.17). Finally, PPA had a significant positive association with GC and negative with BC; all the treatment means were different (T1= 246.5; T2= 82.3; T3=135.2 and T4= 68.4, d). E supplementation reduced GC, increased DMC and EC and reduced milk fat. S increased GC,EC and MP even when data are adjusted for EC.

439. EFFECT OF DIET AND SUCKLING ON FOLLICULE DEVELOPMENT AND POSTPARTUM ANESTRUS IN DUAL PURPOSE COWS. A.E. Villagomez1, M.J. Zarate1, M.H. Arellano2, G.A. Villa2, P.E.Gonzalez2. 1C. E. La Posta CIRGOC-INIFAP. Km. 22.5 Carretera Veracruz-Córdoba, Veracruz. 2School of Veterinary Medicine and Zootecnhics- UNAM. Ciudad Universitaria, México D. F.

The objective of this study was the evaluation of the effects of the energy supplementation (ES) and suckling (S) on the follicle development, the presentation of corpus luteum without the presentation of oestrus (CLP) and the postpartum (PP) anestrous duration (AD) in dual-purpose cows (n=38) in tropical climate. Cows that had just calved were randomly assigned in a 2X2 factorial arrangement, the factors were: a) diet (D: Grass (G) or G plus ES with 1.55 Mcal of net energy for lactation (NEL)/kg of dry matter (DM) and b) S (high (H)S 7 h/d or low (L)S) resulting in 4 treatments (T): T1=G+HS; T2=G+LS; T3=G+ES+HS; 4=G+ES+LS. Heat was detected during 1h 2 times/d. The presentation of large follicles (LFP; > 10 mm), the duration of the follicle wave (FWD) and its phases: growth (FGD) and plateau (FPD) were determined by ultrasound images of the ovarian structures (every 3rd d from the 10th d PP until the
end of the Anestrus). By RIA of P4 the CLP in serum collected every 5 d. A VA through GLM of SAS was performed where the main effects were the D, the HS and the interaction D x HS. The difference criteria was P<.05 (a?b?c?d). D and HS and D x HS affected the AD-PP (T1=250.7a, T2=78.8b, T3=137.1c, T4=66.1b días (d) S.E.=10). CLP was affected by D y HS (T1=138a, T2=66.2b, T3=64.4b, T4=41b d S.E.=15). D affected LFP and FGD (T1=34.4a, T2=25.11ab, T3=20.6b, T4=19.4b d S.E.=3 and T1=7.35a, T2=7.13a, T3=9.72b, T4=9.65b d S.E.=.47, respectively). FPD was affected by D, HS and D x HS (T1=2.1a, T2=2.89b, T3=4.1c, T4=2.35ab d S.E.=.46). FWD was affected by D and HS (T1=13.5a, T2=12.1b, T3=17.6c, T4=15.6d d S.E.=1.1). The ES accelerated the luteal activity even in HS cows, promoted follicular development and the HS interacted with D to retard the presentation of the oestrus.

440. EFFECT OF DIET AND SUCKLING ON HORMONE AND METABOLITE CONCENTRATION IN DUAL PURPOSE COWS. A.E. Villagomez¹, P.E. Gonzalez², G.A. Villa², R.C. Vaverde³, M. J. Zarate¹. C. E. La Posta CIRGOC-INIFAP. Km. 22.5 Carretera Veracruz-C?rdoba, Veracruz. 2)School of Veterinary Medicine and Zootechnics-UNAM. Ciudad Universitaria, México D. F.

The objective of this study was the evaluation of the effects of energy supplementation (ES) and suckling (S) on insulin (INS), triiodothyronine (T3) and Thyroxine (T4) concentration, the quotient T3/T4, plasma ureic nitrogen (PUN) and non-esterified fatty acids (NEFA) in dual-purpose cows (n=38) in tropical climate, during the postpartum anestrus (PPA). Cows that had just calved were randomly assigned in a 2X2 factorial arrangement, the factors were: a) diet (D: Grass (G) or G plus ES with 1.55 Mcal of net energy for lactation (NEL)/kg of dry matter (DM) with individual adjustments) and b) S (high (HS 7 h/d or low (LS) resulting in 4 groups (G#): G1=G+HS; G2=G+LS; G3=G+ES+HS; G4=G+ES+LS. Sera were collected every 5d from the time of calving until the end of PPA. INS and T4 were radioimmunoassayed by solid phase and T3 through double antibody. PUN and NEFA were determined by micromethods. A VA through GLM of SAS was performed where the main effects were D and HS and the interaction (DxHS) and the sample (S). The difference criteria was P<.05. D and DxHS affected INS (G1=5.09a, G2=5.98b, G3=6.09b, G4=5.77b ?U/ml SE=.23). T3 and T4 were affected by D, HS and DxHS (G1=14.29a, G2=19.64a, G3=75.91b, G4=46.34c ng/dl SE=5 and G1=2.60a, G2=2.79ac, G3=3.7b, G4=3.1bc ?g/dl SE. 24, respectively). D and HS affected the quotient T3/T4 (G1=.007a, G2=.009b, G3=.03c, G4=.022c; SE. 04). D and DxHS had an effect on PUN (G1=5.12ab, G2=4.55b, G3=5.44a, G4=5.27a mM EE=.17). Finally, D, HS, DxHS and M affected NEFA (G1=1.14a, G2=.89b, G3=.80bc, G4=.77b mE/L SE=.06). The ES increased INS, PUN, T3, T4 and their quotient and reduced NEFA; the HS interacted with D increasing INS, T3 and T4 when ES was offered, and increasing NEFA and PUN when ES was not offered.

441. EFFECT OF HEAT STRESS ON OVARIAN FOLLICULAR DEVELOPMENT IN DAIRY COWS IN INTENSIVE PRODUCTION SYSTEMS. D.R. Lozano, F.C. Arechiga, P.E. Gonzalez. INIFAP; University of Zacatecas and FMVZ-UNAM. Mexico.

Holstein cows in commercial farms were studied, considering whether they were subjected to heat stress (S) or comfort (C) conditions before (B) or during (D) the analyzed oestrus cycle. The cows (70) had 72d in milk and estimated production of 9749 kg as average. Every other day ultrasound observations of the ovaries were performed from estrus to l= estrus : SB-CD (17); NB-CD (15); CB-SD (18) and SB-SD (20). The variables studied were: number of follicular waves (NW), number of total, small (s=<5mm),
medium (m=5-9mm) and large (l=>9mm) follicles. For each wave (FW): day of emergence (de), days of growth (dg) and maximum diameter (md) of the dominant follicle (DF). Data were variance analyzed in a factorial arrangement. SD increased (P<0.05) NW (2.44(0.07 vs. 2.12 (0.07). SB induced less s along the cycle and SD reduced m in 0-10d of the cycle (P<0.05). SD increased (P<0.05) dg of DF1, DF2 and DF3 (5.48+0.51 vs. 7.79+0.64; 6.67+0.54 vs. 8.70+0.68; and 5.18+0.50 vs. 9.08+0.94, respectively) and md of DF2 (16.44+0.38 vs. 17.94+0.48). Cows with 3FW showed differences (P<0.05) with those of 2FW in: de of DF2 (7.27+0.9 vs. 12.4+0.6); dg of DF1 (5.52+0.72 vs. 7.70+0.64) and md of DF1 (16.2+0.64 vs. 18.8+0.40). Heat stress during the estrous cycle increases the ovulation of follicles of a third FW and reduces the follicular dominance. Heat stress in the month previous to a cycle reduces follicular recruitment, which is evident as a smaller number of s follicles later on. (CONACYT 31457-B).

442. EFFECT OF RECOMBINANT HUMAN FSH AND LH ON IN VITRO MATURATION AND EMBRYO DEVELOPMENT OF SHEEP OOCYTES. C. Accardo, M. Dattena, L. Mara, F. Chessa, G. Epifani, P. Cappai. Istituto Zootecnico e Caseario per la Sardegna, Servizio Riproduzione Animale, 07040 Olmedo, Italy.

The objective of this experiment was to determine the effect of the addition of recombinant preparation of human follicle stimulating hormone (rFSH) and luteinizing hormone (rLH) to the maturation medium serum free of sheep oocytes on their subsequent developmental competence in vitro. Sheep oocytes with compact cumulus cell were collected from slaughterhouse-derived ovaries and divided in four different group of maturation. The Control group was cultured in TCM199 supplemented with 10% serum (FBS), 100mM Cysteamine, 1mg/mL estradiol-17b, 5mg/mL FSH, 5mg/mL LH. The others three Groups (G1, G2, G3) were all matured in TCM199 supplemented with 4mg/mL BSA, 100mM Cysteamine, and with 0.1 UI/mL rFSH (G1), 0.1 UI/mL rFSH and 1mg/mL estradiol-17b (G2), 0.1UI/mL rFSH, 1mg/mL estradiol-17b and 0.1 UI/mL rLH (G3). After 24 h of maturation, in vitro fertilisation was done with fresh semen 1x10^6 in SOF medium with 20% of oestrus sheep serum. At 20 h post-insemination, presumptive zygotes were transferred to a chemically defined medium (SOF) supplemented with 8 mg/mL fatty acid-free BSA, essential amino acids, non essential amino acids. Cultures were carried out in an atmosphere of 5% CO₂, 7% O₂, 88% N₂ at 39°C with maximum humidity. All groups of oocytes after 24 h of maturation reached metaphase II stage without statistical difference. However, significant difference was found among all the groups at fertilisation: G1 55.9%, G2 69.9%, G3 73.2%, Control 86.2%. The embryonic development rate to the blastocyst stage was significantly different lower only for G1 (30.4%) compared with all the others groups (G2 41.9%, G3 43.7%, Control 46.6), when the numbers of oocytes put in culture were considered. When the evaluation of the blastocysts rate was calculated on the cleaved oocytes not significant differences were found among groups (G1 54.3%, G2 60%, G3 56.8%, Control 54%).

443. EXPRESSION OF PROGESTERONE RECEPTORY IN TISSUE OF COWS OVARIAN CYSTS. R. Tamane1,2, A. Jemeljanovs 2, M. Pilmane1. ‘Latvia Academia of Medicine, Institute of Anatomy and Anthropology, Department of Histology. ‘Research center”Sigra” of Latvia University of Agriculture, 1 Instituta Street, Sigulda LV-2150, Lativa.

Cystic ovarian degeneration is a common reproductive disorder in cattle, but there is wide spectrum in opinions about aetiology and pathology of cystic ovarian disease. The aim of the present study was to
investigate the possible modification in the concentrations of progesterone receptors and mRNA in the tissue of ovarian cysts in dairy cows and to correlate them with thickness of cysts wall. We investigated progesterone receptor (PR Rec) expression and mRNA expression in 7 cysts in our studies. Tissue of bovine ovarian cysts was obtained from slaughter animals, fixed in solution of Stefanini and embedded into paraffin. For detection of PR Rec expression we used biotin–streptavidin complex by Traish and Wotiz (1990) immunohistochemical method. mRNA expression was examined with pironin staining by Unna-Brache method. Results of our investigation show that between expression of progesterone receptors and mRNA in tissue of cysts and thickness of cysts wall consists strong positive correlation (R_{PR Rec} = 0.84; \text{R}_{mRNA} = 0.70). Those data support a hypothesis about luteal cyst aetiology that luteal cysts are derived from follicular via luteinization of the walls in follicular cysts.

444. FUNGAL ABORTION RATES IN GOATS OF KAZEROON REGION. H. Rashidi, M. Kaghazchi. School of Veterinary Medicine, Shahid Chamran University, Ahvaz, Iran.

This study was accomplished on 100 aborted goat fetuses from flocks in the region, from November to March. Fungal agents were isolated from 40% of the sample, of which 16.7% Rizopus, 15% Aspergillus Flaus, 5% Aspergillus Aumigatus, 1.7% Mucor and 1.6% Absidia were found responsible. Lung was the most susceptible organ to fungal infections with 41.7% of cases. Umblical cord and abomasum each showed 29.2% of such infections. 8.3% of aborted fetuses showed specific symptoms, 29.2% nonspecific symptoms and 62.2% no symptoms. The most fungal abortion rate occurred in December and January (87.5%), in which high occurrence in December (62.5%) indicates the peak rate in this month. The most total abortions occurred at 100-115 days of gestation. 62.5% of fungal abortions at 100-115, 16.6% at 115-130 and 4.3% beyond 130 days of pregnancy. Based on direct correlation between the amount of humidity caused by high rainfalls to contamination of food storages, with regards to low rainfall in the region during the study, it could be estimated a fungal abortion storm in goats during good rainy years.

445. HEMOPHYLUS SUMNUS ENCOUNTERED WITH ARTIFICIAL INSEMINATION IN CATTLE. N. Atyabi, P. Havarashti, M. Vojgani, J. Vandyosefi, Iran.

During a period of artificial insemination of cattle in several farms around Tehran, Iran, the animals involved with endometritis, infertilization and abortion. Bacterial culture was done on 23 samples of semen. Hemophilus sp. Was separated from 20 of 23 samples, which were confirmed through serologic test. Biochemical tests were done to diagnose the species of the bacteria. The later tests revealed the presence of H. sumnus in the artificial prepared semen. This species was never seen in genital tract of cattle (male and female) in Iran nor H. agni in sheep. Attempt to culture this bacteria was not also successful. This was the first case of H. sumnus in this country and made the veterinarian to be careful in running the artificial insemination procedure from infected semen.

Circulating LH isoforms were determined in serum samples taken during the ovulatory peak of PGF2-induced estrus in seven heifers and six cycling goats. Serum samples were dialyzed (14000 cutoff), lyophilized and then resuspended in a smaller volume in pharmalyte (pH 7.0), to be fractioned in an ionic exchange column (PBE-118) equilibrated in 25mM triethylamine (pH 11.0), to which a gradient of pH from 10 to 3.5 was applied. Effluents were collected in 150, 2ml fractions; pH and LH were determined for each sample. LH was measured (after adjustment of pH to 7.0) by a radioimmunoassay validated in our laboratory. LH quantities in the different fractions were grouped according to the pH of elution in two ways: basic isoforms (pH > 7.5), neutral (pH 7.5 to 6.5) and acid (pH < 6.5), or in one unit values of pH (10, 9.99-9.0, 8.99-8.0, 7.99-7.0, 6.99-6.0, 5.99-5.0, 4.99-4.0 and 3.99-3.5). The proportions of the total eluted LH at a given pH interval were arccosine transformed for variance analysis to define differences between species. The proportions of basic (57.7(6.2 vs. 74.2 (1.7), neutral (13.6 (2.6 vs. 6.3(2.3) and acid (28.5(2.8 vs. 19.5 (1.5) forms were different (P<0.05) between heifers and goats, respectively. When analyzed by units of pH, the proportions were different (P<0.05) only in the ranges 9.99-9.0 (30.2(4.7 vs. 5.8 (1.5), 8.99-8.0 (21.5 (5.1 vs. 63.9 (1.4) and 3.99-3.5 12.3 (2.5) vs. 8.9 (2.2), between heifers and goats, respectively. As demonstrated in bovine pituitaries, circulating LH in the preovulatory peak is heterogeneous in heifers and goats; the isoforms in this later specie are more concentrated in a basic form with little variation between individuals. Basic forms are biologically more active but with shorter circulating half life. To the best of our knowledge circulating LH isoforms had not been previously reported for cows, heifers or goats.(CONACYT 25748-B).

447. INTERACTION OF SUCKLING AND NUTRITION ON POSTPARTUM ANOESTRUS OF GOATS KIDDING IN AUTUMN. L.L. Lopez, M.J.J. Valencia, P.E. Gonzalez. School of veterinary medicine, UNAM. Ciudad Universitaria, México DF.

Sixteen primiparous goats (4 per group) kidding in autumn, were fed 80% (LE) or 120% (HE) of their energy requirements and suckled for 60 (S) or 6 d (M) from kidding; all goats were milked 1xd and offered 100% of their crude protein requirement. They were observed until first progesterone serum content (P4) (1ng/ml. Diets were adjusted weekly for each goat according to body weight and milk production. Blood samples for P4 and ultrasound (7.5 mhz) observation of the ovaries were performed twice a week. Each goat was blood sampled for serum LH measurements in two occasions; when they started to gain weight and after they showed an ovarian follicle (5 mm in diameter (sampled during six h every 15 min). The response variables were: Days postpartum to first follicle (3mm (fd3) and (5 mm (fd5); diameter of the largest follicle closest to first ovulation (dmax), and days to first ovulation (p4 (1 ng/ml; dov). These variables were analysed by ANOVA in a 2x2 factorial. LH values are given as number of pulses in 6 h. There were no differences (P(0.05) between groups in fd3 (21.3 (3.5d), fd5 (31.5(5.9d) or dmax (7.5(0.8 mm); neither were different the means for dov (LEM 69d; LES 55d ; HEL 59d and HES 58d; s.e was (7.6d; P(0.05). LH pulse frequency was higher during the first sampling period than during the second (9/16 vs. 14/16 goats with < 2 pulses in 6h, respectively; P<0.05). The lack of differences may be due to the fact that kidding occurred in the months when goats are already cycling, and perhaps because feed restriction was not enough in LE. The results indicate that hypothalamic-pituitary activity is larger in the early postpartum and then diminishes before the final events leading to the first ovulation. This paper documents some parameters of ovarian and hypothalamic-pituitary function in the postpartum anestrus of goats.
448. MACRO AND MICRO CHARACTERISTICS OF THE COW’S NIPPLE BARRIER. R. Avdic, H. Pobric, I. Arnautovic, Z. Mornjakovic, F. Tandir. Department of Anatomy and Hystology with Embryology. Faculty of Veterinary Medicine, University of Sarajevo; Bosnia-Herzegovina.

The structures of the end of the Nipple and the Papillary duct are marked as the Nipple barrier which represents the first line of defense of the Milk gland against the penetration of the pathogenic microorganism (m.o.). Morphologically, the Nipple barrier consists of: a Papillary duct with its epithelium, Fürstenberg’s rosette, an elastic connecting tissue and smooth muscle elements which surround the Papillary duct (M. Sphincter Papillae), and structural and biochemical elements of the keratinous layer. The Papillary duct (Ductus Papillaris) has a form of vertical straight lines coated by keratin. The cows with a thicker keratin layer are more resistant to the mastitis. Any damage of keratin is a predilection place for the entrance of the pathogenic m.o. within the papillary duct, which remain in that place. Fürstenberg’s rosette is a fold of the mucous membrane at the boundary between the Papillary Canal and the Papillary Cistern. It has the shape of a fold of the mucous membrane, 0.7 to 1.2 mm in thickness, mechanically closing the Teat canal proximally preventing spontaneous milk flow. The presence of the lymphocytes which dominate, macrophages, plasma of cells and polymorphonuclears indicate the initial immune response. M. Sphincter Papillae represents the muscle layer of the tip of the Nipple made of braided smooth muscles and collagen fibers. Around the papillary duct a circular layer of smooth muscles become stronger as to form at the end M. Sphincter Papillae. Beside of this anatomical defense of the Mammary gland against the mastitis, the intensity and course of the inflammation of the Mammary gland depends also on the leucocytes velocity of migration and their bactericidal activity in the place of infection (cellular defense). The knowleedge of the anatomy of the tip of the Nipple and Papillary canal i.e. of Nipple barrier, is the condition for the improvement of the method of protection of the Milk gland. The Nipple Canal, thickness of keratin, Fürstenberg’s rosette and M. Sphincter papillae are the elements of the nonspecific defending mechanism of the Mammary Gland.

449. MACROSCOPIC STUDY ON FETAL TESTES OF KHOOZESTAN NATIVE BUUFFALOES. Y. Mazaheri, H. Rashidi, R. Ranjbar. Dept of Basic Science School of Vetcmedicine Shalud Cl1amran University Ahvaz, Iran.

This study was performed on testes of 76 buffalo fetilses, measured ranging CRL~ 4Cl11 to 70Cl11. The samples were collected mainly Ahva.z slaughterhouse. This study was based on 2 objectives: Biometrical, and Descent of testes. Results were recorded as photographs, tables and charts. In Biometrical study: Right and left testes were equal in lengih, width, depth and weight. Testes showed a rapid growth rate at first, then slowed clown. They showed sessamoidal appearance at first, but became elongated ellipsoid gradually. Intra-abdominal descent occurred at about (CRL=20C). The right testis descended first. There was nat any extra-abdominal descent in fetal life.

450. PATTERNS OF ANTIMICROBIAL RESISTANCE IN SUBCLINICAL MASTITIS PATHOGENS. R. Bexiga¹, L. M.Cavaco¹, V.Almeida¹, J.Cannas da Silva¹ and C.L.Vilela¹. 'CIISA, FMV, Portugal. ²Private practitioner, Portugal.

Mastitis is one of the best-studied pathology affecting dairy cows, but still remains one of the major causes of economic losses for the farmers. The vast choice of antimicrobials available leads frequently to
a therapeutic approach not based in the pathogens involved or the course of the disease. The present work aimed at identifying patterns of antimicrobial resistance in subclinical mastitis pathogens, in order to allow the definition of a first choice drug to be administered. The study involved twelve dairy farms from the central region of Portugal. Representative samples were randomly collected for subclinical mastitis screening. Positive samples were aseptically collected to perform biochemical identification and antimicrobial susceptibility tests. The incidence of pathogens isolated in each farm is presented and correlated with the herd husbandry. Patterns of antimicrobial resistance are discussed in terms of therapeutic decision.

451. POITOU JACKASS SPERM CRYOPRESERVATION. A. Trimeche1, P. Renrad2, D. Tainturier2. 1 Ecole Nationale de Médecine Vétérinaire, 2020 Sidi Thabet, Tunisie. 2 Ecole Nationale Vétérinaire, BP 40706, 44307 Nantes, cedex3, France.

We have tried to establish sperm banking for the endangered Poitou jackass. No successful cryopreservation technique had been described for spermatozoa of this species, our preliminary work indicated that a particular medium and procedure may be effective for cryopreservation of Poitou jackass spermatozoa as evaluated by sperm motility, membrane integrity and pregnancy rate after AI with frozen-thawed semen. We found that glutamine at 80 mM and 10% (v/v) quail egg yolk in a basal medium containing 4% (v/v) glycerol (T2-94 medium) improved the post-thaw total and progressive motility and velocity assessed with automated analyser ATS-M. The T2-94 medium also preserved the sperm nuclear, acrosom, and plasma membrane integrity as assessed with acridine orange method, fluorescein-conjugated Pism sativum agglutinin (FITC-PSA) lectin procedure, and hypo-osmotic swelling test, respectively. Semen frozen-thawed in T2-94 medium as used to artificially inseminate 13 Poitou jennies from beginning of estrus to ovulation during 4 cycles at a rate of one AI per day. 8 pregnancies and 3 foals were obtained, but only when the glycerol was removed from sperm before AI. We conclude that the cryopreservation of Poitou jackass semen for sperm banking may succeed by using the T2-94 medium and removing the glycerol post-thaw, but before AI.

452. RELATION BETWEEN BIPARIETAL SKULL DIAMETER AND AGE IN FETUCES OF ARABIAN EWES. H. Morovati, M. Ghorbanpoor, K. Mirzadeh. Mohammadsadegh, M. Shahid Chamran University, Faculty of Veterinary Medicine, Ahvaz, Iran.

In this survey 101 Arabian ewes (45±3 kgs mean body weight and 2 to 6 years of age) from Ramin farm in Ahvaz were studied on two following breeding seasons to measure biparietal skull diameter (BPD) of fetuces. In pregnant ewes the BPD were weekly measured by B-mode real time ultrasonograph (surface probe- 3.5 MHz). The minimum detectable BPD was 1.3 cms (day 28 of pregnancy) and the maximum detected one was 9.9 cms (day 127). The results indicate that the age of fetuces in this breed can be estimate according to BPD.

453. REPRODUCTIVE PERFORMANCE IN NELLORE (Bos Indicus) HERDS SIMULTANEOUSLY SEROREAGENT TO LEPTOSPIROSIS IBR AND BVD. M.E. Genovez1, E.M. Pitucol, J.C. Oliveira2, L. Gregory1, C. Del Fava1, C.I.L. Ferrari1, E.S carcelli1, M.V. Cardoso1, L.M.P.S Grasso1, V. Castro1, E. Stefano1, F.C. Ferreira1. 1 NURAIB- Núcleo de Reprodução Animal do Centro de Sanidade Animal do Instituto Biológico. 2 CNpq Scholarship. 1 Instituto de Zootecnia. 2 CATI, São Paulo, Brazil.
In Brazil, the frequency of herds that are not vaccinated against leptospirosis, IBR and BVD, and are simultaneously seroreagent to these reproductive disorders is around 40%, mainly in beef herds. The impact and importance of this occurrence on the productivity of the herds is not known, as well as which control measures and/or therapeutic procedures should be used, and what the priority is. In order to answer these questions, two properties were selected (A and B), from the second largest beef producing region in the state of São Paulo-Brazil, which reflect the extensive management scheme used in Nelore (Bos indicus) breeding for beef production in this country. Herds were bred in a rotational grazing system using Brachiaria decumbens; 0.92 and 1.22 animal/ha, and receiving mineral salt ad libitum. Body condition score at the end of the reproductive (rainy) season was A=5.25 ± 0.64 and B=5.22±0.80, and before parturition (dry season), A=5.21±0.82 and B= 5.38± 0.71. Animals were only vaccinated against brucellosis, foot and mouth disease and. From November/99 to May/01, using natural breeding, with a proportion bull/cow equal to 24.5 and 18.8 and females from 2 to 6 years old, both herds were evaluated in relation to: conception rate (CR), parturition rate (PR), interval conception-calving (ICC) (>85 and ≤85 days) and odds ratio (OR) in the groups seropositive and seronegative for the individual diseases and associations between them, in groups of two. The frequency of reagent animals was: 89.2% (189/212); 8.9% (20/225) and 42.7% (97/227) and 13.6%(25/184); 30.7% (71/231) and 71.1% (118/166), respectively, for leptospirosis, IBR and BVD in farms A and B. CR (A=71.6% and B=71.3%) and PR (A=57.8% and B=65.5%) were used as bases for the analyses. Groups reagent and non-reagent for the three isolate diseases and associations in groups of two were compared in relation to CR, PR, ICC and OR and statistically analyzed by Fisher’s test, using a 95% confidence interval. Results do not show a significant difference in the fertility and parturition rates of most of the groups. Only in herd B animals seronegative for leptospirosis presented a larger PR than the positive ones (p=0.013). It may be concluded, based on these data, that in Brazilian management and climatic conditions, the interference of these diseases is not too evident. Therefore, it is necessary to perform a more complete analysis of the low impact of these diseases in Brazilian cattle.


Mastitis represents the major cause of economic loss in sheep and goat breeding in Sicily and a serious problem of veterinary public health due to the increase in antibiotics resistances in the strains involved. The authors report the data collected from 1997 to 2000 by the territorial diagnostic laboratory regarding mastitis aetiology in sheep breedings in Sicily. Sheep belonged to different breeds (Comisana, Pinzerita, Valle del Belice and Indigena), were fed in open pastures and, in the majority of the cases, were manually milked. The milk samples submitted to bacteriological examination were taken from animals that presented clinical signs of mastitis at various evolutionary stages. A total of 633 breedings were controlled and 3760 milk samples collected. Results showed that 35.27% of the samples were positive either for pathogens already described as contagious pathogens of mastitis or for environmental microorganisms, while 64.73% shows negative results. Contagious pathogens represented 71.02% of the isolates, including: Staphylococcus aureus and S. intermedius (37.99%), Mycoplasma spp. (28.68%), Mannheimia haemolytica (3.61%), Streptococcus agalactiae (0.74%); while environmental pathogens represented 28.98% of the isolates, including: coagulase-negative (CN) staphylococci (26.29%) Streptococcus uberis (0.57%), Corynebacterium pyogenes (0.08%), Escherichia coli (1.47%), Pseudomonas aeruginosa (0.49%) and Streptococcus pyogenes (0.08%). Noteworthy in the 1.21% of the isolates, the
contemporaneous presence of the same milk sample of two contagious pathogens. The authors also report preliminary data on the detection of antibiotic resistance against the molecules frequently used in the therapy of mastitis.

**455. STAPHYLOCOCCUS AUREUS PREVALENCE IN A MASTITIC SECRET OF COWS WITH UDDER INFLAMMATION.** A. Jemeljanovs, I.H. Konosonoka. Research Centre “Sigra” of Latvia University of Agriculture, 1 Instituta Street, Sigulda LV-2150, Latvia.

Clinical and subclinical mastitis remains a major problem for the dairy-farming in Latvia. Mastitic milk is unusable for human consumption because it contains pathogenic microorganisms, their toxins and metabolism products. Bacteria which cause a strong inflammation response promote an increase in somatic cell count up to several million per 1 ml milk. Such mastitic milk creates economic losses for milk providers. Therefore it is essentially to detect mastitis causal agents to provide appropriate treatment. Microbial flora of milk samples from cows with clinical and subclinical mastitis was studied. Complex and selective culture media were used for morphological differentiation of the microbial flora. BBL Crystal gram-positive and gram-negative identification system was used for classification of microorganisms to species level. Most frequently isolated species were from genus Staphylococcus. 23.4% were coagulase- positive *Staphylococcus aureus* and *Staphylococcus intermedius*. 18% were coagulase- negative *Staphylococcus capitis*, *Staphylococcus xylosis*, *Staphylococcus schleiferi*, *Staphylococcus caprae*, *Staphylococcus kloosii*. In 10.8% of cases were isolated. microorganisms from genus Streptococcus, in 9% -microorganisms from genera Enterobacter and Escherichia and in 2.8% - microorganisms from genus Salmonella, Pseudomonas fluorescens, Brevandimonas diminuta. In 36% of cases were not isolated pathogenic microorganisms. In 10.8% of cases were isolated microorganisms from genus Streptococcus, in 9% -microorganisms from genera Enterobacter and Escherichia and in 2.8% - microorganisms from genus Salmonella, Pseudomonas fluorescens, Brevandimonas diminuta. In 36% of cases were not isolated pathogenic microorganisms. The majority of the milk samples infected with pathogenic microorganisms showed very high somatic cell count. In 69% of cases -from 400000 up to 1 million, in 15.5% -from 1 (up to 3 millions, in 12.7% from 3 up to 9 millions and in 2.8% -from 200 000 up to 1. 400000 thousands) The presence of pathogenic bacteria in milk samples was correlated to an increase of somatic cell count. It can be used to detect inflammation and to monitor the health of cow. If Somatic cell counts were not significantly different between milk samples infected with 1 coagulase-positive or coagulase-negative staphylococci.

**456. STUDY OF INFLAMMATION REACTION OF CERVICAL EXTERNAL OS AFTER CYTOLOGICAL SAMPLING IN CATTLE.** M.R. Ahmadi, A. Nazifi, S. Kafi, S. Salmannejad. Veterinary Medicine, Shiraz University, Shiraz,71345,P.O. Box.1731,Iran.

The objective of this study was to study the possible inflammatory reaction of the bovine cervix following cytological sampling and then how many days later in would relieve. Twenty-four pregnant cows (2-4 month) and 9 non-pregnant cows in the luteal phase were used in this study. Smears were prepared from cervical discharges of 24 pregnant cows of 2-4 month pregnancy, repeated at after days, three days (8 cows), seven days (8 cows) and fourteen (8 cows). From non pregnant cows at days, eight (9 cows), eleven (3 cows) and fifteen (6 cows) of estrous cycle. The smear was then stained with Giemsa stain and examined under oil immersion lens so that in 20 field examined, cells were differentiated and counted. Statistical analysis showed no differences in the percentage of epithelial cells, large vacuolated epithelial cells and neutrophils in the non pregnant at day 8, 11, 15, of the estrous cycle. In the pregnant cows there were no significant differences in the percentage of epithelial cells and large vacuolated epithelial cells on
days zero, 3, 7, 14 of sampling. It was also revealed that there was a significant difference between average number of neutrophils on day 3 (2.47±3.86) and days 7, 14 which indicates the effect of sampling on the occurrence of an inflammatory reaction, which continues until day 3 sampling and then relieve later. We deduced that inflammatory reaction is limited because the difference of the number of neutrophils between day 0 and 3 of sampling was not statistically significant.

457. SYMPTÔMES CHEZ LES CHÈVRES SÉROPOSITIVES À LA FIÈVRE Q. T. Bajrovic, Velic, R. Institute of epizootiology, University of Sarajevo Bosnie-H.

Dans la période les avortons et les prises de sang les chèvres les auteurs ont observés simultanément l’échauffage ce qu’une nouvelle clinique la forme fièvre Q chez les chèvres. Entre du 117 animaux (22 les boucs et 95 les chèvres) à la recherhe, plus de 70% ont avortées et aussi avec les anticorps contre coxiella. On a utilisé le test E L I S A. Tous les prises de sang ont été negative de la brucellosse et chlamydiose. Il se semble par manque de le résultat (la lésion) microscopique la perturbation les hormones pourrait provoqué les avortons.

458. IN VITRO FERTILIZATION OF CUMULUS-FREE BOVINE OOCYTES IN MEDIUM SUPPLEMENTED WITH HEPARIN AND DIFFERENT CONCENTRATIONS OF CALF SERUM. P. Tajik, H. Ghasemzadeh-Nava. Department of Clinical Sciences, Faculty of Veterinary Medicine, University of Tehran, P.O.Box:14155-6453, Tehran, Iran.

Bovine follicular oocytes were isolated from ovaries recovered from a local slaughter-house within 2h. Oocyte-cumulus complexes were washed 4 times with TCM-199 (with Earle’s salts) and supplemented with 10% (v/v) heat inactivated fetal calf serum (FCS), 100 IU/ml penicillin G and 0.1 mg/ml streptomycin. Every ten oocytes with compact cumulus cells were transferred into a 0.1-ml drop of the culture medium. Covered with paraffin oil, which had been previously kept about 2h in a CO2 incubator before the oocytes were added. After culture of oocytes for 22-24h, they were randomly divided into 2 groups. One left intact and the other freed from cumulus and corona cells by treatment with PBS containing 0.1% hyaluronidase for 10-20 min and by repeat passage through a fine pipette. Oocytes were then washed twice with BO (Brackett and Oliphant, 1975) medium containing heparin and different concentrations of calf serum (CS) into a 0.05-ml drop of the same medium. The transferred oocyte dishes were kept in a CO2 incubator for about 30 min until the same volume of spermatozoa were added for fertilization and the final volume of drplets were 0.1 ml. Semen preparations and insemination were according to Tajik et al, 1993. Results: Of 31 cumulus intact oocytes inseminated in CS free medium, 15 (48%) were penetrated, similar to the penetration rates of oocytes in 20% CS (43%). However the penetration rates of oocytes in 5% and 10% CS were significantly higher (74%). No penetration of cumulus-free oocytes was observed in the CS free medium. However the penetration rates in 10% and 20% CS were 100% and 83%, which were significantly higher than non-supplementation and 20% CS supplemented media. Conclusion: In the present situation it can be concluded that, there is no penetration of cumulus-free oocytes in the BO medium lacking protein supplement (in the present study CS). However, 48% of cumulus-intact oocytes were penetrated. High concentration (20%) of CS is not recommended for in vitro fertilization of bovine oocyte.
The aim of this study is to intensify the use of Artificial Insemination (AI) in dairy cattle in Tunisia, to improve the quality of AI services, the detection of heat, the routine use of early diagnosis of non-pregnancy and to decrease problems of fertility, to identify causes of inefficiency and to implement appropriate measures to rectify them.

This study financed by the IAEA (Project AFRA-RAF/5/046) was conducted in four dairy farms (CPRVE, Agri Tec, EL Amra Center I and II). A total of 341 dairy cows was sampled on day 0 (day of conducting AI), day 12 and 22 - 24 days after oestrus.

Milk samples (n=1154) were analysed for progesterone using the IAEA/FAO Self Coating RIA system. Data concerning the management of all female were correctly recorded and analysed by a computer database “Artificial Insemination Database Application” (AIDA).

Progesterone concentration was estimated in 460 milk samples collected at day 0 (day of doing AI). Nearly 90% (n=414) of all inseminations were done when progesterone was less than 1,0 nmol/l.

Ovulation is deducted to have occurred when animal whose progesterone value at AI was less than 1,0 nmol/l rises to more than 3,0 nmol/l by day 12. Ovulation was confirmed in 83,4% (n=316). Notably, however, 16,6% of the cows presented for AI were anoestrus, anovulatory, or had short luteal phases.

Progesterone concentrations and accuracy of early pregnancy diagnosis samples when estimated by rectal palpation (RP) 60 days after.

Samples pregnancy RP (%) Progesterone (nmol/l)
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Inferior to 2,5 125 100,0 Between [2,5 and 3,5] 29 65,5 Superior to 3,5 124 67,0
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Main reproductive parameters in those farms were determined by AIDA and analyzed in relation of the effect of reproductive management system (keeping cattle, milking system, method of heat detection, time of AI, semen dose, inseminator, mucus discharge and progesterone concentrations).

The present study corresponds to the first phase of project TUN 51015 financed by the International Agency for Atomic Energy (IAEA - Wien - Austria) aimed to characterise the physio-pathological status of dairy cows with post partum anoestrus and after artificial insemination by hormonal profiles of progesterone determination in Tunisian context.

In the first part of this study, a set of 61 7 plasmas samples were collected starting 30 days from the date of calving until 90 days after, from 12 Holstein cows belonging to CPRVE of Sidi Thabet.

The collected Data allowed to distinct 3 categories of profiles: -Category I: Cyclic females. Oestrus behaviour was observed by the personnel of the herd. Evolution of progesterone concentrations of these females showed the presence of short oestrus cycles. -Category II: Females with suboestrus. Characterised by the absence of oestrus behaviour and by the presence of cyclic sexual activity confirmed by determination of progesterone plasma concentrations. -Category III: Females with true post-partum...
anaestrous. Characterise by animals which had not exhibited oestrus, and had a poor progesterone plasma levels ($p < 1 \text{ ng/ml}$). In the second part, a set of 1670 plasmas samples were collected starting from the date of Artificial Insemination until 80th day after, from 31 Holstein cows belonging to CPRVE of Sidi Thabet. The collected Data allowed to distinct 3 categories of profiles: i - Category I: Pregnant females Plasma concentrations of progesterone increased continually and persisted at high level over the 15th day after Artificial Insemination, only one female showed oestrus with a transient fall of; progesterone levels ($< 1 \text{ ng/ml}$) on the 48-49th day after Artificial Insemination.; Category II: Non pregnant females which displayed oestrus behaviour. Analysis of the mean curve of hormonal profiles of this steroid revealed an oestrous cycle for an 1 average period of $21.6 \pm 2.2$ days, with a rising phase of $6.8 \pm 2.4$ days and a plateau of $13.5 \pm 2.0$ days and finally a rate of luteolysis of $97 \text{ p. cent}$, 48 hours after the last day of high value. Moreover, 3 females showed oestrus behaviour between 26 - 40 days after Artificial Insemination. Evolution of their progesterone plasma concentrations showed a lengthening of oestrous cycle ($> 25$ days) with a different luteolysis. This suggests late embryonic mortality. Finally, among cows of this category, two females were devoid of all cyclic activity. - Category III: Non pregnant females which showed no oestrus behaviour. Evolution of progesterone concentrations of these two animals confirmed their cyclic activity in spite of lack of oestrus detection by the personnel of the herd. This observation contributed to reveal a major problem of oestrus detection by the personnel of the herd. This observation contributed to reveal a major problem of oestrus detection. From those progesterone profiles it was found that the oestrus detection was low : 40 p. cent in this herd. In conclusion, this study presents realised for the first time in the Tunisian context physiological and physio-pathological profiles of progesterone after calving and artificial insemination in dairy cows. The present data may hence be considered from now on, as the Tunisian references for this type of cattle. This should be of some help to the veterinarian practitioners to improve their therapeutic efficiency, finally beneficial to the whole national dairy industry.
461. SEQUENCE COMPARISON OF A VERY VIRULENT INFECTIOUS BURSAL DISEASE VIRUS (IBDV) PREVALENT IN IRAN. S.D. Hosseini. Research center of Natural Resources and Animal sciences, P.O.Box: 38135-166, Arak, Iran.

Variable cDNA regions in the VP2 gene of a very virulent infectious bursal disease virus (IBDV) isolated in Iran was amplified by polymerase chain reaction (PCR) and sequenced. Of the nucleotide and deduced amino acid sequences with those of other strains of IBDV indicated that Iranian very virulent IBDV is different from all other strains of IBDV that were compared. The number of amino acids that differed between strains showed that very virulent IBDV is more closely related to Malaysia, Japan and Europe strains, respectively. The results probably suggest that a single strain of very virulent IBDV that have originated from a German strain is prevalent in Iran.


In recent years, due to the shortage of foodstuff and economical concerns, different enzymes and products are being employed to increase productivity. This study has been conducted to make a comparison and determine the effects of two different food additives, Safizym (a simple enzyme) and Biosaf (a live yeast food additive). The study had been repeated three times in different poultry farms in Tehran Province. In each series of study, four groups of one-day-old chicken (100 chicks in each group) were designated in four pens. The rations were formulated with cheap foodstuff; so, they were a little bit poor in their energy and protein content but having higher level of fiber, mainly formulated with wheat and barley. These four group were feed as follows: Group 1: Poor ration, with out any additive, Group 2: Poor ration + appropriate amount of Safizym Xp500, Group 3: Poor ration + appropriate amount of Safizym Gp500, Group 4: Poor ration + appropriate amount of Biosaf. Indicator of immune response was antibody production in response to IBD and ND vaccination of broilers according to the routine vaccination program performed in Iran. In days 15, 30 & 45, blood samples were taken from 10 individuals in every group and Elisa assay was performed. It should be mentioned that not only the average level of maternal antibodies of chicken were clear according to IVO regulations for 1 day old chickens, but also all other husbandry parameters e.g. growth trends, wastes, feed conversion ratio and drug consumption were recorded and analyzed. Based on the statistical analysis, no significant difference in immunological responses was observed among the control groups and group 1 and 2; but the level of antibodies of group 4 was significantly higher than the others. The biological significance and relationship between Biosaf usage and immune responses (level of antibodies) is the subject of discussion.

463. PROTECTION OF ARN (Hypericum perforatum) INDUCED TOXICOSIS IN CHICKENS BY VITAMIN E AND SELENIUM. Y. Al Mayah Jabbar. Kufa University- College of Medicine – Kufa Iraq P.O. 18 Iraq.
The interaction between dry immature piant of Aran (Hypericum perforatum) and vitamin E and selenium were examined in whit female chickens. The chickens were exposed to direct sun light at noon for 20 minutes daily after H. perforatum treatment for 12 days. H. perforatum at 2.5gn/kg, orally in gelatin capsules produced toxic signs including photophobia, redness of the beak, com and face, shaking the head, itching, hyperkeratosis of the comb and keratoconjunctivitis, packed cell volume, hemoglobin concentration and body weight of chickens reposed to Aran were significantly decreased in comparison with the control values. Vitamin E and selenium administration at 300mg/kg + 6mg/kg orally in gelatin capsules 60 minutes H. perforatum treatment markedly reduced the intensity of toxic signs and significantly increased the packed cell volume, hemoglobin concentration and body weight of chickens in comparison with the H. perforatum treated group, the data suggested that vitamin E and selenium which have antioxidant effects protected chickens from the toxicity of H. perforatum.

464. MYCOFLORE DE L’ENVIRONNEMENT DES POULAILLER DE LA REGION DE BATNA. N. Alloui1, O. Lombarkia-Alloui2, T. Kolbuszewski3. 1Dept de Médecine Vétérinaire, Faculté des Sciences, Université de Batna, Algérie. 2Dept d’Agronomie, Faculté des Sciences, Université de Batna, Algérie. 3Dept de biologie et de l’environnement animal, Université d’Agriculture, Varsovie, Pologne

The object of the research was mycoflora of 10 broiler houses with the flock between 5000 -10.000 broiler chickens. 120 samples were taken from the following elements: air, feed and litter. The material underwent a mycological analysis. The results obtained prove that in all the samples from particular elements a heavy growth of the fungy colony (Aspergillus spp, Candida spp, Penicillium spp, Cryptococcus neoformans, Trichosporon spp, Fonseceae spp, Curvularia spp, Rhodotorula rubra, Mucor spp, Rhizopus spp, Alternia spp). The litter was most colonized than feed and air. Ventilation system has influenced mycoflora composition.

465. EFFECT OF DIETARY FORMIC ACID LEVEL ON Salmonella gallinarum COLONIZATION IN BROILER CHICKS. K. Alshawabkeh, A. Kanan. Faculty of Agriculture, University of Jordan, Amman, Jordan.

Two experiments were conducted to investigate the effect of dietary formic acid levels (0.0, 0.5, 1.0 and 1.5%) on S. gallinarum colonization, pH and mortality rate of broiler chicks and in the diet in an in vitro study. The colonization of S. gallinarum and pH in the contents of crop, small intestine, large intestine and ceca were decreased significantly (P < 0.05) at each formic acid level at 7, 14 and 21 days of age compared with control. The results showed also that the formic acid improved mortality rate of experimentally infected chicks. The viability of S. gallinarum and pH of diet was decreased in a concentration-dependent manner compared with controls at intervals after treatment.

466. EFFECT OF PRE-PROBIOTIC (FERMACTO-500) ON YIELD CHARACTERISTICS OF BROILER CHICKEN. A. Altmeyl1, H. Cerit2, O. Elamzel. 1University of ISTANBUL, Veterinary Faculty, Department of Animal Breeding, Istanbul, Turkey. 2University of Istanbul, Veterinary Faculty, Department of Animal Breeding and Genetics, Istanbul, Turkey.

Parallel to the developing poultry sector, using of the new feed addition matters become widespread. The feed addition matters which are used unconscious, harm the human health or the growing animals. At the
same time the addition matters which are used wrongly, can’t show the wanted effect on the growing animals and can’t satisfy the producer so harm the economy and the winged production sector. Because of these causes, using of feed addition matters, must be based on scientific researches. This research has been planned determine the Fermacto-500 how much will effect, the body weight gain, benefiting from the feed and living energy in the commercial meaty chickens. Production characteristics of meaty chickens have been investigated with 4 experiment groups, each group includes 100 animal which are composed thinking different ME levels. Fermacto-500 has been also added in rate %0.2 as pre-probiotic to beginning and growing feeds of the experiment groups. Parallel to these experiment groups, 4 control groups have been composed which have given feed without pre-probiotic. For experimental order, and the coop has been parted to 8 equal partition, and the animals which have been attached number to their feet, have been placed to there partition randomly. The body weights of trial birds were even little higher than the control birds until the 3rd week. After the 3rd week body weights of the trial group birds were higher than the control groups. In all groups except the Trial 2, body weight increase showed a parallel decrease with the ME level of ration. Birds of Trial 2 reached their highest body weight after the second week and continued this increase until the end of the rearing period. The same condition of body weight increase was observed in feed conversion rate also. In all groups treated with pre-probiotic, a better feed conversion rate was observed relating to their controls. Pre-probiotic treatment made no effect on the survival rate. The pre-probiotic (fermacto-500), which is added to the ration included various levels metabolic energy, had effect the body weight gain and benefiting from the feed positively. Also, when the fermacto-500 is used with the rations, included high level metabolic energy, fermacto-500 was effective on the meaty chickens production. Using of the fermacto-500 is showed that can be done economic feeding with rate 7.02% more body weight and 2.41% less feed consumption.


Different Approaches were attempted to control infection in poultry by Salmonella enteridis (SE). The use of SE bacterin immunopotentiates by thymulin and zinc, the use of a new live attenuated vaccine developed at the American University of Beirut, and use of holistic veterinary approaches were all evaluated as to immunity and protection against controlled challenges. The quantitation of SE fimbriae-specific antibodies using scanning and National institute of Health interfacing program will be discussed, as a novel approach in evaluation of interception pathologenesis of the SE organisms in poultry.

468. EPIDEMIOLOGICAL STUDY OF IBD IN BROILER IN IRAN. S. Bokaie, S. Amirhajloo, M.R. Akbari, Z. Hadjhaidari. Faculty of Veterinary Medicine, Tehran University.

Gumboro is an epizootic and acute viral Disease. Which affect broiler chicken. The clinical signs including diarrhea, ata xia, With involving bursal of Fabricious and suppressing immune system. This disease can Transfer From infected chickens to sensitive ones. Mortality appears after second days of disease. Regarding to information, refered to veterinary Organization in Tehran, about the occurance of gumboro in broiler chickens in different regions of Iran, some information such as: Mortality cases in broiler affected chickens, date to locations of occurance were taken and using Sx and excel program. The rate of mortality caused by gumboro, in different areas, and also the mean of mortality during 5 and 10 years, were calculated. The results indicate that the most rate of mortality, during to years, was in
boushehr (16.4) and Charmahal bakhtiari(1602) and the less one was appeared in Zangan and Tehran. Also, in this study, the rate of mortalities and comparing of the rate of mortality in each region were considered, as well. Between 1370 and 1372 the most rate of mortalities were found in Azarbaijan, kohkiloie and Azarbaigan, whereas the less mortalities rate were indicated in Tehran, kordestan respectively. In the final study (1379), the most rates were found in Hamadan. According to comparison of mortalities caused by Gumboro, there were a successfull programm to control of the disease. And probably with matching the fime of vaccination based on mother's antibody Titers, sever immunity is occured and it is supposed. that the mortality was decreased.

469. ETUDE BIO MÉTRIQUE DE LA COURBE DE PONTE DE DIFFÉRENTES SOUCHES DE POULES PONDEUSES D’ŒUFS À COQUILLES BLANCHES ET D’ŒUFS À COQUILLES BRUNES. A. Bessadok¹, M. Bouzouaia², M. El Ghazah³.

¹ Centre de Formation Professionnelle Avicole 2020 sidi Thabet Tunisie.² groupement interprofessionnelle des produits avicoles Tunis Tunisie.³ laboratoire de biologie, faculté des sciences de Tunis Tunisie.

Ce travail a concerné l’étude analytique et comparative des variations des paramètres de ponte d’un troupeau de poules pondeuses élevées en Tunisie dans deux différents types de poulailleurs. Ce troupeau se compose d’un effectif de 5295 poules pondeuses réparties en, 13 lignées de souche légère, 5 lignées de souche mi-lourde et 3 lignées de souche lourde. Plus de 400 milles données ont été traités pour calculer les taux de ponte de chaque lignée. Ces taux ont été regroupés en plusieurs séquences définis comme descripteur du cycle de ponte. L’analyse statistique de l’ensemble des résultats obtenus a révélé : Des coefficients de corrélations significatives entre les différents descripteurs définis au seuil de 0,01 (Pearson) * Des différences statistiquement significatives entre les performances des différentes souches (Fisher, 0,05).* Un effet variétal statistiquement significatif au niveau des différents descripteurs classant les lignées en plusieurs groupes (p<0,05 Duncun). L’ambiance contrôlée à l’intérieur des poulailleurs assurée par un système de ventilation dynamique et un éclairage totalement artificiel permet aux poules des différentes souches d’extérioriser aux mieux leurs potentialités génétiques. Les lignées de la souche mi-lourde des poules pondeuses d’œufs à coquilles brunes ont réalisé les meilleurs résultats de ponte (plus 20 œufs par rapport à la moyenne du troupeau de l’essai).

470. NEW VACCINE AGAINST Salmonella enteridis INFECTIONS OF BIRDS. A. Borisenkova, T. Rozhdestvenskaja, S. Jakovlev.

All-Russia research Veterinary institute of poultry farming, Saint Petersburg, Russia.

Creation of vaccines against Salmonella enteridis infections of birds is discussed by scientists of many countries as one of possible factors of removal the danger of concerning the given disease. Researches on creation inactivated adsorbed vaccines against Salmonella enteridis infections of birds in this connection are carried out(spent). The technology is fulfilled and pre-production models of a vaccine are received. The vaccine is harmless to chickens at an intramuscular way of introduction in a doze exceeding recommended twice. Deviations(rejections) in a clinical condition of chickens after vaccination it was marked not, at pathoanatomical opening a bird in internal bodies and on a place of introduction of a vaccine of changes it is not revealed. The vaccine causes development(manufacture) of antibodies with 4 for 34 day (term of supervision). The vaccine protects from infection of 80-90 % of white mice. The vaccine has antiinvasive properties against S.enteritidis. Vaccine checked on chickens broilers at
intratrachealis mode or per os (with a forage) ways of infection vaccinated chickens daily by culture *S. enteritidis*. As the control the infected chickens served not vaccinated. For 1, 3, 5 and 10 day of chickens hammered and carried out (spent) full bacteriological research. From chickens of skilled groups culture infecting strain have not allocated. From control chickens the culture was allocated from easy, with hearts, a liver and bile. At comparison of average bodyweight vaccinated and the infected chickens with control chickens of authentic distinctions it was received not, that indirectly confirms development of specific protection. The analysis of materials on test inactivated a vaccine against *Salmonella-enteritidis* in laboratory conditions gives an infection the basis to conclude, that the vaccine is harmless, active, has the expressed specific protection, expressed contrainvasive properties against *S. enteritidis*.

471. CHARTE SANITAIRE AU COUVOIR. T.Chambon. Cabinet Vétérinaire, Centre Commercial AR Roudour, 29650 Guerlesquin.

Le principal objectif de la charte est d’améliorer et de standardiser le niveau de maîtrise sanitaire de l’ensemble des couvoirs français avec comme résultat une meilleure qualité sanitaire du poussin. La charte de qualité des couvoirs a été élaborée en collaboration avec les vétérinaires. Elle existe depuis février 1997. Des règles communes, regroupées au sein d’un référentiel, ont été définies et validées par les professionnels et les organismes scientifiques. L’agrément charte est maintenant souvent demandé par les couvoirs et les organismes labels, qui l’imposent dans leur référentiel. Environ 100 couvoirs sont engagés dans la démarche. Pour obtenir l’agrément il y a un audit qui est réalisé par un organisme certificateur pendant une journée. La charte de qualité est régulièrement réactualisée par les membres de la commission des audits. Le système ne doit pas être statique : une remise en cause, et un suivi permanents, sont à assurer dans le couvoir. Moyens mis en oeuvre : Points importants pour l’obtention de l’agrément:
* Conception du couvoir : marche en avant, séparation des zones, qualité des surfaces, maîtrise de la ventilation, potabilité de l’eau
* Protectio-Hygiène de l’oeuf: contrôle sanitaire des élevages, ramassage des œufs, qualité des œufs à la réception, désinfection des œufs, organisation des tournées, lavage des camions
* Nettoyage-Desinfection : connaissance des produits, plan de nettoyage-désinfection, contrôle des dosages, contrôle sanitaire du couvoir
* Hygiène du Personnel : tenue, vestiaires, formation, équipements
* Processus de fabrication: identification-traçabilité, gestion des flux suspects, maîtrise des achats


La maîtrise de la qualité de la litière est un élément essentiel de la conduite et des performances en élevage de volailles. La litière doit assurer un rôle tampon dans la gestion des flux de matière organique et d’eau produits par l’animal et son milieu. La litière est également un élément déterminant de l’hygiène et du confort du milieu dans lequel vivent les oiseaux. L’ammoniac, gaz toxique favorisant l’apparition de nombreuses pathologies est produit par les bio-transformations des déjections. Ces bio-transformations sont sous la dépendance de multiples facteurs dont le plus important est l’humidité de la litière. Le contrôle de cette humidité grâce à l’utilisation de substances asséchantes permet de limiter la production d’ammoniac tout en améliorant les conditions de confort pour les oiseaux et pour le personnel. La productivité des oiseaux et l’hygiène de leurs produits s’en trouve améliorée. La valeur agronomique du fumier issu de cette litière est également améliorée. Mistral, produit naturel aux propriétés asséchantes a
démontré son efficacité dans la maîtrise de la qualité des litières et de l’environnement, ainsi que son intérêt économique pour les éleveurs. Mistral a reçu le VIV EUROPE AWARD 2001 dans la catégorie Bien-être Animal.


Fifteen 36 wk of age Single Comb White Leghorn laying hens were used to monitor the effects of acute and chronic heat stress on the daily cycle of blood pH, PO2, PC02, base excess (BE) and (HCO3-) concentration. Hens were kept at 21°C before the heat stress period (day 0 to 14). Thereafter, temperature was raised to 35°C from day 15 to 45 and then returned to 21°C until day 69. Blood sampling was performed on day 8, 15,22,30, 45,52, and 69. Blood was drawn from the metacaprial veins at 0,4, 8, 12, 16,20, and 24 h post-oviposition. Temperature effects were tested with a priori comparisons applied to areas under concentration curves depicting the parameters daily cycle and using the birds as their own controls. Egg Production dropped dramatically (P<0.05) and egg weight decreased (P<0.05) as temperature increased to 35°C. Blood pH and pO2 increased during heat stress and remained high until day 45 (P<0.05). Both BE and pCO2 decreased (P<0.05) during this period. Blood pH values were lower (p<.01) during the post-stress period (P<0.05)( at the 52 day and 69 day) than values observed during and even before the heat stress period. At the same time, HCO3 concentration did not return (P<0.05) to pre-stress levels. Furthermore, pre-stress values were noted for pO2, pCO2, and BE on day 52 and 69. Egg production was back to normal fourteen days after heat stress ended. The results suggest that both acute and chronic thermal stress causes blood alkalosis and that laying hens do not adapt to heat stress condition.

474. EFFECTS OF HEAT STRESS ON LAYING HENS PLASMA TOTAL CALCIUM, PHOSPHORUS, POTASSIUM, CHLORIDE AND SODIUM CYCLE. A. Dridi1, I, M. Lefrancois1,2 and G.I. Brisson1. Département de zootechnie, Université Laval, Ste-Foy, QC, GIK 7P4, the Center for Food and Animal Research, Agriculture Canada, Ottawa, ON, KIA OC6. Canada.

Fifteen 36 wk-old Single Comb White Leghorn laying hens were used to measure the effects of acute and chronic heat stress on total Ca+, P, K+, and Na+ plasma levels. Blood samples were taken on each hen seven days before the beginning of heat stress period (day 1), on the first day (day 8) and on day 15,22,45 of the heat stress period and on day 52 and 69 of the post-stress period. Temperature was 21°C during the pre- and post-stress periods and 35°C during the heat stress period (day 8 to 45). Venous blood samples were obtained from the metatarsi veins at 0, 12, 16 and 20 hour after ovi-position. A priori contrasts were applied to areas under concentration curve daily cycles to compare temperature effects, using each hen as its own control. Except for P, concentration of minerals and the sum of sodium plus potassium minus chloride (Na+ + K+-Cr) decreased (P<0.05) from the first day to the end of the heat stress period. Phosphores level increased (P<0.05) on the first day of heat stress and decreased thereafter until the end of the stress period. Total Ca and K+ levels during the post-stress period remained lower (P<0.05) than during the pre-stress period until day 52 and fluctuated thereafter. Chloride and Na+ came back to pre-stress levels at the end of the post-stress period (day 69), as (Na++ K+- Cr) did on day 52. ln conclusion, thermal stress caused a metabolic acidosis with hypochloremia, hypocalcemia and hypophosphoremia.

1000 poussins (Arbor Acres) ont été divisés en 4 lots. Lot1 (lot témoin recevant 60% de mais, soja, CMV), Lot 2 (recevant 40% de mais, 20% Sorgho, soja, CMV), Lot 3 (recevant 30% de mais, 30% sorgho, soja, CMV) lot 4 Lot1 (lot témoin recevant 60% de sorgho, soja, CMV). À 42 jours, le lot montre un poids supérieur (p<0.05), un IC inférieur (p<0.05) au lot témoin. Les équations de régression matérialisant l’évolution le gain de poids en fonction de l’âge révèlent que ces résultats enregistrés sont dus à une meilleure croissance surtout pendant les deux dernières semaines avec l’aliment renfermant que du sorgho.

476. In Ovo IMMUNIZATION OF CHICKS WITH EXPERIMENTAL COMBINE NEWCASTLE DISEASE AND AVIAN INFLUENZA OIL-EMULSION VACCINE. M.M. Ebrahimi, M. Moghaddampour, A. Tavassoli, S. Shahsavandi. *Poultry Vaccines Research & Production Department, Razi Vaccine and Serum Research Institute, Iran.*

Embryo vaccination (EV) is the most efficient means for early immunization and induces a wide spectrum of protection against Newcastle disease (ND) and avian influenza (AI). The advantages of this technique along with combine vaccine should produce early immunization, easier delivery and lower cost of administration. In this study the efficacy of inactivated oil-emulsion vaccines against Newcastle disease and avian influenza by use of embryo vaccination technology was evaluated. The vaccine antigens were prepared from Lasota strain of Newcastle disease and H9N2 strain (A/chicken/Iran/259/1998/H9N2) of avian influenza viruses. These antigens were emulsified with an oil adjuvant. 18-day-old embryonated eggs from Arian broiler breeder were delivered inactivated oil-ND-AI. The other group was considered as unvaccinated control chicks. Results of our study on the immunologic efficacy of EV against ND and AI, did indicate that inoculation of 18-day-old embryonated chick eggs with inactivated oil-ND-AI vaccine did not affect hatchability of eggs. This study demonstrated that *in ovo* vaccination may be a safe, because hatchability is not affected, and efficient way of vaccine delivery because of savings in time and labor associated with handling live birds. Also, *in ovo* vaccinated chicks develop early post hatch protective immunity.

477. MOLECULAR CHARACTERIZATION OF HN GENE IN NEWCASTLE DISEASE VIRUS TOWARDS DIFFERENTIATION OF LOCAL STRAIN FROM VACCINAL STRAINS. M.A. Esmaelizad, K.M. Hashemnejad. *Biotechnology department, Razi vaccine & serum research institute, Iran.*

Newcastle disease is an economically important disease in iranian poultry industry which often results in high mortality, loss in body weight and drop in egg production. Newcastle disease virus (NDV) belongs to the Paramixovirus group of enveloped, negative-stranded RNA viruses. Envelope proteins includes a large glycoprotein with both hemagglutinin and neuraminidase activity (HN), a smaller glycoprotein with cell-fusing activity (F) and nonglycosylated protein (M) localized at the inner surface of envelope. In our study we investigated the largest and multifunctional protein i.e HN gene and designed an RT-PCR in order to amplify HN gene from local strain of newcastel virus. We all the HN gene sequences from
Genebank were collected and processed for studying the Homology using Dnasis software and the conserved sequences between HN genes were located. Finally we designed 5 primers including 2 forward primers and 3 reverse primers for amplification of 500 bp, 800 bp, 1000 bp, 1312 bp and 1800 bp fragments which overlapped each other. All the local and vaccinal strains including lasota, B1, V4 were obtained from Razi institute. RNA extracted from samples using single step method described by Piotr Chomezynski and RT-PCR conditions were optimized using Amv enzyme and reverse primers. PCR products were analysed and confirmed with specific restriction enzymes and then the RFLP pattern were compared between the vaccinal and local strains using Taq I, Hinf I, Hae III, Ava II, Alu I enzymes. The results of this study showed that B1 pattern is similar to lasota strain while V4 pattern differed from the other two strains. The local strains showed completely different pattern from vaccinal strains. We hope to use this method to control the vaccinal strains contaminations with other strains.

478. INVESTIGATION OF ANTIBIOTICS SENSITIVITY OF E.coli ISOLATED FROM BROILER POULTRY COLIBACILLOSIS IN ISFAHAN, IRAN. F. Fakhrzadegan. Veterinary Center - Amir Hamzeh - Zobb ahan st - Esfahan – Iran.

With rapid increase in human population, animal protein sources should be increased and veterinarians have a very important role to protect these sources, one of these sources is broiler’s meat. Different disease threaten broiler’s production because they have fastest growth among other animals and during two month their weight increases from 50 gram to 2 kg. for prevention and treatment of disease continuous use of antibiotics leads to bacterial resistance, this most be considered when selecting antibiotics for treatment. For this reason performing antibiogram as a test to determine sensitivity of bacterial strains to different antibiotics is necessary. This research has regulated in five chapter’s: First chapter is about characteristics of family Enterobacteriaceae and Escherhia coli bacteria. Characteristics of this bacteria consist of bacterial structure, biochemical antigenic character’s, laboratory properties and pathogenesis of it that enable the bacteria to cause, different diseases that is caused by bacteria is poultry colibacillosis. That is explained in this chapter. Second chapter deals with antibiotics. in this chapter antibiotics are classified according to different basis as follows: “origin, mode of action and etc.” Then the phenomenon of resistance to different antibiotics has been studied and classification of this resistant and its causes has been mentional. In the 3rd chapter different steps of antibiogram is described and its different procedures are reviewed. the most important procedure that has been used in this research is Kibry-Baur method that is standardized according to sight Muller Hinton Agar medium. In the 4th chapter different steps of this research has been discussed. Once the diagnosis of colibacillosis established, the carcasses were sent to the laboratory and under sterile condition samples were taken from the pericardial sac and streaked on McConkey agar and incubated (37°C) for 24 hours. Then the suitable colonies were streaked on Simon Citrate, Methyle red, Voges Proskuers and Pepton water medium and after 24 hours incubation (37°C), their IMVIC formulas were characterized (++, —, in case of Ecoli). A few colonies were mixed at TSB medium and incubated (37°C) for 3-4 hours. after that it was transfer to Muller Hinton agar medium (procedures have been described completely in the text), incubated (37°C) for 24 hours, then the results were observed and recorded. At the end of this chapter the resulte have been summarized in different tables. The percentage of resistance of E. coli isolates to different antibiotics and the reasons are discussed in. The 5th chapter. The antibiotics tested in this study and their relevant, percentage of resistance are as follows: Oxytetracyclin 98.4 %, Nitroforantoin 91.2 %, sulfamid & Trimetoprime 73.6 % Flumequine 66.4 %, Neomycine 59.2 %, Chloramphenicol 58.4 % Colistin 56 %, Lincospectin 37.6
Enrofloxacin 18.4%. Considering the tables regarding the consumption of drugs by farmers, indicates that the most important factor of drug resistance is “over consumption” of drugs that most of them had not been administered by veterinarians. When resistance to a specific antibiotics occurs, then it won’t be useful to use that antibiotics in that case. At the end of this chapter some proposal have been given to reduce further resistance problem.


At the beginning of the industrialization of poultry husbandries, the breeders were not keeping more than 1000 poultry blocks at a time. However, at present, more than 10 to 20 thousand chicken are kept in only one hall. On the other hand, with regard to economical issues, demand optimal utilization of space, energy, and work in breeding and keeping poultry in the cage. Enclosing high numbers of poultry in a limited space, will lead to increment of poultry wastes (excrements) and accumulation of pollutants and contact of workers with such pollutants will jeopardize their health. However, the authorities have paid at a less than usual attention to the workers working in such environments. Pollutants found in poultry husbandries are categorized into particles and gases. The particles in turn are divided into two 1) animate and 2) inanimate categories. Inanimate particles are usually of organic origin and include pieces of wood, food, ash and feather. Scattered in the air by wind or the animals. Animate particles have larger sizes and include bacteria and fungi. Gases existing in poultry keeping halls include ammonia, hydrogen sulphide, methane, carbon mono and dioxide amongst which ammonia and methane are products of decay and fermentation by microorganisms and carbon dioxide is produced as a result of respiration of poultry and aerobic microorganisms. Level of contact of workers with such pollutants is a consideration since many surveys have reported higher than normal levels of these pollutants. Biological hazards facing workers employed in poultry husbandries include biological hazards due to contact with airborne endotoxins, viruses, and fungi manifesting as respiratory disorders and allergic alveolitis. Dust found in poultry husbandries mainly includes particles of fertilizers, wood food (including milled pieces of wheat, barley and corn, types of meal, bone meal, and fish meal...) and chicken’s feather that is scattered in the air through movement of chickens and air currents. This dust along with bacteria, fungi and endotoxins will lead to development of respiratory diseases in workers working in breeding environment. Chemical analysis of the dust has shown it to be a mixture composed of ammonia, protein, proteolytic enzymes and endotoxins. Along with dust more than 40% streptococci, 17% micrococci, 1% gram negative bacteria including coliform and 13% to 14% fungi are extracted from the poultry husbandry environments: Obstructive airway diseases: 1.a. Instantaneous asthma 1.b. Viral or delay asthma Restrictive airway diseases: Mixed respiratory diseases: Also, diseases evolving due to contact with ammonia gas include irritation of opthalmic, nasal and upper respiratory tract mucosa to which sometimes dermatological diseases are added. A pungent smell and severe irritation of mucosa will lead to a painful bronchitis. Endotoxin are present in the membranes of the gram negative bacteria which are separated from the bacteria, scattered in the air and cause such diseases as: a sense of choking, cough, and rale.
480. QUALITY OF POULTRY MEAT AND EGGS DURING FOOD INFECTIONS. T.I. Fotina. Ukraine.

One of the main problems in medicine and veterinary medicine are food infections. They are caused by different serological types of *Salmonella*, *Escherchia*, *Klebsiella* and other kinds of conditional pathogenical microflora. In this case we have conducted the retrospective analysis of isolation of pathogens of salmonellosis, escherihiosis, iersiniosis, klebsielliosis and have studied the level of contamination of poultry carcasses and eggs. The isolation was conducted from the air of poultry houses, carcasses of poultry and from the dead poultry. It was established that the main pathogens were *Coccus*, *Pseudomonae*, *Proteus*, *Klebsiella*, *Salmonella*, *Iersinia*. *Salmonella* and *Escherchia* were isolated in 49.9% of cases, *Coccus* - 21.1%; *Klebsiella*, *Pseudomonae*, *Proteus* and *Iersinia* - 29%. We have established the high level of enterotoxicity of isolated cultures (64.5%). During studying of chemical composition of healthy and contaminated meat in different combinations (*Escheriahia*+*Iersinia*; *Escheriahia*+*Pseudomonae* and so on) it was established that the contaminated meat content of fat, calories, Ca, K were decreased. It was proved that the food infections decrease not only the quality of meat but also food value of the eggs.

481. INFLUENCE OF SUPPLEMENTING CORN-SOYBEAN MEAL DIETS WITH VITAMINS C, E AND FAT ON IMMUNE COMPETENCE AND MORTALITY OF MALE BROILER CHICKS DURING HEAT STRESS. A.A. Gheisari, A. Samie, T. Mosavi, J. Pourreza, H. Miranzade. Department of Animal Science, Faculty of Agriculture, Esfahan University of Technology, Esfahan, Iran. POX 84156.

A trial 2*2*3 factorial was designed to the effects of dietary vitamins C (0 and 250 ppm), E (0 and 288 ppm) and Sunflower Oil (SFO) (0, 2.5 and 5%) on humoral and cell mediated immune responses of male heat-stressed broiler chicks were investigated. Three replicates (16 chicks / replicate) were assigned to each treatment and all birds were under a consistent temperature of 35.5 ± 1°C from 10:00 to 20:00 and 29 ± 1°C from 20:00 to 10:00 throughout the experimental period (1-49 d of age). Chicks’ antibody response to Newcastle Disease Virus (NDV) on the 10th day of post-immunization, at 18, 35 and 48 d of age where measured as their humoral immune response’s index. At 7 wk CD4 to CD8 T lymphocyte ratios in peripheral blood were determined by Flow cytometry. Neither VC, VE and SFO nor their interactions had significant effects on antibody responses to NDV, CD4 to CD8 lymphocyte ratios and total mortality. However chicks fed with VE-supplemented dietary as compared to that consumed no dietary VE supplementation caused to increase antibody titer against NDV at 18 (2.83 vs. 1.76) and 48 d of age (3.23 vs. 2.7) and also they had higher CD4/CD8 lymphocyte ratios (2.33 vs. 2). In addition, increase SFO to the diets from 0 to 2.5% enhanced Anti-NDV level at 18 and 35 d of age and CD4/CD8 ratio (2.45 vs. 1.94) at 49 d of age. Moreover, total mortality was decreased associated with increase of vitamin C concentration from 0 to 255 ppm (8.4 vs. 4.9%), VE from 0 to 288 ppm (7.3 vs. 5.9%) and SFO from 0 to 2.5 and 5% (8.5 vs. 6.8 and 4.6%), respectively. Totally, these results suggest that immune responses and especially mortality in heat stressed broiler chicks ameliorate by use of SFO accompanied by dietary VE or VC supplementation.

482. DETECTION OF INFECTIOUS BURSAL DISEASE VIRUS IN CLINICAL SAMPLES BY RT-PCR AND DIFFERENTIATION OF FIELD ISOLATE FROM VACCINE STRAINS BY RELP. S.A. Ghorashi, T. Hajian, D. Morshedi. National Research Center for Genetic Engineering and Biotechnology, P.O. Box:14155-6343, Tehran, Iran.
Tissue samples of infected poultry with infectious bursal disease virus (IBDV) were tested by RT-PCR. A 743 bp DNA fragment was amplified from VP2 gene of the virus. This region shows the most genetic variations among IBDV strains. PCR products were digested with two restriction endonucleases, BstNI and MboI. IBDV strains from imported live vaccines were also tested and results were compared. By using RT-PCR-RFLP technique, different digestion patterns were observed that suggests different IBDV strains might be differentiated by this method. Sequencing analysis of PCR products showed that Iranian field isolates are similar to other reported very virulent IBDVs in the world.

483. THE STUDY OF RESULTING EFFECTS OF RED MITE INFECTION ON A LAYING FLOCK OF 50,000. E. Gougerdchi¹, A. Feizi².¹ 1.68 SeiiedlarAlley Hafez St Emam Avenue Tabriz _ Iran. Zip code: 5163763311. Iran.

Red mite, the ectoparasite of poultry belongs to the family of “Dermanyssidae” and the species of “Dermanyssus gallinae“ which is found ali over the world specially at hotter spots of tropical regions. Old nests, roosts, the splits and sutures on the walls of a from are the places the parasite aon be detected. The parasite the poultry and other animais, transmitted. From one from to the other by alive or non-alive transmitting mediators. It is a blood -fed parasite which causes bother and stress and weakness in poultry so that results in the decrease in hatchability and the number of fertile eggs of brooder farms and decrease in production rate plus the increase in grain consumption and finally results in anemia and death in acute conditions. In this study, two forms of 50,000 birds infected and uninfected whit Red with of 80 weeks of age were studied in the summer. First, the parasite itself was observed by binoculars First, the parasite itself was observed by binoculars through direct sampling. Then blood samples were collected from 100 birds by the wing vein by hematocrit tubes for RBC count and carrying out the hematocrit test and determining PCV. These tests were carried out twice. The results showed the decrease of 5.5 % in the PCV of infected farm in the ratio to uninfected farms so that the average PCV was equal to 30. 55 % in the first farm and 35. 95 % in the second. The history of production rate and consumption of grain was also observed in both farms. It also showed an increase of 2 % in grain consumption in the infected farm. The average amount of grain consumption in infected farms was 115 gr and 112 gr in uninfected farm. There was also a reduction of 13 % in the production rate. The production rate was equal to 67 % in infected farm and 80 % in uninfected farm. Pale and anemic bodies were observable among wasting birds.

484. NEWCASTLE DISEASE IN FAMILY POULTRY: PROSPECTS FOR ITS CONTROL THROUGH ETHNOVETERINARY MEDICINE. E.F. Guèye. Senegalese Institute of Agricultural Research (ISRA), B.P. 2057, Dakar-Hann, Senegal.

Family poultry (FP) are still very important in low-income food-deficit countries (LIFDCs). However, the high incidence of diseases is one of the major constraints to smallholder poultry production systems. Newcastle disease, the most serious epizootic poultry disease in most LIFDCs, occurs every year and kills on average 70 to 80% of the unvaccinated rural family poultry flocks. Ethnoveterinary medicine is widely used by generally resource-poor FP-keeping farmers, especially women. Natural products, especially plant products that are locally available, are generally used. Although FP-keeping farmers claim that these practices are effective, there is an urgent need for applied research to substantiate their findings.
A pair of non-descriptive one-month-old pigeons was found abandoned in a house of Bangladesh Agricultural University residential area, Mymensing, Bangladesh. Both pigeons were seriously affected with nodular type of lesions. These were observed in the legs and phalanges (average number 13 and sizes varied from 0.8 mm to 6 mm), wings, thoracic region, cloacal region, corner of the mouth, outer canthus of the eye, and over the upper and lower eye lids. Both the birds developed lameness. In the circumstances, the birds were sacrificed and detailed postmortem examination was performed. The gross lesions were recorded and tissues were taken for isolation of microorganisms and histopathological study. Routine H & E staining and some special stainings were performed. Grossly, nodular lesions were observed in skin but other organs were apparently normal. Microscopically, there were acanthosis, hyperkeratosis and parakeratosis of the epidermis. The epidermal cells showed intracytoplasmic eosinophilic round inclusion bodies, enlargement of the keratinocytes with vacuolation in the cytoplasm. The nodular lesions were also characterised by pyogranuloma associated with calcification in the dermis. Staphylococci were isolated and were also detected in the tissue by Gram staining. From the gross and histopathological studies the disease was diagnosed as naturally occurring concurrent pox-virus infection and staphylococcal granuloma. Further studies on the isolation and characterization of the virus are in progress.

For the first time, a virulent strain, Irwin Moulthrop (IM) of IBDV was successfully adapted to replicate in a chicken macrophage cell line (MQ-NCSU). The adapted virus, designated IM-IBDV-Mac, caused lytic infection in cells and replicated to high titers. IM-IBDV-Mac also replicated in chicken embryo fibroblasts and vero cells, where it induced typical cytopathic effects. The adaptation of IM-IBDV to macrophages resulted in the loss of the ability of the virus to cause mortality in embryonated eggs or chickens but retained its immunogenic potential. This virus is being characterized.

A 4 step heterogeneous indirect enzyme-linked immunosorbent assay (ELISA) was used to investigate The chicken sera titre against infectious bronchitis virus (IBD) 240 broiler chicken were bled from 50 poultry farms and their sera screened individually. 79.2% of the tested sera were positive. The chickens of the poultry farms in Shiraz area were not vaccinated against IBV at the time of this study. So the presence of positive sera could be related to natural exposure of chickens to IBV. Also, 40 day old broiler chicken were purchased from a commercial hatchery and bled at 5 days intervals. The Elisa revealed that passive antibody was declining very rapidly and vanished at 15 days of age.
488. TOXIC EFFECTS OF FORMALIN (37 % FORMALDEHYDE) AND UREA, ALONE AND IN-COMBINATION, ON BROILER'S PERFORMANCE. M. Tariq Javed¹, M. Amir², M. Siddique³, S. Nawaz⁴Dept. Veterinary Pathology;¹ Dept. Veterinary Microbiology, Univ. of Agric., Faisalabad, Pakistan.

Study was conducted on 224 birds divided into seven groups at 21 days of age and were given urea and formalin through basal feed. Chicks in group 1 were given plan feed (control group), group 2 3 B 4% urea, group 3 B 20 ml formalin, group 4 B 1% urea + 2.5 ml formalin, group 5 B 1% urea + 20 ml formalin, group 6 B 4% urea + 2.5 ml formalin and group 7 B 4% urea + 20 ml formalin mixed in basal feed. Parameters studied were live weight, dressed carcass weight, absolute organ weights and feed consumption. Four observations were made at 0 day (day of start of treatment) and thereafter every week for three weeks. At the end of 3rd week, live weight and dressed carcass weights of birds given milder levels of urea and formalin (group 4) differed non-significantly from that of control group, while these were lower in other treatment groups. Absolute weight of thymus was significantly (P< 0.05) lower in all treatment groups except those given 20 ml formalin along with different levels of urea (1% & 4%), while of bursa was lower in all treatment groups. Absolute weight of spleen was significantly (P< 0.05) lower in birds given 1% urea + 2.5 ml formalin and 4% urea + 20 ml formalin, while of liver was lower in birds given 20 ml formalin, 4% urea + 2.5 ml formalin and 4% urea + 20 ml formalin. Kidney weight was significantly (P< 0.05) lower in birds given 20 ml formalin, 4% urea + 2.5 ml formalin and 4% urea + 20 ml formalin. Non-significantly difference was observed in absolute heart, proventiculous and gizzard weights between treatments and control birds. Feed consumption at third week was significantly (P< 0.05) higher in birds given 20 ml formalin alone or with 1% urea than control group.

489. AVIAN INFLUENZA. G.A. Kalidari. Iran.

Avian influenza (AI) is viral disease involving respiratory, digestive and central nervous systems of species of poultry. High potential of revolution because of segmented genome of virus (genetic reassortment) results in many difficulties in preventing and controlling and particularly vaccination against disease. Any way in the case of outbreaks caused by the viruses of low pathogenicity, vaccination has been recommended to prevent and control the disease. The aim of this research was evaluation of maternal immunity against AI and determination of half life of maternal antibodies in chickens. To do this, HI test was carried out on 400 samples from two broiler flocks, one from hens challenged with virus and other from hens vaccinated against the disease and one layer flocks. Sampling from chickens was performed in days 0,7,14,21. Mean HI titres for each flock are listed as follows: Broiler flock from hens challenged with virus: 4.2, 2.7, 1.5, 0.4 Half life of maternal antibody: 5.5 days Chicks from vaccinated hens: 7.1, 5.4, 4.1, 2.3, Half life of maternal antibodies: 4.5 days Layer flock: 4, 3.2, 2.7, 2.1 Half life of maternal antibody: 11 days Mean titre of broilers in day 0: 5.6 and half life of antibody: 5 days Mean titre of layers in day 0.4 and half life of antibody: 11 days According to these results, the suitable time for vaccination of chicks with maternal immunity is 7 to 14 days old (depending on primary titres) and 14 to 21 days old in layers.

490. EFFECT OF PROPHYLACTIC USE OF FLUOROQUINOLONE ON IMMUNE RESPONSE OF BROILERS. F. Khazal-Kaml. Department of Physiology; College of Veterinary Medicine, University of Baghdad, Iraq.
The effect of Prophylactic use of ciprofloxacin and enrofloxacin was investigated in this study. Three groups of twenty chicks viz. control, treated with 5 mg/kg ciprofloxacin and treated with 5 mg/kg enrofloxacin were used. All drugs were given via drinking water to the birds at three periods. Serum was collected for immunological assay which was done by HI test after (9) days of vaccination. The blood picture of each animal in the groups was evaluated by differential count of leukocyte at end of treatment (I) and after one week (II) and two weeks (III) of treatment respectively. Weight gain and food consumption was assessed weekly for four weeks. Drugs residue was assayed in blood and organs after one week of treatment by biological assay. In period (I) antimicrobials showed no significant effect on the level of immunoglobulines (Ig) against Newcastle Ag in all three treated groups as compared to control. In period (II) only Ci group showed significant decrease in level of Ig, whereas there were no significant differences in the level of (Ig) between treated groups and control in period (III). Ci group showed significant decrease in the Heterophil percentage as compared to En group in period (I). In period (II) there was significant decrease in Heterophil percentage of En and Ci groups, whereas there was continuous decrease of Ci group into period (III). There was no significant effect on lymphocyte percentage in period (I), whereas there was significant increase of En and Ci groups in period (II). There was significant increase in monocyte percentage of two treated groups as compared to control in period (I), whereas there was no significant effect in period (II) in En and Ci groups, whereas there was no significant effect in period (III) in all treated groups as compared to control. The esoinophil percentage of all treated groups showed a significant increase as compared to control in period (I), whereas there were no significant differences in period (III), exception there was an increase in the Ci group. There was no significant effect on Basophil percentage in period (I) of Ci group, but there was significant decrease in period (II) of En group. There was no significant effect on food consumption in Ci group during treated weeks, whereas there was significant decrease in En group during treated weeks. There was no significant effect in weight gain of En and Ci groups during treated weeks. There was significant decrease of food conversion rate in Ci group, whereas there was no significant effect in En group one week after the end of last treatment. The concentration of enrofloxacin was detectable in blood, liver and kidney, whereas ciprofloxacin was measurable detectable in muscles only after one week of treatment.

491. EFFECT OF DIFFERENT SOURCES OF COMMERCIAL ENZYMES ON LITTER MOISTURE AND INTESTINAL VISCOSITY OF THE MALE BROILER CHICKS. M.M. Kiae1, S. Leeson2, L. Caston2. 1Department of animal Nutrition, Faculty of Veterinary Medicine, University of Tehran, P.O. box: 14155-6453, Tehran, Iran, 2Department of Animal & Poultry Science, University of Guelph, ON NIG 2W1, Canada.

Two experiments were carried out to determine the effect of four sources of commercial enzyme on viscosity of the intestinal content. In first experiment, 1500 day-old male broiler chick were allocated in second experiment, 120 days-old male broiler chick were allocated in four electrically heated battery brooder with five levels using each level as replicate. Litter moisture and viscosity of the intestinal contents were measured at the end of Trial. The percent litter moisture showed no differences in both experiments. Viscosity of the intestinal content was reduced in all of the enzyme supplemented fed birds, and in non-supplemented fed birds was significantly higher at final growth stage (p< 0.01).

Analysis of 9 Iranian Newcastle disease viruses (NDV) isolated from different outbreaks of the disease during 1995-1996 were conducted for in vivo pathogenicity, variation in amino acid sequence at cleavage site and phylogenetic analysis. Intracerebral pathogenicity index (ICPI) and intravenous pathogenicity index (IVPI) values ranged from 1.77 to 1.97 and 2.32 to 2.55 respectively. Mean death time (MDT) values ranged from 56 to 39.6. Sequence of F cleavage site revealed that all isolates shared the presence of two pairs of basic amino acids in the five amino acids leading to the cleavage site at the C-terminus of the F2 and a phenylalanine at the N-terminus of F1, forming the motif ‘112RRQRRF117‘ similar to that of known virulent strains. In amino acid comparison, no substitution was observed only in isolate MK13 that showed 5 amino acid substitutions, of which 3 have been reported in F protein sequence of Texas GB, Herts/33 and ITL 45. In phylogenetic analysis a close relation was found between local and VOL95 (Russian NDV isolate). Pathogenicity indices, sequence analysis and grouping pattern in phylogenetic tree placed the Iranian ND isolates among highly virulent strains.

493. DRUG RESISTANCE PATTERNS OF Escherichia coli ISOLATED FROM CASES OF AVIAN COLIBACILLOSIS. P.H. Khoshkhoo, S.M. Peighambari. 

This study determined the resistance patterns of 100 Escherichia coli isolated from broilers’ pericarditis lesions. The isolates were tested for their susceptibility to 20 antibacterial agents using the agar disc diffusion method. All isolates were resistant to nalidixic acid, whereas all were susceptible to ceftriaxone and gentamicin. More than 70% of the isolates were resistant to ampicillin, colistin, difloxacin, enrofloxacin, erythromycin, lincospectin, oxytetracycline, tetracycline, sulfadiazine + trimethoprim. There were 89 resistance patterns among the isolates. Twenty percents of isolates belonged to more than one pattern, whereas the rest (80% of isolates) each belonged to one pattern only. The results of this study showed that the resistance to existing antibacterial agents is widespread and of concern to poultry industry as well as public health.

494. ANTIMICROBIAL RESISTANCE IN POULTRY IN HAMADAN. A. Nourian, H. Mozaffari Nejad. 

A total of 230 E.coli isolates from 60 broiler farms were obtained during a 5-year study period 1997-2001, were examined for their sensitivity to the therapeutic agents of current use in industrial poultry farming as Chloramphenicol, Tetracycllines, Lincospectin, Enrofloxacin, Flumequine, Erythromycin, Neomycin, Furazolidone, Tiamulin and Sulfonamide-Trimetoprim. Most isolates (94%) were sensitive to Enrofloxacin followed by Lincospectin (93.62%), Chloramphenicol (87.50%), Furazolidone (84.38%),
Neomycin (80.50%) and Flumequine (78.25%). Sensitivity was lower in other four antimicrobial substances: Sulfonamide-Trimetoprim (47%), Erythromycin (43%), Tiamulin (28.57%) Tetracyclines (19.25%).

495. ASSESSMENT OF ANTI-INFECTIOUS BURSAL DISEASE VIRUS ANTIBODIES TRANSFERRED FROM HEN TO EGG AND CHICK BY ELISA IN URMIA (IRAN). A. Mahmoudian, R. Izadi, S. Asri, H. Tajik. Faculty of Veterinary Medicine, Urmia University, P.O.Box: 1177, Urmia, Iran.

IBD is one of the most threatening disease of chicken with a high immunosuppressive effect which can role as a predisposing factor for a cascade of other diseases. Beside of sufficient sanitary precautions, vaccination in precise time is the best way to achieve a successful controlling program. In order to determining the best time of vaccination of one-day chicks, it is important to know the rate of antibodies transferred from hens to eggs and chicks (maternal immunity), with regarding the quality of used vaccine and it’s effectiveness. Blood samples from 100 hens which had vaccinated against IBD virus from industrial farm of Mahabad and also 200 egg of this flock randomly were selected. In our Lab, the OD of samples (100 chicken were tested after their hatching in Lab) were determined by commercial ELISA kit (IDEXX) and were analyzed by Flockcheck software. The Mean Titer (MT) and Geometric Titer (GMT) of antibody in hens, eggs and chicks were 5907,5981,7491 and 5548, 5575, 4321, respectively. The coefficient of Variability (%CV) was %35, %34.7and %43.9 for hen, egg and chick. ELISA has used for assay of antibody titer in serum (Fahey 1987,Gardin 1991,Newman 1994) and yolk sac (Piela et al 1984, Silim 1989, Keck 1993). Synchronized assessment of antibody titer has the advantage of determining the correct time of vaccination together of assessment of antibody transference to eggs. Determining the base line in each specific area is the other advantage of this method. According the baselines, the % CV for hen must be less than 45% and under 40% has a good immunity prediction. So, based on obtained MT and %CV, our tested flock has a good immunity. In general, %CV of hens, eggs and chicks are acceptable. There was no significant difference between amounts of MT of yolks and hens but a significant difference was observed between MT of chicks and both hens and yolks (P<0.05). The level of MT shows a good reaction of hens to vaccination and sufficient transfer of antibody to eggs and chicks. The precise age for vaccination of chicks in high risk and low risk area were determined the day of 17 and 19respectively.

496. COMPARISON OF TWO INTERMEDIATE VACCINES AGAINST IBD (GUMBORO) DISEASE IN BROILER CHICKS. M. Mayahi. Iran.

Infectious bursal disease (IBD) is mainly an acute viral disease of young domestic fowl. Depending on the age of the chickens, IBD can cause immunosuppression with or without mortality. The disease induce suppression of humoral immune responses with increased susceptibility and severity of subsequent infection by viral, bacterial and some protozoa pathogens. The first purpose of the present study was to immunize broiler chickens by two IBD commercial vaccines and evaluate protection to challenge to IBD virus field isolated. In the second part of this studied. Two hundred fifty-old broiler chicks were divided randomly in to 4 equal groups (A, B, C_1, C_2,) of 62 each. Group A and B chickens vaccinated with two IBD vaccines respectively at 14 and 22 days of age via drinking water. Group C_1 chickens kept as
uninfected control. Group C\textsubscript{2} chicken kept as uninfected control up to 35 days of age. Thirty chickens of group A, B and C\textsubscript{2} at 35 days of age were randomly transferred to new room and challenged orally with 0/1 ml of 10\% suspension in phosphate buffered saline of infected bursa of chickens. A and B groups of chicks and C\textsubscript{2} (infected control group) showed clinical signs such as inappetence, ruffled feathers, dullness, with diarrhea 3 to 5 days after challenge. Severity of clinical signs in group C\textsubscript{2} was more than groups A and B and in group B was more than group A. Mortality rate was in group A 6.66\%, group B 13.33\% and in group C\textsubscript{2} 40.\%. The severity of gross lesion in group C\textsubscript{2} was severe than group B and group B was severe than group A. Weight gains of group A chicks – was 1396.40 grams, in Group B, 1311 grams and in grams C\textsubscript{2}, 1256 gram at 45 days of age. Comparison of chicks of group A, B and C\textsubscript{1} (uninfected control group) at end of 45 days experiments showed that A and Gumboro vaccines had decreased growth rate and increased feed converted rate compare to unvaccinated chicks of group C\textsubscript{1}. Growth rate, weight gain and feed converted rate of group A Chicks was better than group B. It seems Vaccination with A Vaccines more satisfactory than B Vaccines.

497. THE IMPROVEMENT OF MYCOPLASMOSIS CONTROL USING THE MYCOPLASMA PCR TECHNOLOGY. P.Y. Moalic. LABOFARM, Veterinary Laboratory, France.

Mycoplasmosis (caused by Mycoplasma gallisepticum (MG), M. synoviae (MS), M. meleagridis (MM) and M. iowae (MI) is a wide spread disease affecting poultry production all over the world. International poultry breeding companies are making a great effort to eradicate mycoplasma from their primary breeding stocks. Nevertheless, the control of mycoplasmosis in parent breeders and poultry production flocks still remains a problem in some countries. The diagnosis of avian mycoplasma is mainly based on culture and serology. But, culture is long and tedious and mycoplasma isolation can suffer from contamination by fast growing microorganisms. The most used serological test, the Rapid Slide Agglutination (RSA) often lacks of specificity, especially at the time of vaccination with inactivated vaccines. For all of these reasons, some veterinary diagnostic laboratories have developed molecular methods, especially PCR (Polymerase Chain Reaction), for avian mycoplasma detection and characterization. The most useful PCR test is a multiplex PCR test, enabling concomitant detection of MG, MS and MM in the same sample, at the same time, with an internal control to guarantee the good processing. Specificity (no cross reaction) and rapidity (the total duration of the process takes less than 6 hours) are two advantages of avian mycoplasma PCR test. As for any diagnostic test, the samples must be representative of the flock and of the pathology. The easiest sample remains the tracheal swab (easy to take, transport and preserve). The number of swabs needed to detect mycoplasma in a flock depends on the expected prevalence, the level of confidence and the total number of birds in the flock. Mycoplasma PCR test can be used in the case of routine mycoplasma sanitary control of the turkey or Gallus breeders, or to check a mycoplasma free flock in a mycoplasma contaminated area or before a transfer. PCR is also a rapid and specific way to confirm or not doubtful serological results. Finally, PCR is also a good tool to check disinfection between two successive flocks in the case of a mycoplasma contamination.

498. ISOLATION, IDENTIFICATION AND CHARACTERIZATION OF NEWCASTLE DISEASE VIRUS (NDV) IN ISFAHAN PROVINCE. M. Mortazavi. Esfahan Veterinary Organisation, Esfahan, Iran.
In this study (1999) sample contains brain, lung, spleen were collected from seven broiler chicken in Isfahan province that had clinical signs of Newcastle disease and were frozen. So samples were sent to Razi vaccine and Serum Research institutes. In Razivaccine and Serum Research Institutes, NDV were isolated from five broiler chicken flocks and HI titers were determined.

499. H9N2 AS A PATHOGEN FOR ESFAHAN BROILER CHICKENS. A.R. Nabinejad. Research Center of Natural Resources and Animal Affair, P.O. BOX: 81785-114, Esfahan, Iran.

In spring of last year we have referred by a broiler farmer with herd population of 10000 and 25 days old. This farm had respiratory signs and showed decreasing of food and water consumption, and 15% mortality. Neighboring to this farm about 50 Pekin ducks have grown and at the same time has serviced by the broiler worker. We prepared blood samples from 6 broilers and 3 ducks and tested for AIV and NDV Hemaglutinating antibody. In ducks the titer for AIV and NDV was zero, but in broiler chickens the HI titer against NDV in 1, 3 and 2 chickens were 3, 4 and 5, and against AIV in 1, 3 and 2 chickens were 3, 4 and 6 equal to Log. 2 respectively. In broiler farm only they had used B1 and Oil emulsion vaccines, so these titers will be acceptable. For virology, we took sample from middle 1/3 of chickens trachea and finally we could isolate H9N2 serotype of AIV, but no any NDV and IBV were isolated.

500. THE RESPONSE OF NATURALLY INFECTED BROILER BIRDS TO SOME BRANDS OF ANTICOCCIDIALIS. O.L. Obasi, O.J. Ifut, E.B. Ekpo, O. Ojebiyi. Faculty of Agriculture, University of Uyo, Uyo, Nigeria

Four anticoccidial drug types were tested for their efficacy in treatment of naturally occurring coccidiosis disease outbreak. All the drug types (Amcox®, Attack®, Cafmycin®, Amprodon®) were effective in clearing the infection. Birds on Amcox® treatment however, showed the best result in terms of body weight gain post treatment and mortality rates.

501. MECHANISM OF IMMUNOSUPPRESSION OF AVIAN ADENOVIRUS AND INFECTIOUS BURSAL DISEASE VIRUS IN CHICKENS. M.S. Oberoi. Department of Veterinary Microbiology, Punjab Agricultural University, Ludhiana-141 004, India.

Effect on T-cells: Fowl adenovirus-4 (FAV-4) infection decreased both the T-independent and T-dependent responses as well as secondary response to Br. abortus antigen. IgM type of response was mainly depressed. A significant decrease was seen in blastogenic response of peripheral blood leukocytes (PBL) to in vitro stimulation by mitogen. The effect of IBDV on CMI has been reported to be transient and less obvious than on humoral responses. IBDV caused severe impairment of T-independent and T-dependent immune responses. IBDV also caused a transient but significant depression in the ability of T cells to respond in vitro to mitogens. Studies with FAV-4 indicated a significant increase in CD3+ cells in spleen of infected birds. Correspondingly there was significant increase in CD4+ cells initially followed by a decrease. The CD8+ cells in spleen were also significantly increased. In IBDV infection it has been reported that CD3+ cells are predominantly TCR2+ and appear at the site where viral antigens were present. CD3+ cells continue to persist in the bursa after most of the IgM+ cells and IBDV antigen positive cells had disappeared. CD3+ cells were present at the boundary area between cortex and medulla of follicle, subepithelial area and interfollicular area. Some CD3+ cells were found within the blood
vessels. In virulent IBDV inoculated chickens, as early as 1 day PI, CD3+ T cells were localized at the bursal follicles where IBDV antigens were detected. At 4 and 5 DPI most of the lymphocytes in the bursal follicles were CD3+ T cells. Although both CD4+ and CD8+ T cells were detected in the same follicles, CD8+ cells were more prevalent than CD4+ cells. Bursal Pathology: FAV-4: Atrophy of bursal follicles along with increase in interfollicular connective tissue. Some cases showed follicle hypertrophy. Bursal epithelial cells showed varying degrees of degenerative changes leading up to necrosis. Depletion of lymphoid cells from bursal follicles along with proliferation of reticuloendothelial cells was seen. IBDV: Bursal inflammation, heterophil infiltration and oedema of the plicae, muscular wall and serosa. Lymphoid depletion and plical atrophy. In many follicles there was formation of a central cyst lined by cuboidal epithelium, which appeared to arise from the corticomedullary epithelium.

502. THE EPIZOOTIC STATE OF BIRD’S BRANCH OF RUSSIA IN 1991-2001 RR. A.N. Panin, V.I.Smolensky. The All-Russia State Research Institute for Control, Standardisation and Sertification of Veterinary Preparation (VGNKI),Moscow, Russia

During 2001 in Russia Federation the number of birds was increased on 4,7% egg’s quantity was increased on 4,5 %, production of meat – on 20%, the general safety of birds was imported on 1,6 %.The safety of the adult birds has achieved 92,5%.More than 60% of birds died from coliccepticaemia avium, about 2,0 % of ones died from coccidioses. The losses from virus illnesses were 3,6 %.In 2000 in general scheme of mortality and losses of birds the fraction of Mareks desease (MD) – 4,3 %, Newcastle disease – less 1 %, laryngotracheitis infectiosa avium – 5,8 %. Since 1997 quality of the bird-farms having high level bird’s disease were 27-30. The most widespread illnesses were Marks desease, infectious bursal disease, bronchitis infectiosa avium. Vaccinoprophylaxis of MD have begun to conduct in country since 1974 by vaccine from the “?C-126”. Using these vaccines we succefully controlled an epizootic situation more than 25 years. However in 90 rr., the cases of Mareks deseases began to occur between the vaccinal birds. It could be a consequent of apperance of especially virulent virus strains of MD and poor efficiency of vaccines on the basis of strain “?C-126 “ against new virus strains of MD. by 1995 the losses from MD made about 16% from all infectious illnesses (0,044 % from an annual turnover of bird) in Ruusian Federation. The creating and using of polyvalence vaccines against MD on the basis of strains II –and III- serotype and the Russia strain “3004”, possessing properties of strain “CVI-988”, has allowed to increase again and now losses from MD to 28,75 %.However, last year a role MD in infectious pathology of birds began to increase and now losses from this illness make about 13 % from total perished birds. The first case of infectious bursal disease (IBD) marked in middle 70 years in Russia Federation. The illness were sporadic nature and did not cause severe economical injury (less than 5-6 % of bird were perished). However, since 1991, the highly virulent strains were brought in country, witch called flashes of disease with loss from 35 % TO 50ù birds. The peak of epizootiae was in 1995-1996 rr. For elapsed five years IBD were watched in 78 bird-farms of 39 areas in Russia Federation. About 1,1 million chickens (0,12 % from all birds in an annual turnover) were ill IBD in 1996. Thus, 408,1 thousand of birds has perished (0,044%), i.e. almost each third falling ill chicken was died. By 2001 quantity of falling ill birds has decreases in 22,7 times, died – in 8,0 times, quantity of farms having high level IBD has decreased on 55 %. Bronchitis infectiosa avium was developed in 1969- 70 rr in Russia Federation. The main epizootic hazard performs a serotype “Massachusetts”. The role of other strains is not determined finally. Under the data retrospective serological researches from 88,1 % to 98,8 % of hens had antibody to Bronchitis infectiosa avium. For period 1998-2000 the birds from more 200 bird-farms in 29 regions of Russia
Federation were inspected by a method RT-PCR. Genome of Avian infectious bronchitis coronavirus was established in 45% of disease. Only third (33 %) strains was referred to serotype “Massachusetts” by sequencing of variable region in gene S1, and other strains were ill bronchitis infectiosa in association with colibacteriosis and mycoplasmosis, which ones are difficulty differentiated. Four attenuated vaccines on the basis of strains “H-120”, “AM”, two bivalence vaccines from strains “H-120” and “La-sota”, and also inactivated emulsion drugs were used in Russia Federation for vaccinoprophylaxis of bronchitis infectiosa avium. A polyvalence inactivated vaccine including serotype of “Massachusetts” and some mutant strains creastes in present time. In 2000 about 60 % (59,3 %) of birds were vaccinated against bronchitis infectiosa avium. In 2001 about 19,7 hens died from a hydropericarditis. Designed in country the inactivated vaccine provides the decrease of losses from this illness more than three times.

503. APPLICATION OF A VACCINE AGAINST Salmonella-enteritidis INFECTIONS OF BIRDS IN MANUFACTURE. T. Rozhdestvenskaja; A. Borisenkova; S. Jakovlev; J.Bajbikov. All-Russia research Veterinary institute of poultry farming, Saint Petersburg, Russia

Tests new inactivated vaccines against Salmonella-enteritidis infections of birds are under production conditions carried out. In laboratory conditions it was established, that the vaccine is sterile, harmless, causes development(manufacture) of specific antibodies, has protective and contrainvasive properties in relation to S.enteritidis. Tests of a vaccine it is carried out in 2 farms on a livestock of 67794 chickens 30-35 day time age. As criteria of an estimation of efficiency of application of a vaccine took into account a clinical condition of chickens after vaccination, safety, dynamics of development of specific antibodies at vaccinated chickens, frequency allocation S.enteritidis. After application of a vaccine of deviations in a clinical condition of chickens it was marked not. On a place of introduction of a vaccine of changes it is not revealed. The alive weight of skilled chickens corresponded to normative parameters Safety of a livestock vaccinated birds for 30 days after vaccination on 1,8 % above, than in control group. Vaccination causes expressed development of the antibodies. The greatest interest of a reacting bird revealed for 21-28 day after vaccination. In 4,5 months the interest reacting did not exceed 25 %, in 8 months after vaccination residual reaction is marked on the average at 10 % of a bird. Before application of a vaccine from a pathological material of killed, positively reacting hens and dead embriones allocated S.enteritidis. At bacteriological research vaccinated a bird positively reacting in ????, culture S.enteritidis did not allocate. Results of test of a vaccine on little under production conditions allow to conclude a livestock, that the vaccine is harmless, has the expressed specific protection, interferes contrainvasive field strain S.enteritidis

504. SOME ANATOMICAL AND HISTOLOGICAL OBSERVATIONS ON THEPECTEN OCELLI IN THE QUAIL (Coturnix c. coturnix L.). A.H. Sadiq. Al Fateh University, Faculty of Veterinary Medicine Tripoli –Libya.

The pecten oculi of the Qail (Coturnix c. coturnix L.) has been examined by light microscopy. In this species, the pecten is always located with its base positioned directly over the optic disc, the point where the nerve fibres from the ganglion cells join together to form the optic nerve. The pecten of Qail consists of 16 highly vasculated pleats, held together apically by a heavily pigmented bridge and projects freely into the vitreous body. The pectenal tissue showed ascending blood vessels varing calibre, toghether with a profuse network of capillaris, essancially constitute the vascular framework of the pecten..Unstriped
muscles and nerve fibers were not noticed. The epithelial pigmented cells were found in contact or in between the capillaries.

505. EFFECT OF IRRADIATED FEED ON HOMORAL IMMUNITY OF VACCINATED CHICKENS. G. Shahhosseini 1, M. Moghadampour 2, G. Raisali 1. 1 Animal Production and Health Section – Nuclear Agriculture Division – Nuclear Research Center for Agriculture and Medicine - Rajaiishahr -Karaj-I.R.IRAN 2 Research and Production of Poultry Vaccines Division - Razi Vaccine and Serum Research Institute- Karaj- I.R.of Iran.

There are problems in conventional methods of discarding or reducing the fungal contamination in poultry grain, such as fungicides remaining (by use of chemical method), grain dampness (by use of autoclave). Therefore, use of nuclear technique to decreasing or removing of fungal contamination and subsequently the effect of irradiation on increasing of safety in production of viral vaccines of poultry were the main objectives of this research. In this study, below materials and methods have been used: Microbial culture medium (Plate Count Agar) and fungal culture medium (Potato Dextrose Agar, Sabouraud’s Dextrose Agar) to determine contamination type, different kinds of fungal contamination, their amount in the poultry grain, to utilize atomic absorption method, calorimeter bomb, kjeldhal, fibertic system, for chemical analysis, use of radioimmunoassay for measurement of aflatoxin content of samples, utilize gamma cell facility PX-30, dose rate=0.65 Gy / Sec to irradiate the grains, Newcastle vaccine (drop form at eye) to vaccinate of SPF chickens, Hemmagglutination Inhibition Test (HI) and Hemmagglutination Test (HA) for determination antibody titer in the chickens blood. 6000 Gray dose could remove the contamination. Rechecking the irradiated grains 4-5 months after application of gamma radiation in different humidity and temperature (in celophane package) revealed that 6000 Gy dose not only has constant effect in removal of fungal contamination but also has no negative effect on the grain compounds. In the continuation of this research two types of grains, unirradiated (control) and irradiated were fed to identical groups of Specific Pathogen Free (SPF) chickens in three different time periods. The follow up experiments showed the immunity titers in the chickens fed on the irradiated grain were lower than the immunity titers in the chickens fed on the unirradiated grain.

506. MOLECULAR CHARACTERIZATION OF THREE NEW AVIAN INFECTIOUS BRONCHITIS VIRUS (IBV) STRAINS ISOLATED IN QUEBEC. R. Smati 1, A. Merzouki 2, M. Henrichon 1, M.V. Marandi 1, C. Guertin 2, M. Arella 1, A. Silim 1. 1 University of Montreal, faculty of veterinary medicine, department of pathology and microbiology, 3200 Sicotte C.P 5000, St-Hyacinthe (Quebec) J2S 7C6, Canada. 2 INRS-Institut Armand-Frappier, 531, boulevard des Prairies, Laval (Quebec) H7V 1B7, Canada.

Three unrecognized Infectious Bronchitis Virus (IBV) field isolates were recovered from commercial broiler chickens vaccinated with live Mass viral strain (H120). Isolates were identified as IBV by immunofluorescence using monoclonal antibodies produced against reference serotypes Mass, Conn, and Ark. RT-PCRs were performed on field isolates RNA to amplify S1 gene using primers S1OLIGO3’ and S1OLIGO5’. Restriction fragment length polymorphism (RFLP) of field isolates was determined by digestion of S1 PCR product using HaeIII restriction enzyme. Restriction patterns of PCR products were different from common pattern of strains assigned to Mass serotype M41, Beaudette, H120, and Florida. Molecular analysis showed nucleotide insertions found in hypervariable region one (HVR-1) of S1 gene
of only Quebec isolates (Qu16; Qu_mv; Q_37zm). However, New Brunswick IBV isolate (NB_cp) did not display these insertions. Major amino acid changes involved insertion of two stretches (aa118-119: Arg-Ser and aa141-145: Sys-Ser-Asn-Ala-Ser-Cys) located at N-terminal and C-terminal regions of HVR-2. It was speculated that cysteine residue located upstream and downstream of Cys-Ser-Asn-Ala-Ser-Cys segment might be involved in the formation of loop structure and disulfide bond that could trigger important epitope changes. Insertion of new NXT and NXS (X–P) glycosylation motifs scattered along S1 region and insertion of cysteine residues in HVR are contributing to the antigenic shifting of Quebec isolates. Fragment insertions were thought to be induced by inter-serotype recombination between vaccine strain (H120) that belongs to Mass serotype and another strain belonging to Ark serotype. Phylogenetic tree based amino acid sequences showed that Quebec isolates formed a new phylogenetic cluster.

507. EVALUATION DE L’EFFICACITÉ D’UNE PLANTE MEDICINALE: Acacia nilotica vr. andasonii UTILISÉE DANS LE TRAITEMENT DES AFFECTIONS RESPIRATOIRES ET DIGESTIVES DE LA VOLAILLE. M. Sylla, B. Traoré, S. Sidibé, D. Coulibaly, F.C. Diallo. 1Institut d’Economie Rurale, Mali. 2Institut Nationale de Recherche en Santé Publique, Mali. 3Laboratoire Central Vétérinaire, Mali.


508. DIFFERENTIATION OF CLASSICAL AND VERY VIRULENT INFECTIOUS Bursal DISEASE VIRUSES USING RT-PCR-RE TECHNIQUE. R. Toroghi, J.M. Ktataria, V. Balamurugan. ?Department of research & diagnosis of poultry diseases, Razi Vaccine & Serum Research Institute, 11365 – 1558, Tehran, Iran, ? Division of Avian Diseases, Indian Veterinary Research Institute, Izatnagar – 243122 (U.P.), India.

Reverse transcription –polymerase chain reaction –restriction endonuclease (RT-PCR – RE) technique is a rapid method for the identification and differentiation of unknown samples. This technique was used to differentiate Indian very virulent isolates from classical (field/ vaccine) infectious bursal disease viruses (IBDVs). The 552 bp PCR products were generated by amplification of variable region of VP2 gene in three field classical isolates, two vaccine strains and two very virulent IBD viruses (vvIBDVs). The PCR products were digested with SacI, HhaI, SspI and StuI restriction enzymes. Digestion of the PCR products with SacI and HhaI restriction enzymes revealed the presence of a single restriction site in all the field classical and vaccine IBDVs but no restriction site in vvIBDVs, whereas digestion of these products with SspI and StuI restriction enzymes showed the presence of a single restriction site in vvIBDVs but no
restriction site in the field classical and vaccine IBDVs. Although RE profiles of the Indian field classical isolates and vaccine strains were identical, all of these enzymes could differentiate vv IBDVs from field classical isolates and vaccine strains.

509. PREPARATION AND EVOLUTION OF AN INACTIVATED H9N2 AVIAN INFLUENZA ANTIGEN FOR USING IN HEMAGGLUTINATION INHIBITION TEST. M. Vasfi Marandi, M.H. Bozogmehri Fard. Department of poultry diseases, Faculty of veterinary medicine, University of Tehran, Tehran-Iran.

Serological screening of chickens sera for the presence of H9N2 subtype of avian influenza virus (AIV) Nspecific antibodies in Iran, is currently carried out by haemagglutination inhibi infectiontion (HI) test in avian diagnostic laboratories. Therefore, there is a need to prepare an inactivated H9N2 antigen for routine and large scale epidemiological surveillance and control of H9N2 outbreaks. Three non-pathogenic H9N2 AIV stains, isolated during the initial avian influenza outbreak, Were prime rely selected to compare their growth in embryonated chicken eggs. A H9N2 AIV isolate, designated as A/Chicken/Iran/ZMT-101/98 was provided high yeiled amnioallantoic fluid with an average of 10,5 haemagglutination (HA), 109,.9 ELD 50 titers and 3,2 days (77h) MDT, as compared with two other homologous strains. The results obtained indicated that 0.1 percent formalin achieve complete virus inactivation with low destroying effect on HA and HI titers. This antigen was able to detect specific antibody as early as 6 days after inoculation of chickens in HI test, indicating that HI is a reliable, specific and rapid serological test.Comparisingof HI and ELISA tests to detect H9N2 infection in the sera obtained during 2 and 4 wks after acute phase of disease showed respectively 94.44 and 98.61 percent similarty. Overall, it is suggested that inactivated H9N2 antigen could sucessfuly be avian diagnostic laboratories for routine flocks monitoring and regulatory surveillance of poultry industry.

510. HISTOCHEMISTRY AND MORPHOLOGY OF MAST CELLS IN THE PRIMARY LYMPHOID ORGANS IN CHICKENS. L. Xu, D. Ou, D. Gao. Department of Animal Medicine, College of Biotechnology, Guizhou University, Guiyang 550025 P R China

Mast cells have been studied extensively in mammals, especially in rodents and human, but not in poultry, and the objective of this study was to characterize chicken mast cells, especially those in primary lymphoid organs, histochemically and morphologically. Carnoy’s fluid was proved to be a good fixative, however neutral buffered formalin (NBF) blocked staining of most mast cells (p <0.001). Alcian blue stained more mast cells than did toluidine blue (pH 0.5) ( p <0.001), although Alcian blue also stained goblet cells. A new method developed by authors, prolonged Alcian blue staining (LAB-S), can be used to detect mast cells in NBF-fixed tissue sections since it stained nearly as many as toiludine blue staining in Carnoy’s fluid-fixed ones ( p >0.05). Numerous mast cells were found to be concentrated in the thymus medulla and with a few in the cortex adjacent to blood vessels and in the interlobular connective tissues, but few in the medulla and cortex of bursa of Fabricius. Mast cells indented to around blood vessels and an interesting finding was that a few mast cells could be found occasionally within the blood vessels. Under electron microscopy, the cytoplasmic granules of mast cells contained amorphous granular materials but electron density of the matrix varied from low to high. Eddy-like and reticular substructures were seen occasionally in a few granules but the crystalline and scroll substructures described in human mast cell granules and some other special substructures in sheep mast cell granules were not observed.
511. THE EFFECT OF USING OF AN ACTIVE SOLUTION OF SODIUM HYPOCHLORID WITH THE AIM OF PREVENTION AND TREATMENT OF UREICACIDIC DIATHESIS IN HENS. G.A. Zon. Sumy State Agrarian University Ukraine

The Ureicacidic diatesis is a disease which cause high level of economical loses in poultry industry. It is known that the disease is dangerous for young and adults poultry. The etiological factors are recovering form different infectious diseases like pullorosis, deficiency of water supply, bad quality of the feed, high level of protein in feed etc. The cases of this diseases are registered form the first days of life of poultry which can be because of the bad quality of incubatrice eggs. In chikens this disease can be observed mainly from the age of 14-25 days. Then the level of disease is increasing and the mortality is depends on the time of influence of the factor of pathogenicity. In hens during acute forms of nephritis the accumulations of salts on the serosa and then the forming of urates can be observed in kidneys and uterers. Even in case of recovering poultry can’t get high level of productivity. With aim of prevention and stabilization of metabolic processes in organism of poultry in all age groups during ureiacidic diatesis we used an active solution of sodium hypochlorodi. The positive effect was obtained during regular watering of poultry with the active solution with the water during 10-15 days or more (depends on the level of diseases) in concentration from 150 mg/l tp 500 mg/l.


A total of sixty chicks of one day old were used in this experiment. They were divided into 3 groups: Control group was received basal broiler diet. Group 1 was received 1 gm L. trp / kg diet. Group 2 was received 2 gm L. trp / kg diet. The experiment was lasted for seven weeks during which the following parameters were studied : - Food and water intake, body weight and food conversion ratio, complete blood picture and differential leukocyte count. Total protein, albumin and globulin in serum were estimated with calcium and inorganic phosphorus levels. The results of this investigation indicate that providing chicks with L – Tryptophan Improves the food conversion ratio and the immunity system with increasing the RBCs number and haemoglobin content of them. Moreover, these birds showed marked increase in serum calcium and phosphorus level.

513. TISSUE TROPISM AND TARGET CELLS OF NEWCASTLE DISEASE VIRUS (NDV) IN THE CHICKEN EMBRYO. S. O. Al-Garib123, E. Gruys, A. L. J. Gielkens, & G. Koch. Division of Statutory Tasks, Institute Animal Science and Health (ID-Lelystad), Lelystad, The Netherlands, Department of Veterinary Pathology, University of Utrecht, The Netherlands. Faculty of Veterinary Medicine, Al-Fateh University, P.O. Box 13662 Tripoli, Libya.

Newcastle disease virus (NDV), an avian RNA virus related to morbilliviruses of mammals, is the causative agent of a devastating disease of poultry known as pseudo-fowl pest. It causes high mortality, severe respiratory distress, hemorrhagic intestinal lesions, nervous disorders, and a decrease of egg production. NDV encodes for at least six major proteins and its pathogenicity is thought to be dependent on cleavage of a precursor fusion glycoprotein, F0, to F1 and F2 subunits, which make the virus particles
to be infectious for target cells. This cleavage is mediated by host cell proteases. Absence of proteases at an early developmental stage of the chicken embryos in most organs could limit the cleavability of the F₀ to F₁ and F₂ subunits and there for influence its infectivity. Since studies on tissue tropism of NDV have depended primarily on virus recovery techniques, the target cells in chicken embryos have not selectively been determined. Effect of embryo age, amino acid sequences of the virus strain and dose of inoculum on the infectivity and pathogenicity are not clearly circumscribed. In the present investigation the in situ immunohistochemical technique was used to identify organs and target cells infected in 8- and 14-day-old embryonating chicken eggs (ECE). ECE were inoculated with engineered NDV strains (non-virulent; ND-FL⁺ or mildly virulent; ND-FLtag strains) that were constructed with the gene of jellyfish green fluorescence protein. The kinetics of NDV infection and its dose response were determined at various intervals of time after infection with different concentrations of virus by immunohistochemistry. The jellyfish green fluorescence protein was readily expressed in cells of the chicken embryos infected with the constituted NDV strains indicating virus replication. The kinetics of virus replication and spread in the chorioallantoic membrane (CAM) in the first few hours after inoculation were different between both strains but closely resembled each other. The effect of decreasing concentrations of virus tended to extend the time at which viral antigen could be detected. Although both strains of NDV grew in the CAM and infected the skin of 8-day-old-embryos, only the mildly virulent strain spread to the surface of the body cavity. In the 14-days-old-embryos the initial target organs appeared to be CAM and the lungs. At 48 h after inoculation of the mild NDV strain, virus had also spread to the spleen and heart and it was positive in a wide-rang of embryonic cell types. This model proved to be convenient for studying tissue tropism of NDV, as well as the effects of dose and the kinetics of infection in a developing animal. The advantage of the jellyfish green fluorescence protein was that large numbers of samples without any pretreatment could be easily screened for virus replication on direct fluorescence microscopy.

514. ETUDE DE L'EFFICACITE DE LA FLAVOMYCINE SUR LES PERFORMANCES D'ENGRAISSEMENT DU POULET DE CHAIR. A. Bessadok. CPRVE Tunis, Tunisia.

Cet essai a été conduit dans le but d’étudier l’efficacité de l’incorporation de l’antibiotique flavophospholipol dans l’alimentation du poulet de chair. Nous avons mis en place un effectif de 2300 poussins de chair dans le poulailler n°6 du centre de perfectionnement et de Recyclage Avicol de Sidi Thabet. Cet effectif a été réparti en quatre lots de quatre répétitions chacun pour occuper au total 16 compartiments physiquement séparés. Ceci nous a permis d’appliquer le dispositif expérimental des blocs complètement randomisés. Le lot témoins n’a pas reçu d’antibiotique dans sa ration alors que les trois autres lots ont consommé de l’aliment avec trois différents niveaux d’incorporation de la flavophospholipol de 2,5ppm, 4ppm et 5ppm. L’essai a duré 42 jours d’engraissement au cours desquels nous n’avons enregistré aucun incident particulier pouvant influencer les résultats obtenus. Nous n’avons pu dégager à la lumière de cet essai que l’inclusion de la flavophospholipol dans la ration du poulet de chair a permis d’améliorer considérablement les performances d’élevages des trois lots traités. Nous avons pu relever qu’une dose de 2,5 ppm de flavophospholipol était suffisante pour marquer cet avantage en réalisant les meilleurs performances d’engraissement par rapport aux autres lots. Par comparaison aux performances du lot témoin, le lot 2,5ppm a montré des différences statistiquement significatives (p<0,5) en son faveur à raison de: 18% sur le taux de mortalité soit 1,91 % de moins. 13% sur le poids moyen à
42 days is 216 grams more. 14% on the consumption index is 0.33 points of index less. 35% on the index of performance is 51 points of index more.


An initial study on the microbiological composition of the intestinal microflora of poultry has been carried out in the framework of a cooperation project between the National Institute of Applied Sciences and Technology and the Interprofessional Group of Avian Products. This has allowed us to isolate and select a set of bacteria from the different parts of the digestive tract of adult poultry, namely duodenum, jejunum, ileum, and cecum. The results obtained reveal the presence of a heterogeneous bacterial flora mainly aerobic mesophilic of the order of 10^9 UFC/g, in fact, it is at the level of duodenum and cecum that we have evaluated the most important values. Moreover, lactic bacteria also constitute an interesting flora to evaluate and study at the level of the intestinal tract, since they represented a large quantity ranging between 10^4 and 10^7 UFC/g with 2.2*10^7 UFC/g observed at the level of the cecum. Biochemical identification carried out on API galleries revealed the existence of several lactobacillus species, mainly lactic acid bacteria such as Lactobacillus rhamnosus, Lactobacillus plantarum, streptococcus salivarius and Lactococcus lactis. However, the enumeration of coliforms shows that the cecum presents significant percentages of germs up to 10^9 UFC/g. Streptococci of group D are also present in all the different parts of the digestive tract of the analyzed poultry, the values obtained vary from 1.3*10^5 AUFC/g in the jejunum to 4.5*10^5 UFC/g in the cecum. Our present work insist on determining the composition microbiological of the intestinal tract of poultry in order to be able to select and retain germs having a probiotic potential.

516. ISOLATION AND IDENTIFICATION OF Pasteurella multocida IN PARENT STOCKS. G.A. Kalidari. Department of Clinical Sciences, School of Veterinary Medicine, Ferdowsi University of Mashhad, Iran.

Pasteurellosis or fowl cholera is one of the important diseases of poultry caused by Pasteurella multocida. In addition to poultry, Pasteurella multocida causes diseases in different types of animals. The disease is mainly spread by infected birds, carrier birds, rodents, water and feed. In poultry, the disease occurs in an acute septicemia or chronic form. In order to determine the rate of infection in parent stocks, 11 farms of parent stock, 3 flocks of healthy birds, 3 recovered flocks, 3 flocks which showed chronic form of the disease and 2 infected flocks have been selected. Totally, 1370 pharyngeal swab samples were taken. The samples were transferred to the laboratory by transport media. These samples were tested on culture media and also injected into mice. The positive cases were identified and then Pasteurella multocida was confirmed by differential tests. was not isolated either healthy or recovered birds. The organism was not also isolated from the pharyngeal swabs of chronic form but it has been isolated from abscesses or wattles. In two flocks which showed acute form, Pasteurella multocida was isolated from either the pharyngeal swabs or carcasses. The results in this survey indicate that healthy birds were not act as a carrier of Pasteurella multocida unsuccessful isolation of Pasteurella multocida from pharyngeal swabs in flocks with chronic form may be related.
to the consumption of antibiotics, the technique of the tests and culture media which have been used. The isolation of *P. multocida* either of the carcasses or the pharyngeal swabs of infected birds showed that, at the beginning of the disease, the organism was existed in the pharynx and mouth. so, the organism spread into environment and the disease was transmitted.


In a retrospective study the incidence of Necrotic and Ulcerative enteritis among 16358 cases of broiler and layer flocks which had been referred to the faculty of veterinary medicine, Tehran university during 11 years (1977-86) has been reviewed through the recorded data. The diagnosis was based on necropsy finding and routine microbiological, Histopathological examination. Necrotic enteritis has been diagnosed in 196 cases. And Ulcerative enteritis in 28 cases out of 16358 referred cases. The data were analyzed by chi-square. The frequency of Necrotic enteritis was prominent in the birds up to the 5 week old (p<0.0005). It was found that both Necrotic and Ulcerative enteritis have statistically significant association with concurrent Coccidiosis and Toxicosis (P<0.0005).

518. PATHOMORPHOLOGY FINDING IN GUMBORO DISEASE IN THE LIGHT BREAD POULTS (SPONTANEOUS INFECTION). S. Prasovic, H. Besirovic, E. Satrovic. Pathology Department, Veterinary Faculty of the Sarajevo University, Bosnia-H.

During natural infection of Gumboro disease, we done 88 pathomorphologically examine on died breeding young hens (uginule uzgojne pilenke), which they have been old 5 weeks. We have taken material from start of clinical signs and first die. We have stoped with taken of samples after last die in the object. That was after 4 days. We have presented macroscopic and microscopic changes in organs. From macroscopic changes we have found bleeding different features and intensity in the muscles of chest, legs, some parts of digestiv tract, bursa Fabricii, kidneys, edges of infarcts of liver and swollen kidneys and bursa Fabricii. From microscopic changes, common finds were bleeding, lymphocytolisis and heterofils infiltration in bursa Fabricii. Also, we have found tubulonefrosis with PAS positive granulates into the epithelial cells of tubuls.

519. NATURAL CRYPTOSPORIDIAL INFECTION IN A COMMERCIAL RAISED TURKEY FLOCK : HISTOLOGIC AND ULTRAMICROSCOPIC INVESTIGATION. G. Tacconi, V. Pedini, D. Piergili Fioiretti, A. Moretti. University of Perugia-Faculty of Veterinary Medicine-Department of Biopathological Veterinary Science-Via S. Costanzo, 4 – 06100 Perugia Italy.

Cryptosporidia are small coccidian parasites that infect epithelial cells, usually in the respiratory and/or digestive tracts of mammals, birds, fish, and reptiles. Cryptosporidiosis has been described in galliforms, anseriforms, psittaciforms, ostriches, canaries, and finches, but little is known about the host specificity of this coccidian parasite in fowls. Current differentiation of *Cryptosporidium* isolates into valid species is based mainly on oocyst morphology, sequence similarities of small subunit ribosomal RNA, host specificity, and site of infection. At present there appear to be two species, *Cryptosporidium bailey* and
Cryptosporidium meleagridis infecting both chickens and turkeys, and a third, unnamed, species infecting quail. In turkeys Cryptosporidium spp. was first reported by Slavin (1955) during a severe outbreak of enteritis. Support for Cryptosporidium meleagridis as a separate species from Cryptosporidium baileyi has been provided by experimental studies. Also recent data indicate that Cryptosporidium meleagridis is very closely correlated with Cryptosporidium parvum, which infects more than 100 species of mammals. In recent years, in Italy, a natural cryptosporidial infection causing a severe enteritis and mortality in 30 days old commercial turkeys, was reported. Cryptosporidium spp oocysts, round in shape, and 4-6 µm in size, were found both in the intestinal content and in stained smears. Light microscopy of histologic stained tissue section detected the protozoon in the respiratory and intestinal epithelium, in the bursa and kidney. Ultramicroscopic studies on ileum and bursal samples showed the presence of all life cycle stages in the microvillar brush epithelial cells in both the organ examined. Based on the micro-organism morphology and sizes, parasitizing the ileum and the bursa, hypothesis for the Cryptosporidium meleagridis involvement are considered. The increasing reports of natural severe outbreaks not species-associated, and the unclear taxonomy suggest the present paper in order: 1) to summarize the morphometric and ultramicroscopic characteristics of this protozoon interpreted to be Cryptosporidium meleagridis; then highlight the importance of Cryptosporidium meleagridis for the possible zoonotic role in public health.

520. COMPARATIVE EXPERIMENTAL STUDY OF IMMUNOGENESIS OF DIFFERENT INACTIVATED H9N2 AVIAN INFLUENZA VACCINES IN BROILER CHICKEN. A.K. Zamani Moghaddam. Faculty of veterinary medicine, Shahre kord University, Shahre Kord, Iran.

Avian influenza (AI) is a viral disease with worldwide distribution. It is caused by influenza A viruses of the family Orthomyxoviridae. In May 1998, clinical signs and high mortality in broiler chickens in Iran were associated with H9N2 avian influenza subtype. Vaccination was adapted as an alternative method to control it in poultry industry. The aim of this study was to compare the Immunogenesis of different local and imported avian influenza vaccines. Arian broiler chickens were divided randomly into 21 groups of 30 birds. each group received standardized dose of Lohman, Ivaz RI and FMD vaccines in 1, 5, 10, 15 and 20 days old by subcutaneously in the nape of the neck. Sera were collected from each chicken for antibody analysis against avian influenza H9N2 subtype with hemagglutination inhibition (HI) tests. Antibody levels in broiler chicken immunized with local H9N2 avian influenza vaccines (RI and FVM) were higher than those Immunized with imported H9N2 avian influenza vaccines (Lohmanman and Ivaz). (P<0.0001) The vaccinated chicken were challenged with local H9N2 influenza virus. To detect viral shedding feces and trachea were tested. In all vaccinated groups, viral shedding was reduced. The local H9N2 avian influenza vaccines in broiler chicken induced a significantly higher immune response and less viral shedding in comparison with imported H9N2 avian influenza vaccine. (P<0.001) On the basis of these results, it is suggested that vaccination of broiler chickens with inactivated local vaccine may be useful in control of AI in poultry industry in IRAN.
521. AN EXPERIMENTAL STUDY ON IMMUNOGENESIS OF FOUR DIFFERENT INACTIVATED H9N2 AVIAN INFLUENZA VACCINES IN BROILER CHICKENS. A.K. Zamani Moghaddam¹, M.H. Bozorgmehri Fard², M. Vasfi Marandi³, B.. Shojadoost⁴. ¹Faculty of veterinary medicine, Shahre kord University, Shahre Kord, Iran. ²Faculty of veterinary medicine, Tehran University, Tehran, Iran.

When in 1998, clinical signs and high mortality of broiler chickens in Iran, were associated with H9N2 Avian Influenza (AI) subtype, vaccination was applied as an alternative method for controlling the disease in poultry industry. This study was designed to compare the immunogenesis of four different AI vaccines: 630 Arian broiler chickens were divided randomly in 21 groups of 30 birds. Each group received subcutaneously standardized dose of oily vaccines produced by Lohman, Ivaz, Razi Institute (RI) and Faculty of Vet.Med. (FVM), at different ages (1, 5, 10, 15 and 20 days old). After 3 weeks HI antibody titers in RI and FVM groups were significantly higher (p<0.0001). At 40 days of age the vaccinated chickens were challenged with FVM H9N2, AI virus. In all vaccinated groups shedding of virus in trachea and feces was reduced, but in FVM and RI groups shedding was significantly less than others (p<.001). After challenge, the unvaccinated control group had a higher Feed Conversion Rate (FCR) (p<.001). It was concluded that vaccination of broiler chickens with inactivated vaccines may be useful in controlling AI, induced by non highly pathogenic AI viruses like H9N2 subtype.

Early diagnosis of burn wound colonization or prediction of wound sepsis with Pseudomonas aeruginosa provides an opportunity for therapeutic intervention. There is need for qualitative and quantitative tests that are more rapid than bacterial culture. Pseudomonas aeruginosa results in high morbidity and mortality rates, is inherently resistant to common antibiotics, and is increasingly being isolated as a nosocomial pathogen. A discussion of three PCR-based methods to detect and quantify Pseudomonas aeruginosa in wound biopsy samples: conventional PCR, enzyme-linked immunosorbent assay (ELISA)-PCR, and RTD-PCR with rapid thermal cycling (LightCycler™ technology) are based on the amplification of the outer membrane lipoprotein gene oprL, aided by high quality computer assessment using specially designed professionally modified software for this purpose with digital camera. A comparison between the efficacies of these methods to bacterial culture by quantitatively measuring levels of Pseudomonas aeruginosa.


Although C. jejuni important cause of diarrhoea throughout the world, there is no any comprehensive study to understand how it cause the disease. So this study was designed to study the pathogenesis of local isolate (CJM6) after oral administration of 1.7x 10⁸ viable.

524. STUDY OF COW AND BUFFALO LACTOFERRIN ACTIVITY AGAINST PATHOGENIC MICROORGANISM. S.A.A Mashikhi, A.A. Raghad. Head, Dept of Food Science College of Agriculture, Abu-Ghraib University of Baghdad, Baghdad, Iraq.

Lactoferrin activity of cow and buffalo colostrum whey were tested against pathogenic microorganism. Native lactoferrin showed inhibition activity against different isolated pathogens i.e. Escherichia coli, Staphylococcus aureus, Salmonella typhimurium, Pseudomonas aeruginosa, Bacillus subtilis, as tested by well diffusion. Results showed an increase in removed iron lactoferrin (Apo-Lactoferrin) activity against formentioned isolation pathogens. In vivo study indicated that lactoferrin had an effective activity to stop the mortality induced by Escherichia coli in mouse at concentration of 0.5 mg lactoferrin administered intraperitoneal. Total number of Staphylococcus aureus decreased in different body organs of mouse when administered with 1 mg lactoferrin intravenous. This results confirmed the activity of lactoferrin and the feasibility of it is utilization as natural biological antimicrobial agent in infant food and infant formula in order to protect babies especially infants against microbial infection and diarrhea causing and gastrointestinal microorganism.
525. NEW GENETIC MARKERS AND METHOD OF SELECTION FOR STRESS AND DISEASE RESISTANCE IN POULTRY AND SHEEP. W.K. Al Murrani. College of Veterinary Medicine, Baghdad University, Iraq.

A series of studies were conducted to validate the use of the Heterophil/Lymphocyte (H/L) ratio in poultry and the Neutrophil/Lymphocyte (N/L) ratio in sheep as a criterion for selection for stress and disease resistance. The stressors used in poultry were: heat (36±2 °C for 6 consecutive days), viral antigen (Newcastle) under high (36±1 °C. for 6 consecutive days) and low (12-20 °C.) temperature, and a bacterial antigen (S. typhimurium infection). In sheep, seasonal variation (hot summer and cold winter) was the stress factor. The 95% or 99%, upper or lower, confidence limit method of selection, for the H/L or N/L ratio, in chicken and sheep respectively, was used to separate individuals into resistant (R) and sensitive (S) groups. The results, in chickens, collectively showed that R excelled S in all aspects of immune response traits, namely; antibody titer (humoral immunity), relative wattle thickness (cellular immunity), phagocytic activity, bursa and body weight. R also was superior in some measures of production traits namely: percentage of egg production and egg weight. Mortality among R in their first chick generation, with partial vaccination program, was much lower. Serum cortisol, of R, was also lower. The H/L ratio is highly heritable. In sheep, the results indicated that the N/L ratio is a good indicator to seasonal stress. Results also showed that stress in our region is mainly in winter. The N/L ratio is moderately heritable.

526. SEROPREVALENCE OF ANTIBODIES TO CHLAMYDIA PSITTACI IN AWASSI SHEEP AND LOCAL GOATS IN JORDAN. K.M. Al Qudah. Department of Veterinary Clinical Sciences, Faculty of Veterinary Medicine, Jordan. University of Science and Technology, P.O. Box 3030, Irbid 22110, Jordan.

A cold Complement Fixation Test (CFT) was applied for identification of Chlamydia psittaci infection in adult sheep and goat females in Northern Jordan. Serum from 37 flocks of sheep and 23 flocks of goats were collected randomly. Results showed that 379 (21.57 %) of 1758 ovine sera! and 82 (11.37 %) of 721 caprine sera, were seropositive for Chlamydia psittaci infection. However, 32 (91.4 %) of the sheep flocks and 20 (90.9 %) of the goat flocks tested revealed at least one seropositives animal. There was an association (P<0.05) between the rate of chlamydia infection and the sheep flock size. The biggest sheep flock size has the highest infection rate (30.3 %). However, in goats, flock size has no relationship with seropositivity. There was no association (P>0.05) between the chlamydia infection rate and the age group in sheep and goat in sheep, there is a significant difference (P<0.05) between the rates of chlamydia infection in the four areas of Northern Jordan. The Highest infection rate in sheep (31.1 %) was recorded in Mafraq area, while the rates in Irbid, Ajlun and Jerash were 17.5%, 11.1 % and 11.6 %, respectively. In goats, there is no significant difference between the rate of chlamydia infection and the two areas studied. The rates of goat infections were 10.8% and 11.8% in Ajloun and Jerash are as respectively.

527. EVALUATION OF RT-PCR FOR DETECTION OF THE SUDANESE SEROTYPES OF EPIZOOTIC HEMORRHAGIC DISEASE VIRUS SEROGROUP. I.E. Aradaib; M.A. Abdalla, A.E. Karrar, B.I. Osburn. Department of Medecine, Pharmacolgy and Toxicology, Faculty of Veterinary Science, P. O. Box 32,Khartoun North, Sudan.
Epizootic hemorrhagic disease (EHD) virus (EHDV) is an infectious non-contagious disease of deer and cattle. To facilitate clinical disease investigation and control of the disease, a rapid diagnostic assay is urgently needed. A reverse transcriptase (RT) polymerase chain reaction (RT-PCR) protocol, recently reported for detection of the United States EHDV serotypes 1 and 2 ribonucleic acid (RNA) in cell culture and clinical specimens, was evaluated for detection of the Sudanese EHDV serotypes. RNA from Sudanese isolates of EHDV-4 and EHDV-318, propagated in cell cultures, were detected by the described RT-PCR-based assay was applied to RNA from Sudanese bluetongue virus (BTV) serotype 4 or (BTV-4) or total nucleic acid extracts from uninfected BHK-21 cells. The scientific observations reported in this communication indicated that the previously described EHDV RT-PCR assay could be applied for detection of EHDV infection among the Sudanese susceptible animal populations.


The present work was carried out to compare the lesions and clinical signs after experimental infection, growth characteristic.: in tissue culture and embryonated chicken eggs protection and response to vaccination against two FPV isolates: an ordinary field strain and atypical (Wet) strain. Inoculation of the embryonating eggs by these strains showed clear pock lesions, thickening and sometimes haemorrhage at the choriallantoic membrane (CAM). The wet strain has an effect on the embryos, which were small and curled, no changes were seen on those infected with the field strains. Inoculation of chick Embryo Fibroblast Cells (CEFC) with suspension of infected CAMs with the two mentioned strains resulted in cytopathic effect (CPE) (rounding of cells) which started on the 2nd day. Field and wet strain failed to produce plaques in tissue cultures. The CAM propagated viruses were inoculated in Tracheal organ Culture (TOC), no changes were seen in the ciliary movement. The resulted suspension of the (TOC) when tested with agar gel precipitation test (AGPT), gave clear precipitin lines with the wet strain while the field strain failed to do so. TOC suspensions were reinoculated in the chick embryos. The wet strain showed pock lesions in CAMs while the field strain showed no changes in the CAMs. The pathogenicity and mode of transmission of the two FPVs were done by experimental infection of birds by Comb Scratch (C.S.), intramuscular (I/m) and oral routes. On the sixth day post-infection (pi) 100% and 50% of birds that were infected with the field strain by (C.S.) and oral routes showed nodules at the comb and wattles respectively. The virus was detected when reisolated in chick embryo from comb and wattles scabs only. Swelling of comb was the common feature when using the wet strain with all routes (C.S. oral. I/m). Nodules appeared only at the site of scarification when C.S. route was applied. The virus was reisolated from the swelled combs, lungs and upper respiratory tract organs by using the inoculation of chick embryo method. Also in this study vaccination trials using the Beaudette strain of FP vaccine were done. The birds were vaccinated by this strain of fowlpox virus vaccine then they were divided into two groups, the first group was challenged (21 days post vaccination) by FPV field strain and the other by FPV wet strain, the results showed that the birds could be protected from the two strains of FPV by using the Beaudette strain vaccine. The detection of antibodies in sera of infected and vaccinated birds were accomplished using AGPT and passive haemagglutination assay the later is more sensitive but the AGPT is more practicable.

Malgré le fait que Mycoplasma meleagridis est un agent pathogène redoutable dont l’infection chez les volailles peut occasionner des pertes économiques considérables, les données moléculaires et génétiques restent toujours limitées aux séquences conservées de l’ARNr 16s. En vue de répondre à ce manque d’information et dans le but de résoudre des difficultés dans le Diagnostic de cette espèce, une étude portant sur la détermination et la caractérisation des gènes spécifiques de Mycoplasma meleagridis fut entreprise. Les travaux consistaient en un établissement d’une banque génomique dans le phage lambda gt11. Le criblage immunologique des clones sécréteurs au moyen d’un antiserum spécifique a conduit à l’identification de deux fragments d’ADN de 3 et 4 Kpb, approximativement. Les deux inserts de 3 et 4 Kpb identifiés respectivement, dans les clones Mm14/3 et Mm19/4, ont été isolés et soumis au marquage à la digoxigénine afin de les utiliser comme sondes moléculaires. L’analyse des résultats de l’hybridation de ces deux sondes par la technique de Dot blot avec d’autres souches de Mycoplasma meleagridis nous a permis de déterminer leur grande conservation au sein de l’espèce étudiée et de démontrer le grand intérêt de leur utilisation dans l’identification moléculaire. De même, l’hybridation par la technique de Southern blot de ces deux sondes avec l’ADN génomique total de Mycoplasma meleagridis digéré par plusieurs enzymes a montré des copies multiples de ces deux gènes.

530. INCURSION DE LA BLUETONGUE EN TUNISIE CARACTERISATION MOLECULAIRE DES ISOLATS VIRAUX. S. Ben Fredj1, C. Sailleau2, E. Breard2, S. Zientara2 et S. Hammami1.1 Institut de la Recherche Vétérinaire de Tunis. Tunisie; 2 Afssa Alfort, 22 rue Pierre Curie, BP 67, 94703 Maisons-Alfort cedex, France.

La fièvre catarrhale de mouton (appelée communément bluetongue (BT)) a été décrite pour la première fois en 1870 en Afrique du sud suite à l’introduction d’ovins de race mérinos, à partir d’Europe. La première incursion de la bluetongue en Tunisie a été rapportée en 1999. Au cours de la même année la maladie a été déclarée en Grèce, en Bulgarie et en Turquie. En 2000, le virus s’est propagé également en Algérie, en Tunisie, en Italie (Sardaigne, Sicile et Calabre), en Espagne (Iles Baléares), à nouveau en Grèce et finalement en Corse. En 2001, la maladie a resurgi en Corse et en Italie (Sardaigne, Sicile et Calabre). L’épizootie en Tunisie s’est caractérisée par un taux de létalité très élevé chez les ovins adultes. Aucun cas de bluetongue en Tunisie n’a été détecté chez les jeunes agneaux et les bovins. Le virus de la bluetongue type 2 a été isolé. L’objectif du présent travail est d’amplifier le génome viral, de le séquencer pour déceler d’éventuelles variations entre les isolats tunisiens de 1999 et de 2000 entre eux et avec la souche responsable de l’épizootie en Corse ainsi que des souches dont les séquences ont été déjà publiées. Des extraits de rate et du sang total effectué sur des animaux malades lors de l’épizootie de 1999 et de 2000 ainsi que des extraits d’œufs embryonnés, des surnageants cellulaires sur différents passages ont été utilisés. La RT-PCR suivie du séquençage des fragments (segments) génomiques 2,7,10 a été appliquée. Aucune variation n’a été observée sur les séquences des isolats de 1999 et de 2000. La séquence des isolats tunisiens du segment 7 présente un pourcentage d’identité de 100% avec celle de la souche corse 2000 et de 78.4% avec celle de la souche Etats-Unis d’Amérique. Les résultats du séquençages du segment 10 d’isolats tunisiens montrent que la souche tunisienne semble plus proche du BTV2-USA avec
un pourcentage d’identité de 90,8% et de 82% avec BTV2 de la Chine. Le segment 2 présente une homologie de 99.4 % avec la souche isolée en Corse en 2000 et 74.6 % avec BTV2 –USA. La souche tunisienne et Corsine proviennent très probablement de la même origine. Le transport et l’amplification par le vecteur ne semblent pas affecter la séquence génomique du virus.

531. STAPHYLOCOQUES COAGULASE NEGATIVE ISOLES DE LAIT DE VACHES ATTEINTES OU NON DE MAMMITES. S. Ben Hassen1, L. Messadi1, A. Ben Hassen2. 1Laboratoire de Microbiologie, Ecole Nationale de Médecine Vétérinaire, 2020 Sidi Thabet, Tunisie. 2Service des Laboratoires du Centre National de Greffe de Moelle Osseuse, Tunis, Tunisie.

Les staphylocoques coagulase négative (SCN) sont de plus en plus incriminés dans les infections mammaires bovines. Ces germes ont été peu étudiés jusque là en Tunisie. Nous rapportons dans la présente étude la fréquence et les caractéristiques bactériologiques des SCN isolés de lait de vaches.

Quatre vingt quatre souches de SCN ont été isolées à partir de 99 échantillons de lait (73 de quartiers et 26 de lait de tank) provenant de 3 exploitations tunisiennes sur une période de 3 mois. Une numération cellulaire a été effectuée pour 80 échantillons sur cellule de Mallassez. L’identification d’espèce a été réalisée selon les méthodes conventionnelles et par Apisystème ffi32Staph. L’étude de la sensibilité aux antibiotiques a été effectuée par l’antibiogramme et par la méthode E-test selon les recommandations du CA-SFM. La production de slime a été mise en évidence sur microplaquette de culture cellulaire révélée par la safranine, et la DO lue sur lecteur ELISA automatisé à 495 nm. L’identification génomique de 7 souches appartenant aux espèces S. warneri (3 souches), S. epidermidis (2 souches), S. xylosus (2 souches), correspondant à l’espèce prédominante productrice de slime isolée respectivement des exploitations II, I et III, a été réalisée par électrophorèse en champ pulsé (PFGE). Selon les résultats de la numération cellulaire, et à partir des 73 prélèvements de quartiers, nous avons retrouvé 26 cas de mammites subcliniques (numération cellulaire >106 EB/ml), 37 infections latentes (numération cellulaire < 104 EB/ml). Parmi les 84 souches étudiées, 52 proviennent de lait de quartiers et 32 de lait de tank. S. chromogenes a été l’espèce prédominante (27,3%), suivi de S. warneri (17,8%), S. epidermidis (13%) et S. xylosus (11,90/0). Les autres espèces, S. haemolyticus, S. hominis, S. capitis, S. simulons, S. gallinarum, S. saprophyticus, S. sciuri, S. lentus, S cohnii et S. auricularis ont été isolées avec une fréquence variant de 1 à 8%. Vis à vis des 6-lactamines, 22,6% de ces SCN étaient résistants à la pénicilline et 1,7% à l’oxacilline. Pour les aminosides, 16,5% étaient résistants à la streptomycine et 2,6% à la gentamicine; pour les macrolides, nous avons retrouvé 16,5% de résistance à l’érythromycine, 23% des souches étaient résistantes à la tétracycline, enfin 14,7% étaient de sensibilité diminuée à la teicoplanine (Tei) (diamètre d’inhibition < 17 mm). La détermination de la CMI Tei de ces souches de sensibilité diminuée a montré que seulement 5,2% d’entre elles avaient une CM! de 8 à >256 mg/l chez les espèces S. haemolyticus, S. epidermidis et S. hominis. Les espèces S. epidermidis, S. warneri et S. xylosus sont les espèces les plus productrices de « slime » avec des fréquences respectives de 26,5%, 20,6% et 20,6%. Le pulsotype des souches appartenant à ces 3 espèces appartiennent à des clones différents pour chaque espèce et ce, au sein de la même exploitation (pourcentage d’homologie de 40% maximum). Ainsi, il ressort de cette étude, que les SCN représentent un agent étiologique non négligeable.
dans les mammites bovines, que les espèces majoritaires incriminées sont productrices de «slime», facteur de virulence majeur des SCN, que ces souches sont modérément résistantes aux antibiotiques, notamment à l’oxacilline avec cependant une fréquence de résistance assez élevée pour la streptomycine et la tétracycline, antibiotiques largement utilisés en médecine vétérinaire. La diminution du diamètre d’inhibition de la Tei sur l’antibiogramme serait due à la mauvaise diffusion de l’antibiotique, cependant cette résistance est plus élevée que celle de l’oxacilline, car observée parmi des espèces ayant une prédisposition naturelle de résistance à la Tei. Le résultat de la PFGE, confirme l’origine non clonale, mais plutôt endogène des souches étudiées.


Infection by *H. pylori* or helicobacters isolated from other mammals may cause gastric disease in human beings. Whether or not these bacteria can cause disease in companion animals or can be transmitted from pets to human beings is still controversial. Accordingly, our goal was to determine which species of *Helicobacter* occur in our region in dogs and cats. We also verified the correlation between presence of bacteria and gastric mucosal alterations in the animals. To achieve these goals, we studied 56 healthy dogs and 45 healthy cats, as well as 14 dogs, and 5 cats with gastrointestinal disease. Warthin-Starry stain was used to assess the severity of gastric mucosal colonization and morphology of the bacteria. PCR was used for *Helicobacter* speciation. Bacterial DNA amplification was obtained with primers specific to *Helicobacter* genus and for *H. pylori*, *H. felis*, *H. heilmannii*, and *H. bizzozeronii* or *H. salomonis*. Gastric mucosal were evaluated histopathologically stained by hematoxillin-eosin. A very high infection rate was observed in dogs and cats. Of the 56 healthy dogs, 53 (95%) were infected by *Helicobacter* spp. Thirteen (23%) dogs were identified as having *H. bizzozeronii* or *H. salomonis*; three (5%) had *H. felis*; twenty-eight (50%) *H. bizzozeronii* and *H. felis*; whereas one (2%) had all three species simultaneously. Eight (14%) dogs were negative for all species tested. Of the 14 dogs with gastrointestinal signs, 9 were infected by *Helicobacter* spp., being one with *H. bizzozeronii* or *H. salomonis*, and three with *H. bizzozeronii* and *H. felis* simultaneously. Forty-three of the 45 health cats had *Helicobacter* spp. Six of these cats had *H. felis*; five had *H. heilmannii*, and two *H. bizzozeronii* or *H. salomonis*. Twenty five cats were infected with more than one specie, being 10 with *H. felis* and *H. heilmannii*; two with *H. bizzozeronii* or *H. salomonis* and *H. felis*; two with *H. bizzozeronii* or *H. salomonis* and *H. heilmannii*; 11 with *H. bizzozeronii* or *H. salomonis*, *H. felis*, and *H. heilmannii*. All five cats with gastrointestinal signs had helicobacters. One cat had *H. heilmannii*, one had *H. felis*; two had *H. pylori* and *H. heilmannii*, and one had *H. bizzozeronii felis*, *H. heilmannii*, and *H. bizzozeronii* or *H. salomonis*. The majority of dogs and cats had mild to moderate chronic lymphocytic gastritis. There was no correlation between severity of bacterial colonization and presence of gastritis. Severity of bacterial colonization and presence of inflammatory infiltrate was similar in healthy animals and in animals with gastrointestinal signs. Based on our results, there is an apparent lack of cause-effect relationship between presence of bacteria and mucosal lesions. These bacteria are likely not pathogenic for dogs and cats. The absence of *H. pylori* in healthy animals suggest that dogs and cats are not the natural reservoir for these bacteria.
Eighth separate, but related experiments, were carried out in which groups of six calves were vaccinated with one of eight commercial vaccines. In each experiment the vaccinated calves were subsequently exposed to three calves infected with virulent bovine herpesvirus-1 (BHV-1). All infected donor calves developed a typical severe infectious bovine rhinotracheitis (IBR) infection and excreted virus in their nasal secretions of up to 10 TCID50/0.1ml. One live BHV-1 gE negative vaccine (A) and three modified live vaccines (B, C, D,) administered intranasally, all protected against clinical disease. The calves vaccinated with one vaccine (C) also did not excrete virus in the nasal secretions, whereas the calves protected by vaccines A, B and D excreted virus but at low titres (10-10 TCID50/0,1ml). A fourth modified live vaccine (E), given intramuscularly, failed to prevent mild clinical disease in the calves which also excreted virus at titre of 10 TCID50/0,1ml. An analogous result was given by the calves vaccinated with either of two inactivated vaccines (F and G) or with a BHV-1 subunit vaccine (H). All calves developed mild clinical signs and excreted virus at titres of 10-10 TCID50/0,1ml. The four modified live vaccines (B, C, D, E) as well as the gE negative live BHV-1 vaccine (A), were subsequently tested in order to verify the possibility of the virus vaccines becoming latent and, if so, to determine whether the reactivated vaccine viruses had modified their properties compared with the original vaccines. For each vaccine three calves were vaccinated and three months after vaccination calves were subjected to dexamethasone (DMS) treatment. Vaccines B, C and D were reactivated after the DMS treatment but the calves did not undergo any signs of disease and the reactivated viruses were recovered from their nasal swabbings. The fourth modified live vaccine (vaccine E), as well as the BHV-1 negative vaccine were not reactivated. The analysis of viral DNA of the three reactivated vaccine viruses subjected to restriction endonuclease showed a pattern similar between the original vaccines B or C and the respective reactivated isolates, whereas a significant difference was found in the genome of the reactivated D vaccine compared to the original D vaccine. When all the vaccinated calves were exposed 40 days later to challenge infection with virulent BHV-1, they remained healthy and no virus was isolated from their nasal swabbing. To conclude, any of the three modified live vaccines which were given intranasally to the calves (B, C, D), as well as the live IBR marker gE negative vaccine, being safe and efficacious might be considered as a suitable immunizing product to be used in an IBR eradication programme.

In order to estimate the immunity level in immunized dogs after application of vaccines from Merial we made the field trial. Three groups of dogs, four of animal in each, were applicated with vaccine from Merial, as follows: 1st group -application of Primodog on 42 day of age. 2nd group -application of Primodog on 42 days of age, Eurican DHPPIL on 60 days of age and Eurican DHPPILR on 90 days of age. 3rd group -was controlled. Before challenge with virulent Parvovirus and Canine Distemper strains, the level of antibodies had been estimated by ELISA from us. In the conclusion the all vaccinated dogs without control animals were protected against Parvoviral and Canine Distemper Infectious.
535. USE STABLE SEQUENCE OF LONG INTERSPERSED NUCLEAR ELEMENT TO IDENTIFY CANINE TRANSMISSIBLE VENEREAL TUMOR CELLS BY IN SITU PCR. Chu R.M., Liao K.W., Lin Z.Y., Pao H.N. Kam S.Y. Department of Veterinary Medicine, National Taiwan University, Taipei, Taiwan 106, ROC.

Canine transmissible venereal tumor (CTVT) is a very unique tumor and can be transplanted through viable tumor cells across MHC barrier. It grows progressively in dogs for few months and spontaneously regressed. Long interspersed nuclear element (LINE) insertion is specifically and constantly round in the 5 end outside the first c exon of c-myc gene of CTVT cells. The total insertion of LINE gene is about 1,4 kb. This LINE/c-myc rearranged gene sequence has been used to diagnose CTVT by PCR ; method. However, it was found that the length of the inserted LINE gene was not constant in CTVT cells. The purpose of this experiment was to study the variations of the inserted LINE gene in CTVT and decide which part of the LINE sequence can be used as primers for identifying the tumor cells by In Situ PCR (IS PCR). It was found that the LINE gene was inserted in between the TATA box in the promoter region of c-myc. This gene frequently underwent deletions of variable lengths in CTVT cells. However, the first 550 bp from 5’end of the LINE/c-myc gene was rather stable. We have successfully developed the In Situ PCR technique, using primers that cover the stable 0.55 kb segment. beginning from the 5’ end outside the first exon of the c-myc gene and ended at part of the LINE gene. This method can specifically identify individual CTVT cells in the formalin-fixed tissue sections and cells from cultured CTVT. None of the tested other canine tumors was positive for this gene by IS PCR. Furthermore, fibrous tissue proliferation is constantly found in CTVT especially in those regressed ones. It was speculated previously that CTVT cells might undergo fibroblastic terminal differentiation. We therefore investigated whether the spindle-typed cells in CTVT possess the LINE/c-myc segment. In this study, the CTVT-specific 0,55 kb segment was not found in any of the spindle-typed cells from CTVT of progressive or regressive phase. The IS PCR could not detect any positive spindle-typed cells from cultured CTVT cells either. These data does not favor a conclusion that fibroblastic terminal differentiation is a major mechanism for CTVT to be spontaneously regressed.

536. dsRNA VIRUSES ASSOCIATED WITH GASTROENTERITIS IN DOGS IN RIO DE JANEIRO, BRAZIL. A.P. Costa¹, J.P. Leite¹, R.C.N. Cube Garcia², N. Labarthe³. ¹Depto. de Virologia, Fundação Oswaldo Cruz, ²Depto. de Microbiologiae Parasitologia, ³Depto. de Clínica Médica de pequenos Animais, Universidade Federal Fluminense, Rio de Janeiro, Brasil.

Rotavirus are worldwide cause of acute diarrhea in children and domestic animals like cattle, pigs, and dogs. The rotavirus genome is constitute d of 11 segments of double strain RNA (dsRNA) involved in a triple capsid shell. These virus are extreme resistant. Few papers reports rotavirus associated to 9 astroenteritis in dogs. The aim of this study was to verify the occurrence of rotavirus as the cause of gastroenteritis in dogs in Rio de Janeiro. One hundred and sixty nine fecal samples collected from dogs with gastroenteritis from 1995 to 2001 in the State of Rio de Janeiro were tested. The extraction of the viral genome was carried out, using a combination of the phenol/chloroform and silica/guanidine thionate techniques. Extracted dsRNA was stored at -200°C. The presence of dsRNA was verified by polycrilamide gel electrophoresis (PAGE) using as positive contr 01 the SA11 rotavirus strain. No one sample was positive for rotavirus. Two segments of dsRN could be observed in three samples and trisegmented dsRNA was also found in another sample. Reovirus was found in only one sample. These
results are in agreement with another's papers which demonstrate that rotavirus is not a common agent associated with gastroenteritis in dogs. The detection of two and trisegmented dsRNA in these samples is an important finding since they were from puppies. Most of the cases of gastroenteritis in dogs occur under six months of age.

537. R.C.N.Cubel Garcia¹, A.P.Costa¹, L. Willi¹, T. Castro¹, and S. Miranda¹, J.P.Leite³, N. Labarthe². Depto. de Microbiologia e Parasitologia, Depto. de Clínica Médica de Pequenos Animais, Universidade Federal Fluminense, Niterói. ¹Depto. de Virologia, Fundação Oswaldo Cruz, Rio de Janeiro, Brasil.

Since it emerged in 1978 as a new pathogen of dogs, the samples of canine parvovirus (CPV-2) can be distinguished in old (CPV-2) or new types (CPV-2a/2b). Actually, the new types of virus predominate in canine population. In spite of vaccination, CPV-2 is considered the major agent of gastroenteritis in puppies less than 7 months of age in the State of Rio de Janeiro (RJ), Brazil. This study describes the genomic typing of canine parvovirus circulating in RJ from 1995 to 2001 using the polymerase chain reaction assay (PCR). Seventy-one samples from gastroenteritis puppies were first confirmed positive for CPV-2 using hemagglutination/hemagglutination-inhibition (HA/HI) tests or virus isolation in cell culture. For PCR, the samples were tested with three different primers pair in order to distinguish between CPV-2, CPV-2ab and CPV-2b. The virus DNA was extracted from fecal samples using a combination of phenol/chloroform and silica/guanidine thiocyanate techniques. Then 10l of DNA was incubated at 94°C for 2 min with 2l of each primer (20pM) pair. After 2 min at 4°C, DNA amplification was performed in a 50?l reaction mixture containing 50mM KCl, 10mM Tris-HCl (pH 8.3), 1.5mM MgCl2, 200M of each dNTP and 0.5 U of Taq polymerase. PCR consisted of 30 cycles of incubation at 94°C for 30 sec, 55°C for 2 min and 72°C for 2 min and a final 10 min incubation at 72°C. All the 71 samples reacted with the primer pair specific for CPV-2ab and 65 were confirmed as CPV-2b. Among these 65 CPV-2b samples, eleven were from puppies that had been vaccinated. In these cases the PCR could confirm that the positive results by HA/HI or virus isolation was due to detection of “wild” virus. Our results are in agreement with another reports which show that CPV-2b is prevalent in canine population.

538. MOLECULAR CHARACTERIZATION OF CD18 GENE AND IDENTIFYING CARRIERS OF GENETIC DISORDER BLAD IN IRAN M.N. Esmaelizad, M. Asadzadeh, Molaselahi, Kh. Hashemnejad.

Biotechnology department, Razi vaccine & serum research institute, Iran. This report is the first report on a BLAD carrier determination in Iran. Bovine leukocyte adhesion deficiency is a recessive autosomal disease occur in Holstein cattle. This is caused by a point mutation results in substitution of guanine instead of adenine in CD18 gene. This substitution will change glycine to aspartic acid at D128G position. This mutation has effect on Activity Mac-1(CD11b/CD18) protein. This molecule is a leukocytes surface glycoprotein that responsible for immunity against infection. It result in less adhesion and migration towards inflammatory tissues at the time of infection. Homozygous cases are prone to recurrent infections such as pneumonia, diarrhea, gingivitis, delay in wound healing, enteritis, neutrophilia and death in early months of life. A set of primer was designed for RFLP/PCR which amplified a 158bp fragment using DNASIS and OLIGO software.
The PCR condition, acrylamid gel electrophoresis, silver staining were optimized. 277 blood and semen samples were collected from Semen Bank of Animal Breeding Center related to Iranian Holstein bulls and analysed. In addition 328 semen samples imported to Iran were identified. With respect to the heredity informations available for these carriers the number of offsprings in each generation during 1965 to 2001 and their distribution in states of Iran was investigated. The allele frequency and the carrier percentage were also estimated.


L’élevage des petits ruminants est touché par plusieurs pathologies infectieuses cutanées. En Tunisie, la clavelée et l’ecthyma contagieux représentent deux maladies virales importantes à étudier vu leur allure enzootique et la perte économique qu’elles entraînent au secteur de l’élevage. L’étude de souches virales de ces deux atteintes cutanées par application et comparaison de méthodes de diagnostic reflète le but de notre travail expérimental. L’enquête épidémiologique de foyers infectieux réalisée pendant une année sur l’ensemble du pays a permis la récolte de 23 et 40 prélèvements suspects respectivement d’ecthyma contagieux et de clavelée. Ces prélèvements sont des croûtes et des papules issues d’animaux présentant des lésions cutanées évoquant les deux maladies. L’isolement viral est réalisé sur cellules primaires de testicules d’agneaux par inoculation de 1 ml de filtrat de croûtes ou de papules élaborées; 12 jours après, un deuxième passage sur culture primaire est effectué pour chaque prélèvement. La microscopie électronique, par coloration négative, vient appuyer le résultat de la culture cellulaire (effet cytopathogène) en visualisant des particules virales pour 3 échantillons de clavelée et 5 d’ecthyma. La morphologie interne du virus est étudiée par coloration positive, sur des coupes ultra fines réalisées à partir de cellules inoculées par ces 8 échantillons. L’identification par PCR d’ADN viral extrait à partir de 5 souches d’ecthyma contagieux, de 7 souches de clavelée et de la souche vaccinale sheeppox marocaine utilisée en Tunisie a été également effectuée. Le premier diagnostic établi par PCR est l’identification du gène de la thymidine kinase TK représenté dans la majorité des poxvirus. Ensuite, on a essayé l’identification d’un gène codant pour un analogue de récepteurs aux chimioxines (récepteur à l’IL8) spécifique des capripoxvirus mais qui reste à démontrer chez les parapoxvirus. Enfin, le gène de l’enveloppe externe de l’orf virus a été détecté dans tous les prélèvements. Le séquençage est réalisé en utilisant un séquenceur automatique d’acides nucléiques. Le matériel génétique séquence est traduit ensuite en acides aminés. Cette partie n’est réalisée que sur un fragment du gène récepteur aux chimioxines. Pour 7 souches de terrain suspectées en matière de clavelée et la souche marocaine, la PCR a présenté un résultat positif pour l’identification des gènes de la TK et de la chimioxine; par contre ces derniers ne sont pas identifiés au niveau des 5 souches virales d’ecthyma contagieux confirmées par PCR sur le gène de l’enveloppe externe des parapoxvirus. Le séquençage du gène récepteur aux chimioxines a montré que les 7 souches de capripoxvirus clavelée et la souche vaccinale marocaine présentent une homologie supérieure à 99,7% sur la séquence nucléotidique et de 100% sur la séquence en acides aminés. Sur la séquence nucléotidique, ces souches sont homologues à 97,4% de la souche vaccinale Kenya Sheeppox I. La variation en acides aminés se traduit par 7 substitutions sur 158 (4 mutations de bases restent silencieuses)
Le rotavirus constitue le principal agent des diarrhées chez l’homme et l’animal. Les bovins sont particulièrement touchés dans les premiers mois de leur vie, avec une symptomatologie le plus souvent sévère, mais qui peut être parfois modérée, voire même inexistante. Dans notre travail, nous sommes proposés d’étudier la prévalence du portage du rotavirus et son impact pathologique chez 89 veaux de moins de 3 mois, prélevés soit à titre systématique, soit à l’occasion d’une diarrhée. Ces prélèvements ont été effectués dans le premier semestre 2002 par l’Office National de l’Élevage et des Pâturages (ferme Fritissa) et chez des éleveurs particuliers de la région du Sahel tunisien et ces veaux sont identifiés par une fiche de renseignements comportant des données clinico-épidémiologiques. La prévalence de portage du rotavirus était de 27 %, tout à fait en concordance avec ce qui est rapporté dans la littérature. Les selles positives ont été traitées en électrophorèse sur gel de polyacrylamide, qui a révélé 7 profils différents, tous longs, avec un sous-groupe VP6 SG1. Le génotypage de VP7 par Nested PCR a retrouvé le génotype G8 dans 12 cas sur 14, contrairement à ce qui est souvent rapporté dans la littérature, qui retrouve plutôt le génotype 6 ou 10. Deux infections mixtes G6 + G8 ont été retrouvées. Ensuite, les résultats virologiques ont été confrontés aux données clinico-épidémiologiques et il en ressort des conclusions tout à fait intéressantes, qui nous incitent à continuer le travail en élargissant l’échantillonnage.

541. DETECTION OF BOVINE VIRAL DIARRHEA VIRUS IN BOVINE SEMEN S.A.Ghorashi, D.Morshedi, T.Hajian, K. Afshar Iran.

A rapid and sensitive reverse transcription polymerase chain reaction (RT-PCR) was used to detect cytopathic and non-cytopathic bovine viral diarrhea viruses (BVDV) in cell culture and bovine semen. Selected primers could amplify a gene sequence that encode part of the p20 protein of BVDV. A 486 bp DNA fragment was amplified and specificity of results was confirmed by direct sequencing of PCR product. Using a simple method prior to RNA extraction, eliminated seminal inhibitors before RNA extraction. A sensitivity of 10 TCID50 was achieved when cell culture supernatants was used for RNA extraction. This technique can be used as a rapid and sensitive method of BVDV in bovine semen.

542. CARACTERISATION MOLECULAIRE D’UN MEMBRE D’UNE FAMILLE DE GENES VLHA CODANT POUR UNE ADHESINE DE MYCOPLASMA SYNOVIAE I. Guériri, R. Ben Mohamed, B. Ben Abdelmoumen Mardassi. Laboratoire des mycoplasmes, Département de Microbiologie, Institut Pasteur de Tunis, Tunisie.

Les travaux menés dans la présente étude portent sur l’identification d’un membre d’une famille de gènes vlha de Mycoplasma synoviae en vue d’une caractérisation moléculaire de l’adhésine codée par ce gène. Une première étape des travaux a concerné la détermination du codon initiateur de la séquence d’un gène identifié par nos travaux et codant pour un complexe protéique membranaire spécifique de Mycoplasma synoviae. Ces travaux consistaient en la synthèse puis en l’amplification de l’extrémité 5’ inconnue à partir de l’ARN total en utilisant le kit 5’RACE. La séquence était achevée par clonage et séquencage des produits issus de la rétro-transcription et de l’amplification par PCR de l’ADN complémentaire. L’analyse
de la séquence ainsi obtenue montre une homologie de 100% entre 700 nucléotides et l’extrémité 5’ des différents membres de la famille de gènes vlha (vlha1, vlha2 et vlha3) ainsi qu’une homologie parfaite entre la séquence nucléotidique de la région régulatrice de l’expression du gène identifié et celle obtenue par les travaux de Noormohammadi et ses collaborateurs en l’an 2000. Ce résultat montre bien que le gène étudié est un membre de la famille de gènes vlha de *Mycoplasma synoviae* qui code pour une adhésine. En vue de la caractérisation de cette adhésine, la seconde étape des travaux consiste en l’expression de l’extrémité aminoterminale du gène vlha.


L’agent principal de la tuberculose bovine, *Mycobacterium bovis*, pathogène pour de nombreuses autres espèces, dont l’homme, appartient au «complexe tuberculosis », génétiquement très homogène, qui regroupe plusieurs sous-espèces, toutes agents de tuberculose. Depuis une dizaine d’années, plusieurs techniques d’étude des isolats ont été mises au point, qui permettent d’affiner le typage en descendant à un niveau plus fin que celui de la sous-espèce. Parmi les plus utilisées, on peut citer les techniques de RFLP (RFLP-IS6110, RFLP-DR, RFLP-PGRS,...), le spoligotypage (basé sur l’existence d’une région propre aux mycobactéries du complexe tuberculosis, la région DR), ou le typage des VNTR. Ces techniques permettent notamment de distinguer entre eux des isolats de *M. bovis*. Néanmoins, pour donner une signification épidémiologique aux résultats du typage, il est nécessaire de connaître a priori les variations géographiques des différents types, en termes qualitatif et quantitatif. Cette communication vise à présenter les principales techniques, et à en exposer des applications concrètes, puisque le spoligotypage de plus de 1300 isolats de *M. bovis* nous a permis d’établir ‘la cartographie génétique spatiale et temporelle de cette bactérie en France, d’identifier les types les plus fréquents et les plus rares parmi les 161 spoligotypes identifiés, avec pour certains d’entre eux la mise en évidence d’une localisation graphique très restreinte, et d’étudier la répartition des types par espèce animale. En outre, une analyse phylogénétique nous a conduits à mettre en évidence une grande homogénéité génétique au sein de la grande diversité des spoligotypes caractérisés en France. Nous donnons des exemples d’exploitation de ces données à des fins épidémiologiques, telles que l’identification de l’origine de foyers, et l’établissement ou l’invalidation de liens entre foyers. D’autres possibilités d’applications, ainsi que les avantages et les limites de l’utilisation de telles techniques sont également évoquées.

**544. THE APPLICATION OF CF AND HI TEST FOR THE SEROLOGICAL DIAGNOSIS OF RINDEPEST.** S. Haghighi, S. Masoudi, R. Sadri, K. Khedmati. Razi Vaccine & Serum Research Institute, Iran.

Rinderpest, measles, distemper viruses are members of paramixoviridea family genius morbillivirus. These viruses are pathogenic and have common antigenic properties. Previous studies show that serum neutralization and hemagglutination inhibition methods are efficacious in detecting rinderpest antibody
with use of measles antigen. In this project we report comparison the sensitivity of two serological methods (CF and HI). In this regard we prepared antigen of rinderpest virus on bovine kidney cell culture. Fresh guinea pig sera as complement. Heamolysin was prepared with injection of sheep red blood cells in rabbit. Hyperimmun serum was purchased from pirbright and used as positive control serum. HI was carried out on Vero cell line and the CF test was done as standard method. 668 serum samples of vaccinated against rinderpest was collected from different parts of Iran. CF and HI test were done on these samples. The results show that both methods have equal sensitivity in determining rinderpest antibody. In CF test 88% and in HI 89% of serum samples were positive for rinderpest antibody. Only 12% of sera were different from each other. In recent year’s new methods such as ELISA, which are sensitive and rapid in detecting antibody and antigens, was developed. These methods in spite of high sensitivity have low specificity. But yet methods like as HI and CF is used extensively. This study show that routine serological methods have adequate sensitivity in determining antibody in serum samples.

545. DETECTION OF FOOT AND MOUTH DISEASE VIRUS AND DIFFERENTIATION OF THREE VIRUS SEROTYPES IN CLINICAL SAMPLES BY RT-PCR. T. Hajian, S.A.Ghorashi, D.Morshedi, O. Marqardt. National Research Center for Genetic Engineering and Biotechnology, Iran.

Rapid detection and identification of foot-and-mouth disease virus (FMDV) and its serotypes is important and essential in animal health and vaccination programs. In this study a Reverse-Transcriptase Polymerase-Chain Reaction (RT-PCR) was used in order to detect FMD viral RNA in clinical samples regardless of their serotypes. Four vaccine viral strains of types A (two isolates), O and Asia1 were tested. Primers belong to the highly conserved region of 2Bgene of the virus, which is identical among all serotypes. Viral RNA was extracted by RNAfast solution and cDNA was synthesized before PCR reaction. In a second test, a Multiplex-PCR was optimized for serotype identification based on the size of amplified DNA. Primers were used from a highly variable region of VP1 gene. In the virus detection PCR, a 131 bp DNA fragment was amplified and specificity of results was confirmed by direct sequencing of PCR product. In Multiplex-PCR DNA fragments of 292, 402 and 732 bp were amplified for the Asia1, O and A serotypes, respectively. In this study, 37 clinical bovine tissue samples were tested with these two assays. Sequencing of PCR products, the hypervariable region of VP1 gene, could reveal genetic differences among viruses. These molecular diagnostic methods are sensitive and specific for detection of FMDV and its serotypes in clinical samples. These tests can be completed in less than two days therefore are useful in rapid diagnosis of FMD outbreaks.

546. COMPARISON OF PCR, AND IMMUNOCAPTURE-ELISA IN DIAGNOSIS OF RINDERPEST AND PESTE DES PETITS UMINANTS IN IRAN. R. Hasanzadeh, H. Nazemshirazi M., Sedighimoghadam R. Iran.

FMD is a highly contagious viral infection primarily of cloven-hoofed domestic and wild animals. The disease is caused by an apthovirus and characterized by vesicles, with subsequent erosions in the mouth and sometimes also in the nares, muzzle, feet, or teats. FMD virus (FMDv) is a member of the genus Aphyovirus in the family Picomaviridae. The virion is a small (23-nm) single-stranded RNA virus. There are seven serotypes of FMDv: A, 0, C, Asia 1, and Southern African Territories (SAT) 1,2 and 3. Within these serotypes, more than 60 subtypes have been described, and new subtypes occasionally arise.
spontaneously. At ~y given time, however, there are only a few subtypes causing disease throughout areas where FMD is endemic. The importance of subtypes is that an FMD vaccine may have to be tailored to the subtype present in the area in which the vaccine is to be used. Antigen Detection and virus Isolation. In the laboratory, vesicular fluid and tissue homogenates are tested for antigen by the complement fixation (CF) test or the enzyme-linked immunosorbent assay (ELISA). vesicular fluid, tissue, blood, and OP fluid are used to inoculate cell cultures and animals. Nucleic Acid Detection: Polymerase chain reaction (PCR). To confirm the initial case of FMD, the virus be isolated and identified. A comparison was carried out between three methods of FMD diagnosis in field samples: virus isolation in cell culture, antigen detection ELISA and RT-PCR. In this study we have tested 100 samples submitted to CVL by ELISA, PCR and virus isolation(BHK-21) and have compared the results.


Synthetic peptide vaccines would form the ideal ultimate vaccine because they are safe both in production and application, easy to handle, store and transport. These vaccines have the advantage being chemically produced in a completely well defined and reproducible manner, which makes registration straightforward. These aspects make them cheap in comparison to subunit or whole protein vaccines. Peptide vaccines offer the potential possibility to design multivalent vaccines precisely and to incorporate adjuvanticity (5). A successful peptide vaccine against foot and mouth disease virus (FMDV) in cattle was reported (1, 6). It has been reported that dogs vaccinated twice with a peptide from canine parvovirus (CPV) and challenged with virulent CPV were protected (3). In our study, approximately 40% of the gene for a serine protease from Dermatophilous congolensis between the histidine and serine active sites was cloned and sequenced (4). Two epitope prediction programs were used in attempts to predict likely epitopes in serine protease gene. The MacVectorTM Sequence Analysis Programs 3.5 (IBI) produced two regions between amino acid 70-76 and 142-147 showed the highest antigenic indices. An alternative program for peptide prediction is available from Genetic Computing Group (GCG, ANGIS). The amino acid sequence of serine protease was examined by this program. From a combination of the results of these programs a 20-amino acid peptide from amino acids 68-87 was chosen. This peptide included regions with a high score in both programs. The peptide Ac-ALNDGNTRSA-YNRIIDEY-NH2 was purchased from Chiron Mimotopes Peptide System with 73% purity by mass spectrometer analysis. Rabbits were immunized by synthetic peptide 4 times at intervals of 2 weeks (2). Blood samples were collected before each immunization and also after the fourth immunization. Specific antibodies were produced in rabbits, which had been immunized with peptide. The fourth sample of sera following immunization gave in ELISA with serine protease antigen an absorbance three times that of the pre-immune. So the reaction of antibody from the rabbits to the synthetic peptide showed that the predicted epitope was immunogenic in the original preparation of the serine protease gene.

548. DNA VACCINES AND RECOMBINANT ADENOVIRAL VACCINES. Ertl C.J. Hildegund.

Bacterial expression vectors and E1-deleted adenoviral constructs both provide suitable vehicles for vaccine delivery. Both vector systems have unique advantages as well as disadvantages. DNA vaccines are
easy to construct, very stable, versatile and well tolerated in all target species tested. They transduce immature dendritic cells causing their maturation upon interaction with the Toll-like receptor 9. They induce a full spectrum of immune responses to the encoded transgene product including antibodies and cytolytic T cells. Their clear disadvantage is that their efficacy in larger target species is limited. E1-deleted adenoviral recombinants thus far mainly derived from common human serotypes such as serotype 5 (Adhu5) very efficiently transduce and activate immature dendritic cells. They induce very potent B and T cell mediated immune responses to the encoded transgene product that far surpassed those that can be achieved with DNA vaccines or other type of traditional vaccines. At moderate doses such as those required for vaccination, E1-deleted adenoviral recombinants are well tolerated. The disadvantage of adenoviral recombinants derived from common human serotypes is their prevalence in the human population. Most humans are exposed to these viruses early during childhood and a large percentage of adults carry virus neutralizing antibodies which impair the efficacy of adenoviral vaccines based on the homologous serotype. This can in part be overcome by increasing the dose of the vaccine, changing the route of administration or by using prime boost regimens. Alternatively, adenoviral recombinants from serotypes that do not circulate in the human population such as those derived from chimpanzees, can be used as vaccine carriers for both humans as well as for companion or livestock animals that may have been exposed to common human serotypes of adenovirus. The efficacy of such chimpanzee-derived recombinants equals that of the Adhu5 vaccines. Most importantly, the efficacy of the chimpanzee virus vaccines is not impaired in experimental animals pre-exposed to common human serotypes of adenovirus, thus offering an improved alternative as vaccine delivery vehicles.

549. PASTEURELLA MULTOCIDA: MOLECULAR CHARACTERIZATION OF AVIAN ISOLATES FROM IRAN. A. R. Jabbari1, A. A. Saharee2, A. Ideris2; F. Esmaily1, M. Vasfi Marandi3, M. Esmailzadeh1.

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_Pasteurella multocida_, the cause of fowl cholera, is widely distributed in most poultry producing countries of the world. This organism is well recognized as a heterogenous species. The fowl cholera is endemic in northern part of Iran. Characterization of _Pasteurella multocida_ isolates provides basic information to better understanding of the disease. Twenty five isolates of _Pasteurella multocida_ obtained from poultry were studied by SDS-PAGE for protein fingerprinting, REA for whole cell genomic analysis and repetetitive extragenic sequence polymerase chain reaction (REP-PCR). Protein fingerprinting of the isolates classified them into 3 protein types. The main difference among the isolates was the position of a major protein band (H protein) ranging from 34-38Kda. Analysis of the whole cell DNA by restriction enzyme (HpaII) showed a considerable genetic variation among the isolates. By this analysis the isolates classified in 7 distinct groups. However DNA fingerprinting with REP-PCR revealed a greater genetic diversity among them. According to amplified DNA patterns, a total of 9 REP groups were determined. REP-PCR was resulted in the amplification of bands ranging in size from approximately 700 bp to 3.6 Kb with two species-specific bands of 0.8 Kb and 2.3 Kb. The technique was able to differentiate _P. multocida_ isolates from different sources and geographical area. It was demonstrated that use of REP sequence amplification by PCR is highly reproducible and can be suggested as a suitable epidemiological tools for _Pasteurella multocida_.

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To determine neutralizing antibodies against Infectious Bovine Rhinotracheitis (IBR) and Bovine Herpes 4 (BH4) viruses, 9,968 serum samples in different parts of Iran were examined. Of these samples, 33.97% and 4.75% detected IBR virus and BH4 virus antibodies respectively. The results indicated that IBR virus infection is widely distributed among the bovine population but the cattle are less infected by BH4, and the co-infection with both viruses is considerably common (3.4%) in indigenous cattle.

551. THE EFFECT OF PROTEIN LEVEL AND ASCORBIC ACID ON IMMUNE RESPONSE, BLOOD MEASUREMENT AND PERFORMANCE OF ISA MALE CHICKENS. A. Kassab, J.N. Al-Baszzaz. Departement. of Pathology and Poultry, College of Veterinary Medicine, University of Baghdad. Iraq.

The study was conducted to investigate the effect of feeding low protein: energy diet, with or without ascorbic acid (AA) in drinking water on the immune response, some blood component and performance of chickens. A total of 200 day-oldISA Brown males were divided into 2 equal groups, then, at 26 days of age, each was equally divided into 2 sub groups. The groups designated and treated as follows: Group 1, HPD : High protein: energy (1: 147) diet. Group 2, LPD : Low protein energy (1: 193) diet. Subgroup 1, HPD : High protein: energy (1: 147) diet. Subgroup 2, HPD+AA : High protein: energy (1: 147) diet with 125 mg AA/l in drinking water. Subgroup 3, LPD Low protein: energy (1: 193) diet. Subgroup 4, LPD + AA: Low protein: energy (1: 193) diet with 125 mg AA/l in drinking water. Antibody titers (AbTs) against Newcastle disease were determined at 1, 10, 25 and 42 days of chick’s age. Total white blood cells count (TWBC\(_{SC}\)), red blood cells count (TRBC\(_{SC}\)) and serum total protein (STP) were estimated at 25 days of age. Heterophil / Lymphocyte (H/L) ratio at 44 and serum globulines at 50 days of age were determined. The chick’s performances that are weights, weight gains, feed intake and feed conversion ratio were recorded. In LPD group, the maternal AbTs were significantly reduced at 25 days of age, but when the group was given AA in drinking water, the acquired AbTs, that determined at 42 days of age, were significantly increased. As a response to nutritional stress in LPD group, the TWBC\(_{SC}\) and the H/L ratio were elevated and the serum globulines were reduced. When AA was given in drinking water to LPD group, the mentioned parameters were significantly improved. The records of the performance of the chicks were not very impressive, but there were some adverse effects of LPD on the performance. The supplementation of AA in drinking water for LPD group improved the performance. It was concluded that giving diets poor in crude protein to chicks causes adverse effects on immune response, some blood components and performance. The administration of ascorbic acid in drinking water improves the mentioned parameters.


Epstein-Barr virus is a ubiquitous lymphocryptovirus belonging to the subfamily of gammaherpes viruses. This agent probably evolved and spread among the world primates since the divergences of apes
from monkey about 30 million years ago. The EBV genome is one of the largest pieces of eukaryotic DNA encoding around 80 genes only 11 are expressed during latent infection. Genomic analyses of EBV isolated from around the world have identified two broad families of EBV. Type A EBV can affect oropharyngeal epithelial cells and peripheral blood lymphocytes, while type B EBV is seen in the oropharynx and rarely in the peripheral blood. We have investigated 23 (16 male and 7 female) recipients of renal allograft from cadaveric donors were transplanted at Transplantation Institute, Medical University of Warsaw. Immunosuppressive regimen consisted cyclosporin (CsA), azathioprine (Aza), prednisone (Pre) and MMF. 8 patients received induction therapy with ATG and 1 patient rejected the graft. Whole blood were collected prospectively from all patients before transplantation and at 1, 4, 12, 24 week, after transplantation. Blood samples were stored frozen at -70 °C. In these sera number of EBV DNA copies was measured using quantitative PCR. In 23 recipients the number of copies of specific EBV DNA was measured of quantitative PCR. After DNA extraction two bands were detected. The presence of bands at 210 and 260 base pairs was indicates proper amplification reaction of both EBV and internal Calibration standard? (ICS). In all patients studied substantial numbers of copies of viral genome was detected in blood collected immediately before transplantation. Early after transplantation there were no increase in the number of copies of EBV DNA. In 2 recipients there was a steady increase in the number of viral copies over the period of one month. At the moment of transplantation 633.1 and 659.5, 814.5 copy was detected after 1 and 4 week the transplantation. The another recipient 620.5, 726.6 and 862.7 copy of EBV DNA was detected before and after 1 and 4 weeks the transplantation. There is no increase in EBV replication immediately after transplantation. May occur asymptomatically dog 12 month posttransplantation this study the initial viral load is small not exceeding 1000 copies. There is a brief and transient period of EBV reactivation immediately after transplantation which may be associated with induction of immunosuppressive therapy.

553. CHARACTERIZATION OF PLASMIDS FROM HEMOPHILUS PARAINFLUENZA. Z. R. Khameneh1, A. Piekarowicz2. 1Faculty of Health and Paramedical Sciences. 2Warsaw Medical University. Iran.

Plasmids are extra pieces of DNA, which can replicate independently of, and coexist, J. with the host chromosome. Replication of plasmid DNA is carried out by subsets of enzymes used to duplicate the bacterial chromosome. Plasmids that determine resistance to antibiotics (R-plasmids) are Most common in bacteria from clinical and veterinary sources. Various aspects of the host bacterium relationship are controlled by plasmids, Properties such as bacteriocin production, antibiotic resistance and hemolysin production are likely to contribute to the establishment of the organism, its epidemic spread and the severity of the disease caused by it. Methods: The chromosomal DNA was isolated from H. Parainfluenza. Plasmid DNAs from RParainfluenza were prepared by alkaline method. To isolate these plasmids first the alkalin method designed for the isolation of plasmid DNAs from Escherchia coli was used. However, the results were unproductive or ended in obtaining the plasmid DNAs that could not be digested by restriction endonucleases. In the next experiments the method designed for the preparations of plasmids from Haemophilus influenza was used. digestion of the R parainfluenza plasmid DNA with restriction enzyme Hind m. In order to obtain a shuttle vectors the H.Parainfluenza and PUC 18 was digested by Hind m and ligated. The ligation mixture was transformed into E.coli ER1944 cell by the electroporation method and the recombinant cells were selected on LB plates containing ampicyline, X-gal and IPTG. The recombinant colonies were selected as a white colonies in contrast to non-recombinant blue colonies.
able to produce this enzyme. Plasmid DNA were isolated from each of these colonies and two type of the recombinant plasmid selected gave after digestion with Hind m and they transformed into H. influenza.

During the preparation of the chromosomal DNA from haemophilus parainfluenza cells presence of the several bands migrating faster than the chromosomal DNA was noticed. It was assumed that these bands can represent plasmid DNAs. It can be then concluded that H. parainfluenza cells used in these experiments possesses three different plasmids named pH1, pH2 and pH3 of molecular weight 1.5 kb, 2.5 kb and 4.0 kb respectively. In order to obtain a shuttle vectors able to replicate bath in H.influenza and E.coli using recombinant plasmids constructed from pUC 18 and plasmid from H. parainfluenza. Despite the use of different method of transfer of the plasmid DNAs into H. influenza cells no transformants containing autonomously replicating plasmid were obtained. There could be several reasons for this unsuccessful transfer of recombinant plasmids Into H.influenza. First, it is known that a DNA molecule to be transferred into competent H. influenza cens bas to contain 50 called “uptake sites”. Secondly, H. influenza encodes several R/M system that could destroy incoming DNA.

554. ISOLEMENT ET CARACTÉRISATION MOLÉCULAIRE DE SOUCHES DE ROTAVIRUS RESPONSABLES DE GASTRO-ENTÉRITES NÉONATALES CHEZ DES VEAUX EN TUNISIE.

S. Libersou 1, A. Charpilienne 2, S. Hammami 1, S. Ben Romdane 1, J. Cohen 2.

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Les gastro-entérites néonatales chez les veaux constituent le facteur de mortalité le plus fréquent en élevage allaitant. Les enquêtes menées en Tunisie ont montré que le rotavirus est l’agent étiologique le plus souvent détecté. L’objectif de la présente étude est d’isoler et de caractériser, pour la première fois en Tunisie, des rotavirus responsables de ces pathologies. L’étude a porté sur un total de 40 veaux âgés de moins de 60 jours, nés durant la période de janvier à avril 2001 et appartenant à 3 fermes localisées dans différentes régions du pays. Dans un premier temps, nous avons tenté d’adapter un isolat de chacune de ces fermes. La multiplication de ces isolats in vitro a été réalisée jusqu’au septième passage. Ce matériel sera précieux pour caractériser de façon plus approfondie ces isolats. Par la suite, les rotavirus ont été détectés dans les échantillons de fécès après extraction des ARN génomiques par amplification du segment génomique 9 codant pour la glycoprotéine de surface VP7. Cette 1; amplification a été réalisée par transcription inverse et polymérisation en chaîne (RT -PCR), à l’aide d’amorces correspondant aux extrémités conservées 5’ et 3’ des segments génomiques. Il en est ressorti que le rotavirus, seul ou associé à d’autres agents entéropathogènes, était responsable des gastro-entérites dans 37,5% des cas. Le produit résultant de la RT -PCR a ensuite été purifié puis séquence par une méthode fondée sur l’utilisation de la Taq polymérase et de didéoxynucléotides fluorescents. Les séquences du gène 9 obtenues ont été analysées et comparées à une sélection représentative des gènes correspondants du rotavirus appartenant à l’ensemble des génotypes G, présents dans les bases de données. L’analyse de l’arbre phylogénétique a montré, comme c’est souvent le cas, que les isolats étudiés appartiennent tous au génotype G6. Analyse moléculaire et phylogénétique d’isolats tunisiens du virus de la bursite infectieuse aviaire défiant le programme local de vaccination. H. Mardassi, N. Khabouchi, A. Karboul, A. Namouchi et A. Ghram. Laboratoire de Microbiologie Vétérinaire, Institut Pasteur de Tunis. 13, Place Pasteur, BP 74, 1002 Tunis Belvédère, Tunis, Tunisie. En dépit de l’application rigoureuse des programmes de vaccination contre la bursite infectieuse aviaire (IBD), certains élevages tunisiens continuent à subir de manière récurrente des
épisodes épidémiques de l’infection et ce, depuis plus de dix ans. Afin de connaître l’identité du virus IBDV à l’origine de ces infections, nous avons analysé par RT-PCR et séquençage la région hypervariable de la protéine capsidiale majeure (VP2) d’isolats tunisiens obtenus au sein de ces élevages. Les résultats démontrent l’existence d’un seul génotype fortement apparenté aux souches IBDV de type « hypervirulent ». En effet, toutes les séquences nucléotidiques des isolats locaux étaient identiques et présentent 13 des 14 mutations caractéristiques des souches hypervirulentes. Bien que les isolats locaux se distinguent par deux mutations nucléotidiques, la séquence en acides aminés de la région hypervariable est identique à celle de certaines souches hypervirulentes européennes et asiatiques. Ces résultats confirment l’existence, en Tunisie, de souches hypervirulentes du virus IBDV et pourraient expliquer les échecs de programmes de vaccination dans certains élevages.

555. CLONAGE DU SEGMENT GÉNOMIQUE A D’UNE SOUCHE TUNISIENNE DU VIRUS DE LA BURSITE INFECTIEUSE AVIAIRE ET PRODUCTION DE PARTICULES VIRALES ATTÉNUÉES PAR MUTAGÈNESE ET GÉNÉTIQUE INVERSE. H. Mardassi, N. Khabouchi, A. Namouchi, A. Karboul, et A. Ghram. Laboratoire de Microbiologie Vétérinaire, Institut Pasteur de Tunis, 13, Place Pasteur, BP 74, 1002 Tunis Belvédère, Tunis, Tunisie.

La génétique inverse couplée à la mutagenèse dirigée a été utilisée afin de produire des particules virales d’un isolat tunisien (IPT1) du virus de la bursite infectieuse aviaire (IBDV) doté d’un tropisme tissulaire et davantage atténué par inactivation du gène de la protéine non structurale VP5. Pour ce faire, le segment génomique A a été assemblé en entier à partir de quatre fragments d’ADNc obtenus par RT-PCR, en utilisant des sites naturels d’enzymes de restriction. Une fois cloné dans un vecteur d’expression eucaryotique, un certain nombre de modifications génétiques ont été réalisées. Ainsi, en réalisant une double PCR, deux acides aminés ont été convertis de sorte à pouvoir cultiver la couche IPT1 sur culture de tissu. Ensuite, le gène de la protéine VP5 a été inactivé au niveau du site de restriction Pvu I. Après co-transfection de cellules primaires de fibroblastes d’embryon de poulet (FEP) simultanément par le segment A de la souche locale et le segment B d’une souche de référence, un effet cytopathique caractéristique du virus IBDV a été observé dans le cas du segment A muté et non pour le type sauvage. La production de particules virales infectieuses a été confirmée par passages successifs sur cellules FEP et par RT-PCR. Cette souche tunisienne génétiquement modifiée sera à la base du développement d’un vaccin qui répondrait mieux à la spécificité antigénique locale.

556. ETUDE BACTÉRIOLOGIQUE DES MAMMITES CLINIQUES STAPHYLOCOCCIQUES DE LA VACHE EN TUNISIE. L. Messadi1, W. Arfaoui2, H. Mastouri1, F. Ben Salem2, S. Chebil1, M. Knani1.

Les mammites cliniques de la vache laitière constituent une dominante pathologique en Tunisie et, parmi les étiologies retrouvées, les staphylocoques occupent une place prépondérante. Une étude bactériologique consacrée à l’étiologie des mammites cliniques de la vache laitière a intéressé 2 régions de la Tunisie : le Nord et la région de Sfax. Le lait des quartiers malades est prélevé de façon aseptique, puis ensemencé sur gélose au sang de mouton, incubée en aérobiose pendant 24-48 heures. Nous présentons les résultats concernant les mammites staphylococciques, en comparant la fréquence d’isolement de Staphylococcus aureus et des staphylocoques coagulasse négative, ainsi que leur
antibiorésistance respective. Les souches bactériennes isolées appartiennent essentiellement au genre *Staphylococcus*, suivi de *Pseudomonas* et de *Proteus*. L’antibiogramme révèle une résistance importante à la néomycine, la tétracycline et aux macrolides. Une étude mycologique réalisée sur 62 chiens indique une prévalence importante de *Malassezia pachydermatis*, suivie de *Candida spp.* et *Rhodotorula sp*. Une association bactéries-levures est retrouvée dans près de la moitié des cas et le plus souvent, il s’agit de *Malassezia-Staphylococcus*.


Tuberculin test is world wide known as the best method for diagnosis of Tuberculosis in animals and is the easiest way to assess the condition of individuals person when they are expose to Mycobacterium Tuberculosis. Meanwhile Research and Production of Tuberculin and Malein Division is responsible for production PPD Tuberculins in I.R.of IRAN that evaluates different methods currently used for production of PPD Tuberculin. In this research work it was tried to choose the most suitable liquid medium, determine the safest method for killing Mycobacteria and find out the best methods for the precipitation of Tuberculoproteins as well as the measurement of proteins. It was concluded that Dorset-Henly was the best syntetic liquid medium and indirect culture for transmission Mycobacteria from sold to liquid media was not necessary. We find out that 100 degree celsious of frea steam during three hours was the safest method for killing Mycobacteria and also simultaneously for killing this organism. We used gamma radiation that find 8 kilogray can kill all of the bacteria, then we storaged irradiated samples for 9 month.


Bovine bacterial arthritis is on of the major problems all around the word including in our country Various Bacteria my cause arthritis in bovines species “namely : Cornebacterium pyogenes, E-coli, Salmonella species”Brucella abortus, Hemolphilus samnus and some of the mycoplasma species.

**559. MYCOPLASMA ISOLATED FROM SHEEP WITH PLEUROPNEUMONIA IN PROVINCE OF Khorassan IN IRAN.** J. Navidmehr, I. Aarabi. *Iran.*

Pleuropneumonia In sheep has been known to cause serious economic losses in province of Khorassan in Iran. A preliminary investigation was carried out on 299 sheep which showed clinical symptoms or postmrtem lesions of pleuropneumonia. Mycopasmas were isolated from 156 specimens(53/17%). They were characterized and differentiated on the basis of fermentation of glucose, hydrolysis of arginine and phosphatase reaction. All isolates were confirmed as Mycoplasma arginini Characterization of Mycoplasma arginini in this study were similar to those observed by others. This study points to paying more attention to Mycoplasma spp. as aetiology for pleuropneumonia in sheep.
Enzymes are a group of proteins and they carry out biological reactions in men and animals. From thousands years ago, enzymes are used in different industries like cheese and bread production. Amylolitic enzymes are valuable in pharmacy, food industry and also animal husbandry. Today, some of enzymes are used in poultry and animal nutrition. For produce of enzymes can be used from different microorganisms. In this study, we evaluate the effects of 4 amino acids on Alfa-Amylase production and Amylolitic specificities in culture of Streptomyces with Colorimetric method. Different amino acids can be a good nitrogen source for some microorganisms in Alfa-Amylase production. Thus, we studied effects of 4 amino acids (Valine, Arginine, Cysteine and Tylosine) in Alfa-Amylase production on an optimum culture of Streptomyces. As a result, in during two consequent days, increase in enzyme production recorded in 2 amino acids (Valine and Cysteine). Thus, some amino acids could be important in Alfa-Amylase production and they are used in industry and animals nutrition.


A rapid ELISA test was developed for detection of antibodies against Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) using recombinant nucleocapsid (rN) proteins from European and American type of the virus. The ORF7 of European type PRRSV was obtained by PCR amplification from a serum of naturally infected pig in Central Russia. Strain NADC-8, provided by Dr. W.L. Mengeling, was used as a source of ORF7 for American type virus. The ORF7 from each type of virus were expressed in PET 23b+ plasmid system in E. coli strain BL21(DE3)pLysS. Alternatively, the ORF7 from each type of virus were expressed in baculovirus expression system in SF-21 insect cell line. In contrast to the products obtained in E. coli system, the crude lysates of insect cells, infected with recombinant baculovirus, worked well as antigens in non-direct ELISA and allowed to distinguish between the positive and negative sera. To avoid false-positive results and to compare antigens obtained in different expression systems, expression products were purified by histidine-tag chromatography. The purified rN proteins were seen as single bands in Western blot using monoclonal antibodies to N protein. The purified proteins were used separately as solid phase antigens in an indirect ELISA with peroxidase-labeled anti-swine IgG of goat or chicken origin after optimization of reaction parameters. One hundred twenty rune serum samples from Russia were used. The samples were characterized using HerdCheck antibody detection kit by IDEXX. All positive and negative samples were tested similarly in indirect ELISA with European and American type antigens obtained in E. coli and baculovirus expression systems. Calculated correlation index based on actual reading numbers was 0.90-0.98 between the indirect ELISA tests with different antigens. Thus, all recombinant antigens performed similarly in indirect ELISA. Correlation between our data and the results by HerdCheck antibody detection kit was 0.8-0.85. The next step in this study will
include evaluation of American serum samples and characterization of samples that were measured differently by indirect ELISA tests and the HerdCheck antibody detection kit.

562. SYNTHESIS OF RECOMBINANT GP70 OF FELINE LEUKEMIA VIRUS IN A BACULOVIRUS EXPRESSION SYSTEM. V. Nepoklonova, E. A. Nepoklonov, T. Aliper, T. V. Grebennikova, A. D. Zaberezhny. NARV AC R&D Department, D.I. Ivanovski Virology Institute, Moscow, Russia.

The retrovirus, feline leukemia virus (FeLV), is a significant pathogen of domestic cats worldwide. Several inactivated, subunit and recombinant vaccines in different formulations are available. A vaccine that can protect against the establishment of both viremia and latent infection is in demand in Russia. In this study we have analysed serum samples of suspected cats from Moscow veterinary clinics for FeLV presence using nested PCR. The diagnostic primers were designed based on genomic sequence of Rickard subgroup A strain of FeLV (Genbank AF052723). The primers were specific to a 365 nucleotide fragment of the gp70 (env) gene located between nucleotides 6087-7322. PCR-positive serum samples have been used to directly amplify and clone the entire gp70 genes (1259 nucleotides) from Russian FeLV samples that are now being sequenced. The gp70 gene from selected sample was expressed in a baculovirus vector in SF-21 insect cells using Bac-to-Bac (Life Technologies) expression system. Recombinant baculovirus clones were selected in ELISA test with gp70-specific monoclonal. Antibodies. The product of expression was purified by a His-tag affinity chromatography in Ni-column and characterized by immunochemical methods. The product is being evaluated for its antigenic and immunogenic properties as one more potential candidate for a recombinant vaccine component.

563. EXPRESSION DES PROTÉINS SPÉCIFIQUES ET MAJEURES DES MYCOPLASMES AVIAIRES LES PLUS PATHOGÈNES ET LEUR UTILISATION DANS LE DÉVELOPPEMENT D’UN TEST ELISA. L. Oussaeïf, C. Brik, B. Mlik, B. Mardassi. Laboratoire des mycoplastmes, Département de Microbiologie, Institut Pasteur de Tunis, Tunisie.

Les gènes des mycoplasmes aviaires les plus pathogènes à savoir Mycoplasma gallisepticum (MG), Mycoplasma synoviae (MS) et Mycoplasma meleagridis (MM) ont été identifiés, clonés et exprimés dans un système procaryote afin d’utiliser leur produits d’expression dans le développement d’un test immunoenzymatique (ELISA) spécifique. Les gènes identifiés de MS appartiennent à une famille de gènes vlha codant pour des adhésines spécifiques. Le gène de MG utilisé appartient à une large famille de gènes pMGA codant pour une hémagglutinine majeure de 67KDa. Quant à MM, les études menées récemment par notre laboratoire, ont abouti à l’identification d’un gène MM19/4 codant pour une protéine spécifique et majeure de 30 KDa. Les trois protéines citées ci-dessus ont été exprimées et utilisées comme antigènes dans le test ELISA pour l’identification sérologique en une seule réaction des trois espèces de mycoplasme aviaire. Disposant des antisérums polyclonaux spécifiques dirigés contre chacune des trois espèces, le test ELISA fut d’abord développé en utilisant les protéines totales des trois mycoplasmes. Par la suite, et basées sur les résultats obtenus par ce premier essai, les conditions de mise au point du test ELISA ont été reprises en utilisant les protéines recombinantes et les antisérums monospécifiques correspondants. Le test ELISA sérologique ainsi développé est d’un grand intérêt dans le diagnostic des mycoplasmes aviaires puisqu’il permet l’identification en une seule réaction des trois espèces. De même, c’est un test de grande spécificité parce qu’il utilise comme antigène des protéines recombinantes...
spécifiques de chacune des trois espèces citées et ne présente pas de réactions croisées avec d’autres bactéries de la classe des Mollicutes.

564. SEROTYPES OF ERYSIPELOTHRIX RHUSIOPATHIAE ISOLATED FROM SWINE IN RUSSIA. A.N. Panin, R.V. Dushuk, Yu.A. Malakhov, A.V. Oleynik, L.I. Tikhonov. All-Russian State Research Institute for Control, Standardization and Certification of Veterinary Preparations, Ministry of Agriculture of the RF5, Zvenigorodskoye shosse, Moscow, 123022, Russia. L.V. Semenov Armavirskaya biofactory, progress, Krasnodarskoye Kraye, 352212, Russia.

The first reports about antigenic differences of *Erysipelothrix rhusiopathiae* were made by Watts in 1940 AND Atkinson in 1941. With help of agglutination test they distinguished 2 serotypes of the causative agent of swine erysipelas. At present, in accordance with the system proposed by Kucsera, 28 serotypes of *E. rhusiopathiae*, involving 4 subtypes (1a, 1b, 2a, 2b) and type N, isolated from swine and other kinds of animals, have been described in various countries of Europe, Asia, America, Africa and Australia. The purpose of the present study was to determine the serotypes of *E. rhusiopathiae* isolated from domestic swine in some regions of Russia.


At the first stage the looking up of genome nucleotide sequences of rotavirus on databases Entrez (National center of the biotechnological information, National medicallibrary, National institute of health, USA), GeneBank, EMBL (European molecular-biologicallibrary) and Japanese database of nucleotide sequences -DDBJ was conducted. For analysis were selected about 300 nucleotide sequences of the vp7 gene, 100 nucleotide sequences of the vp6 gene, 50 sequences of the nsp4 gene, 18 nucleotide sequences of the nsp 1 gene, all variants of nucleotide sequences of the vp1, vp2, vp3, vp4 genes. At the second stage the alignment of selected nucleotide sequences by the system ClastalW Multi Sequence Alignment with the purpose of their subsequent analysis on variability and looking up of conservative sites necessary for primer selection was conducted. This analysis has shown, that the majority of rotavirus genes differ extremely expressed variability and do not approach on the foie of targets for the PCR-analysis. At the same time, we managed to find out conservative enough regions in the field of the vp4 gene. However even the selected sites for the number rotavirus isolates, isolated mainly from animal, contained nucleotide replacement. Therefore pattern offered primers, preset so that most variable positions contained two most frequently meeting nucleotide or, in the event that in the given situation is equiprobable there were more than two nucleotides, the canonical nucleotide was substituted deoxyinosinmonophosphat. At the third stage the specificity offered primers by the computer programs FASTA and BLAST A on line was studied. As a result of this activity the homology of selected oligonucleotides only with vp4 rotavirus genes was rotined and it is not revealed of their significant homology with nucleotide sequences of other groups of viroses, bacterias or eukariote sequences. So offered primers outgoing from theoretical calculations, should have the 100% specificity. At the following stage of our researches the conditions of reverse transcription and PCR were optimized and the sensitivity of the PCR-analysis is determined. For realization of these experiments was using RNA, isolated from the
rotavirus SV II strain. RNA with the known contents of virus fragments, definite by culture method. The sensitivity of the technique on RNA drugs, isolated by phenol-chlorophorm extraction, was closed to 10 copies RNA in the PCR-sample. At the following stage we have determined analytical sensitivity of the PCR-analysis, using two techniques for allocation RNA -acid-phenolic extraction on Chomchynsky and RNA sorbtion on sorbent from the lysate on Boom et al. For this purpose were using the following rotavirus delutions: 10, 102, 103, 104, 105 in 1 g of feces. The sensitivity of the first approach bas compounded 102 virions peT 1 g. The sensitivity of the second approach bas compounded 103 virions peT 1 g. So, the technique of acid-phenolic extraction bas appeared more sensing in model conditions. For comparison of two techniques of RNA allocation in animal feces was taken 18 models, for which one the positive results by ELISA were obtained. The RNA allocated from 100 III feces by two techniques, conducted a reversion by diffused seed and put PCR with selected primers. On the basis of the obtained results was possible to draw a conclusion, that the method of acid-phenolic extraction is unsuitable for feces research. A designed technique of PCR for detection rotavirus RNA in feces, in the basis which one trusts to a method of RNA allocation on Boom, gives comparable results with ELISA at research of positive stool samples, but is in 1000 times more sensing. Now we conducted researches of stool samples negative in ELISA and the gibridization-enzyme format of PCR product detection, permitting is designed to increase the analytical sensitivity follow-up in 10-100 times.

566. OBTAINING OF MONOCLONAL ANTIBODIES TO CHLAMYDOPHILA PSITTACI ANTIGENES AND STUDYING OF THEIR BIOLOGICAL PROPERTIES. A.N. Panin. I. L. Obukhov. The All-Russia State Research Institute for ContraI, Standartisation and Sertification of Veterinary Preparation (VGNKI), Moscow, Russia.

The splenocytes from 3 mice of the BALB/c line were used in the experiment on fusing of lymphocytic line NSO mice cells. The M-Ab scrinning conducted in ELISA with passivity sorbed antigenes: with specific from elementary chlamydial bodies and with nonspecific, “normal” antigen, maked from non-infected yolked envelopes of HE. From the total number 215 brought up hybrid clones, 12 clones (5,6%) produced M-Ab, reacting only with specific antigen, II clones (5,1 %) produced M-Ab, which are contacted to bath antigenes and M-Ab from 5 clones (2,3 %) were reacting only with “normal” antigen. From 12 M-Ab the greatest group (10) have compounded isotype G1 M-Ab and on one -isotypes G2b and G3 M-Ab. All M-Ab had no the complementbinding activity. M-Ab were active in ELISA (titer varied from 1:80 up to 1:2000), IIFAT and not precipited specific antigenes. Three gibridoms -Chla-K-1, Chla-K-11 and Chla-K-12 were cloning by the method of limiting delution, are brought up in a mass culture in the large volume and used for obtaining the ascitic liquid on line BALB/c mice (age 2-2,5 monthes), which are sensibilised of pristane. The ascitic liquids cleaned by sulfur-caprilat method (Reik L.M., 1987). The M-Ab are effective conjugated with peroxidase from horseradish. The activity of peroxidase conjugates on the M-Ab basis is correlated with activity unlabeled M-Ab. In ELISA and indirect FA with the purpose of chlamydial antigen detection in experimentally infected animal organs have used the M-Ab Chla-K-1 -peroxidase conjugate in working delution 1 :800 (for ELISA), and cleaned M-Ab Chla-K-1 in delution 1:50 (for IIFAT). Is established, that by the M-Ab possible to reveal the chlamydial antigen in the pathological material in ELISA (antigeen titer varies from 1:5120 to 1 :20480). At testing the M-Ab in ELISA with corpuscular antigene, which are treated by the proteinase K and sodium periodate is detected, that the M-Ab Chla-K-1, Chla-K-11 and Chla-K-12 are directed to
determinants sensing to the proteinase K and resistant to sodium periodate, that confirms their protein
nature. For making the experimental diagnostic drug detecting the chlamydia by DFAT method, were
selected the M-Ab possessing the greatest efficiency at detection of chlamydial antigens in the
biological material -the M-Ab Chla-K-1 (lgG1), directed to conservative epitopes chlamydia! major
outer membrane protein (MOMP).

567. ETUDE DE L'EFFICACITÉ DU VACCIN VIVANT 1B VIS À VIS DE CHLAMYDOPHILA
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Chlamydia abortus and Chlamydia pecorum infect the sheep and goats. They both can be isolated from
conjunctivitis, polyarthritis, pneumonia and diarrhea. However, while C. abortus is mainly the cause of
encephalomalacia or weak progeny that are difficult to raise, C. pecorum is generally isolated from
animals without apparent signs. It is only exceptionally isolated from abortion. However, the prevalence
and eventual role of C. pecorum in abortion deserves to be studied, particularly taking into account
the possible interactions with the breeding conditions. C. pecorum presents significant antigenic
differences with C. abortus, the objective of this work has been to measure the efficacy of the live
vaccine 1B against two strains, the French strain AB10 and the Moroccan strain M14. In experimental
infection, C. pecorum is less abortive than C. abortus for the sheep and the squirrel. We have therefore
been led to develop a more sensitive model than the mouse abortion model usually used to measure
the efficacy of the 1B vaccine. For this purpose, lots of 10 vaccinated or non-vaccinated mice were
inoculated intraperitoneally with the strains C. pecorum AB1O and M14 and the strain C. abortus
Mbt34 isolated from a sheep that had given birth to a lamb with conjunctivitis. The vaccination had
been realized by subcutaneous injection two months before the test. The mice were autopsied at the
17th day of gestation. The placentas and the fetuses corresponding to each uterine horn were broyed
and the Chlamydia were titrated by the method of plagues of lysis. The vaccine was effective if it
diminished significantly the number of Chlamydia in the placentas and the fetuses of the vaccinated
lots. This model will also allow to compare the placental and fetal colonization of the mouse by C.
pecorum, to that which we have already studied for C. abortus.

568. ETUDE DE L'EFFICACITÉ DU VACCIN VIVANT ID VIS À VIS DES SOUCHES
TUNISIENNES DE CHLAMYDOPHILA ABORTUS. A. Rekiki, A. Bouakane, F. Bernard, S.
Hammami, A. Rodolakis. Laboratoire de Virologie, Institut de la Recherche Vétérinaire de Tunisie;
Tunisie.

La chlamydie is one of the main causes of abortion affecting the small ruminants in Tunisia. In
fact, during an investigation among flocks having had problems of abortion during the season
of kidding 1997, Chlamydia abortus was incriminated in more than 20% of cases. The Chlamydia
are secreted massively in the placenta and the fetal fluids at the moment of the abortion, but also
during the birth of the lamb which are contaminated in the course of gestation, constituting thus a source
of contamination at the level of the flock and also for the pregnant women. A live vaccine (1B vaccine),
constituted of a mutant thermosensible obtained by mutagenesis of a strain abortive natural; had been
used
point à l’INRA. Ce vaccin prévient les avortements et l’excréption des *Chlamydia* et est efficace contre toutes les souches abortives testées jusqu’à présent. Le but de cette étude est d’évaluer dans un modèle murin, l’efficacité de ce vaccin vis à vis de souches tunisiennes de *C. abortus*. Dans ce modèle, l’efficacité du vaccin vis à vis d’une souche est estimé en comparant le nombre moyen de souriceaux vivants après épreuve virulente par voie intrapéritonéale au IIème jour de gestation de 15 souris OF1 vaccinées ou non, à celui de 15 souris témoin ni éprouvés ni vaccinées. Deux souches tunisiennes, la souche Abt 35 isolée à partir d’un avortement ovin et la souche Mbt34 isolée d’une brebis ayant mis bas un agneau présentant une conjonctivite. Les résultats obtenus démontrent l’efficacité du vaccin vis à vis contre les souches tunisiennes testées. Le nombre moyen de souriceaux survivants dans le lot vacciné éprouvé avec la souche Abt 35 (11,7) diffère significativement de celui du lot éprouvé non vacciné (2,4) et ne diffère pas de celui du lot témoin de gestation (12,14). Le nombre de souriceaux survivants dans le lot vacciné éprouvé avec la souche Mbt 34 (6,5) diffère significativement de celui du lot éprouvé non vacciné (0) ainsi que du lot témoin de gestation (12;14) mais la dose d’épreuve utilisée a été trop importante; toutes les souris du lot éprouvé non vacciné sont mortes. Les souches tunisiennes ne présentant pas de différence antigénique avec les autres souches de *C. abortus* (sérotype 1 de *C. psittaci*) qui forment un groupe très homogène, le vaccin vivant 1B devrait pouvoir être utilisé efficacement en Tunisie.

569. STUDY ON ANTIBIOTIC RESISTANCE IN ISOLATED PASTEURELLA FROM CATTLE PNEUMONIC LUNGS. A. A. Roudsari¹, A. Asadi², N. Razmaraii³. ¹DVM Razi Institute North West Branch Marand Iran. ²DVM Marand Iran. ³DVM Razi Institute North West Branch Marand Iran.

After some reports about resistance pneumonia in cattle in east Azarbaijan province of Iran with assumption that there are some probabilities of antibiotic resistance in *Pasteurella* bacteria which cause pathologic pneumonia in cattle in east Azarbaijan province we sampled from 136 small ruminants lungs with signs of pneumonia in Tabriz (center of east Azarbaijan province) slaughter house (between sep, 2000 to april 2001) after some laboratory works in north west branch of Razi institute 41 cases were isolated (28 cases *P. multocida* and 13 cases *P. haemolytica*) isolated bacteria were examined with standard methods of antibiogram used discs were, penicillin, tetracycline, erythromycin, sulphamethoxazole, trimethoprim, lincomycin and ampicillin. Antibiotic easistance respectively were 65.85%, 17.07%, 63.1%, 14.6 %, 19.5%, 73.17% and 7.3%.

570. PILOT STUDY ON ANTIBIOTIC SENSITIVITY IN ISOLATED PASTEURELLAS FROM BUFFALO PNOMONIC LUNGS. A.A. Roudsari, A. Mollajafari, N. Razmaraii. ¹DVM Razi Institute North West Branch Marand. Iran. ²DVM Marand. Iran. ³DVM Razi Institute North West Branch Marand. Iran.

After some reports about resistance pneumonia in buffalo in east Azarbaijan province of Iran with assumption that there are some probabilities of antibiotic resistance in *Pasteurella* bacteria which cause pathologic pneumonia in buffalo in east Azarbaijan province we sampled from 72 buffalo lungs with signs of pneumonia in Tabriz (center of east Azarbaijan province) slaughter house (between sep 2000 to april 2001) after some laboratory works in north west branch of Razi institute 40 cases were isolated bacteria were examined with standard methods of antibiogram used discs were, pencillin, tetracycline, streptomycin, erythromycin, sulphamethoxasol + trimethoprim, lincomycin and ampicillin antibiotic sensitivity respectively were 0%, 54.45%, 33.3%, 54.4%, 64.1%, 10.2% and 69.2%.
High efficiency of the modern intensive technologies of management of industrial poultry farming can not be achieved without detailed development and faultless realization of the veterinary programs including general and special preventive processing at the poultry farms. It is especially actual for the farm working with high productive breeds of hens: Lohmann, Isa, Hysex, Smena-2, Rus, Rhodonite, manifesting increased sensitivity for various infectious diseases of birds, especially viral ethiology. With allowance for this factor, the successful decision of the problem of simultaneous vaccination of the birds against several virus illnesses of the birds has the grate practical significance. The results of wide industrial tests of domestic inactivated oily emulsion mono- and polyvalent vaccines “VIROVAC” against Newcastle Disease (ND), Infectious Bronchitis of hens (IB), Gumboro Disease (IBD), Egg Drop Syndrome-76 (EDS-76) and Avian Reovirus Disease (R??) in various combinations: ND; IB; EDS-76; IBD+REO; ND+IB+EDS-76; ND+IB+IBD; IB+EDS-76+R??; ND+IB+IBD+EDS-76 etc are presented in the work. The collective of scientists and experts of State company “Virion” in the co-authorship with experts of leading research establishments of the country for the first time in Russia have developed and have run the commercial production of the vaccines of such class. Wide industrial tests of inactivated vaccines “VIROVAC” have been conducted during 1998-2001, on a livestock almost 140 million layer and breeder hens of the different breeds, more than in 210 poultry farms of various geographical and climatic zones of Russia: In the Western and Northwest regions (the Kaliningrad, Leningrad, Murmansk and Arkhangelsk areas, Karelia and Republic of Komi); in Siberian region (Novosibirsk, Irkutsk, Kemerovo areas, Altaik and Krasnoyarsk region, republic Yakutia); in Southern region (Krasnodar and Stavropol region, Astrakhan, Volgograd and Rostov area). Tests have shown the harmlessness of vaccines at introduction them by the method of an injection in a dose of 0,5 ml in a breast or femoral muscle or hypodermically in a neck. In 2-2,5 months after immunization it was supervised complete dissolution of the vaccines, without dependence from componental structure and a place of introduction. On occasion there was found out the rests of a vaccine as small-size diffusioned grains in a breast muscle which completely resolved by the end of exploitation of birds. Aseptic inflammatory reactions as a oleogranulemes or oleomes at the place of an injection of vaccines, as a rule, was not find out. High and long immunity at the vaccinated hens was equally successfully produced on all antigens included in vaccines, without dependence from including antigens and place of injection of the drug. Cases of “break” of active immunity at vaccinated layers did not mark. The greatest efficiency of inactivated vaccines “VIRIVAC” was received on hens with brown colored plumage: Lohmann Brown, Iza Brown, Rhodonite and on parental herds of broilers. Especially it is necessary to note, that the most high and long active immunity was supervised at hens, vaccinated against IB and EDS-76, that is doubtless success of authors-developers of vaccines because these infections are most wide-spread now in poultry farms of Russia and negatively influence on the quality of egg efficiency of hens, especially in breeding farms. Results of tests have not revealed any appreciable differences in efficiency of application of vaccines “VIRIVAC” at the poultry farms of various climatic zones of Russia. Immunization of birds of parental stocks by the vaccine “VIROVAC” against IBD allowed to receive chickens with high and homogeneous parent immunity against this illness that provided a possibility of exact determination of the terms of their subsequent vaccination against IBD with a live vaccines. The presented facts testify that Russian inactivated oil emulsion vaccines “VIROVAC” are harmless for the birds and provide particular
protection of vaccinated breeding stock layers from field viruses NB, IB, EDS-76, R??, and also help to stabilize an epizootic situation at poultry farms in attitude of IBD- infection.

572. AN INTENSIVE ON THE IMMUNE RESPONSE AND ESTABLISHMENT OF IMMUNE TOLERANCE AMONG COLOSTRUMS DEPRIVED CALVES FALLOWING INOCULATION BY LIVE RINDERPEST VACCINE. R. Sadri, S. Masoudi, S. Haghghi, M. Mohammadi. Razi Vaccine & Serum Research Institute, Iran.

In order to find the immune response of colostrums deprived calves falling after inoculation or rinderpest vaccine four newborn calves were selected and inoculated with one dose of rinderpest vaccine, the time of inoculation were 1-30-60-90 days post parturition. Immediately after inoculation bleeding were done and 30 days post inoculation as well. The sera of these calves were used in serum neutralization test with the final concentration at 1/10 dilution. The index of neutralization was calculated as the difference of control virus titer with the test sera. The same procedure was carried out with another four colostrum-received calves for the comparison. The result of the test revealed that there is no immune response in the calves one day after birth and thirty days after inoculation of rinderpest vaccine. The same result was repeated the neutralization index of second calf was also zero but the titer of the successive calves were higher but still not enough. The colostrums received all had a significant titer due to the presence of antibody in colostrum but did not affect the appearance of antibody by vaccine. All eight calves were inoculated with one vaccinal dose of rinderpost vaccine six month later and antibody appeared immediately and it refused the establishment of immune tolerance among calves.

573. EVALUATION OF ACUTE AFLATOXICOSIS ON HUMORAL IMMUNE RESPONSE TO FOOT-AND-MOUTH DISEASE VACCINATION IN GUINEA PIGS. S. Shahsavandi, M.M. Ebrahimi, M. Salehizadeh. Foot-and-Mouth Disease Vaccine Research & Production Dept., Razi Institute, P.O.Box 11365-1558, Tehran, Iran.

The immunosuppression of aflatoxin on humoral immune response to foot-and-mouth (FMD) vaccination was investigated. Fifty-five male guinea pigs were randomly assigned to two treatment groups of 20 (A, B) and three control groups of 5 (C, D, E). Groups C and D were considered as vaccine and aflatoxin controls. Group E was unvaccinated control, which fed on an aflatoxin-free ration. Guinea pigs were weighted at the start of the experiment and then at specific intervals. Forty guinea pigs in treatment groups were given aflatoxin (0.63mg of aflatoxin B₁ toxic equivalents/kg slightly less than a half of the LD₅₀ of aflatoxin B₁ for guinea pigs) once. Groups A and B were vaccinated with an inactivated FMD vaccine after they were dosed aflatoxin on days 1 and 3, respectively. Booster doses were injected 28 days after primary vaccination. Blood samples were taken from a different group of 5 treated guinea pigs and from controls on posttreatment days 3, 14, 21 and 44. Collected sera were stored at –70°C until tested by ELISA to determine antibody titers against FMD. Antibody titers against FMD virus were higher in the vaccinated, non-aflatoxin exposed group than in those exposed to aflatoxin. Significantly difference (P<0.05) was detected only in group B that was shown an average weight loss of 44g and great changes in activity of the liver enzymes by the 3rd day after they were dosed and persisted through second vaccination. The result indicates that aflatoxin can depress the humoral immune responses of guinea pigs to FMD vaccination when the vaccine was administrated at the time of liver damage.
The purpose of this study was the detection of the cytokines in swine cell lines without any stimulation. The cytokines production were examined using the swine cytokines detection ELISA kits and RT-PCR in two swine cell lines (SL-24 cell and SK-L cell). IL-1 alpha, IL-6 and IL-8 were detected in all samples examined. Especially in the SL-24 (swine macrophage origin derived from malignant lymphoma) cell, large amounts of IL-8 productions was observed. IL-8 production of SL-24 cell was the maximum 50ng/ml at 7 days post cultibation. The SK-L (derived from swine kidney cell) cell also produced IL-8, but the amount of the production was under 1.5ng/ml. The IL-8 produced by the SL-24 cell showed a biological activity of infiltration of the swine leucocytes.

Pest des petits ruminants (PPR) disease is an economic-important viral disease of sheep and goats prevalent in Africa, Asia, and the Middle East countries Jordan, Syria, Lebanon, Palestine, Saudi Arabia, Oman, Kuwait, Iran, and Turkey. PPRV was isolated from clinical cases of sheep in Iraq in November 2000 epidemiological map for this disease has been drown in the Governorates of this country. This study is concerned with the immunity and maternal immunity duration against the disease in sheep for possible implication to PPR control programs. Five hundred sheep were vaccinated with single shot of a homologus vaccine of PPR (PANVAC, Ethiopia) on august 2000. Hundred heads of sheep were selected randomly for immune monitoring of anti-PPRV antibodies biweekly and then monthly by using c-ELISA. After first month from vaccination day significant levels of anti PPR antibodies as well as an increase in the percentage of immunized animals were observed. More than seventy percent of animals presented levels of anti – PPR disease for eighteen months post vaccination on other hand, to determine the influence of the pregnancy period on the duration of the maternal immunity, 487 dams were vaccinated at 1st, 2nd, 3rd, 4th and 5th month of gestation period. Blood samples obtained from dams and their progenies and the protective level of antibodies were examined by C – ELISA too. The prevalence of sheep immunized against PPRv was 76.8 ± 17.8 % and their progenies were 72.8 ± 18.7 % at the first pregnancy cycle and 72.5±19.3 % at the second pregnancy cycle, respectively. Gradual decline in maternal levels was noticed in young animals as a function of age. These results draw a program for successful immunization against PPRV–disease for its control and eradication.
reason we are going to analyse the remedy of prevalence in this province. According to recent studies from 1998–2001 in honey and larva from 465 apiary with 56984 beehives and between %5 to %10 proportion, we look some samples. The determination of pollution of brood has done through Hanging Drop and Bacterial culture of honey and brood in Mypgp Agar and colombia blood agar. The studies during these years include below resultes: In 3816 samples which were examined during 48 month about 163 in honey and 58 in brood, were polluted by P. Bacillous larvea. It makes clear that pollution of honey is higher than broods. In the apiaries which we recognized the A.F.B, we have one some hygienic care, prophylaxisal treatment by drugs such as Oxytetracyclin. It is neccessary to explain that this drug which is used for removing the disease in polluted beehive is effective on the shape of vegetative, where as it does have any effects on spore.

577. ISOLATION AND IDENTIFICATION OF YERSINIA ENTEROCOLITICA AND OTHER YERSINIA SPECIES FROM GROUND BEEF AND DETERMINATION PATHOGENITIE OF YERSINIA ENTEROCOLITICA. B. Siriken. Afyon Kocatepe University, Veterinary Faculty, Department of Food Hygiene and Technology, Ahmet Necdet Sezer Campus, Afyon, Turkey.

Yersinia enterocolitica is one of the few human pathogens that grows at the proper food refrigeration temperatures of 0 to 5 ºC. It has been isolated from various meat. The aim of this study was to determine the presence of Y. enterocolitica and other Yersinia species from ground beef and determine whether was pathogenite of isolated Y. enterocolitica. A total of 61 ground beef samples purchased at butchers and supermarkets in Aydin / Turkey between June 2000 and January 2001, were analyzed for presence of Yersinia enterocolitica and other Yersinia spp. For recovery of Yersinia isolation, it was used two-step enrichment procedures, pre-enrichment (cold) in TSB and selective enrichment in BOS Broth, followed postenrichment KOH treatment and, used CIN Agar. To determination of pathogenic Y. enterocolitica, it was used five virulence test which were used hydrolysis of esculin, fermentation of salicin, Ca++ binding assay, Crystal violet and Congo red binding tests. As a result, Yersinia spp. were isolated from 20 (32.8 %) out of 61 ground beef. Twenty Yersinia spp. were isolated and, identified as 3 different Yersinia spp. The most Yersinia species –17 out of 20 samples were Y. enterocolitica, followed by Y. intermedia (2 samples) and Y. frederiksenii (1 samples). In conclusion, none of Y. enterocolitica isolated was found to be presumptively virulent.

578. EFFICACY OF HAEMORRAGIC SEPTICEMIA OIL ADJUVANT VACCINE IN CATTLE IN IRAN. A. Sotoodehnia, N.I.G. Moaza., S. Ataei, A. Nasery. Iran.

Haemorrhagic Septicaemia (H.S) is a fatal disease of cattle and buffaloes in some parts of Iran. Prevention is routinely done by vaccination with Aluminium hydroxide gel adjuvant vaccine. Adverse reactions, due to free endotoxines released by Pasteurella multocida culture process, has often seen following vaccination. In the present paper, the efficacy of an oil adjuvant vaccine prepared with dense bacterial cells and Montanide ISA 70 is reported in cattle. Sterility, safety and potency tests of experimental oil vaccine were carried out according to O.I.E manual 2000. High protection level was induced in challenge test of vaccinated mice and no adverse reaction was observed in four hundred vaccinated cattle.
579. EFFET DE LA SENSIBILISATION ANTIGÉNIQUE ACTIVE SAA À L’OVALBUMINE SUR L’ACTIVITÉ DES DISACCHARIDASES INTESTINALES CHEZ LE RAT. O. Souilem1, R. Beji2, W. Cheik1, L. Harzallah3, F. Guemira1 A. Jondet4. 1Laboratoire de Physiologie -Pharmacologie, Ecole Nationale de Médecine Vétérinaire, 2020 Sidi Thabet, Tunisie. 2 Service de Physiologie, Faculté de Médecine de Tunis. 3 Service de Biologie Clinique, Institut Salah Azaiez, Tunis. 4 Quai Boquin, n°19, 44610 Indre, Loire Atlantique, France.

L’allergie alimentaire est la forme d’allergie la plus anciennement connue chez les animaux. Le dysfonctionnement de la muqueuse intestinale secondaire à une pathologie gastro-intestinale est la cause la plus incriminée des allergies alimentaires acquises. Ce travail a pour but de déterminer l’effet de la SAA à l’ovalbumine sur l’activité des disaccharidases intestinales dans le jéjunum de rat. La SAA est réalisée par une injection sous cutanée de 0,5 ml d’une solution d’ovalbumine une fois par jour pendant cinq jours consécutifs, soit 25 microg. d’albumine/ rat /jour. Les rats témoins ont subi dans les mêmes conditions que les rats sensibilisés une injection de 0,5 ml de chlorure de sodium à 9 p 1000 par jour par la voie sous cutanée. La quantification des activités enzymatiques est réalisée selon la technique conventionnelle de dosage initialement décrite par Dahlqvist en 1968 et améliorée en 1984. Les rats sont manipulés au 21ème-28ème jours après la première injection d’ovalbumine. Les principaux résultats rapportés dans cette étude montrent que la SAA à l’ovalbumine provoque une chute sélective de l’activité maltasique (témoins : 429 ± 21,63 UI/ mg de protéines ; sensibilisés : 276,92 ±27,12 UI/ mg de protéines, P < à 0,05), alors que les activités lactasique et saccharasique sont conservées. Ces données sont retrouvées à la fois quand les résultats sont exprimés par gramme de muqueuse et par milligramme de protéines intestinales. La quantité de protéines de la muqueuse intestinale est conservée chez l’animal sensibilisé à l’ovalbumine. La diminution sélective de l’activité maltasique pourrait résulter d’une sensibilité accrue de la maltase en raison de sa localisation membranaire superficielle.Bien que la SAA à l’ovalbumine par la voie parentérale influence nettement l’activité maltasique, il ne semble pas que cette inhibition affecte le rendement de la digestion des disaccharides.

580. EFFET DE LA SENSIBILISATION ANTIGÉNIQUE ACTIVE SAA SUR LES FLUX D’EAU, D’ÉLECTROLYTES ET DU GLUCOSE DANS LE JEJUNUM DU RAT. O. Souilem1, R. Beji2, W. Cheik1, L. Harzallah3, F. Guemira1 A. Jondet4. 1Laboratoire de Physiologie -Pharmacologie, Ecole Nationale de Médecine Vétérinaire, 2020 Sidi Thabet, Tunisie. 2 Service de Physiologie, Faculté de Médecine de Tunis. 3 Service de Biologie Clinique, Institut Salah Azaiez, Tunis. 4 Quai Boquin, n°19, 44610 Indre, Loire Atlantique, France.

Il est admis que la sensibilisation antigénique active est à l’origine d’une hyperréactivité contractile qui touche la plupart des fibres musculaires lisses de l’organisme y compris la fibre lisse intestinale. Cependant l’effet de la SAA sur les autres fonctions intestinales n’a pas été étudiée. Ce travail a pour objectif de déterminer l’effet de la SAA sur les flux d’eau, d’électrolytes et de glucose dans le jéjunum de rat. La SAA est réalisée par une injection sous cutanée de 0,5 ml d’une solution d’ovalbumine une fois par jour pendant cinq jours consécutifs, soit 25 microg. d’albumine/ rat /jour. Les flux d’eau, de glucose et d’électrolyte ont été mesurés in vivo dans le jéjunum de rat au 21ème-28ème jours après la première injection d’ovalbumine. Les flux sont calculés à l’état basal en présence de mannitol (JM) et après stimulation de glucose (JGlu). Les principaux résultats rapportés dans cette étude montrent que la SSA à l’ovalbumine entraîne : -Une absence de variation du poids corporel et du poids de l’anse jéjunale.
- Une sécrétion de sodium, de potassium et de chlore, avec un effet stimulant du glucose sur l’absorption du sodium plus important chez les rats sensibilisés comparés aux témoins. - Une absorption accrue d’eau et de glucose par l’intestin. - Une absence de variation des flux des anions résiduels. Il ressort donc que la SSA n’affecte pas seulement les cellules immunocompétentes de l’intestin et la composante contractile, mais perturbe aussi les fonctions de la muqueuse intestinale.

581. SEPARATION OF SPECIFIC IMMUNOGLOBULIN FROM HYPERIMMUNIZED COWS AND THE STUDY OF THEIR EFFECT AGAINST ESCHERICHIA COLI. H.I. Tawfeek¹, N.H. Najim², S. Al Mashikhi³, H.I. Al Sanwi. ¹College of Medical and Health Technology, Baghdad. PO BOX 603. ²College of Veterinary Medicine, University of Baghdad, Baghdad. ³College of Agriculture, University of Baghdad, Baghdad. Iraq.

The isolation and purification of specific antibodies from the colostrum of immunized cows were studied. Cows immunized with a selection of killed enteropathogenic *Escherichia coli* strains during the last two months pre-partum. Pooled colostrum obtained during the first few days after calving was fractionated and the whey or the immunoglobulins concentrate was obtained through several processes. Purification of immunoglobulin was carried out using gel filtration chromatography on Sephadex G-200. Two peaks were obtained, one of them was immunoglobulin M rich peak, while the other was immunoglobulin G rich peak. Purity of the isolated fractions from the second peak was confirmed by SDS-P AGE and immunoelectrophoresis. Colostral whey from immunized cows showed immunobiological activities. Further studies elucidate whether such preparations have or have not a role in the defense against diarrheogenic *E. coli* in nursing infants.

582. PESTIVIRUS EN TUNISIE : APPROCHE VIROLOGIQUE, EXPÉRIMENTALE ET MOLÉCULAIRE. F. Thabti¹, S. Hammami¹, J.M. Guibert², F. Hammou¹, M. Pepin², P. Russo ². ¹Laboratoire de virologie, Institut de la Recherche Vétérinaire de Tunisie, Tunisie. ²Laboratoire de Pathologie des Petits Ruminants et des Abeilles, AFFSA Sophia Antipolis., France.

Les pestiviroses sont très largement répandus dans le monde et produisent d’énormes pertes économiques au sein des troupeaux infectés. L’agent responsable de la maladie appartient à la famille des *Flaviviridae*, genre *Pestivirus* qui comprend trois groupes sérologiquement reliés: *BDV*, *BVDV* et *CSFV*. Les *Pestivirus* sont des virus à ARN simple brin de polarité positive de taille environ 12.5 kb et codant pour une seule polyprotéine de 4000 acides aminés. En Tunisie l’incidence des pestiviroses a été mise en évidence sérologiquement en 1993. En 1995 l’utilisation d’un vaccin anti-clavelée a provoqué une enzootie de border disease. Des pestivirus ont été isolés à partir de ce vaccin. Un modèle expérimental a été établi pour étudier la pathogénicité comparée de deux souches de pestivirus isolées de vaccin et d’une souche française Aveyron (A V); ce modèle a ensuite été appliqué à l’étude de la pathogénicité de la première souche tunisienne de pestivirus ovin isolée sur terrain. L’étude a été menée sur des agneaux de 4 mois issus d’un troupeau indemne de pestivirus. Les animaux ont été infectés par voie intra trachéale avec la souche française A V et la souche tunisienne Bir Mchergua (BM01). Les paramètres cliniques, hématologiques, immunologiques et virologiques ont été suivis. Les deux groupes n’ont pas développé d’hypothermie notable. Le groupe infecté par la souche A V a présenté une leucopénie plus 1 prolongée qui commence à 12 et finit à J6, alors que le groupe inoculé par BM01 a montré une légère baisse des
Des pestivirus ont été mis en évidence par PCR dans le groupe A V de J2 à J13 et de J2 à J6 pour BMO 1. Bien qu’une différence existe au niveau des paramètres hématologiques et virologiques, les deux souches n’ont provoqué aucun signe clinique apparent chez les animaux inoculés. Pour mieux différencier les différents isolats tunisiens une étude à l’aide d’un panel d’anticorps monoclonaux a été entreprise. L’observation des profils de réactivité montre que la souche A V est différente de la souche BMO 1. Pour une meilleure discrimination entre les souches tunisiennes, une étude moléculaire visant à séquencer les parties 5’UTR, Npro et E2 est en cours. Cette étude permettra de classer ces souches au sein du genre Pestivirus phylogénétiquement éloigné de celui de A V et du groupe de souches isolées du vaccin anti-clavelée.

583. MOLECULAR EPIDEMIOLOGY OF MYCOPLASMAS: A COMPARISON BETWEEN CBPP AND CCPP. F. Thiaucourt, A. Peyraud, S. Lorenzon. CIRAD-EMVT TA30/G Campus International de Baillarguet 34398 Montpellier cedex 5, France.

Contagious bovine pleuropneumonia (CBPP) and contagious caprine pleuropneumonia (CCPP) are two infectious diseases of major importance for cattle and goats respectively. As such they are listed in the list A and B of the OIE. Their distribution seems actually limited to certain continents or countries but there is no precise evaluation on their real distribution or economic importance. The causative agents, mycoplasmas belonging to the so-called mycoides cluster, are difficult to grow in vitro and quite difficult to identify by conventional methods. The recent development of PCR method has opened a new era for the diagnostic of these two diseases as identification can now be performed on dried material that do not need a cold chain. Furthermore, the sequencing of some amplified DNA fragments has shown that there was a certain degree of variation among strains of various origins. Although these variations are quite limited, they allowed a grouping of strains that is well correlated with their geographical origin. For CCPP, specific lineages were defined for East, Central or North Africa. For CBPP specific lineages were defined for Sub-Saharan Africa, Southern Africa or Europe. These new tools may be used to have a better insight in the epidemiology of the two diseases.

584. PHYLOGENETIC ANALYSIS OF BORRELIA BURGDORFERI SL STRAINS ISOLATED IN TUNISIA. H. Yousni1, D. Postic2, G. Baranton2, A. Bouattour1. 1Unité D’Entomologie Médicale, Institut Pasteur de Tunis, PB 74 Tunis, Tunisia. 2Unité de Bactériologie Moléculaire et médicale, Institut Pasteur de Paris.

A recent study has shown that Borrelia burgdorferi sensu lato, the agent of Lyme disease, occurs in North Africa (Tunisia). Two species within this complex, B. garinii and B. lusitaniae, represent the majority of the isolated strains in the North of Tunisia. The phylogenetic relationships of 12 Tunisian Borrelia strains (2 B. garinii and 10 B. lusitaniae) were estimated on the basis of the sequences of the non-coding spacer between the two copies of the rrl-rrf genes. Complete sequences were aligned and compared with sequences of European strains available in databanks. A phylogenetic tree was constructed using the distance method of Unweighted Pair Group with Mathematical Average (UPGMA). The comparative phylogenetic analysis showed a polymorphism inside the B. lusitaniae sequences, which are scattered on two major branches. One cluster comprised sequences of 8 Tunisian strains as well as the reference
genotype PotiB2. Among these sequences, 7 were quite identical, and one, despite slight difference in MseI pattern, fell into the same cluster. The second cluster comprised two identical Tunisian sequences closely related to the reference genotype PotiB3. The two Tunisian *B. garinii* sequences clustered together, within the large diversity of this species. These results suggested that further study of a large number of strains should give us more idea on the phylogenesis of Tunisian strains and their relationships with European *Borrelia* strains.

585. COMPARISON BETWEEN INDIRECT ELISA AND SERONEUTRALIZATION IN BHV-1 INFECTION. *E.M. Pituco¹, C.Del Fava¹, J.C.Oliveira¹, E. Stefano¹, L.H. Okuda¹, F.C. Ferreira¹, C.I.L.Ferrari¹, M.E. Genovéz¹,¹ NURAB- Núcleo de Reprodução Animal do Centro de Sanidade Animal do Instituto Biológico, ² Instituto de Zootecnia, ³ Bolsista CNPq, ⁴ CATI, São Paulo, Brazil.*

Bovine Herpesvirus-1 (BHV-1) causes infertility and low reproductive performance. Serodiagnosis is an important tool used in prevalence studies in eradication programs and in the subsequent diseases surveillance in animal populations, as well as in clinical monitoring of infection and vaccine response. OIE Manual of standards for diagnostic tests and vaccines (2001) indicates that serum antibody detection in the international trade of bovines should be performed by seroneutralization (SN) and/or indirect ELISA. Seroneutralization is a gold standard technique, but requires specialized laboratories for the maintenance of cell cultures and good sample quality as a limiting factor. On the other hand, ELISA may be automated, what decreases the time for results, and is less subject to the interference due to the low quality of the sample. The objective of the present trial was to evaluate indirect ELISA using a commercial kit for BHV-1 serodiagnosis, following the instructions of the manufacturer (Idexx - HerdCheK) and to compare the results with those obtained with seroneutralization in microplate. Suspicious samples were submitted to the second step using verification test plate. SN technique was performed in microplate using 4 wells per sample, in the presence of the virus BHV-1 Los Angeles, with 200 DICT50. Plates were incubated during 4 hours at 37°C in 5% CO2, adding a suspension of MDBK cells containing 3x105 cells/mL, followed by a 72-hour incubation. Samples were considered to be positive if 50% of the wells were neutralized, calculated by the Reed & Muench method. In 428 samples, 55.84% (239/428) were reagent in SN and 73.4% (314/428) in ELISA. ELISA test presented 97.9% (234/239) as relative Sensitivity; 57.7% (109/189) as relative Specificity; 80.1% (343/428) as Agreement; 74.5% (234/314) as Positive Predictive value; 95.6% (109/114) as Negative Predictive value; 42.3% (80/189) as false positives and 2.1% (5/239) as false negatives. These results demonstrate that there is statistically significant disagreement between ELISA and SN using McNemar’s paired test at a 5% level (p<0.0001). The higher sensitivity of ELISA (97.9%) and the low number of false negative reactions (2.1%) corroborate its use as a screening test.

586. COMPARATIVE INVESTIGATION OF CATTLE BLOOD SERUM AND MILK ON PRESENCE OF COXIELLA BURNETII ANTIBODIES. *F.Caklovica¹, D. Alagic¹, T. Bajrović¹, M. Smajlović¹, R. Velje², H. Hasanbegović², H. Joka³. ¹Food Hygiene Department. ²Department of Epizootiology and Contagious Diseases Veterinary faculty Sarajevo.³ Cantonal Veterinary Inspection Sarajevo. Bosnia and Herzegovina*

During the period of 2000/2001, 52 dairy cattle in Bosnia and Herzegovina were chosen in order to analyse them for a presence of Q fever. For the purposes of this investigation, we used cattle blood serum and milk in order to determine the presence of *C. burnetii* antibodies. Determination of presence of *C.*
burnetii antibodies in blood serum and milk was done using the ELISA test and by using the immunofluorescent antibody (IFA) technique. From the total number of investigated samples, 7 samples (13.5%) of cattle blood serum and milk were positive on presence of C. burnetii antibodies.

587. CONTRIBUTION À L’ÉTUDE DE L’EXPLOSION RESPIRATOIRE (BURST OXYDATIF) DES CELLULES LEUCOCYTAIRES DE LA CARPE (CYPRINUS CARPIO) PAR CYTOMÉTRIE EN FLUX. W. Cherifi¹, A. Ben Rejeb², S. Bouhoula³, Z. Regaya¹, F. Jenhani¹
¹Laboratoire d’Immunologie Cellulaire. CNST, Tunis. ²Laboratoire de limnologie, INAT. Tunisie.

Les cellules phagocytaires jouent un rôle important dans le mécanisme de défense chez les poissons, elles produisent des réactifs oxygénés intermédiaires toxiques qui sont impliqués dans l’activité bactéricide. Ces cellules sont extrêmement sensibles à la pollution par les hydrocarbures aromatiques polycycliques ainsi qu’aux autres polluants organiques, pour cette raison les poissons sont considérés comme des bio indicateurs de stress par la pollution. L’objectif de notre présent travail consiste à étudier les fonctions phagocytaires des cellules leucocytes d’un poisson modèle de la pisciculture continentale: La carpe (cyprinus carpio) de la retenue du barrage de sidi Salem. Nous avons étudié le burst oxydatif in vitro des différents populations leucocytaires par la méthode de cytométrie en flux; cette technique est basée sur l’oxydation d’un composé fluorogène le DCFH-DA (2’,7’-dichlorofluoresceine-diacetate) dont la propriété de fluorescence n’apparaît qu’après clivages enzymatiques dépendants des activités oxydatives de la cellule suite à une stimulation par différents agents classiques connu chez les mammifères (phorbol myrisate acetate, Concanavaline A, Lectine et lipopolysaccharides). Nous avons constaté que les granulocytes neutrophiles et éosinophiles ainsi que les monocytes répondent de la même manière que chez les mammifères; en effet, l’intensité moyenne de fluorescence est proportionnel à la quantité de dérivés oxygénés produite par les cellules phagocytaires, les valeurs les plus élevées sont obtenus en utilisant le phorbol myrisate acetate (PMA) comme agent stimulant. Nos résultats sont discutés et comparés à ceux de la littérature. Cette technique va nous permettre d’étudier par la suite l’influence de certains polluant sur le mécanisme de défense de poissons ainsi que l’influence de certains paramètres de l’environnement tel que la température in vivo et in vitro.

588. THE IMPORTANCE OF MOLECULAR MOTORS IN VETERINARY MEDICINE. J.H.R.D. Correia, A.A.D. Correia. CIISA, Faculty of Veterinary Medicine, Technical University of Lisbon, Rua Prof. Cid dos Santos, 1300-477 Lisboa, Portugal.

Some mobility systems in eukariotic cells are driven by the hydrolysis of ATP. Muscle contraction is mediated by the sliding of myosin and actin filaments relative to each other. The beating movement of cilia and flagella depends on the interaction of dynein and tubulin. The movement of chromosomes along the mitotic spindle during cell division is mediated by tubulins organized as microtubules. Vesicles and organelles inside cells move on microtubules and kinesin is one among several proteins mediating this movement. Myosin, dynein and kinesin act by binding to ATP, and this binding produces conformational modifications in proteins that are responsible for the advance of the motor protein along the actin or tubulin tracks. The control of protein-protein interactions by bound nucleotides is a recurring theme in Biochemistry. Myosin contains two kinds of hinges. The hinges are flexible regions of the polypeptide chains composed of domains. The segments’ flexibility plays a critical role in muscle contraction. Dynein is a large ATPase protein from cilia and flagella containing one, two or three heads, depending on the
source of the protein, and multiple polypeptides associated with it. The head region, like that of myosin, acts as a cross-bridge. The amino acid sequence of dynein is unrelated to that of myosin, but its ATPase cycle is similar. Kinesin moves vesicles and organelles unidirectionally along microtubules' tracks in nearly all eukariotic cells. Kinesin differs from myosin and dynein in that the ATP promoter it binds to, rather than it is released from it, is its partner protein. The detailed knowledge of the structures of all these proteins that act as molecular motors, their zones of intermolecular interaction, the number of cross-bridges of the interaction, their angle, strength and performance of the interaction, have been crucial points to evaluate and define which are the physiological features that have been more interesting for veterinary medicine, clinics and animal production.

589. APPLICATION OF DNA VACCINE FOR IMMUNIZATION. Gh. R. Hashemi Tabar, S. Fahiminia. Pathobiology Dept, School of Veterinary Medicine, Ferdowsi University of Mashhad, P.O.Box: 91775-1793, Mashhad, Iran.

Producing DNA Vaccines is one of the advantageous methods of making vaccines which is known as the third revolution of vaccines. In modern technology of DNA Vaccines, recombinant plasmid placid containing encoding gene of immunizing protein which is able to infuse in tissues, to produce antibodies and present in directly to the immunity system, is used as a vaccine. In fact, it is used instead of protein. These vaccines are produced for stimulating immunity system in the body. So there is no need of produce and purifying stages, Therefore making these kinds of vaccines cheap and economical. These Vaccines are like attenuated viral Vaccines and are used in forms of IM, IC, oral, inhalation and intramuscular. Adjuvant and interleukin are used to increase the immunization of these Vaccines. The DNA Vaccines which are under research consist of Malaria, Leishmaniosis, Aids, Hepatitis B, Tuberculosis, Rabies are other infectious disease of human and animals In this paper, method and advantages of this Kind of vaccine will be discussed intensively.

590. CONTRIBUTION OF POST-GENOMIC AND TRANSCRIPTOMIC RESEARCH TO VETERINARY MEDICINE: CANDIDATE GENES FOR HOST RESISTANCE OR SUSCEPTIBILITY TO INFECTIOUS ANIMAL DISEASES. Diana Magalhães de Oliveira. Brazil.

Relying on the identification and posterior characterization of particular genes (or groups of genes as in multigenic families) potentially involved with resistant or susceptible clinical phenotypes to determined infectious animal diseases (such as tuberculosis, leishmaniasis, foot-and-mouth disease) or prion diseases as scrapie and mad-cow, an entire new field of research has brought light in veterinary medicine area. We now face an exciting perspective of the post-genomic age which is responsible for unveiling details about genetic interactions on almost every trace of biological concern in animal physiology and pathology. On this presentation we show some of the most recently developed models of animal diseases using genomic-based knowledge and inferences that give insights on the disclosure of pathomechanisms for important veterinary problems. Granulomatous diseases like tuberculosis have gained substantial understanding after results of experimental work with genes NoxR1 and NoxR3 that corelates to nitric oxide role as a key messenger on developing lesions. Para-infectious conditions like prion-associated diseases are other examples of how genomic research can contribute to elucidate mutations in specific codons of a given gene as the only cause of a whole pathological setting. Transcriptomics is a division of functional genomics area whose main interest is to give evidences of differential influences of gene expression
circumstances on protein patterns. Since those patterns of gene products might represent a clinical phenotype of resistance or susceptibility to a disease, all these connections are relevant to the improvement of animal diseases control. A few more illustrations are provided in order to give backgrounds on the direct contribution of transcriptomic and post-genomic data to veterinary medicine, exposing a better idea of genomics practical applications on regular veterinary procedures of infectious diseases diagnosis, including routine PCR and electrophoretic assays.


Several original medicine formulas have been developed, including elements with potentiating synergic action. Among these, the Virbaccid complex decontaminating formula (containing a soluble hydromineral complex, a surfactant and odorising agent), and the ALL-DEC 98 complex decontaminating solution (containing the A component – a chlorogenic substance- and the B component- consisting of 2 potentiation agents), were noticed for their destructive effect on the Bacillus anthracis and Bacillus cereus spores. The obtained results have shown significant differences relating to the sporicide effect, depending on the peculiarities of the two reactants and the application conditions.

592. THE EFFECTS OF CULTURES OF PROTEUS SPP AND E. COLI ON LABORATORY PARAMETERS. K. Podzo, N. Varatanovic, M. Rifatbegovic, M. Podzo Faculty of Veterinary Medecine Sarajevo, Bosnia-H.

Summary; It is known that mikroorganizms with their toxins and metabolic products can affect the spermatozoid, either in native ejaculations or in dozes for insemination. The aim of the research is to observe the effect of the toxins in the bacteria Proteus spp. and E. coli, wich are rised in pure culture, laboratory parametres of the qualities of sperm bulls in doses for insemination. The our experiment was done so that the thawing sperm was infected with certain quantity pure culture of the mentioned bacteria. Like the controls parametres from the same bulls the quality of the thawing sperm is followed, but it isn’t infected with cultures of the mentioned bacterias. In particular time intervals, the progressive moment and agglutination, after incubation on 38°C room temperature of 22° C. The research results have shown the the bacteria in infected sperm that have shown that slowdown in progressive movement and the rise in agglutination of the spermatozoids.


The authors report on a mastitis outbreak caused by Streptococcus zooepidemicus in a farm of native goats in Sicily, Southern Italy. Daily the animals were brought to pasture and at evening, after manual milking, they were taken under rudimentary shelters. At the beginning of September, some of the goats that where close to delivery developed acute mastitis that did not respond to therapy with tetracycline. Clinical signs, including: abnormal milk, swollen glands and discomfort, were similar in all the animals. Of the one hundred animals at risk, 20 experienced clinical mastitis. Nine milk samples were collected for culture,
and isolates were identified as *Streptococcus equi* subspecies zooepidemicus. The isolates were confirmed as group C streptococci by Api Strep (Bio-merieux). Five milk samples contained pure culture of *S. zooepidemicus*. Two contained both *S. zooepidemicus* and *Staphylococcus aureus*, and the last two showed no bacterial growth. Infected animals were treated with cephalosporin. Meanwhile, the outbreak progressed and more cases occurred until total morbidity was estimated at 20% but with 0% mortality. *S. zooepidemicus* is an opportunist pathogen that has been described to cause severe mastitis whose epidemics can affect a large part of the herd. This organism is also a threat to human health, especially to immunocompromised subjects. Human cases of septicemia, meningitis and glomerulonephritis have been reported. Unpasteurized milk from infected animals may represent the vehicle for the spread of zoonotic strains and should not be consumed.
Myiasis is a kind of human and animal infestation caused by myiasis inducing flies larvae, and it is responsible for important economical loss due to weight loss, hide damage, secondary infection at the site of infestation and even death in some cases. From May 1999 to September 1999 totally, 29619 domestic animals including cattle, sheep and goats in different farms situated in southern parts of Iran were inspected and more than 1000 larvae were collected from wounded animals and transported to the, Laboratory for Research on Arthropods at Razi Institute, Iran. These specimens have been cleared in special media and then mounted on slides and have been studied under compound microscope. They have been classified at the species level and suspected specimens were sent to the Natural History Museum in London, U.K. and kindly certified by professor Martin Hall. The infestation and mortality rates were calculated and type of fly larvae for each region was determined and all were reported in special tables. The least and highest rate of infestation were 5.7% to 36% respectively for cattle and 0.8% to 9.54% for sheep. The highest mortality rate was calculated 1% for sheep and there was no report of cattle death caused by myiasis or related conditions. The original Myiasis inducing fly was Chrysomya bezziana Villeneuve and Chrysomya megacephala(Fabricius) and Chrysomya albiceps(Wiedemann) have got the second role. There were also reported certified members of Sarcophagidae and Musidae families such as Wohlfahrtia and Formia respectively. There were special cases with very high rate of infestations for sheep in two regions. One in Dezful area, 130 out of 500 sheep were infested(26%) and the other in Ahwaz area, 200 out of 500 sheep were infested (40%) and the infesting agent was Old world screw worm fly (Ch. bezziana) in both cases. These regions could be two important foci for fly activity regarding their ecological specifications. According to this study special care and control should be taken to lessen the future infestation rate and to prevent the spread of this fatal fly to the Northern parts of Iran.
domestique a été évaluée. Principaux résultats : 1) les bovins se sont infestés tout au long de l’étude (prévalence = 100 %), même lorsque le cycle domestique a été rompu. 2) seuls les ragondins étaient susceptibles d’entretenir un cycle sauvage sur la zone d’étude (prévalence = 60 à 100 %). 3) la dynamique du cycle sauvage n’a pas évolué pendant l’interruption du cycle domestique. 5) après arrêt des traitements des bovins, le cycle domestique a repris comme préalablement. *F. hepatica* peut rapidement s’adapter à une modification des flux parasitaires : les cycles domestique et sauvage se côtoient et se mêlent probablement. Le ragondin est un réservoir sauvage potentiel de *F. hepatica* en France pour les ruminants domestiques.


Fleabite allergic Dermatitis (FAD) is the most commonly the disease mentioned in the literature, related with the production of intense itch and the aesthetic loss caused in dogs and cats. Most of the dogs are hypersensitive to the antigen contained in the saliva of fleas, presenting immediate reactions to the cutaneous tests with extract of flea’s saliva, or extract of the complete insect, indicating a reactions type IV.13 dogs were used (*Canis familiaris*) of variable race, sex, coat and ages, with several origins, that suffered tricotomy in the dorsal or ventral areas. In these areas were made subcutaneous inoculations (with 1cc insulin syringes and 10x4,5 hole) of the following substances: positive control containing a solution of phosphated saline solution at 0,9%, solution of hole *Ctenocephalides felis felis* extract, obtained directly from dogs, supposedly fed with blood (extract n 1- A) ; solution of hole flea extract obtained from artificial creation fleas that know of not being fed with dog blood (extract n 2- B) . After the inoculation, were made readings with 5 min, 15 min, and 24 hours, where the papules formed at the place of the inoculation of the extracts n1 and n2 they were milimetrically appraised and compared to the positive and negative controls. Both extracts supplies conditions for diagnosis. The results obtained by the intra-dermo-reaction don’t configure a précised diagnosis. Of FAD but it’s serving very well with aid in the diagnosis. The antigens used in our study, filtrates through SDS-PAGE are similar to the mentioned in the literature.Must be made a 24 hours reading after inoculations in all the tests for research of possible reactions of late hypersensitivity type IV(Gell & Coombs), suggesting that the responsible DAP antigens, could be located among: 45 and 10 KD. As the same parameters obtained by LEE, JACKSON & OPDEBEECK, 1997.

597. HISTOPATHOLOGICAL CHANGES DUE TO THE PARASITISM OF *Hyalomma anatolicum anatolicum,* I. D.H. AI-Moula 1, Z. I.F. Rahemo 2. 1Department of Medicine College of Veterinary Mosul Universirty 2Department of Biology College of Sciencey Mosul Universirty. Iraq.

Histopathological changes due to the parasitism of *Hyalomma anatolicum anatolicum,* Ixodidae, on cows were investigated, The most important changes seen in sections is hyperkeratosis in epidermis especially in granular layer. Destruction was observed in basal layer due to the penetration of mouth parts of the tick through the epidermis, Eosinophilic mass was observed also which is the cement cane secreted to the parasite during its attachment to the skin of the host. Furthermore, necrosis and inflammation were evident in epidermal and dermal layers and edema and liquidification between the cells of the tissue were observed mass of fibroblasts were also distinguished especially around the blood vessels.
Compte-tenu de l’importance des testicules dans la vie reproductrice de l’animal et la rareté des études lésionnelles sur cet organe dans la leishmaniose canine, les auteurs montrent dans une étude histologique conduite sur 31 chiens leishmaniens que sur des testicules macroscopiquement apparemment sains, des lésions histologiques d’atrophie épithéliale et d’infiltration macrophagique et lymphoplasmocytaire apparaissent précocement dans la maladie. L’étude détaillée a permis d’identifier 4 stades lésionnels avec un gradient de gravité croissant allant de 1 à 4. Ces stades sont dominés par des lésions atrophiques de l’épithélium séminifère et épididymaire et un infiltrat interstitiel évoluant vers la sclérose. L’étude statistique a permis de montrer l’absence d’une relation évidente entre les lésions testiculaires et la présence du parasite dans les cellules.

599. IMMUNOPROPHYLAXIS OF Echinococcosis IN UZBEKISTAN. M. Aminjanov, S. Aminjanov. Uzbek Research Institute of Veterinary by acad. K.I. Skryabin, Samarkand, Uzbekistan.

Echinococcosis as a most pathogenic, widely spread and causing a tremendous economical damage disease attracts attention scientists and veterinarians of all over the world, including Uzbekistan. Recently, invasions damaged not only the animal husbandry, but also the population. According to Razzakov and others (1986), during 1968-1983 in hospitals of Samarkand region more than 327 people were operated infested by echinococcosis. A large part from them were children up to 15 years. From total amount of children 6,5-12 years infested by parasites, 12% were infested by echinococcosis. Boimuratov H. during examination of 86 of children who had echinococcosis of liver in Samarkand Centre of Children Surgery revealed, that 24 were children from 1,8-7 years (27,9). 22 -were children from S to 10 year (25.6%) and 40 were children from 11 to 15 year (46,5%). According of doctor’s information from Republic Center of Surgery by acad. Vachidov (Tashkent) every week in the Surgery of liver and gall-bladder 15-20 patients infested by echinococcosis were operated. From data presented it is clear, that the people infested by echinococcosis practically of any age, but the children are more subjected to it, than grown-ups. Analogous of people infected is also marked in other republic of Central Asia. The children’s infection in Kazakhstan is 11,4% from total quantity of infested people. On 100 thousand people of Kyrgyzstan registered 2-3 infested by echinococcosis, Marokko - 6,5%» Algeria - 3-4%, Tunisia -16,5%, Jordan -more than 15%, Kuwait - 36%- Echinococcosis is spread rather and influence on people’s health.According of World Health Organization, the treatment of one man infested by echinococcosis due to disease duration (10-15 years) the society inflicted a loss of 10 thousands dollars USA (Sultankulov T. D., Omarov A. D, 1999), Echinococcosis beside the medical problem is a problem for veterinary science and practice. According our data the infection of cattle is - 26,34%, sheep -41.85%, goats - 9.3% and camels - 21,46%. From every 100 head of infested by echinococcosis is a damage of 220 kg of meat, 50 kg of liver, 30 kg of lungs, 20 kg of wool and 7-12 lambs.According Irgashev I. and Mukhammadiev S. data (1996) the economical losses attributed to echinococcosis of all species of agricultural animals slaughtered in meal-packling plants of Uzbekistan total is 5 milliards of sums every year.Taking into consideration, the above mentioned, the working out of immunoprophylaxtics remains the problem question of veterinary-medical sciences. The suggested and introduced measures against echinococcosis
have not provided the desired success in the struggle with this insidious disease. In this connection, in the production and laboratory we have tested the vaccine for the prophylactic of sheep echinococcosis.


The prevalence of gastrointestinal parasites of sheep and goat in Nyala with respect to age, sex and season was studied by coprological and postmortem examination. Out of 588 samples from sheep and 262 from goats examined, 67% and 70% respectively were found to be infected with the parasites. The overall prevalence was around 68%. However, infection was observed to be inversely proportional with age. Sex has no effect in the prevalence of the parasites. Fluctuations in environmental temperature did for we spread of the parasites. The following parasites were indentifie : Haemochus conotus, Trichostrongylus axei, Oesophagostomum sp; Strongylidae papillosus, Cooperia sp., Trichuris sp., Fasciola gigantica and Monesia expansa.

601. COMBATING ANTHELMINTIC RESISTANCE USING HOLISTIC AND INTEGRATED PARASITE MANAGEMENT PRACTICES. G.F. Bath. Faculty of Veterinary Science University of Pretoria South Africa.

This paper briefly describes and evaluates current practical measures to reduce the escalation in anthelmintic resistance in helminths of domestic livestock, particularly in sheep and goats. Basic management requirements comprise the separation of groups of animals and identifying those most at risk. Separate paddocks are essential to allow for the resting of pastures and alternation of grazing with other species. Water leaks have to be mended, grass removed from pens and groups must be moved strategically when required. At present, selection of animals consists of only the use of the faecal egg count (FEC) and FAMACHA© system or anaemia index. Monitoring of groups requires planned FEC and FEC reduction tests as well as FAMACHA evaluations in the case of haemonchosis. Proper planning demands the use of experts and basic but flexible programmes based on strategic considerations. Optimising the use of anthelmintics requires that the relative importance of parasites is established, so that the most suitable drug can be used at the lowest possible level and frequency. A major new principle is that only those animals requiring treatment should be drenched, and if all animals are to be treated, the animals must not be moved immediately to new pasture. The efficacy of the drug used can be enhanced by correct administration, governing feed intake, either repeating or increasing the dose, ensuring correct dosage, and using combinations or sustained delivery systems with caution. Promising future approaches include the use of predacious fungi, dilution of resistance by the introduction of susceptible strains of worms, vaccination, protein supplementation and monitoring by condition scoring. To be successful, all these principles should be integrated into a holistic system of parasite management.

602. EXPLORATION DE LA DYNAMIQUE DE LA TRANSMISSION DE LA LEISHMANIOSE CANINE AU SEIN D’UNE POPULATION DE CHIENS PRECIEUX D’UTILITE PUBLIQUE. K. Bédoui¹, R. Ben Ismail³, F. Kechrid⁴, M. Zbiba¹.¹ DSS Ministère de l’Intérieur; ² Institut Pasteur de Tunis; ³ Conseil National de l’Ordre des Médecins Vétérinaires de Tunisie.
La leishmaniose canine est une maladie qui sévit de façon endémique dans les chenils étudiés. Le travail présenté est fondé sur l’observation de 124 chiens vivants dans cinq endroits différents, ainsi que la prospection de la faune phlébotomienne de ces biotopes par captures et piégeages. Au cours de ce travail 124 chiens précieux d’utilité publique distribués dans cinq chenils ont été explorés cliniquement et sérologiquement à la recherche de la leishmaniose canine. La prévalence globale de la maladie est relativement élevée (20%). Cette étude fait apparaître que les chiens importés semblent plus susceptibles à la maladie que les chiens de la même race nés et élevés localement depuis plus de vingt ans. La prévalence de la maladie est de l’ordre de 33,3% chez les chiens importés, soit le double de celle des chiens obtenus localement (16,49). L’étude écologique du vecteur a permis d’établir la prédominance de trois espèces à savoir : - *Phlébotomus perniciosus* : vecteur de leishmania infantum - *Phlébotomus papatasi* - *Sergentomyia minuta* Les captures régulières des phlébotomes ont permis de révéler que le pic de densité maximale de sa population s’observe en septembre. Les variations de densités des populations phlébotominiennes ont également été mises en évidence. Il est intéressant de relever que les densités maximales de *P. perniciosus* ont été observées dans le chenil de Radès là où la prévalence de la maladie est la plus forte.

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**603. LES LEISHMANIOSES CUTANEES EN TUNISIE SITUATION ACTUELLE. M. Ben Said. Ecole Nationale Vétérinaire, 2020 Sidi Thabet, Tunisie.**

La leishmaniose cutanée (LC) sevit en Tunisie sous 3 formes no-géographiques distinctes : 1)- La LC zoonotique : Due à Leishmania major (Zymodème MON 25) et transmise par phlebotomus papatasi, son réservoir de virus principal est psammomys obesus. C’est de loin la forme la plus fréquente. Connue depuis 1884 dans le Sud tunisien, elle a pris une très grandes extensions à partir de 1982 ou une épidémie a éclaté dans la cuvette d’El Khobna (Kairouan), à la suite de la construction du barrage de Sidi-Saïd ; puis la maladie s’est étendue à 10 guouvernerats ou elle sévit, depuis, à l’État endemo-épidémique avec plus de 60.000 cas recensés à ce jour. 2)- La LC sporadique du Nord : Elle est déterminée par des zymogènes dremotropes de leishmania infantum, surtout MON 24, dont le réservoir de virus reste à ce jour inconnu. Le rôle de Phlébotomies perfiliewi comme vecteur est probable. La LC sporadique sevit par cas isolés dans le Nord du pays ou sa distribution est superposable à celle du kala-azar infantile. Son incidence est de 15 à 20 cas/an. Des études récentes semblent indiquer que LC sporadique est plus étendue et que ça distribution dépasse assez largement vers le Sud la chaîne montagneuse de la Dorsale. Sur le plan clinique, cette forme se présente dans la majorité des cas sous la forme de petits boutons unique de la face, dont la durée d’évolution dépasse souvent 1 an. 3)- La LC endémique ou chronique du Sud. Cette troisième forme évolue au sein de micro foyers situés dans les régions pré sahariennes du sud-est entre Toujène et Tataouine. Son incidence est faible, moins de 10 cas annuel. L’agent causal est Leishmania kilikii, récemment séparé du complexe Leishmania tropica auquel cette forme était attribuée autrefois. La LC endémique se singularise par sa distribution non urbaine et sa survenue par cas isolés et sporadiques, ce qui fait douter de son caractère anthroponotique. Le rôle soupçonner de gondi comme réservoir de virus demande à être confirmé. Cliniquement, cette forme se caractérise par des lésions souvent uniques, siègeant plus volontiers au niveau de la face, et d’évolution chronique, atteignant parfois plusieurs années. La distinction entre ces 3 formes de LC est essentielle car les mesures de lutte sont fonction de l’épidémiologie de chacune. Seule la LC zoonotique à L. major représente un réel problème de santé publique en raison de son caractère épidémique. Or, son éradication qui Repose principalement sur la lutte contre la Psammomys (destruction des terriers, élimination des chénopodiacées qui est la nourriture
exclusive du rongeur, reboisement du sol) est très difficile. Elle nécessite des efforts soutenus, une plus grande participation communautaire et une meilleure sensibilisation des autorités sanitaires.

604. A SURVEY OF ANTHELMINTIC RESISTANCE IN GASTROINTESTINAL NEMATODES OF SHEEP. H. Borji, GH. Razmi. High education center of shahid hasheminejad Mashhad _Ferdowsi university of Mashhad school of veterinary medicine, Uran.

In this study, the occurrence of anthelmintic resistance was investigated using in vitro test of larval development assay (LDA) and slaughter test (In Vivo) in Golestan province and only the latter one studied in Khorasan province. The results of in vitro test showed that the approximate level of LD50 value for levamisole in nematodes of Gorgan area is higher than 2.5 (mg). This rate of LD50 is higher than LD50 value reported for resistant nematode’s strain. In the slaughter test (In vivo), a worm-free sheep was orally infected with 4000 of third stage larve resulted from fecal culture of eggs of Gorgan area. In the first group, the mentioned sheep and two other infested sheep from Mashhad’s herd which had high EPG (>100) were treated by levamisole. In the second group, three infested sheep with albendazole. After treatment only one or the sheep from the first group had eggs of Strongyloides papillosus in examination of egg counting but the other sheep didn’t have any eggs in faeces. Three to four weeks after treatments, these sheep were slaughtered and alimentary tract were examined. Different nematodes were found only in the sheep that had eggs in faeces. From the total of 131 worms counted, the percentage of species 6.6% Ostertagia occidantalis, 1.3% Nematodirus fillicolis, 1.3% Strongyloides papillosus. In this study it appears that some of “GI nematodes of ruminant, show resistance to levamisole.


Lyme borreliosis is a worldwide disease caused by the spirochete *Borrelia burgdorferi sensu lato* and transmitted to humans by ticks of the genus *Ixodes*. Different species of *B. burgdorferi* have been described in America, in Europe and in Asia. The main vector of the disease in Europe is *Ixodes ricinus*. In north Africa, including Tunisia, few cases of Lyme borreliosis were reported. However, the epidemiology of this disease in the Maghreb has not yet been investigated. Recently, we conducted an epidemiological investigation to study the bioecology of the vector *Ixodes ricinus* and to isolate and characterise different species of *B. burgdorferi* circulating in Tunisia. In different area, where climatic conditions are favourable to the development of *I. ricinus*, we used two methods for collecting data about this tick, counts on animals (cattle, sheep, goats and lizard) and blanket dragging. Only ticks belonging to *I. ricinus* species were examined to investigate whether ticks are infected by *Borrelia burgdorferi*. One set of these *Ixodes* was used to determine the prevalence of *B. burgdorferi* sensu lato by IFI and PCR amplification of the non-coding spacer between the two copies of the *rrl-rrf* genes of *B. burgdorferi* s.l., the remaining ticks were used to inoculate BSK-H medium.

The distribution area of *I. ricinus* is restricted to the humid climatic zone; only a small population is collected in a few sites in the sub-humid zones. The main density of this species was observed in the north-west of the country under the oak formation where *I. ricinus* represents 94% of blanket sampling carried out on the same ground were cattle grazing. It represents also 87% of tick population collected on cattle. Adults of *I. ricinus* are collected mainly on cattle; few specimen were found on sheep. The
activity of adult ticks starts at the end of September and finishes on March with a peak in November (autumn). The immature instars are collected on vegetation between April and June. The main host of the immature stages are the lizards (Psammodromus algirus). Live field’s collected I. ricinus (mainly from site of Jbel El Jouza) were used for Borrelia isolation attempts. A total of 1310 I. ricinus ticks were pooled by 2-5 specimens, leading to 700 cultures in BSK-H medium. 72 cultures resulted in the isolation of Borrelia strains. Positive cultures were identified by PCR amplification and enzymatic restriction using DNA extract by thermolysat. However, DNA was extracted from 291 ticks using QIA ampTissue® kit (Qiagen). After, PCR amplification, samples producing a DNA fragment at the expected size of 250 bp were considered as positive. The corresponding amplicons were submitted to enzymatic restriction to identify the Borrelia species responsible for the tick infection. Three strains were identified: B. garinii and B. lusitaniae (Poti B2 and Poti B3). The mean infection rate of I. ricinus was 35 %. The infection rates of males and females ticks in this study were 35 and 41 % respectively. Only 15,6 % of nymphs were positive. This study is supported by the Tunisian SERST and the EC project «Lyme borreliosis in North Africa», contra ICA3-CT-2000-30009.


Le caractère dixène, ditrope du cycle évolutif de Hyalomma marginatum marginatum est en faveur d’un élevage expérimental sur lapin dans les conditions de laboratoire à partir de femelles gorgées ou partiellement repues prélevées préalablement sur bovins. Le choix de cette espèce s’est fait en raison de sa forte prévalence dans l’Est Algérien (37,75%), de son occurrence annuelle sur bovins ainsi que la disponibilité de l’hôtel expérimental (lapin) pour les larves et nymphes à jeun. L’élevage expérimental nous a permis d’évaluer les étapes chronologiques de chacune des stases des phases du cycle évolutif: Phase non parasitaire (libre) : Préoviposition, oviposition, incubation ou embryogenèse et Phase parasitaire: Stade larvaire, et stade nymphal. Cet élevage nous renseigne sur la biologie de la tique et contribue à la compréhension de la dynamique du cycle afin de mieux cerner l’épidémiologie et les risques pathogènes encourus.

607. HOW TO WITH ANTHELMINTIC RESISTANCE OF HERBIVORE HELMINTHES? J. Cabaret, INR, PAP, 37380 Nouzilly, France.

Helminths (digestive tract nematodes and liver fluke) have progressively developed resistance to several anthelmintics. The most documented case concerns nematode resistance to benzimidazole drugs. It has been widely recorded in sheep goats, and equids. In dairy-goats up to 85% of the farms may harbour benzimidazole resistant. Nematodes in France. Only few cases have been recorded in cattle helminthes and they may concern macro cyclic lactones. Many recommendations have been proposed. The aim of the present paper is to evaluate which recommendations are really validated. Under dosage has been recorded as probably a major source of resistance, but was not really validated. As far as benzimidazoles are concerned, the role of under dosage is very limited and should not be pointed as a reason for establishment of resistance. The frequency of treatments, using repeatedly benzimidazoles has also been judged as a strong factor generating resistance. It is obviously true in conditions where hosts Are grazed on one paddock: resistant alleles were 25% at the beginning of a grazing season and reached over 90% at the end
of a second grazing season when altogether 7 treatments with benzimidazoles were given during the period. The picture is somewhat different when grazing management interferes with selection of resistant nematodes using benzimidazoles. The treat and move may increase the risk of resistance, whereas the adequate use of sown paddocks may reduce it the alter national of different anthelmintics (levamisole or tetrahydropyrimiding, macro cyclic lactones, benzimidazoles) as often been proposed as a way to escape the building up of resistance. It has been shown that the proposition hold true, at least on short term. However we cannot rely fully on such a technique, as it may help to build up slowly resistance to both groups of anthelmintics on the long run, as most models predict. The treatments with a mixture of two types of anthelmintics are less favorable generating resistance, but they are costly. The return to susceptibility after a period without treatments has been suggested. Experiments have shown that reversion is not to expected: after two years without any treatment benzimidazole resistance was not modified; it was not either modified by treating with levamisole during the same period. The following recommendations are then available: 1) the treat and move strategy is only of interest in susceptible populations of worms 2) the treatments (on all flock basis or individual basis) will reduce the risk of resistance, 3) mixture rather alternation of different groups of anthelmintic will prevent the appearance of resistance.

608. ECHINOCOCCOSIS/HYDATIDOSIS CONTROL PROGRAMMES IN CYPRUS. G. Christofi, H. Hudaoglu, G. Zechner. Veterinary Service UNOPS (United Nations Office for Project Services)

Before the 1970s the Echinococcosis/Hydatidosis (Echinococcus granulosus) was widespread in Cyprus and several Control programmes were successfully established to minimize the infection rate. Between 1971 and 1974 an island wide Anti-echinococcosis control campaign was initiated. From 1974 on, the campaign had to be carried out in two separate areas. In area B the programme continued, while the programme stopped in area A. In area B the first campaign was officially terminated in the year 1985. Up to 1992, year-by-year the cases with hydatid cysts detected upon slaughter of food animals increased, so that in 1993 in area B a detailed surveillance programme was undertaken. It could be stated that the number of dogs infected with Echinococcus granulosus dropped from 16 cases in 1993 to 0 in 1997. From 1998 on, comparable figures for area A and for area B were available and in 1999 an integrated project fund through UNOPS was started in both areas to improve the Echinococcus control programme. While in area B the number of infected dogs was a constant 0, in 1998 in area A 157 dogs were positive, in 1999 47 dogs, and in 2001 the number of positive cases declined to 13. From 1997 on, in area A the test method was the coproantigen ELISA test, while in area B the arecoline testing method was used. The infection of livestock in area A dropped in cattle from 12.56% in 1997 to 11.79% in 2001. In the same time period for sheep from 3.39% to 2.25% and in goats it is between 0.01% and 0.49%. The infection of livestock in area B dropped in cattle from 0.088% in 1994 to 0.025% in 2001. In the same time period for sheep from 0.033% to 0.013% and in goats from 0.0112% to 0.0030%. In area B, which is in the consolidation phase all the past measures will continue. In area A, the attack phase will be continued on and all activities will be focused on this area. The Echinococcosis/Hydatidosis Control Programme in Cyprus was until 1998 a “continental” programme with a comprehensive controlled area and an uncontrolled area. The established integrated island wide programme, since 1999 funded by UNOPS, gives hope that within the next few years the whole island will achieve the consolidation phase and the attention can be focused to the eradication of Echinococcus.
Immunoprophylactic trials were done on 30 Transilvanian Merino lambs aged 30 to 35 days, kept on grates and divided into three groups. Group 1 (C) served as an untreated and uninfected control; group 2 (I+T) was treated with a single dose of Toltrazuril (7.5 mg/kg) then immunised “in droplet” 4 times, at 4 days intervals with 5,000 oocysts of *Eimeria spp./lamb*; group 3 (I) was immunised but untreated. Seventy-two hours after the infection, lambs in groups 2 and 3 expressed a mild diarrhoea while the controls showed haemorrhagic diarrhoea. Coproelimination of oocysts in group 2 increased (1.440 ± 180 to 9.500 ± 7.650 EPG), in group 3 decreased (9.140 ± 3.490 to 970 ± 700 EPG) while in controls strongly increased (870 ± 210 to 27,800 ± 6,560 EPG). Immunised groups had an increased body weight gain (2.7 and 2.6 kg) compared to the controls (1.5 kg). There was a slight decrease of total red blood cell counts in group 2 (5.5 ± 0.08 to 5.2 ± 0.28 x 10¹²/l) and in group 3 (5.3 ± 0.25 to 5.1 ± 0.21 x 10¹²/l), fluctuating in the control. Haemoglobin, packed cell volumes and MEV did not vary significantly. Total leucocytes increased in all groups: 2.9 ± 1 to 5.6 ± 0.19 x 10⁹/l (groups I+T); 3.2 ± 0.18 to 6.1 ± 0.26 x 10⁹/l (group I) and 2.6 ± 0.11 to 5.2 ± 0.21 x 10⁹/l (C). Total protein values were increased in all groups while serum albumins decreased in all groups. Gammaglobulins in I+T group fluctuated (4 ± 0.2 to 6 ± 0.4 g/l) while in I group they increased from 5 ± 2 to 7 ± 0.8 g/l. The same pattern was observed in group C (5 ± 0.9 to 6 ± 0.2 g/l).

**610. A STUDY ON INTESTINAL HELMINTHS OF STRAY DOGS, FOXES AND JACKALS IN THE WEST IRAN. A.Dalimi, A. ;Satari Parasitology Department, Medical Sciences Faculty, Tarbiat Modarres University, P.O.Box:14115-111, Tehran, I.R. Iran.**

In this Survey, 83 stray dogs, 22 foxes and 10 Jackals were collected from the West Azarbaijan, Kordestan and Kermanshah provinces in the west Iran. After autopsy of the animals, their intestines were searched for the presence of helminths. The species which were recovered are listed as follows: From dogs: *Ancylostoma caninum* (3.61%), *Oxynema sp.* (1.2%), *Toxascaris leonina* (32.53%), *Toxocara canis* (6.02%), *Rictularia sp.* (12.04%), *Macracanthorhynchus sp.* (4.81%), *Taenia hydatigena* (65.06%), *Mesocestoides lineatus* (26.5%), *Dipylidium caninum* (38.55%), *Echinococcus granulosus* (13.25%). From foxes: *Ancylostoma caninum* (4.54%), *Uncinaria stenocephala* (13.73%), *Oxynema sp.* (9.09%), *Toxascaris leonina* (31.81%), *Toxocara canis* (4.54%), *Strongyloides sp.* (4.54%), *Physaloptera sp.* (4.54%), *Macracanthorhynchus sp.* (31.81%), *Taenia hydatigena* (9.09%), *Mesocestoides lineatus* (81.81%), *Dipylidium caninum* (9.09%), *Joyeuxiella pasqalei* (27.27%), *Diplopylidium nolleri* (4.54%) *Echinococcus granulosus* (4.5%) From Jackals: *Toxascaris leonina* (30%), *Toxocara canis* (10%), *Rictularia sp.* (50%), *Macracanthorhynchus sp.* (40%), *Taenia hydatigena* (10%), *Mesocestoides lineatus* (70%), *Dipylidium caninum* (20%), *Joyeuxiella pasqalei* (30%), *Alaria Canis* (10%).

**611. A STUDY ON INTESTINAL PARASITES OF PET DOGS IN TEHRAN. Dalimi A., Mojarad S. Jamshidian SH. Department of Parasitology, Medical Sciences Faculty; Tarbiat Modarres University, P.O.Box: 14115- 111, Tehran, I.R.Iran. Department of Small Animals, Veterinary Faculty, Tehran University.**

Faecal specimens of 305 pet dogs that were referred to the small animal clinic of Tehran University were collected for Parasitology examination. Direct and formal-ether methods as well as trichrome and
modified zieh-neelsen-staining techniques were applied for parasite identification. The results indicate that, 65(21.31%) of specimens were infected with either protozoa or helminthes. The parasites were identified as follows: Giardia intestinalis 1.63%, Cryptosporidium spp 1.63%, Isospora spp 7.21%, Blastocystis sp. 0.32%, Toxascaris leonina 3.27%, Toxocara canis 6.55%, Hook worms 2.62% and Taenia spp 2.29%. Two questionnaires, about demographic data of dogs and knowledge of dog owners about zoonotic risk of parasitic disease were administered to the owners. Majority of the owners was found unaware of the potential risk of canine parasites to human health and their knowledge was found weak. Despite the male owners possess high degree of qualification but their knowledge was totally less than those of female owners.


The Leishmanin Skin Test (LST) is rarely used in the epidemiologic studies on canine leishmaniasis. Using this test together with other traditional indicators of leishmaniasis infection, particulary serology and in vitro culture of the parasite, would provide a more precise evaluation of infection in dogs. For this purpose, a study was undertaken on a sample of 183 dogs during March 2001 in a traditional focus of zoonotic visceral leishmaniasis (ZVL) in the north of Tunisia. After a clinical examination of the dogs, 0.1 ml of leishmanin solution (3.10^6 promastigotes of L. infantum/ml) was injected intradermaly in the internal face of the thigh. The reading was carried out 72 hours later according to Sokal’s technique. A sample of blood was taken for serological analysis by ELISA and IFI. A lymph node aspiration was performed for the culture of the parasite. The results indicated that 72% of dogs were LST positive and/or sero-positive, which was significantly higher than the proportion of dogs positive by serology (67.2% against 33.3%, p < 0.0001). The majority of the sero-positive dogs (46 out of 61) were also LST positive and only 15 LST negative dogs were sero-positive. These results show that the rate of the dogs currently infected or past-infected by the parasite in an endemic focus of ZVL is significantly higher than that usually detected by the traditional serologic methods. This confirms that, as in humans, the canine leishmaniasis infection can remain unapparent.

613. CLINICAL STUDY AND DIRECT MICROSCOPIC EXAMINATION IN MICROSPORUM RINGWORM IN CATS. A. K. Draghici1, S. Sturzu1- Faculty of Veterinary Medicine- Bucharest, Romania. 2-Institute for control of veterinary biologicals and drugs- Bucharest, Romania.

This paper emphasize the results obtained along a three years period (1999-2001) within the Parasytology Clinic – of Veterinary Medicine Faculty- Bucharest. There were 42 cats with lesions similar to those specific to Microsporum. Only 23 were positive diagnosed (with Microsporum infection).Microsporum infection is the most frequent dermatomycosis in cats, especially for the youngest. The cats of noble race (especially Persans) are mostly affected. The most frequent is the limb form. The generalized form of Microsporum infection is rare. We diagnosed only one cat with is form of dermatomycosis. The zoonotic implications are very important: five men had lesions produced by the same cause- MICROSPORUM; spp.
614. VISCERAL INFECTION CAUSED BY LEISHMANIA INFANTUM IN DOGS IN AL-BAYADA, A.A LIBYA. El-Buni; R. Ben-Ismail Libya.

During the period from April 1999 to June 1999, one hundred and seventy eight dogs were investigated in Al-Bayda on Al-Jabal Al-Akhdar in the north eastern part of Libya. Ninety nine (55.6 %) were found be infected with visceral leishmaniasis. Examination of dogs was done on the symptoms and isolation of the parasite. Amastigotes were cultured and mass cultured in media for isoenzyme analysis by using 16 enzymes and four reference strains. The identified strain was *Leishmania infantum* Mon 1. *Phlebotomus longicuspis* and *P. perniciosus* (candidate vectors for VL) were present in the studied area.

615. TO DETERMINE VIABILITY AND FERTILITY PERCENT FOR PROTOSCOLEXES OF HYDATID CYST IN COW, SHEEP AND GOAT ITS RELATION WITH AGE AT ESFAHAN SLAUGHTERHOUSE Emanitabar F., Hossini, laboratory vet organizing of Esfahan. Tehran University. Iran.

In this survey 22328 sheep carcass, 28182 goat carcass and 1991 cow carcass were studied, and he rate of infection to hydatid cyst was determined as following: In sheep liver 2.1%, in lung 2.3%, joint infection of liver and lung 1.28%, and in other organs 0.09%, in goat liver 3.3%, lung 3.6%, joint infection of liver and lung 1.4%, and in cow lung 3.41%, joint infection of liver and lung 1.83%, and in other members 0.06%.

In sheep, the rate of hydatid cysts fertility in various ages was 80.6%, and the rate of their protoscolexes viability in goat was 85%, and 72% in various ages, and the rate of protoscolex viability was 75.9%; And in cow, hydatid cyst fertility was 9%. Concerning the rate of the infection of hydatid cysts in man, 237 cases in various ages, professions, sex and location were observed at three hospitals in Esfahan in the years of 1989 – 94. The results have show that the rate of the infection of hydatid cyst are higher in women than men. The rate of the infestation was 39.2% as the highest with in the ages of 30 – 39. In respect of residence, the people in the rural areas have shown the rate of 51.9% of infestation as a higher rate. As regards profession the rate in observed in those who deal with livestokes.


In this study all eliminated parasitic livers that seprated from hydatid cyst, fasiola and dicrocaliom in sheep, goat and cows and the eliminated carcasses of sarcosistic sheep and goat and cysticercosis in cow and calves from 1994 to 2000 were compared and evaluated the rate of eliminated livers for 6 years were increasing from 5.58% to 9.39% of all slaughtered animals with the highest rate about hydatid systs with the rate of 68.5% of eliminated livers. The rate of Dicroceliom was decrising and it was about 16.5% of eliminated livers. The rate of fasiola was the same and even from before with the rate of 25% of eliminated livers. As a whole the economic 105s due to these infections were about 1000000 US $.

617. TELIOSPOREIN ANIMAL PRODUCTION. A. Farzinpour Department of agriculture, Kurdistan University, Kurdistan, Iran.
Karnal bunt is a fungal disease of wheats, triticale and rye. Karnal bunt is one of six fungi that cause the five known smut diseases of wheat: common bunt (*Tilletia tritici* and *Tilletia laevis*); dwarf bunt or TCK BUNT (*Tilletia controversa*); flag smut (*Urocystis tritici*); loose smut (*Ustilago tritici*) and Karnal bunt (*Tilletia indica*). Like all smuts, the karnal bunt fungus has a complex life cycle with several spore stages. Karnal bunt produces endosperm (telliospore) that have been converted to masses of small black spores, which they produce the compound trimethylamine which give off a fish odor. The smell is the alarm that warns you not to eat it. (Chicken certainly won’t do that for you). Karnal bunt may cause about 5 percent seed damage in an infected field at its worst and it can affect the color, odor, and palatability of flour and other foodstuffs; it does not present a risk to human or animal health. The bacterial enzyme catalyzes oxidation of fish-smelling trimethylamine-produced by bacterial degradation of dietary choline in the large intestine-to odorless trimethylamine oxide. Take antibiotics such as metronidazole or neomycin. These will reduce the bacterial population in the intestine and temporarily halt the production of trimethylamine. Trimethylamine is the main anti-nutritional problem if it is used for animal poultry nutrition, it cause a fishy taint to be transferred to the egg yolk, milk or meat. Trimethylamine can be converted to the powerful carcinogen.

### 618. LA DISTOMATOSE A FASCIOLA HEPATICA DANS LES OASIS DE TOZEUR (SUD-OUEST DE LA TUNISIE) PROJET D’UNE LUTTE BIOLOGIQUE. H. Hammami A. Ayadi

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Suite à l’élucidation du cycle biologique de la distomatose à *Fasciola hepatica* dans les oasis de Tozeur depuis 1993, une étude plus approfondie a porté sur l’écologie et le parasitisme de l’hôte intermédiaire *Lymnaea truncatula* Muller dans un but prophylactique. Des sorties systématiques réparties sur une période de trois ans depuis 1997/1998 ont été effectuées dans les oasis traditionnelles de Tozeur. Dix gîtes à *Lymnaea truncatula* ont été répertoriés. Des prélèvements des limnées selon la méthode des quadrats, de sol, de l’eau et de la végétation ont été réalisés dans chaque gîte. Le parasitisme naturel a été étudié suite à la dissection et à l’observation microscopique des limnées. *Solanum nigrum* (plante herbacée annuelle) a été récoltée dans les oasis de Tozeur et a servi à la préparation des extraits aqueux bruts de feuilles (EABF), des extraits aqueux bruts de fruits (EABFr), des poudres de feuilles (PF) et des poudres de fruits (PFr). L’étude écologique a montré que les gîtes à limnées appartenants à système irrigation-drainage sont de quatre types : des canaux d’irrigation secondaires des seguïas, des canaux de drainage secondaires et un canal de drainage principal. La texture du sol des gîtes est composée de sable fin et de limon et argile. Le pH de l’eau et du sol est basique situé entre 7.35 et 8.98. La charge de l’eau en chlorures et calcium est élevée surtout au niveau des drains (2980mg/l et 625.12mg/l respectivement). La température de l’eau est située entre 15 et 31°C. La flore est composée de végétation naturelle très abondante et la faune est pauvre en espèces avec l’absence de prédateurs naturels de la limnée. L’étude de l’hôte intermédiaire a révélée une densité élevée qui peut atteindre 1180/m² par mois et par gîte. Le nombre de générations est de trois à quatre par gîte. L’étude du parasitisme naturel de la limnée a montré une infestation continue de 26.1% et une charge parasitaire élevée : 298 rédies, 198 cercaires libres, 2092 cercarées intrarédiennes et 2241 métacercaires intrarédiennes en moyenne par limnée infestée. Les émissions cercariennes sont au nombre de 2340 cercarées en moyenne par limnée infestée. On note l’absence de rythmicité dans les émissions cercariennes. Le programme de lutte biologique à base de *Solanum nigrum* a révélé une CL100=39.37mg/l pour les EABF ; une CL100+ 61.8mg/l pour les EABFr ; une CL 100-200mg/l pour les PF et une CL100= 700mg/l pour les PFr. Cés mêmes produits molluscicides occasionnent des
altérations qui ont atteint 100% pour les rédies, les cercaires et les cétacercaires après 72 heures du traitement des limnées aux EABF. Le biotope oasien, caractérisé par la présence d’un système irrigation-drainage, diffère des biotopes classiques de l’Europe et contribue avec ses particularités écologiques à entretenir le cycle de la distomatose à Tozeur. Les EABF DE Solanum rigrum seraient les meilleurs produits à utiliser contre le mollusque et son parasite pour rompre le cycle de cette affection.

619. FACTORS INFLUENCING PREVALENCE OF EAST COAST FEVER AMONG FREE RANCH CATTLE. H.A. Indetie, H.A.Indetie1, W.D Indetie1, J.W.Kamundia1, G.K.Mutai1, w.Njuguna1, 1KARI-National Beef Research Centre, P.O. Box 15395, Nakuru, Kenya, 2Ministry of Agriculture & Rural Development, Veterinary Investigation Laboratories, P.O. Box 114, Nakuru, Kenya, 3KARI -National Plant Breeding Research Centre, P.O. Njoro, Kenya.

East Coast Fever caused by *Theileria parva* and transmitted by *Rhipicephalus appendiculatus* is one of the most economically important diseases of cattle in Eastern, Central and Southern Africa. Factors influencing prevalence of the disease in free ranch cattle were studied using seven breeds. The fixed effects of age, season, year, breed and sex were studied using general linear models of SAS. Chi-square analysis was carried out on the data to show the disease distribution between and within breeds. All factors showed significant (P<0.05) differences for the disease incidence. There was an age influence with the calves being adversely affected (P<0.05). The period between April to June showed the highest incidence whereas July to September had the lowest incidence. Friesians were most susceptible while Sahiwals were most tolerant. Years varied in disease occurrence. 1994 and 1997 had the highest incidence where as 1998 and 1999 had the lowest. Further work should focus on identifying breeds that are suitable for East Coast Fever endemic areas. This will lower the cost of production by reducing the disease control programmes.

620. PREVALENCE OF HAEMONCHOUS CONTORTOUS IN GOATS IN SOUTH DARFUR STATE, SUDAN : AN ABATTOIR SURVEY. A.A. Ismail, 1E.B.Abdelsalam 2, Faculty of Veterinary Science, University of Nyala, Sudan. 2Faculty of Veterinary Science, University of Khartoum, Sudan.

The prevalence of *Haemonchous conlortus* in goats was investigated within a 12-month period of survey in the local abattoir of Nyala town, South Darfur State, Sudan. The results indicated that 85% of the slaughtered goats (n=401) harboured both adult and immature worms, 76% harboured mature worms and 71% contained immature larvae in the abomasal content and mucosa. The seasonal prevalence of the parasite varied from 65% (in March) to 100% (in July, September and October) for both adult and immature worms, 48% (in March) to 100% in October for adult worms only and from 32% (in April) to 100% (in July) for immature larvae. The overall mean of worm burden per animal was 369.6±11.4 for total worms count (adult and immature), 118.2±27 for adult worms and 306.2±622 for immature larvae. It was concluded that *Haemonchous conlortus* is fairly prevalent in South Darfur State. The persistent presence of the parasite (as adult and larvae,) throughout the year may well emphasize the role of hypobiosis in the epidermiology of the disease.

621. EFFICACY OF IVERMECTIN AGAINST MELOPHAGUS OVinus AND ITS EFFECT ON HEMATOLOGICAL AND ENZYMATIC ACTIVITIES IN GOATS. EFFICACY OF IVERMECTIN AGAINST MELOPHAGUS OVINUS AND ITS EFFECT ON
HEMATOLOGICAL AND ENZYMATIC ACTIVITIES IN GOAT S. Jafari Shourijeh, A. Noori
Department of Clinical Sciences, School of Veterinary Medicine, Shiraz University, Shiraz, Iran.

Twenty four healthy Iranian goats of either sex with average body weight of 35 kg were selected for this study. The animals were randomly divided into three groups having 8 goats in each group. Blood samples for laboratory tests were collected prior to trial. Experimental infestation was induced in animals of the three groups with 120 melophagous ovinus on each animal. Group 1 served as a group of untreated animals. Goats in group 2 were treated with ivermectin solution (1%) at a dose of 5mg/10kg bwt by pour-on over the mid-line. Subcutaneous injection of 0.2 mg/kg bwt of ivermectin solution (1%) was given to third group. Daily inspection of body surface of each animal was carried out and mortality rate (% dead keds) of Melaphagous ovinus were recorded. Blood samples were collected for examination at different time intervals after treatment. The results of this study indicated that administration of ivermectin as a pour-on or by subcutaneous injection led to complete elimination of the parasite 6 to 7 days post-treatment. No significant difference (p<0.05) in blood glucose, bleeding time, blood clotting time, PT, PTT, MCV, MCHC, MCH, Hb, ESR, RBC, WBC, CK, ALT, and AST of either treated group of goats were observed as compared with control. Significant increase (p<0.05) in blood urea nitrogen (BUN) occurred in all treated goats. No adverse reactions were observed following the administration of ivermectin.

622. BIOCHEMICAL LESIONS OF DOMODECTIC MANGA (DEMODEX CANIS) INFECTION IN DOG. - M.K. Jha, A.K. Pal, A.R. Deb, M.Z.1 Ansari, S.B Jadhao. Department of Veterinary Parasitology, Ranchi Veterinary College, Birsa Agricultural University, Ranchi - 834 007, India, 2Agricultural Research Service, Central Institute of Fisheries Education, 7Bungalows, Versova, Mumbai 400 061, India.

Blood biochemical constituents viz. glucose, total protein, albumin, globulin, albumin globulin ratio (A/G), lipid profiles (viz. Total lipid, phospholipid, cholesterol and triglycerides) and enzymatic activities of alkaline phosphatase and acetyl cholinesterase (AchE) were studied in different stages (viz. 14 th, 28 th and 42 nd day) of mange infection (Demodex canis) in dog. Blood glucose concentration was decreased significantly (P<0.01) at day 14 th of infection but later it remained in its initial value. Total protein content was unaffected by mange infection while albumin concentration was decreased significantly (P<0.01) in all stages of study. Serum globulin content was lower (P<0.01) at day 14 th but increased at day 28 th and day 42 nd of infection. The demodectic mange infection failed to alter the lipid profile up to day 14 th of infection, but total lipid, total cholesterol, total phospholipid and triglycerides(TG)+ free fatty acids concentrations were significantly (P < 0.05) decreased on day 28 th of infection. On d 48 th, total cholesterol and phospholipid concentrations were decreased significantly (P < 0.05) while total lipid and total TG were adversely affected and the values decreased significantly (P < 0.01) due to impact of mange infestation. Compared to control, the alkaline phosphatase activity was found to be decreased (P<0.01) from 14 d onwards of infection. The serum AchE activity showed a significant inhibition in infected over control at day 14 th (P<0.01) and day 28 (P<0.05) of infection.

Hydatid disease is associated with economical losses both on the agricultural and the human health levels. There are no consistent data on the global socio-economical importance of hydatid disease in humans and in animals in Morocco. The lack of evidence of the public health and economic impact of the disease explains why there has never been any programme to control this infection. This paper describes a study conducted in the province of Khénifra, an area endemic for hydatid disease, to explore the socio-economic impact of this disease. The cost of the disease in humans and its social impact were estimated in patients undergoing surgery in the local hospital. Abattoir surveys were undertaken in the urban abattoir of Khénifra and in the rural slaughter houses of the province. Constraints and biases for the study were identified and a protocol was proposed for a large scale estimation of the socio-economic impact of the disease in Morocco, a prerequisite for any control programme.

624. STUDY ON NATURAL RESISTANCE AGAINST VARROVA MITE IN HONEY BEES AND RESISTANCE TRAMS MISSION. S. Koosha. Department of honey bee disease Isfahan province, veterinary government office. Iran.

Varrova spreaded from far east around world caused many difficulties in honey bees farms, because of resistance to chemicals by varrova mite and contamination of the honey with the pesticide used against mite and this resulted in many financial problems. Therefore, it motivated me to make study on this subject. In (10+50) colonies as control and sample, determind mite infectious percentage were used during 10 years study. At the end of the first three years; the ratio of mite and bees was constant and during fourth and fifth years of study bees were able to defend by natural properties. During fifth and sixth years Varrova infection ratio fixed up to 2%. In second study stage (7th to 10th) years genetical resistance phenomenon and hygine behaviour heriditary transmission were studied by moving the : I. Varrova infected bees to resisted colonies; II. Varrova resisted bees without queen to infected colonies; III. Varrova resisted bees with queen to infected colonies; IV. Honey bees are able to resist against varrova mite. II. This resistance is based on genetic characteristic and hyginic behaviour. III. Bees resist against varrova by groming, caping, uncaping and removing. IV. The gens responsible for caping, uncaping and removing plays main role and it is heriditary transmissible. V. This characters are trainable for bees and transmitted to the next geratation. VI. For persistance of this phenomenon it is required that at least 2% of the mite infectious to be able in the colonies. VII. The average infectious mite during seasons vary from 2% to 5% in colonies which is not important in colonies. It was suppose to send information for me and I registerd my name during 12th Iranian veterinary congress in tehran when I met Mr. Dr. Faouzi Kechrid. But it is not posted for me. So I am able to send my full paper up to 31th of may 2002.

625. THE ECHINOCOCCOSIS/HYDATIDOSIS EPIDEMIOLOGICAL SITUATION IN TUNISIA. ECHINO-COCCOSIS/ HYDATIDOSIS CONSTITUTES THE MOST IMPORTANT PARASITIC ZOONOSIS IN TUNISIA CREATING SERIOUS PROBLEMS TO THE PUBLIC HEALTH AND SIGNIFICANT LOSSES IN ANIMAL PRODUCTION. S. Lahma., M. Kilani, P. Torgerson, M. Gemmell. Tunisia.

Different investigations were conducted in several regions in Tunisia to collect baseline data on the prevalence and intensity of hepatic infection with Echinococcus granulosus in Tunisian sheep of various ages. Prevalence and intensity were both found to increase with age. The distribution of parasites within
the livers of the host followed a negative binomial distribution. These data indicate that *Echinococcus granulosus* is endemic and in a steady-state equilibrium in Tunisia, regulated by a minimal level of acquired immunity in the sheep population. The parasite is therefore, amenable to control. Other research was undertaken to determine the distribution and abundance of *E. granulosus*. Results showed that 21.21% of examined dogs were infected with *E. granulosus*. Prevalence was lower in the oldest dogs, but the highest worms burdens seen were found in young dogs. Intensity of infection gave a significant fit to the negative binomial model with a mean intensity of 2534 worms/host. This reflects a high infection pressure on dogs, a large infection of protoscolices in sheep may be stimulate the immune response in dogs, preventing re-infection. Quantifying the transmission dynamics of *E. granulosus* population provides an important contribution to control the parasite.


The development of the apiculture industry in Spain is very old, as we see in the rupestrian paintings in Valencia dated 30,000 million years ago, but it was not until the Arab colonisation when the apiculture got great expansion, as honey was a very valued product for them. However the apiculture industry did not developed as a profitable industry until the XIX Century. Nevertheless during the last year, this industry has acquired a considerable importance and growing interest for the competitiveness of rural areas, for the maintenance of the environment and to keep the ecological balance. The apiculture should also be considered, in Spain, as an important link with cattle activity, mainly during the seasonal movement of cattle and sheep, looking for better pastures that take place in this country during the changing of seasons. The European Union is the third world economic group in apiculture production, however the productions are very heterogeneous throw out the countries. The EU shows a deficit in production in terms of quantity, since it imports the same that it produces. Spain is the country with the biggest number of beehives. The consumer more and more demands high quality products. Quality is not only having a correct labelled, processed and packed product; it not only means a technologically perfect product, it also means a safe product for the consumer. We therefore will have a better further in this field if we join up efforts: To improve the productions, To improve the marketing of the different products and, To improve the health status. Even more, we should not forget that apiculture, as a breed production, is part of the Agricultural Policy of the U.E. and so it has to contribute to the global competitiveness of rural areas and to protect the environment.


Varroosis is an extern parasitism which affects honey bees in all stadiums of development, and that, nowadays is thought as one of the gravest diseases, which causes, if it not suitably treated, a high mortality in colonies of bees. Declared officially in Spain at the end of 1985, at the end of the decade, it was lost in Spain 80 per cent pf the census due, fundamentally, to the acaricides used in that moment had low efficacy, to the type of explotation, managing and climatological conditions. The investigations made by several groups of tecnics, has made possible that, today, bee-keepers have a fan of possibilities for the
control of Varroosis. The first group of works of investigation has been to obtain the level of efficacy of chemical products in spite of being able to be used as acaricide: Apitol, Perizin, Amitraz, Apistan, etc. The second group of works treats on the control of the disease using natural products: organic acids (lactic acid, formic acid, etc), essential oils (thymol, menthol, camphor, etc.), end biothecnics methods: breeding of drones. The future of the control of Varroosis is, in the long term, to obtain bees resistant to parasites; and in the short term, the utilization of an integral struggle in where, the utilization of chemical products will be less in benefit of na


La Microscopie Electronique à Balayage (MEB) a permis la mise en évidence d’ultra structures anatomiques, moins évidentes en observation photonique, contribuant à l’établissement d’une diagnose même spécifique, voire la compréhension de divers mécanismes de fonctionnement pathologiques. L’utilisation du MEB dans l’observation de quelques parasites des cyprinidés du lac Oubeira a révélé des données originales concernant Acanthogyrus (Acanthosentis) maroccanus (Acanthocephala ; Quadrigyridae), Neoechnorhynchus ogilis (Acanthocephala ; Neoechinorhynchida) et Bothriocephalus acheniognathi (Cestoda Pseudophyllidae). 629. Introduction of an ELISA test for amastigote stage of Leishmania major; using pepsin treated amastigote. Ali Mirjalili1, , Alireza Khabiri2, Mohammad H. Alimohammadian1, Rasool Madani3Biotechnology department, Razi vaccine serum research institute, Hessarak , Karaj. Immunology department, Pasteur Institute, Tehran, Iran

Amastigotes are the main pathogenic form of Leishmania parasite in mammalian host. In course of infections produced by Leishmania major, L. tropica, L.donovani etc. the amastigote surface covered by host proteins like immunoglobulins (Igs), complement components etc. To developing an ELISA test for amastigotes and evaluating the raising titer of antibody against whole amastigote particle, those mentioned proteins produce false positive reaction. To overcome this problem we develop an indirect ELISA technique, using pepsin treated amastigotes as source of antigen. In this ELISA test, at first pepsin treated amastigotes coated in alkaline pH and after serum incubation, protein-A horseradish peroxidase (HRP) conjugate used as secondary conjugate antibody. By using this technique we were able to produce a reasonable cut off between positive (infected) and negative (normal) mice serum.

630. PRESENCE OF IMMUNOGLOBULINS ON THE SURFACE OF AMASTIGOTES AS A TOOL FOR ISOLATION OF AMASTIGOTE STAGE OF LEISHMANIA MAJOR. A. Mirjalili2, M. H. Alimohammadian, R. Madani Biotechnology department, Razi vaccine serum research institute, Hessarak , Karaj. Immunology department, Pasteur Institute, Tehran, Iran.

Leishmania parasites nowadays infect individuals in most tropical and subtropical regions of the world. The parasite has two morphological forms known as amastigote and promastigote, which can be found in mammalian host and sand fly vector respectively. Clinical manifestation of diseases produced by Leishmania parasite mainly caused by amastigotes, which is grow inside the macrophage of mammalian host. One of the important properties of lesion-derived amastigote is attachment of various host proteins including immunoglobulins on the surface of amastigote. In this study at first presence of immunoglobulins on the surface of lesion-derived amastigotes were confirmed by western blot analysis using three different HRP- conjugated anti-heavy chain antibodies and HRP-conjugated anti-mouse IgG
antibody. The results at this stage showed that amastigote surface has covered by all three types of heavy chain as well as IgG as prototype of immunoglobulins (Igs). Pixel analysis of bands also showed that g, m and a heavy chains have greater concentration respectively. Based on this property of amastigotes in second stage a new technique was developed for isolation of lesion-derived amastigote. This technique simply consists of a microbiological plate covered by rabbit anti-mouse immunoglobulins and then blocked by bovine serum albumin. Infected cell suspension isolated from mice lesion incubates on such plate overnight at 4°C, followed by gentle washing and isolation of amastigote. Using this new technique a pure preparation from amastigotes were isolated, which indicate presence of Igs on the surface of amastigote can be used as a tool for isolation of amastigote.

631. THE STUDY OF PARASITIC CONTAMINATION RATE OF SLAUGHTERED SHEEP CARCASSES IN MASHHAD INDUSTRIAL SLAUGHTER HOUSE. M. Mohsenzadeh, F. Noroozi. Ferdowsi university of MASHHAD School of veterinary medecine, dep of food hygiene and technology, P.O.BOX 91775-1793?, Mashhad-Iran.

In this study that performed in 2001 November in mashhad industrial slaughter house 1000 sheep carcass including 742 female and 258 male were inspected? the following results were acquired : 0.1% of all inspected livers were contaminated with Fasciola hepatica, 2.2% with Dicrocoelium dendriticum, 17.4% with Hydatid cyst. 11.8% of inspected lungs contaminated with Hydatid cyst. 12.7% of carcasses were contaminated with Sarcocyctosis.

632. A STUDY OF THE EFFECTS OF SKIN PARASITES ON SHEEP AND GOAT SKIN IN EAST AZARBYJAN. A.Nematolahi, G.Moghaddam, A Rafat,. School of veterinary medicine ,Tabriz university, Tabriz, Iran. Dept. of Animal science ,Faculty of Agriculture ,Tabiz university ,Iran.

The purpose of this research was a study of skin ectoparasitic diseases in sheep and goats.Myasis and diseases due to lice ,mites and ticks are most important diseases that reduce quality of skin. In this study,600 skins and carcasses of goats and 200 sheep skins and carcasses were inspected in Tabriz slaughter house. Samples containing parasites were identified in parasitology laboratory.Most important parasites were larvea of Caliphoridae and hypoderma. Also ,the type of lesions and amount of economic losses were aggregated from leathery factories , by questionnaire.The most lesions of goat skin were induced by Myasis of fly.Mites such as Psoroptes (8%), Insects bite (25%), and Tick infestation (15%) were most important parasitic causes of economic losses in leathery factories. Hence controlling of ectoparasite in sheep and goats reduces economic losses.

633. SURVEY OF BOVINE HYPODERMOSIS IN TBREE SLAUGHTER-HOUSES IN HABAR-MEHAL IN BAKHTIARY PROVINCE IRAN A.Nema Toilahi. A.Mohammadnia. Department of Clinical Sciences, Faculty of Veterinary Medicine, Shahrekord University, Iran.

Hypodermosis is an Ectoparasitic disease in cattle and caused by Hypoderma Sp. The genus Hypoderma contains the species known variously as heel flies, warble flies or cattle grubs. The members of this genus are the warble flies and economic importance is reflected in the national eradication schemes, which have been undertaken in several countries. The larvae of Hypoderma live as subcutaneous parasites and are relatively host specific. On the basis of previous investigations, Hypoderma Bovis and Hypoderma
lineatum are the active species in cattle in Asia. In this study, the rate of Hypodermosis in cattle was investigated in Chahar-mehal va Bakhtiyari province in center of Iran. According to this study which was done from Jan. 1999 to Jan.2000, cows were examined after slaughter during one year in three slaughter-houses. We evaluated hypodermis, esophagus and vertebral column of cows. Of 407 cows were examined in this research, one cow (%0.24) had Hypodermosis, respectively. Also, in March 1999, from 47 cows were examined, only one cow was infested (% 2.12). The parasite caused Bovine Hypodermosis in this study, was known Hypoderma Bovis. The aim of the present study was to try to isolate Hypoderma Sp and seasonal survey of Bovine Hypodermosis in centre of Iran. In conclusion, the prevalence of cattle infections was 0.24 percent and the time of the most infection in caws was seen in winter but we can not claim that incidence of Bovine Hypodermosis in Chahar-mebal va Bakhtiyari province is seasonal.

634. STUDY OF THEILERIOSIS AND BABESIOSIS IN CATTLE IN TECHING HOSPITAL FACULTY UF VETERINARY MEDICINE, TEHRAN, IRAN. F Nourmohamadzadeh. M.A. Mohoamadie. Faculty of ve!erinary medicine Department Of clinical Sciences, University of Tehran.P O Box 14155 -6453 Tehran, Iran.

Theileriosis and babcsiosis are the most inlportant protozoal diseases. Theileriosis causcd by thcleria spp in cattle , sheep and goats. thcleria spp, are found throughout the word. Babcsiosis caused by Babesia SPP. in cattle , sheep , pig and horscs. Theileriosis and babcsiosis are transmittnd by blood -suching ticks. During a year (1999 -2000) a studv of the, Theileriosis and Babesiosis done in teching hospital, Facultv of veterinary medicinc of Tehran. All animal with clinical signs as: tever, enlargement of lymph nodes, unemia, petechia and icterus of conjunctival membrane, and hemoglobinuria, examination of smears of blood and lymph node biopsy done and stained with Giemsa. From april 1999 until april 2(00) , Study done. The Theileriosis was positive in 52 cases piroplasms were visible in crythrocyes, also the parasites were evident as schizonts in circulating lymphocytes and biopsy smears of enlarged lymph nodes stained with Giemsa. The parasites were theileria annulata. Examinution of seams of blood not proved babesiosis. The results showed that theileriosis was scasonal in around Tehran .Most cases Were seen in late sping and summer it was more prevalence in june (46% of cases) and it was hecause of the appropriate cilnate for ticks the prevalence of disease in mixed brccds was more than pure breed and native breed (77 % of cases). most cases were under 18 months old and accurence in females was more then males (73% of caeses) we can state that around Tehran is an enzootic area for theileriosis, No cases of babesiosis was reffered to veterinary faculty hospital during 1999– 2000.


An enzyme-linked immunosorbant assay(ELISA) was adopted to evaluate a polysaccharide antigen(PS) purified from sheep hydatid syst fluid(SHF). Serum samples from naturally infected patient and experimentally infected mice were used to test the efficiency of the PS antigen in comparison with two well known hydatid antigens, the lipoprotein antigen(antigen B) of oriol (1) and a globular protein antigen of Lorenzo (2). Results showed that PS antigen is equally reliable and specific for the serodiagnosis of hydatidiosis in both human and animals and can be purified in abundant quantity from SHF.
Cystic echinococcosis caused by the larval stage of *Echinococcus granulosus* is endemic in many countries throughout the World. It is a zoonotic disease of major public health and economic importance in endemic areas. During the last three years more than two hundred publications were devoted to *Echinococcus granulosus*. The prevalence of the adult parasite in dog or the larval stage in sheep or human as well the geographical repartition of the strains are still under investigation in different areas. Unless the coproantigen detection is largely used in canine echinococcosis, recent studies carried in Jordan draw attention to the limits of this method. In Spain, a case–control study in human clearly shows the role of the family environment, mainly the number of dogs, the years of coexistence and the feeding practice as risk factors for *Echinococcus* infection. Another exciting challenge is to know how *Echinococcus granulosus* can settle in the intermediate host in spite of the immune defences. The interactions between the parasite and the host complement or the role of antigen B in the modulation of the immune response were investigated with this aim. The two major fields of recent researches concern the treatment and the prevention of echinococcosis. The use of protoscolicidal agent, effective and safe doesn’t exist. Our research group, together with the Tunisian veterinary team is working on a very effective new small synthetic peptide. Due to the lack of any new drug, morphological changes obtained with Praziquantel, Albendazole or Ivermectine alone or in association are still under investigations in experimental hydatidosis. The recombinant vaccine EG95 of the Australian team elicits a high level of protection against cystic hydatid disease in sheep from different areas but nevertheless it does not completely prevent the possibility of development of hydatid cyst in vaccinated animals. Synthetic peptides derived from EG95 recombinant antigen are immunogen but not protective for sheep. An other very promising approach is suggested by Hormaeche et al.: *Salmonella typhimurium* may be used as a carrier for recombinant antigens and vector of multivalent oral vaccine against *Echinococcus granulosus* for dogs. In collaboration with Hormaeche team and research groups from Uruguay, Tunisia and Morocco our group is working in this direction with a financial support of CEE.

637. A SURVEY STUDY OF CUTANIOUS LEISHMANIASIS IN NAJAF. T. H. Raheem College of Medicine, Kufa University, Dept. of Micro Biology. Kufa, Najaf P.O. 18 Iraq.

A Survey study of Cutaneous Leishmaniasis in Najaf city and its-borders showed that there was direct effect of the blockage on the incidence severity and distribution of this disease. Out of 140 patients who were suspected clinically as having cutaneous Leishmaniasis only 120 patients were found to be positive by direct smear examination and only those were included in the study 63 female and 57 male. Both sexes were affected although female affected more than male but the differences were not statically significant P>0.05. The age of most affected patients ranged between 5-24 years (83.2%). Significant number of the patients had multiple lesions (82.1%). The skin Lesions were mostly found on the exposed areas of the body. The peak of aeaonal incidence occurred in the February. Rusal and urban areas were equal in the incidence rate of the infection.

Several species of polystomes were described in different regions and localities of the world, and along with these description different parts of the digestive systems were given or at least illustrated diagrammatically (Euzet and Combes, 1966, Rohde, 1972; Tinsely, 1973 a; Euzet et al. 1974, a,b; Combes and Ktari, 1976; Combes and Channing 1978 – 1979; Combes and Rohde, 1978 – 1979)

Although the digestive system in polystomes is simple represented by mouth in circum - oral sucker, muscular pharynx. Two intestinal caeca, each with numerous diverticulae. But still in some of these structures especially the number and shape of diverticulae can differ from one species to the other (Llewelly, 1954; Rohde, 1972). Furthermore, digestion depends about the type of food material available at the microhabitat. The preliminary information about digestive system of polystomes has been previously given (Jennings, 1995, 1968) but as part of the present investigation on polystomes. The present study arose to detect some details about digestive system of the present monogenean and to contract the function of different part of this system, depending on gross morphological and histological investigation.

639. STUDY OF CONTAMINATION RATE OF MARAND SMALL RUMINANTS LIVER TO HEPATIC TREMATODES. N.Razmaraii 1, S. Naem 2, A. Ameghi Roodsary 3, H. Zanbory 4

This study took place between mar 1999 to sep 1999 on 6656 slaughtered small ruminants in marand slaughterhouse, a city in north west area of east azarbaijan province of iran, in latitude 38 and longitude 46 with mean height 1350 m from sea level mean yearly rainn 300 mm. 1233 liver were investigations were taken place on 186 showen heavy dicrocoelium dendriticum contamination, 43% of then had middle contamination with fasciola hepatica and 5.5% of then had rare contamination with fasciola gigantica, maximum an minimum number of recoverd dicrocoelium dendriticum from sample was orderly 16590 and 67 worms respectively.

640. IDITIFYING TICK VECTORS OF THEILERIOSIS IN SOME CATTLE IN MASHAD-IRAN. R.G. Aslani, school of vet. Medicine, Ferdowsi university of Mashad11. (2)Large animal Internist, School of vet. Medicine, Ferdowsi university of mashad Ebrahimzadeh Elahe D.V.M; I.V.O, Iran.

Thick identification to recognize vectors infected with theileria spp. was made during 1997-1998 in Mashad. Removing the thick vectors blood smears were prepared by venous blood of 120 cattle suspected to Theileria infection. From the total of 680 ticks, which were numbered, 440males and 240 females were identified. The prevalence of tick species in cattle like Hyalomma anatolicum, Hyalomma marginatum, Hyalomma asiaticum asiaticum and Rhipicephalus sanguineous were 92.35%, 5.14%, 1.175% and 1.32% respectively. In this study, the most tick infested sites of body were udders and groins of cows. In this survey, from the total of 93 blood smears stained with Giemsa, Theileria annulata were observed in 82 smears. In order to identify the infected ticks with sporozoites of T.annulata, ticks were dissected and salivary glands stained with Feulgen method. Among the ticks, which were dissected, 45.3% of salivary glands of H.anatolicum and 1.3% of salivary glands of H.asiaticum asiaticum were infected with sporozoites of T.annulata. Infected salivary glands neither in H.marginaticum nor in Rhipicephalus sanguineous was observed.
641. A SURVEY OF HYDATID DISEASE IN CAMEL, CATTLE AND SHEEP IN CENTRAL SUDAN.

214 Camels, 250 Cattle and 400 Sheep were examined !Of the presence of hydatid cyst, the larvel stage of Echinococcus granulosus. Hydatid cysts were also examined for location, size and fertility. The prevelance rate. of the disease was round to be 55.4%, 20% and 2.5% in Carnet, Cattle and S11eep, respectively. In camels most of the cysts were located in the lung (42.37%) where as in cattle and sheep the. cyst were frequently observed in the liver (40% and 60%) respectively. The size of hydatid cysts varied according to ils location in the se animals but the larger cysts were found in the lung of the camel (3-12) cm. In cattle all cysts were round to be fertile where as fertility was reduced in carnels (75%) and non of the cyst were found viable in sheep (O%).

641. A SURV AY OF INTESTINAL PARASITES OF PERSIAN SQUIRREL (SCUIRRUS ANUMALLUS) IN IRAN A. Rostami, H.R. HaddadZadeh, M. Akhtarzadeh, A.R. Vajhi. Faculty of veterinary Medicine, University of Tehran, P.O.Box 14155-6453,Tehran,Iran

Intestinal parasites were studied in 39 Persian Squirrels . fecal samples were obtain from all of them.34 squirrels (87%)were infected with Oocytes, which belonged to Eimeria spp. There was not found any helminthes’ egg in the samples. There was not found any protozoa in the samples too. Persian Squirrel is a small rodent that lives in the western province of Iran, in the forest of Zagros Montains. It is kept as a pet in Iran in the recent years. At the present ,there is not any information about the diseases of this animal and probable public health hazards for the owners.

642. SURVEY OF THEILERIE LESTOQUARDI ANTIBODIES AMONG SUDANESE SHEEP
D.A. Salih1, A.M ELHussein1, M. Hayat1, K.M. Taha2. Central Veterinary Research Laboratories, P.O Box 8067, Khartoun , Sudan, Abara Veterinary Research Laboratory, P.O Box 121 , Abara, Sudan The prevalence of Theileria lestoquardi antibodies in Sudanese sheep was determined using indirect fluorescent antibody “IFA” test based on schizont antigen Out of 312 samples examined, 51(16.3%) were found positive at dilution to 1/80. We report on weak cross-reaction between Theileria lestoquardi and Theileria annulata. In conclusion, the present study showed that the infection with Theileria lestoquardi is widely distributed in the Sudan.

643. CANINE VISCERAL LEISHMANIASIS IN NORTH AMERICA: CURRENT STATUS OF EPIDEMIOLOGIC INVESTIGATION. Schantz PM. Division of Parasitic Diseases, National Center for Infectious Diseases, Centers for Disease Control And Prevention, Atlanta, Georgia, USA.

In 1999, foxhounds at a hunt club in Dutchess Co., NY, were diagnosed with visceral leishmaniasis. Serodiagnostic testing revealed a high rate of leishmanial seropositivity (39/93, 42%) and Leishmania spp. was isolated from lymph nodes and other tissues of 15 seropositive dogs; the organism was typed at the Institute of Public Health (Rome) as Leishmania infantum MON1. Screening of foxhounds in other states has revealed evidence of more widespread infection. Through April, 2002, sera from more than 10,000 foxhounds and other hunting dogs throughout North America have been tested and positive titers have been detected in 1.8%. At least one seropositive dog was detected in 60 different kennels of
foxhounds in 22 U.S. states and 2 Canadian provinces. The organisms isolated from 40 hounds in multiple states and provinces were typed in Rome and determined to be *L. infantum* MON1. The routes of transmission in these dogs are unclear. Phlebotomine species exist in most of these areas, however, vector transmission has not been demonstrated and some epidemiologic characteristics of the infection do not support vector transmission. Serotesting of pet dogs (n~600) and wild canids (n=300), many of them from geographic localities close to infected foxhounds have not revealed evidence of infection. Congenital and blood transfusion-associated transmission has been documented in these foxhounds. Foxhounds commonly live in close contact with each other and mixing of dogs from hunt clubs in different states is common; therefore, direct dog-to-dog transmission via contaminated blood and secretions may be the most important. To date there have been no cases of autochthonous human visceral leishmaniasis reported in the United States and serologic examination of humans in contact with infected foxhounds have not revealed evidence of infection.

644. GLOBAL STATUS OF CYSTIC ECHINOCOCCOSIS AND PROSPECTS FOR CONTROL. PM. Schantz.

Applications of current technology to on infections by *Echinococcus spp.* Has in remarkable advances in understanding of the diversity of the species, the diseases they cause and provided improved methods for diagnosis, treatment and control. Deficiencies exist, however, in the availability and application of current technology in populations in greatest need. Options for treatment of the diseases continue to expand and improve from conventional surgical extirpation of the cystic lesions to closed puncture-aspiration procedures to chemotherapy without surgical intervention. The published experiences from many countries using these treatments indicate that all of these options are effective with comparable outcomes in terms of rates of success, complications and mortality. The costs of treatment by puncture-aspiration and chemotherapy are considerably less than surgery and offer opportunities for making treatment available to communities in endemic areas that have limited access to modern hospital facilities. And yet in most countries the treatment options available to most patients are limited by professional tradition and administrative obstacles. In many countries where the disease is rare or seen only in immigrants, lack of local clinical expertise delays and seriously limits delivery of appropriate and effective treatment. Still lacking are prospective clinical trials with randomized assignment of patients to treatment groups and comparison of outcomes in terms of efficacy, safety, and costs. The results of such clinical trials are necessary to resolve the basic questions that impede further application of new modes of treatment. Experiences of controlling cystic echinococcosis indicate that limitation of transmission between animals and to humans is possible with education and consistent application of technical and administrative measures; the experiences in Australia (Tasmania), New Zealand, and Cyprus indicate that elimination of the infection is possible under certain circumstances. Advances in research have produced an effective vaccine directed at the early embryo states of the cestode that can be used in sheep, cattle and other intermediate hosts. Nevertheless, in most of the regions where cystic echinococcosis occurs control has not yet been implemented or even proposed, there is a need for consideration of new approaches to relief of the human suffering and economics burdens of these diseases.

645. STUDY ON PREVALENCE OF BABESIOSIS IN STRAY DOGS. A.A. Shabestari. faculty veterinary medicine-small animal internal medicine department of Iran Tabriz Azad university.

Babesia is an haemoparasite agent that able to infect mammals like cattle, sheep, dogs and cats as well as
human. These organisms invade and live in red blood cells therefore, the signs of infection is related with disorders of red blood cells. These organism is called canine piroplasma and belong to Babesia family. The lifecycle of these organism is completed in two host: 1- invertebrate host (like ticks) 2- vertebrate host (like mammals). Babesia canis and Babesia gipsoni are two genus of Babesia that infects carnivores specially dogs. Ticks of ixodidae are the most important hosts for these parasites. They feed on hosts and able to transmit organisms in all over lifecycle. Rhipicephalus is the main invertebrate host that find in dogs and be able to transmit organisms to susceptible hosts. This genus of ticks, is very common in Iran and seems that is the main vector for these parasites. The penetrating and replication of these organisms in the red blood cells cause common signs such as fever and anemia. The disorders of red blood cells results to anemia and other signs of illness. The infestation can be confirmed by laboratory and serologic tests. The venipuncture from animals is the simple way to detect organism in blood samples. Specimens can be examined by wright’s and giemsa staining. Indirect fluorescent antibody test is one of the serologic tests that can be useful in determination of infestation. Unfortunately, Babesia vaccines are not available (except in Europe) and therefore, eradication and disinfection are the best prevention. In this study, we examined 100 stray dogs. Blood samples were assessed (see table 1). Samples are staining with giemsa and examined with light microscope. We found 12 suspected specimens that all have signs of red blood cells disorders like mild anemia, poikilocytosis, anisocytosis and so on. One samples of Babesia include tetrad forms, Four specimens have haemobartonella organisms, therefore, these signs can be related to this organism. All of animals have mild signs without acute illness. Disease seems to be more chronic and we did not see any signs of acute anemia, intravascular hemolysis and jundice.


The dermatomycosis diagnosis is strictly dependent on the way of sampling for the pathological material. The sampling must be performed before the antimicotic treatment or after a week from the interruption of the treatment. In case of multiple lesions, the sampling will be performed separately from each lesion. Generally the sampling procedure is identical, regardless of the areas where lesions are placed, and it refers to the scuam and hairs of the peripheral area of the lesions. The samples will be submitted to a clarifying treatment using a solution 30% sodium hydroxide or lactophenol chloral and the samples will be examined by microscope. The interpretation of the microscopical examination results must by carried out with maximum prudence in order to eliminate the diagnosis errors and to administer the appropriate medication. This paper presents some aspects concerning the dermatomycosis diagnosis in pets, as well as some possible diagnosis errors.

647. EPIDEMIOLOGICAL STUDY OF HYDATIDOSIS IN NAJAF. Sultan Baqur A. College of medicine, Dept, Microbiology Kufa Kufa University, P.O. 18 Iraq.

The objective of this study was to report the prevalence rate (P.R) of human hydatid disease in Najaf governorate by using ultrasound survey, plain X-ray survey, and surgical prevalence survey and also find P.R. of hydatidosis in slaughtered animals in Najaf slaughterhouse, from Nov. 1999 to Nov-2000. The number
of cases of hydatidosis was 140 from 488300 individuals examined by ultrasound. The number of pulmonary cases was 24 from 296400 individuals examined by plain x-ray. The infection rate of hydatid cyst was 42.95%, 31.1% 27.83% and 20.53% in slaughtered sheep, cattles, goat and camels respectively.

**649. INFECTION RATE OF CYSTICERCUS TENIACULLIS OF SHEEP AND GOAT IN URMIA, IRAN**

H. Tajik, A. Mahmoudia, S. Baybordi, B. Badalnejad. Faculty of veterinary Medicine, Urmia University, P.O.Box: 1177, Urmia, Iran

Tenia hydatigina is a tapeworm of ruminants. Its larvae are known as cysticercus teniaculis. Its final hosts are dog, wolf and fox. This parasite has a great impact on ruminants husbandry and can leads to great economical loss. In this study, 8715 sheep carcasses and 1261 goat carcasses inspected in slaughterhouse of Urmia (a northern-west in Iran). The infection rate for omentum, liver, diaphragm, abdominal wall, lung, kidney, heart and vertebral column in sheep and goat were observed as the following respectively: 69.6% and 74.6%, 27.3% and 30%, 18.7% and 15.7%, 6.6% and 6.1%, 4.2% and 7.4%, 0.8% and 1.9%, 0.31% and 0.23%, 0.08% and 0.39%.


Au Cours du mois de janvier 2001, on a diagnostiqué auprès du Centre de Reference pour les Maladies des animaux sauvages section d’Aoste de l’institut zooprophylactique expérimentale du Piémont, Ligurée et vallée d’Aoste, le premier cas d’infestation de la part de Trichinella britovi ( + 50 larves / gr ) chez un sanglier chassé sur le territoire Valdôtain. La diagnose soudaine a evite la transmission du parasite a la population qui aurait consomme directement ou apres transformation sous forme d'ensache (comme par example de saucisse) des viandes qui provenaient de l’animal. Lesnormes de la Cornmunaute (CEE) qui reglent le control de la trichinose aupres les animaux sauvages (Dir. 91/497/CEE-91/498/CEE, e 92/45CEE adoptees en Italie respectivement par le D.L. 286/94 et par le D.P .R . 607/96). Dans tout le monde sont en effet nombreux les cas d’infestation humaine lie à la consommation de produits faits avec le tissu musculaire d’ animaux sauvages, tandis que les episodes liees à la consommation de viandes de porc doméstiques, peut etre mis à l’industrialisation de l’élevage de cet animal sont disparu. faisant cette consideration Ita serait souhaitable la suspension du test trichinoscopique dans les abattoires . l’ absence de cette parasitose dans les elevages d' origine, situation qui a dejaété appliquée dans d’autres pays (Etats Units). Pour ce qui concerne le cas observe en Vallee d’Aoste les premières recherches epidemiologiques remarquent, relativement au cycle du parasite, un role tres important aux carnivores sauvages: Trichinella britovi, en effet, meme si avec un état d’infestation inferieure respect au sanglier positif (4-5 larves /gr).

**650. A SURVEY STUDY OF CUTANEOUS LEISHMANIASIS IN NAJAF, IRAQ.** H.R. Tarisch Iraq.

A survey study of cutaneous leishmaniasis in Najaf city and its-borders showed that there was direct effect of the blockage on the incidence severity and distribution of this disease. Out of 140 patients who were suspected clinically as having cutaneous Leishmaniasis only 120 patients were round to be positive
by direct smear examination and only those were included in the study 63 female and 57 male. Both sexes were affected although female affected more than male but the differences were not statically significant p> 0.05. The age of most affected patients ranged between 5-24 years (83.2%). Significant number of the patients had multiple lesions (82.1%). The skin lesions were mostly found on the exposed areas of the body. The peak of seasonal incidence occurred in the February. Rural and urban areas were equal in incidence rate of the infection.

651. CYSTIC ECHINOCOCCOSIS: DOES MODELLING HAVE A ROLE? P. Torgerson, Department of Veterinary Microbiology and Parasitology, Faculty of Veterinary Medicine, University College Dublin, Ballsbridge, Dublin 4.

Cystic echinococcosis remains an important human health problem in many developing countries. In addition the disease has re-emerged in the former Eastern Bloc since the collapse of communism. In Kazakhstan, for example, the reported human surgical incidence is now four times higher than ten years ago. Mathematical models to describe the transmission dynamics of Echinococcus granulosus and indicate possible control strategies were first developed in New Zealand twenty years ago in conjunction with a highly successful eradication programme. However, in many parts of the world where the parasite remains endemic, intervention remains a considerable challenge due to both economics and logistics. This paper will illustrate some of the ideas developed to describe the transmission of E. granulosus and how these can be applied using recent data from Kazakhstan. Furthermore, the results of a simulation model will be illustrated to demonstrate the possible progress of a control programme using traditional intervention, such as anthelmintic prophylaxis in dogs and new tools such as the sheep vaccine that has recently been developed.

652. BIOCHEMICAL CHANGES IN THE HYDATID FLUID OF DIFFERENT RUMINANTS

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The study was conducted to analyse the hydatid cystic fluid for the biochemical and enzymatic constituents in fertile and sterile cyst of lung and liver from cattle, buffalo, sheep and goats (n=80). It was observed that total protein concentration in hydatid cyst fluid was variable depending upon the nature of cyst, its location and species. The total lipid from cystic fluid differed significantly between fertile and sterile cyst with respect to their species, and organs. Non-significant difference in glucose estimation was observed among the cystic fluid of fertile and sterile cyst of lung and liver of sheep, goats and buffalo. The total lipids differed significantly between fertile and sterile cyst with respect to their species and location. The chloride was higher in sterile cyst fluid of liver and lung when compared to fertile cyst fluid in sheep and goats. However, fertile cyst of liver from buffalo contained higher amount of chlorides than the sterile cysts fluid of the same organ. The pH of the cystic fluid from liver and lungs were significantly different from each other and among species. A higher concentration of copper and inorganic phosphorus was presented in sterile cyst of lung and liver in sheep and goat. A non significant difference among glutamate oxaloacetate transaminase (GOT) values of fertile and sterile cystic fluid was observed in cattle and buffalo, while a significant difference in the concentration of GOT was observed in the cystic fluid of liver and lungs of sheep and buffalo. The enzyme GPT in hydatid fluid differed significantly in
buffalo and sheep. The GPT concentration in liver and lungs of fertile and sterile cyst of cattle, buffalo and sheep were different significantly. The values of alkaline phosphatase (AP) in the fertile and sterile hydatid fluid of liver and lungs were significantly different in buffalo and sheep.


Brucellosis is well established among livestock in all countries of North Africa and the Middle East. Surveys are repeatedly conducted in several countries of the region as to determine its point prevalence. However, they seldom lead to meaningful and conclusive figures on which an efficient control programme can be built. Both Brucella abortus and Brucella melitensis infection have been reported in their respective conventional hosts and recent available data indicate increasing incidence of Br. melitensis biovar 3 also in cattle. Human brucellosis is also known to be prevalent. Most Middle East and North African countries have recognized the importance of brucellosis and attempted to control it for the last 5-6 decades. Although in some cases these efforts were fruitful in reduction of brucellosis incidence in cattle mainly, they generally fell short of eliminating the disease, especially in small ruminants. This was due, among other factors, to the difficulties encountered in identifying, vaccinating and following up infected flocks, and in controlling their movements. Thus, there is still need to redefine the objectives of control and the means to be adopted to achieve a more effective control of brucellosis within the sub-region. An animal disease surveillance and control network, named RADISCON, was established by FAO in 1996 in each of the 29 participating countries, including all North African and Middle Eastern countries, and selected Brucellosis as one of the 4 priority diseases (besides rinderpest, PPR and FMD). For a better knowledge of brucellosis distribution in the region and a better understanding of the patterns of the disease, it was felt that there is a need for an active brucellosis surveillance system. Such system would determine the presence of the disease on the basis of scientific, epidemiological knowledge of the disease, using statistical methods to quantify prevalence. This will be carried out using appropriate disease reporting/sample collecting forms, standard laboratory diagnostic methods, together with electronic methods to collect, collate, analyse and feed back information. The information provided could then be used with advantage to assure selection of appropriate control strategy, establish priorities of control and monitor progress of the control programme. For the realization of these aims, a mission was launched in seven RADISCON participating countries: Algeria, Iran, Kuwait, Morocco, Oman, Syria and Sudan. This paper will review the findings of this said mission.

654. AN EPIDEMIC OF BESNOITIOSIS IN A FLOCK OF GOATS IN IRAN (KAZEROON-FARS PROVINCE) A. Derakhshanfar, M. Pourjafar, School of Veterinary Medicine, Shahrekord University, Shahrekord, IRAN.

Besnoitia spp are protozoans that cause a disease affecting the skin, subcutis, blood vessels, mucous membranes, and other tissues. The toxoplasma-like organisms multiply in endothelial, histocytic, and other cells, producing characteristic large, thick-walled cysts filled with bradyzoites. An epidemic of ocular besnoitiosis in a flock of goats in Iran is presented here. A total of 25 head goats were randomly isolated from the rest of the herd for further clinical observation. On physical examination 19 head of the animals had characteristic sclero-conjunctival cysts of Besnoitia. Microscopic examination revealed
crescent-shaped organisms with a more pointed anterior than posterior end (banana-shaped morphology) confirming that cysts belong to the genus Besnoitia. Caprine besnoitiosis have been reported from Iran, but the Besnoitia cysts were observed in the skin, blood vessels, epididymis, and testes (1). In comparison, the Besnoitia cysts in the presented report were visible in the sclera and conjunctiva.

655. ISOLATION AND IDENTIFICATION OF TOXIGENIC FUSARIA SPP FROM FEEDSTUFFS OF ANIMALS. M. Ghiasy, A. Khosravi Fisheries research center of Mazandaran, P.O.Box 961, Sari Iran Veterinary faculty of Tehran University, Azadi street, P. O. Box 14155-6453, Tehran, Iran.

Fusarium specieses are a group of saprophytic fungi that grow in feedstuffs and produce toxins such as Trichotecens, Zearalenon, Fumonis?n. In this study, 1.2 samples (hay, alfalfa, fish meal, silage, ...) from different farms were collected and cultured on Sabouroud’s glucose agar + chloramphenicol medium. The suspected colonies were subcultured on the potato dextrose agar. Slide cultures were done too. The Fusarium specieses were identified based on macroscopic and microscopic characteristics. The isolates were identified as: F. solani = 16.66%, F. oxysporum = 33.33%, F. moniliforme = 1.66%, F. equisetum = 16.66%, Unknown = 16.66%. Then, the produced toxins were analyzed by HPLC technique and the conclusion were: Fuminisin = 28.57%, Zearalenon = 39.28%, Phytoestrogen = 3.57%, Unknown = 28.57%. 656. GASTROINTESTINAL STRONGYLES INFECTION OF LAMBS IN NORTH-EAST ARMENIA G. Hovnanyan. Institute of Zoology of NAS of RA, Yerevan, Armenia Objectives: Sheep-breeding is one of the most important agriculture branches in the north-east Armenia, that’s why the aim of the studies was to determine the prevalence of gastrointestinal strongyles (Nematoda: Strongylata) in the lambs before and after the grazing season on the alpine pastures. Methods: 10 lambs were investigated during the grazing season accordingly: in May (when the lambs were grazing on the spring-autumn pastures), in August (when the lambs were grazing on the alpine pastures) and in September (when the lambs were descent from the alpine on the spring-autumn pastures). The individual faecal samples (5 gram) from lambs were examined and third stage strongyles larvae were cultured and identified. Results: The 25% of lambs were infected with Chabertia ovina in May; 75% - in August and in September. The 35% of lambs were infected with Bunostomum trigonocephalum in May; 60% - in August, 70% - in September. The lambs were not infected with Oesophagostomum venulosum in spring; 10% of lambs were infected in August and in September. 35% of lambs were infected with Nematodirus spp. in May; 80% - in August, 85% - in September. Conclusions: The results show that there is a reason to use the anthelmintics in the first turn before the lambs return from the alpine pastures. So there will be less contamination in the spring-autumn pastures with strongyles eggs and larvae both in autumn, and in the next spring.

656. PRIMARY INFECTION OF CALVES BY THEILERIA ANNULATA IN ENDEMIC STABILITY FOR TROPICAL THEILERIOSIS: APPLICATION TO THE EVALUATION OF THE REQUIREMENT FOR THE USE OF A LIVE ATTENUATED VACCINE. L. Karoui, L. Sassi, M. Gharbi, M.A. Darghouth, Laboratory of Parasitology, Ecole Nationale de Médecine vétérinaire 2020 Sidi Thabet, Tunisia.

A survey was carried out between May and September 2000 in two farms previously shown to be in endemic stability for tropical theileriosis. A total of 23 calves of Friesian phenotype born before the month
of May 2000 were monitored every three weeks between May and August 2000, and then at the end of September for the following parameters:
- Rectal temperature, enlargement of the superficial lymph nodes, and haematology.
- Parasitemia and parasitosis on Giemsa stained blood smears and Giemsa stained lymph node smears, respectively.
- Serology using the Immuno-fluorescent Antibody test (IFAT) with the schizont antigen of *T. annulata*.

During the survey, all the calves reported ill by the owners and confirmed to have clinical forms of tropical theileriosis were treated using buparvaquone (Butalex ®) at the conventional dose.

A total of 22 out of the 23 calves sero-converted during the survey. Furthermore, 12 calves (52 %) showed various clinical forms of tropical theileriosis. Moreover, 4 out of the 12 animals presented an acute form of tropical theileriosis which was lethal in one case. A retrospective comparison with similar previous studies conducted in 1991 and 1995 in the same herds showed a progressive increase in clinical incidence of tropical theileriosis in calves proportional to the diffusion of the Friesian phenotype.

Both the level of clinical incidence noticed in this work and the lasting effect of the primary infection on the general condition of the calves, are strong medical and economical arguments for vaccination of calves against tropical theileriosis.

### 657. A STUDY OF THE ALBEND ON INTESTINAL PARASITES AND WEIGHT GAIN IN SHEEP

A. Gh. Moghaddam, Nematollahi  
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Digestive parasites decreased quality and quantity of animal growth and development, and animal production such as meat, milk and wool. Forestanding of animal infestation to parasites is impossible. Resulty preventive methods are considered. Alimentary tract helminths are the most important parasites associated with sheep diseases. This research was conducted on 40 male and female sheep in plain, low altitude mountain, high altitude mountain and plain-mountain regions. Sheep were weighted and were collected fecal sam pies from them for determining of parasitic infestation. Albendazole were administrated orally 5 mg/kg to sheep. The sheep were weighted 30 and 60 days after treating. Second fecal samples were collected and were determined the effect of Albendazole on parasites and weight gain. Data were analysed with SAS computer program Mstactc. It were significant difference between sheep gain weight and numbers of nematods, Marshallagia(spp), Nematodirus(spp) and Monizia expansa (p<0.01) and Monizia benedini (p<0.01) in four mentioned regions. The weight of male and female sheep showed significant difference. Albendazole had significant effect on digestive helminths except Monisia expensa (p<0.01). Weight of sheep increased after treated with Albendazole, even weighting interval. These weight gain showed that the Albendazole has caused gain weight with antihelmintic effect. Finally, it is suggested that sheep must be treated with Albendazole four times in one year.

### 658. STUDY ON HELMINTH PARASITES OF RODENTS IN Khorasan province, Iran.

A. Naghibi*, J. Darvish.  
Department of Pathobiology, School of Veterinary Medicine, Ferdowsi University of Mashhad, Iran. Mashhad PO Box, 91775-1793, Mashhad, Iran.
In a research about helminth parasites of rodents: Mus musculus, Nesokia indica, Apodemus fulvipectus, Rattus turkestanicus, Cricetulus migratorius, Calomyscus bailwardi, Meriones persicus, Gerbillus nanum, Elllobius fuscoapillaris, Microtus transaspicicos, Microtus arvalis and Spermophilus falvus, a total of 560 rodents were trapped and studied in Khorsan province. Trapping was carried out between year 1994-2000 using Havahart live traps and wire traps. Identification and dissection of rodents were performed in the School of Veterinary Medicine, Ferdows University of Mashhad. After dissection and examination of different organs, helminths were removed and preserved in 10% formalin solution for later study. In general, the following helminths were found: Hymenolepis nana, Hymenolepis diminuta, Taenia taeniformis larvae, Trichuris spp, Capillaria hepatica, Capillaria gastrica, Syphacia muris, Syphacia obvelata, Aspicularis tetraperta, Trichostogylidae, Gongylonema neoplasticum, Mastophorus muris and Moniliformis moniliformis.

659. EVALUATION OF GASTRITESTINAL PARASITOSIS INTO A RURAL PROPERTY IN THE SOUTH OF BRAZIL: DEGREE OF INFESTATION IN CALVES AND PASTURE AND ITS IMPLICATIONS ON PRODUCTIVITY PRELIMINARY DATA

1 Oliveira, V.S; 1 Lagaggio, V.R.A; 2 H.O Ribas, J. C; 3 Antoniazzi, L. L; 1 Jorge, I ccr/ufsm/brazil 2 veterinarian/ private consultant. 3 farmer

The gastrointestinal parasitosis is still a very influential factor in bovine weight losses as well as in the falls of productivity mainly in young bovine categories. The objective of this research is to evaluate the gastrointestinal parasitism in animals, pasture and faecal samples as well as to indentify the main genera of parasites. For that study the animals were split in five groups called 1, 2, 3, 4 and 5. The groups 1, 2, 3 and 5 were kept in a “feed lot” system on paddocks and the group 4 was kept in a grazing system on natural pasture receiving concentrated ration as supplement. The faecal samples were taken from 12% of the animals from each group. Those samples were processed through the techniques of Mc Master, and Roberts & O’Sullivan. Samples of grass and faecal cakes were also taken from the paddocks. Those samples were submitted to the Baerman technic modified. Through the results obtained it was verified that the calves from all the lots presented a soft degree of contamination by the helimits of the genera: Cooperia sp, Oesophagostomum sp, Trichuris sp and Strongyloides sp. In the paddocks area of the groups 1 and 2 were founded eggs of Taenia sp, Ascaris lumbricoides and Ancylostoma sp. The most infected faecal samples were those collected from the paddock 5. In those samples, eggs of Strongyloidea and cists of Entamoeba sp were also founded. The results obtained showed that the animals of every lots were infected by the some genera of parasites. The pasture evaluation showed that only the groups 1 and 2 presented some sort of contamination. The animals kept in “feed lot” system on paddocks presented a lower level of re-infestation by parasites than those kept grazing.

670. Tick-borne babesiosis of dogs in Bosnia and Herzegovina. J. Omeragic, A. Zuko, A. Jazic, E. Saljic, V. Skapur, A. Habota Department of Parasitology and Invasive Diseases, Faculty of Veterinary Medicine, University of Sarajevo, 5200 Sarajevo.

The pathogenic effect of the ticks (Ixodidae) has been known for many years. The ticks are the most important vectors of various agents, except the fact that they are the ectoparasites of animals and man. The aim of the study was to determine the ticks which infestation of dogs and to examined blood samples of suspect dogs and dogs with clinical sings of babesiosis. Ticks were collected, cleared with 5% KOH
and determined by its morphological characteristics from dogs during the 2 years. Blood samples suspect dogs and dogs with clinical signs of babesiosis were examined by Giemsa. In a total of 43 dogs with infestation of ticks, 4 species were found: *Ixodes ricinus*, *Rhipicephalus sanguineus*, *R. bursa* and *Dermacentor marginatus*. By examination of blood samples (Giemsa) of 43 suspected dogs, *Babesia spp.* were found on 12 dogs (27.90%) and by examination of blood samples of 44 dogs with clinical signs of babesiosis, *Babesia spp.* were found on 19 dogs (43.18%). There was a positive correlation between the presence of ticks and dogs infection by *Babesia spp.*

671. un antigène d’Echinococcus granulesus potentiellement protecteur ?: FU Y., SABOULARD D., MARCHAL T., PETAY A.F., BOSQUET G.


Cette protéine, (EgA31), présente notamment dans la région tegumentaire du parasite, a un pouvoir antigénique tant au niveau sérique que ganglionnaire lors d’une infestation naturelle ou expérimentale du chien. Elle a été produite in vitro par génie génétique. La réponse immune du chien à différentes régions de cette protéine est actuellement en cours d’études. Une partie pourrait être utilisée pour la mise au point d’un vaccin chez le chien.

672. The first report on occurrence of Trypanosmiasis in goats in Iran M. Pourjafar, F. Shaddel M.H Falahatpisheh. School of Veterinary Medicine, Shahrekord University, Shahrekord.

Trypanosoma is a protozoan parasite seen in the blood and tissues of mammals and birds. This parasite is leaf-like and has flagellum attached to the organism by an undulating membrane.

In this study a blood smear was prepared from an infected kid in a herd suspicious to PPR disease (May 1995, kazeroon, Iran), and Trypanosoma were seen in the smear. After preparing blood smears from other sheep and goats of the herd-both adult and young, patients and apparently healthy-infection with Trypanosoma in a majority of smears were confirmed. The presence of the parasite in the blood smear of quite healthy goats of the herd indicated the fact that Trypanosoma is nonpathogen. With regard to this fact and morphological examinations, it can be concluded that this Trypanosoma is very likely of *Trypanosoma Theodori* and or *Trypanosoma Melophagium*.

It must be mentioned that, before this study, there have been no other reposts on goats infection with protozoan parasite Trypanosoma in Iran.

Cryptosporidium spp. et Giardia intestinalis sont des pathogènes intestinaux chez l’homme et les animaux. L’objectif de ce travail est de déterminer la prévalence de ces parasites chez les bovins, les moutons et les chevaux en relation avec l’âge et d’analyser l’association entre la diarrhée et la présence de l’un ou l’autre parasite.

**674. SURVEY OF HELMINTHIC RATE OF LIVER AND ECONOMIC DAMAGE IN BUFFALO IN URMIA Yakhchali, M. Department of Pathobiology, Faculty of veterinary medicine, Urmia University, Nazlu campus, West Azarbaijan, IRAN, POBOX 1177.**

In this survey, 2836 carcasses of buffalo were inspected in Urmia Industry slaughterhouse and 468 infected livers transferred to Parasitology Lab in veterinary faculty from Dec. 2000 to June 2001. Then 67375 worms were removed and counted (Dicrocoelium denderiticum 98.15 %, Fasciola hepatica 0.65 %, F. Gigantica 0.114 % and Hydatid cyst 0.89%) Infection rate of trematod, cestode and mixed infection were 250/(), 600/() and 15% respectively. During this survey, economic damages in regard to 220 buffalo confiscated livers due to parasitic infection and a Kg liver cost in Urmia were determined (10404000 RI = 1300.5 USD / 6 months).

**675. SURVEY OF RABBIT COCCIDIOSIS (NEW ZEALAND WHITE) IN RABBITORY OF URMIA UNIVERSITY IN IRAN Yakhchali, M. Department of Pathobiology, Faculty of veterinary medicine, Urmia University, Nazlu campus, West Azarbaijan, Iran, POBOX 1177.**

This survey was carried out to determine species of Eimeria and prevalence rate from 59 laboratory rabbits (New Zealand White) on which were breed by cage (24) and litter (35) breeding system during summer in 2001. The overall prevalence of infection (1.16 %; OPG=69.5) in litter breeding system was significantly higher than cage breeding system (0.59 %; OPG= 11), (P< 0.05). There were two forms of subclinical coccidiosis (Intestinal and Hepatic) in litter breeding system meanwhile in cage breeding system was only subclinical intestinal coccidiosis. Eimeria piriformis (37.6%), E. performans (30.4%), E. nagoporensis (25.6%), E. irresidua (2%), and E. stiedai (4%) in litter breeding system and Eimeria piriformis (37.6%), E. nagoporensis (37.03%), and E. performans (30.4%) in cage breeding system were recorded in descending order of frequency.

**676. COCCIDIOSIS IN RUMINANTS IN THE BOSNIA AND HERZEGOVINA REGION. A. Zuko, J. Omeragic, A Jazic., F. Tandir. Department of parasitology and invasive diseases veterinary faculty Sarajevo Bosnia and Herzegovina**

Coccidiosis in ruminants, despite numerous and comprehensive investigations still pose a major health and economy problem in livestock husbandry. In the conditions of intensive keeping, coccidiosis in ruminants in the Bosnia and Herzegovina region, represent an important factor having adverse affect on growth and development of young animals, decreasing productivity and reducing resistance of grown-up animals to a number of infectious diseases and breeding conditions. Having in view above facts concerning the importance of coccidiosis in ruminants, especially those hazardous to human health and causing huge economic losses in livestock farming, it has become obvious that more comprehensive research is necessary, imposing the following research tasks: on the basis of findings from coprological examination to make an inventory of coccidiosis in ruminants in the Bosnia and Herzegovina; to establish
extensity and intensity and interrelations between the species of coccidia oocysts when detected in different age-groups and species of ruminants. During the 10 years (1989-1992, 1996-2001) investigations performed were on 30,111 ruminants, out of which 21,414 were sheep and 8,697 cattle from 46 localities in the Bosnia and Herzegovina. The animals belonged to different age groups. Coccidiosis was determined by standard parasitologic methods (flotation after Filleborn and methods acc. To McMaster). The investigation into coccidiosis in the Bosnia-Herzegovina region was performed on 30,111, by which 18,702 or 62,11% ruminants were found positive (sheep 58,35% and cattle 34,42%). The highest extensity rate of invasion in sheep was 74,32% in lamb age group, and in cattle, it was 41,09% in bullocks and heifers. A total number of detected species of coccidia of genus Eimeria was 9: Eimeria faurei, E. intricata, E. ninakohlyakimovae, E. ovina, E. parva, E. bovis, E. cylindrica, E. ellipsoidalis and E. zurnii. Our findings of coccidiosis in ruminants, when compared to that of other researchers who were dealing with same subject on the territory of Bosnia and Herzegovina, evident are some differences with regard to the number of species, extensity and intensity of invasion. These discrepancies, most probably, are the results of a variety of ecological factors essential for occurrence of this parasitosis. It should be also borne in mind that the research into coccidiosis to date has been based on fragmentary investigations of parasitofauna in ruminants on a rather small number of animals and for short time period.
International marketing of animals, animal products and food stuffs and the emergence or re-emergence
of food poisoning has raised the risk of international transmission of certain infections agents. Risk
analysis, with its three components, assessment, management, and information constitute a new approach
to state health policies. To guarantee health safety of the human, animal and plant populations, states can
prohibit importation or marketing of food products if their decisions are based on open scientific
evidence. Risk assessment is a structured open process evaluating available data designed to modelize
transmission of the infections agent integrating the different elements of the food chain from production
to consumption. The assessment process involves four phases, 1) hazard identification, 2) exposure
assessment, 3) hazard characterization, 4) risk characterization. The results of risk assessment depend on
the pertinence and the quality of the data used for each of these four phases. Data required to implement
risk assessment are unfortunately widely dispersed. The food and agriculture industry, official regulatory
agencies, consumer watch organizations, and the scientific community all have useful information for risk
assessment. The lack of standard methods to collect, process and diffuse data further complicates the
problem. Quantitative risk assessment can also provide valuable insights as how to best manage the risk.
The example of Listeria monocytogenes in ready to eat foods will be used do introduce the concept of risk
assessment and the trends and limits of this new approach.

In the recent history there has been global interest in quantitative risk assessment (QRA) approach as
evident by the number of publications on this topic. The interest is driven by the public concern regarding
the safety of the food they consume and environment in which they live. Epidemiologic approaches to
QRA combine deterministic and stochastic mathematical modelling. As such, epidemiologic risk
assessment has a great potential for utility in poultry diseases. We demonstrate its utility in assessing the
potential risk of Campylobacter jejuni infection associated with the consumption of meat from live-
poultry markets. Scenario pathway and event tree approaches were used to model the sequences of events
which take place at the live-poultry market and determine the consequent hazard of contamination of
carcasses. The probabilities in the events were derived as function of events whose events were not
known. Monte Carlo sensitivity analysis was used to assess the risk associated with the C. jejuni. Initial
bacterial load and the sanitary level of the defeathering machine had significant impact on the hazard of
carcass contamination. Knowledge gained through epidemiologic risk assessment can be used in the
development of cost-effective hazard analysis of critical control points.
The objective of this work is to present in the form of a document the group of agencies or departments implied in the field of the sanitary security of food. The first chapter is reserved for definitions and for the presentation of food legislative in Europe. The second chapter presents the operational agencies or under organisation of equipment, herewith, in the 15 countries of the European Union. The third chapter deals with all the chargea structures of the same work in two countries of the Maghrebian Arabic Union: Morocco and Tunisia. The 4th chapter involves an analysis of all the data with a presentation of the future European Food Authority.

Risk analysis includes three stages: the risk assessment, the risk management and the communication of the risk. It is classically allowed that the management of the risk recovers from the domain of the decision-makers. On the other hand the appreciation of the risk is rather an attributed (awarded) domain (devolved) to the scientists. Some of the steps (methods) of the risk assessment can be used to determine the level of the risk: the qualitative assessment and the quantitative assessment. The qualitative risk assessment is a long and complex step (method), furthermore they require numerous not always available data. The less precise, qualitative assessment and more subjective is privileged to make appreciation of risk in emergency. The French Sanitary and Safety Food Agency was created in 1999 to estimate the risk. To perform its missions, Afssa surrounded itself with experts' committees which realize collective evaluations of the risk. The advantages (confrontation of multiple competence reducing the individual subjectivity, transparency and independence) and the limits (qualitative assessment only) of these collective risk assessment are analysed. Risk analysis includes three stages: the risk assessment, the risk management and the communication of the risk. It is classically allowed that the management of the risk recovers from the domain of the decision-makers. On the other hand the appreciation of the risk is rather an attributed (awarded) domain (devolved) to the scientists. Some of the steps (methods) of the risk assessment can be used to determine the level of the risk: the qualitative assessment and the quantitative assessment. The qualitative risk assessment is a long and complex step (method), furthermore they require numerous not always available data. The less precise, qualitative assessment and more subjective is privileged to make appreciation of risk in emergency. The French Sanitary and Safety Food Agency was created in 1999 to estimate the risk. To perform its missions, Afssa surrounded itself with experts' committees which realize collective evaluations of the risk. The advantages (confrontation of multiple competence reducing the individual subjectivity, transparency and independence) and the limits (qualitative assessment only) of these collective risk assessment are analysed.
In part, because of expanded world trade, there is increasing concern globally for the safety of food. Microbiological contamination of foods of animal origin is of particular concern and *Salmonella* spp are important foodborne pathogens. In the United States, almost 105 million people are infected with *Salmonella* spp annually, causing approximately 16,000 hospitalizations and approximately 500 deaths. There are approximately 9 million dairy cows in the United States and about one-third of these are culled annually. The slaughter of these animals accounts for significant quantities of beef, including ground beef. Consumption of *Salmonella* contaminated undercooked ground beef is considered an important cause of human salmonellosis. Hence, it was appropriate to examine the prevalence of *Salmonella* in market (cull) dairy cows on farms, at auction markets, and at slaughter. This paper will discuss, in the context of recent literature, the results of two extensive epidemiological studies involving over 6,500 cull dairy cows. The investigations were conducted by teams of investigators at multiple locations across the United States using standard sampling protocols and, for each study, a single microbiological laboratory, using previously described *Salmonella* isolation techniques, was used. In one of the studies, involving over 5,000 dairy cattle sampled at 5 non-fed beef establishments widely separated across the US, the overall prevalence of *Salmonella* in the cecal-colon content was - round to be 23.1% with site prevalences varying between 2.0% and 54.5%. A total of 58 *Salmonella* serovars were isolated with *Salmonella montevideo* round most frequently. Carcasses of culled dairy cows were sampled at three locations. Across the three locations, 86 of 809 carcasses (10.6%) were round to be contaminated with *Salmonella* spp. The co-occurrence of positive isolation of *Salmonella* on the carcass and in cecal-colon contents of the same cow varied by location between 0% and approximately 20%. For the second study, extensive sampling for *Salmonella* from cull dairy cows (1522) at dairy farms (rectal feces and ventral body surfaces), auction markets (rectal feces and ventral body surfaces), slaughter establishments (ventral body surfaces, cecal-colon contents, and carcass), and cattle transport vehicles was conducted during winter and summer at an eastern U.S. and western U.S. location. The prevalence at all sampling sites will be presented. At both the East and West locations, trucks and cattle truckers picking up cattle for transport to slaughter were round to be contaminated with *Salmonella*. Overall in the West, 24 of 30 trucks (80%) sampled were positive for *Salmonella* before cattle were loaded at either dairy farms or auction markets for transport to slaughter. In the East, 14 of 22 (63.6%) trucks (winter and summer) were contaminated with *Salmonella* before loading cattle at either dairy farms or auction markets for shipment to slaughter. Additionally, herd characteristics were assessed using a questionnaire. While significant differences were detected between East and West in herd characteristics, few of these differences were round to be associated statistically with *Salmonella* prevalence. Nevertheless, having the ability to link herd characteristics with Salmonella prevalence may prove beneficial in assessing production animal Hazard Analysis Critical Control Point (HACCP) programs. We will provide insights on procedures that can possibly reduce the prevalence of *Salmonella* spp on and in dairy cattle and on non-fed beef Carcasses.

682. BIOCHIMIOLUMINESCENCE ET SÉCURITÉ SANITAIRE DES ALIMENTS. Champiat, D. 73, Rue J-F Breton, 34398 Montpellier Cedex 5, France.

The world of agriculture and food is more and more facing safety problems. Foods must absolutely guarantee both long shelf life and be harmless for the human being. It is then essential to identify the potential risks brought by biological agent and contaminants from production to consumption, and on the other hand, to evaluate these risks and hazards in real time by appropriate and adequate methods. The
BioChemiLuminescence (BCL) technique is one of the fastest, easiest-to-use and most sensitive available tools which can answer the qualitative and quantitative needs of industries.

683. CONDEMNATIONS OF OVINE & BOVINE LIVERS DUE TO ABSCESSES & NECROTIC LESIONS IN THE SUDAN. H.E. Osman, U. Abakar, M.S. Eldin, S.M. EI sanoussi. E. O. Hind, A. Umalaaleem, M. S. Eldin, S. M. EI Sanoussi. Department of Pathology, Faculty of Veterinary Medicine, Sudan University. Department of Pathology Faculty of Veterinary Science, Khartoum University. Department of Meat Hygiene, Faculty of Public health, Khartoum University, Department of Microbiology, Faculty of Veterinary Science, Khartoum University.

Livers are known to be of high nutritional value. They are eaten raw as a food habit in the Sudan. A survey regarding liver abscesses and necrosis in ovine and bovine livers was carried out to reflect their magnitude as liver affection, and their economic effect. Liver condemnation due to different affections in slaughtered sheep, were found to be 26.2 percent. Condemnations due to abscesses and necrosis constituted 57.6 percent from them. In cattle total liver condemnations were less than that in sheep. They were found to be 5.4 percent. Twenty-two percent of them were due to abscesses and necrosis.

684. HYGIÈNE ET CONSOMMATION DES VIANDES: PEURS ET RÉALITÉS. M.V. Catsaras. Institut Pasteur-BP.245-Lille Cedex, France.

La consommation d’aliments, dont les viandes, par les humains – mais cela est aussi vrai pour les animaux – est une nécessité biologique : pour entretenir la vie, il faut manger, sauf exception, mais cela est rarissime, d’après les annales.

A propos des nourritures d’origine animale, les humains ont des réactions très variées. Il y a ceux qui ne mangent que de la viande, tels de vrais carnassiers ; il en est d’autres qui refusent telle ou telle nourriture d’origine animale, parce que à leurs yeux, cette consommation est source de souffrance animale ; il en est d’autres qui rejettent la consommation de toute chair d’origine animale : c’est le cas des végétaliens, contrairement aux précédents qu’on dénomme végétariens. Pour une très large majorité d’humains, la consommation d’aliments est faite de viandes et de végétaux : c’est à juste titre que l’espèce humaine est considérée comme omnivore (2). Les peurs, du point de vue alimentaire, existent depuis toujours dans les sociétés humaines. On imagine aisément les réactions des sociétés primitives d’il y a plusieurs millénaires, limitées dans leur consommation par les habitudes héritées de leurs prédécesseurs, et envahies par une peur aisément compréhensible devant des aliments, quels qu’ils soient, dont la consommation leur est jusqu’alors inconnue. On peut observer, dans notre monde actuel, à l’occasion des distributions alimentaires faites par nos pays occidentaux pour aider des populations malnutries, des rejets catégoriques (comme par exemple le lait en poudre). Il y a aussi les interdits, d’ordre religieux ou philosophique, dont un exemple très caractéristique peut être emprunté à nos trois religions monothéistes. Il s’agit de la consommation de viande de porc ; par ordre chronologique, les juifs sont interdits de manger du porc, les chrétiens peuvent en manger, et ils ne s’en privent pas, les musulmans sont eux aussi interdits de manger du porc. Contrairement à ce que l’on pense généralement, il est aisé de démontrer que l’interdiction ou non de manger du porc n’a rien à voir avec l’hygiène (1). Les réalités sont bien connues grâce aux progrès réalisés depuis la découverte des microbes et la naissance de la Microbiologie (Pasteur). On peut distinguer.
Sudan is the largest country in Africa. The animal population is 103 millions head 85% of these animals are kept under nomadic condition where nomads live with animals on open pasture and travel from one placebto another seeking for feed and water and lacking tothe minimal standard of living. The important role of domestic animal and wide life asbreservoirs and transmitters of zoonotic and food-bborne diseases has not been sufficently appreciated,bon the other hand the administrative and legislative provision of interprovisional collaboration are inadequate in addition to lacking of man power and other facilities. A large sector of Sudanese community use to eat raw meat(bovine and ovine offals), also animals are frequently slaughtered at home , thus meat is being consumed without veterinary inspection. In such conditions food borne diseases can be a serious hazard to human health. Data has been collected from three abattoris in Khartoum State, which brought animals from three different regions in Sudan. The incidence of Bovine cystisercosis, Tuberculsis and Hydatidiasis has beenstudied .An estimate of public health problems of Echinococosis and Tuberculosis was obtained from the hospital cases in the same area. There is a direct correlation between the infection rate by Cysticercosis and Tuberculosis in human and animals that live in the same area.

The current trend in Food Safety and Quality control is the establishment of integrated systems. In these systems a dual track flow of information provides, to the end inspector or user, all necessary information for diligent decisions and, also, to the producer, processor or distributor information for improving the safety and quality of foods, and additionally gain financial benefits. The core of the integrated systems is the identification of the products at the end of the production -distribution chain and traceability back to the beginning of production. For achieving the above the integrated systems are supported by data banks. Military Food Safety and Quality Services are not always themselves in a position to control, or to, at least, have available credible information concerning, more specifically, primary production. Therefore, contemporary Military Forces, while they have to exploit the existing Integrated Food Safety and Quality systems, cannot allow themselves to strip of their traditional end product inspection, including laboratory support. Consequently, Military Services have to continue to: .Appropriately expanding food specifications on information concerning identification and traceability of foods Establishing electronic links with integrated systems, functioning by third parties. Developing the ability of auditing 0 Integrated systems 0 Production, processing, distribution units, as parts of integrated systems implementation. Transparency is not always the case in the integrated systems. Military Services are obliged to sustain the ability of verifying the claims of the subsistence suppliers. The source of information should be readily accessible. If the supplies are purchased at a local market, where no credible information on the origin of the food is available, then again confirmation of identification and traceability and the ability for laboratory confirmation is required. Water is a particular case. If it comes from a field source again laboratory confirmation of its safety is necessary. If it is supplied centrally by known suppliers identification and traceability systems are required.
In France, the General direction of food (DGAL) of the Ministry of Agriculture and Fisheries has initiated a global traceability project in the beef sector. Included in this project, a “stable to table” computer-based traceability management system for all the business operators of the beef sector is being developed by AMI (Agro Marchés Internationaux) in collaboration with the national veterinary school of Alfort (ENVA). This technical and communication tool will help these operators to comply with the statutory requirements, to improve the transparency and circulation of information and to bring a relevant answer to the final consumers’ expectations.

A new web site for the Joint Institute for Food Safety Research (JIFSR) in Washington, DC is fundamental to accomplishing JIFSR’s mission of coordinating food safety research. When fully developed, the web site, http://www.JIFSR.gov, will enable, 1) data to be transformed to information, 2) analysis to identify research gaps and needs, and 3) effective communication, which can lead to improved decision making and innovation in food safety and security practices.

In the U.S., more than 20 agencies are responsible for food safety research and/or regulation. JIFSR has compiled a database that lists the title, investigators, institutions, duration, funding, abstract, keywords, and outcomes for each Federal project in fiscal year 2000. The database will be updated annually. The JIFSR database also contains the results of searching Internet sources of the scientific literature on food safety. Projects and publications are organized, using business intelligence tools, into 13 categories, which enable users to analyze food safety knowledge in a manner to enhance decision-making. Food safety guidelines and regulations are organized into 12 categories. User-designed searches and analysis of the database are a major feature of the system. JIFSR proposes to expand the database to include information from other nations and industry, and to assist these information providers with transferring data and with analysis. The analytical value of the database is to identify research gaps, help coordinate food safety research among those who fund it, help in policymaking, and lead, ultimately, to a safer food supply. Increasingly, it is expected that food safety research priorities will include research that “anticipates” foodborne disease outbreaks, and assembles data to prevent or control future outbreaks. There is general agreement that food safety regulations within and between nations should be science-based. The JIFSR project and science literature information matrix should facilitate assembling data that relate specifically to areas of regulation either directly or by providing fundamental data for risk assessment. Now, more than ever, we must assure the safety and security of our food supply. Improvements in both will depend upon sufficient and sound science. The work of the Institute, to coordinate food safety research among government agencies, academic institutions, and industry within and outside the U.S., is vital for maintaining the Public Health worldwide.
688. GLOBAL PUBLIC HEALTH SYSTEMS: MEETING VETERINARY NEEDS IN DEVELOPING COUNTRIES. Robinson, RA., Eddi, C., Ward, D., Amanfu, W., Pite, L.
1. College of Veterinary Medicine, Western University of Health Sciences, Pomona, Ca. USA
2. Animal Production and Health Division, Food and Agriculture Organization, Rome, Italy.

An electronic conference on Veterinary Public Health (VPH) and Zoonoses Control in Developing Countries (DC) was sponsored by FAO and held from November 1 to December 15, 2001. It attracted approximately 700 subscribers from 80 countries. A total of 60 contributions were received. In 1999 a conference of invited experts from 18 industrialized and developing countries was convened by WHO in Teramo, Italy to better define future contributions of VPH programs to the improvement of human health. To publicize these discussions and recommendations to a wider audience, FAO decided to sponsor this conference in collaboration with WHO and OIE. A website was established containing a background paper summarizing the 1999 meeting, and a series of 20 discussion topics identified which Conference participants were invited to submit contributions. The major objective of the conference was to provide an open forum for both strategy development and reviving VPH services especially in DC. Many different issues were raised by contributors and these will be presented in detail. Some highlights included the need for improved electronic dissemination of the latest VPH information for both veterinarians involved in VPH activities as well as teachers and researchers. Several very good examples of ‘networking’ involving DC and developed countries as well as international agencies were received. Recommendations on criteria for developing zoonotic disease control programmes were also made. Food safety issues in DC were also discussed in detail. Greater emphasis on community-based VPH programmes was also stressed by conference participants. The entire conference can be viewed at: www.fao.org/ag/agah/VPHeconf/home.htm

689. DETECTION OF TUBERCULOSIS IN BOVINE CARCASSES AND WORKERS IN BAGHDAD ABATTOIRS. N. A. Al-Thawani. Genetic Engineering and Biotechnology Institute for Post Graduate Studies University of Baghdad, Iraq.

The aim of this study is to stand on the extent of tuberculosis infection in bovine carcasses and human being in the Baghdad abattoir.

Three hundred carcasses were examined samples of different lymph nodes and organs were infected these involved:

- Lymph nodes: retropharyngeal LN, bronchial LN, Midstinal LN, portal LN, and mesenteric LN.
- Organs: lung, liver, spleen, peritoneum, and intestine.

Tuberculin test, x-ray examination and bacterial isolation from sputum have been done on (186) workers and butchers of this abattoir. The conformation of infection was done by:

1. Stain the bacterial smears by Ziehl-Nelsen acid fast stain.
2. Using Stone brink and Lowenstein media for isolation of the microorganism.
4. Studying the histological effects.
5. Studying the pathogenicity of the isolated on laboratory animals.
6. The result indicating that the percentage of the infection in bovine carcasses reached 1.25% . Four bacterial isolates belonged to M. bovines: is were isolated from carcasses .

7. The results revealed that three worker (1.6%) were infected with diseases. Those three workers were positive for x-ray test and bacterial isolation while only one of them was positive for tuberculin test. Three bacterial isolated were diagnosed two of them were diagnosed as M. bevis the third isolate was diagnosed as M. tuberculosis. The percentage of bovine tuberculosis in workers was 1.07% while human tuberculosis was 0.53%.


Dans le cadre d’une étude de l’excrétion des mycobactéries dans le lait de vaches réagissantes à la tuberculine bovine,(I D.S .positives.), 127 prélèvements provenant de 15 élevages bovins laitiers dans la région de Soukra , au nord de la TUNISIE , ont été analysés, 7 souches de mycobactéries ont été isolées et identifiées dont 5 souches de mycobacterium tuberculosis toutes nitrate réductase négatives.

691. HAZARD ANALYSIS CRITICAL CONTROL POINTS. Ettriqui A. National School of veterinary Medicine. 2020- Sidi Thabet - Tunisia

The farm-produce industry and the touristic sector know at the moment a remarkable development in Tunisia. More than 1000 farm-produce industrial unities and more than 600 hotelier establishments are in full operation .
Therefore the mastery of the safety of food constitutes a major stake as well in the promotion of the local production as in the promotion of the export and the touristic product.
In this frame, tunisian experience is related through:
- the sector of the products of the sea in which H.A.C.C.P system was generalized since 1994.
- the sector of the slaughter and the transformation of the poultry which knows the same evolution.
- H.A.C.C.P program launched by the technical center of the farm-produce since 2001 and which has to be applied in 100 industrial unities in different food activities.
- H.A.C.C.P program launched by the Ministry of the Tourism for the hotelier establishments of more than 3 stars.

692. THE VETERINARIAN’S ROLE IN FOOD SAFETY AND SECURITY ON FARM HAZARD ANALYSIS CRITICAL CONTROL POINTS (HACCP) DAIRY PRODUCER ATTITUDES AND A NEW TOOL FOR IDENTIFYING CRITICAL CONTROL POINTS. M.J.VanBaale1, D.R. Hyatt2, G.A. Milliken3, J.C. Galland1. ‘Food Animal Health & Management Center, College of Veterinary Medicine, Kansas State University, Manhattan, KS U.S.A. 3Veterinary Diagnostic Laboratory, Colorado State University, Ft. Collins, CO U.S.A. ‘Department of Statistics, Kansas State University, Manhattan, KS USA.

Meat tram dairy market cows (culled cows) make up about 15% (1 out of 7 meals) of ail beef consumed in the United States. Beef tram dairy market cows is not limited to ground beef, but includes steaks and
manufactured roasts which can be served in family restaurants, schools, airline meals, jean meat meals, and in the home. Thus, people of all ages and social status consume dairy market beef. The United States Department of Agriculture requires U.S. slaughter establishments to design and implement their own hazard analysis and critical control points (HACCP) plans as a means to control foodborne pathogens. Although the initial investment by slaughter establishments to implement HACCP was high, the marketing, regulatory, and safety benefits have justified the costs. On-farm HACCP might be equally beneficial to producers, the buyers of their product, and to the public health, but no government regulation exists at the farm level, so there is no regulatory incentive to implement HACCP at the farm. Therefore, we designed a study to explore the willingness of dairy producers to adopt HACCP voluntarily, under the supervision of their veterinarian. Of approximately 680 respondents, 25% were unsure of the percent of meat eaten in the U.S. derived from dairy market beef; 37.7% thought <5% of the market dairy beef became steaks and/or roast beef; and 39.3% thought <5% of the meat intended for human consumption was condemned because of the condition of the cows at slaughter. Forty percent of dairy producers believed on-farm HACCP should only be implemented if they could make a profit and 64.5% said the profits should come from incentives paid by the slaughter establishments, but interestingly only 29.6% said that slaughter establishments should demand on-farm HACCP. Our survey indicates profits from selling market beef are important to producers and producers are subsequently willing to change their behavior and practices related to meat quality only if it will increase profits. Many other results and a novel analysis of the data will be presented. In addition to the questionnaire, we tested the feasibility of using fluorescent dye as a means of demonstrating to dairy producers locations and practices (Critical Control Points) that might cause the accumulation and spread of bacteria at dairy farms. The results of these studies are presented.

693. INTERNATIONAL HACCP ALLIANCE’S “GLOBAL HACCP CONFERENCE”. Russel L.H. American Councillor, WVA Representative to International HACCP Alliance, USA.

Approximately 100 people attended the first Global Hazard Analysis & Critical Control Points (HACCP) Conference in Chicago, Illinois, U.S.A, May 15-17, 2002. The conference featured outstanding speakers who led the exploration of key issues related to verification and validation, prerequisite programs, closing the gap between scientific and regulatory HACCP, the implementation and maintenance of HACCP systems, plus many other critical issues for the food industry. The conference was planned and hosted by the International HACCP Alliance, of which the World Veterinary Association is a member and has a representative on the Alliance’s Board of Directors. Keynote speaker Dr. Merle Pierson, US Department of Agriculture (USDA) Deputy Under Secretary for Food Safety, addressed the conference attendees highlighting the five main public health goals. Dr. Pierson also emphasized that the USDA, Food Safety Inspection Service (FSIS) will focus on prerequisite programs, and the need to strengthen validation and verification activities. Other notable international speakers were: Jyoti Sahasrabudhe, Alberta, Canada, Ross Peters, New South Wales, Australia; Maya Pineiro, Rome, Italy; and, Paul Ryan, Lausanne, Switzerland. Speakers from the US included: Bouquaoui Cross, Dane Bernard, Robert Galbraith, Richard Linton, John Marcy, Jon Porter, William Schwartz, and Donald Zink. Several times during the conference, attendees were divided into combination modifies panels and small breakout groups for “Knowledge and Need” sessions. These sessions helped to identify areas where collaboration and information development is needed to enhance the overall application and regulation of HACCP in the
food industry. These sessions also revealed how much international variation there is in the adequacy of global HACCP programs and regulations. These sessions also shed light on the high degree of national variations in the participation in HACCP programs by the veterinary medical profession. The attendees were from several countries at the conference, including food industry and government representatives from the Australia, Canada, Mexico, New Zealand, Peoples Republic of China, South Korea, Italy, Switzerland, and the United States. Included in the conference was a “Global HACCP Showcase Reception” that afforded firms the opportunity to exhibit their products and services to the conference attendees. Post conference evaluations recommended future conferences and emphasized the need for discussion on auditing, allergens, and more specific examples related to implementation issues.

694. APPLICATION OF HACCP SYSTEM IN IRAN BY IVO. A. Kazemi. Vali-Asr Avenue, S.J. Asd Abadi Str, P.O. Box. 1455-6349, Tehran, Iran.

In late 1980 the HACCP system has been assigned by EC to the countries exported to the EUROPE. This was not only because of applying hygiene standards on exporting products but it was one step forward to improve health situation in national level as well reaching to the international standards. In IRAN this application started since 1996 with upgrading the laboratories, abettors and meat and fish processing companies and factories as well. And then we asked them for their adoption to national as well as international standards. The main steps were:

1-Legislation:
Step1- Study of the rules of animal and animal products health and hygiene.
Step2-Adoption of the national regulations to the international regulations Defined by the OIE and CODEX ALIMENTARIOS.
Step3-Creating new rules and regulation and then adopted by the parliament. 2- Laboratories: Adoption of 39 laboratories in 3 categories to standard level (EN 45000).
3-Control program for hygiene as well as residues. This control conducted by competent authority personnel all over the country.
4- approval of establishments
Step1-Creating a management team which it became HACCP team later.-    Step2- Training the managers our rules and regulations.
Step3- Training the personnel of the plants. All the establishments has been inspected and then adopted to the national and international standards for final approval.
5-Inspection of establishments. The IVO (competent authority) regularly inspected all of the establishments.
6- official supervision and laboratory analysis All of the samples collected were tested in the laboratories and disseminate the results to the state and establishments as well as IVO central office.
7- export health certification by competent authority After all steps the final certification issued by IVO with the signature of official inspector as well as state competent authority.

695. LE CONCEPT HACCP DANS LA RESTAURATION COLLECTIVE. H. Bouaouina. CRDA, Sousse, Tunisia.
One of major concerns in catering is the quality of served meals in terms of nutrition, taste and especially hygiene. To have quality assurance, the HACCP approach can serve as a working tool in order to secure healthy food. After the definition of the term HACCP, the elements of the system are listed. For the application of this method, a university canteen was selected. It’s a new facility where conditions are favorable to the application of such a new approach. An HACCP team was established. It defined the range of the study by dressing a list of dishes to be controlled. For each selected dish, the preparation processes are described and then verified. The dangers to be controlled are defined for each step of preparation, after which critical points are identified. For these critical points, targets, margin limits, a surveillance plan and corrective actions are established. Finally a documentation system is set up coupled with a check up system. The HACCP approach is certainly adapted in the food industry and it can surely be extended to the catering business as it’s an efficient mean to assess the dangers that could be present in an out-of-home meal, and control the critical points of its preparation thus reassuring the patrons of catering.


l’objectif de ce travail consiste à réfléchir sur la faisabilité de la méthode HACCP en productions animales ; cette méthode est maintenant bien utilisée -et bien reconnue- en industrie agroalimentaire mais sa lourdeur est telle que nous étions en droit d’imaginer cette tentative comme inaccessible à l’éleveur moyen ; l’application de la méthode à une exploitation de vaches laitières montre que le projet est réalisable sous réserve que les BPH ou bonnes pratiques d’hygiène soient clairement définies et parfaitement appliquées par l’éleveur ; les points de maîtrise essentiels sont le contrôle de l’eau s’il s’agit d’une eau de puisage, le contrôle semestriel du matériel de traite avec un changement annuel des gobelets trayeurs, l’hygiène de la traite (avec l’hygiène du trayeur, le lavage de la base des mamelles et des trayons par douchette, le séchage par papier à usage unique, le trempage des trayons), le lavage et la désinfection du matériel de traite et du tank à lait, la réalisation correcte de la prophylaxie contre les maladies contagieuses. En ce qui concerne les points critiques, cinq points sont recensés : la température du tank à lait, la propreté des vaches, la qualité des premiers jets de lait, les résidus antibiotiques dans le lait de mélange, une température de l’eau insuffisante. L’éleveur doit avoir la capacité de mettre en œuvre une procédure de retrait et de gérer les dossiers HACCP ; par rapport à l’activité normale d’un exploitant, le temps supplémentaire de travail doit être largement compensé par le prix du lait payé au producteur.


L’évaluation et le suivi des conditions d’hygiène en restauration collective joue un rôle capitale dans la prévention des maladies d’origine alimentaire. Le contrôle et le suivi de ces établissements se faisait traditionnellement au niveau de notre région de façon périodique et régulière, cependant l’approche utilisée jusqu’à l’année 2000 était plutôt qualitative. Bien que cette approche ait pu donner certains
résultats dans l’amélioration de l’état d’hygiène, elle a des limites et ne permet notamment pas un suivi et nous évaluation adéquats du niveau d’hygiène dans des tels établissements C’est ainsi que depuis Janvier 2001 une optons au niveau de notre service pour une nouvelle approche plus objective (quantitative) qui permet en particulier d’éviter la subjectivité du contrôleur. Nous avons élaboré une fiche de suivi de l’état d’hygiène et de salubrité au niveau d’un restaurant collectif comportant des rubriques et des items. Un score est accordé à chaque item et à chaque rubrique, un score global (somme des scores par rubrique) est ainsi attribué pour tout restaurant collectif à l’issue de chaque passage. Une telle approche nous a permis d’identifier les établissements prioritaires et les rubriques prioritaires. Nous espérons grâce à cette méthode promouvoir davantage l’état d’hygiène au niveau des lieux de restauration collective et contribuer ainsi à la prévention des maladies d’origine alimentaire.

698. THE BIOLOGY AND IDENTIFICATION OF THE ENTERIC Escherichia coli PATHOTYPES OF HUMANS AND DOMESTIC FOOD-PRODUCING ANIMALS. C. M. Scanlan. College of Veterinary Medicine; Texas A&M University; College Station, Texas, United States of America

Clinical enteric infections in humans are commonly caused by selected Escherichia coli serovars, which represent the four enteric E. coli pathotypes (enterohemorrhagic E. coli [EHEC], the enteroinvasive E. coli [EIEC], the enteropathogenic E. coli [EPEC] and the enterotoxigenic E. coli [ETEC]). The incidence of these pathogens has been documented to have markedly increased during the past two decades. Each pathotype with defined virulence factors induces a distinct disease condition. The various EHEC, EIEC and EPEC serovars are identified based on their capsular (K), somatic (O) and flagellar (H) antigens, and the various ETEC serovars are identified based on their fimbrial (F) antigens. Food-producing animals may serve as enteric carriers of these human foodborne pathogens; however, their role as a source for the various serovars of the EHEC, EIEC and EPEC remains problematic. Domestic food-producing animals are generally not considered to be a source of the human-adapted ETEC serovars. Conventional culture and biochemical tests can readily identify E. coli to species level; however, these time-honored methods cannot distinguish the various enteric E. coli pathogens of humans, which represent only about two percent of the E. coli serovars, from the non-enteric E. coli serovars. Currently the primary focus is on the identification of the EHEC; however, it is noteworthy that only a few commercial antisera are available for identifying the EHEC serovars, such as O157:H7 and O111:H26. This leaves numerous other EHEC serovars, which largely go undetected even when attempts are made to identify the enteric E. coli pathogens of humans. Current applicable technologies, such as serotyping and the various biotechnology methods, are either not available or they are not economically feasible to implement for the routine monitoring of food products from food-producing animals. The treatment of food products with radiation is suggested as a method to dramatically decrease the incidence of the enteric E. coli pathotypes as well as other enteric bacterial pathogens.

699. CONTAMINATION DES DENRÉES ALIMENTAIRES PAR SALMONELLA DANS LE SECTEUR HÔTELIER. E. Derouiche. 25 Rue Youssef Rouissi, Manar II, Tunisie.

The present work treat about the food contamination by salmonella in the hotelier sector. The results after an inquiry of 2 years (1999-2000) about the Salmonella research in 4040 food samples are tested in experimental part. These results obtained from private laboratory in Tunis which is specialized in hotelier
restoration sector. The medium rate of contamination is 3.07% and the most detected serovar found in our survey was Salmonella anatum. Bovine maet presents the most rate of contamination: 10.79%. The post cooking contamination and the cross contamination seem more incriminated than the original food contamination. Finally our work reveal the correlation which may exist between the food contamination rate by Salmonella and the hygiène level in the hotelier établissement.


Clostridium perfringens was associated with food-borne diseases since 1895; it is the third microorganism more common for these infections than Staphillococcus aureus and Salmonella spp. and in the United States it causes almost the 10% of outbreaks of bacterial origin. This microorganism is responsible for two forms of food-borne diseases: a form commonly know as “pig-bell” supported by strains kind C and widespread principally in New Guinea and a “classical form” which is milder supported by strains kind A (1-8-9). There is a lot of bibliography that shows the presence of this microorganism in fresh and preserved foods. Nearly the 50% (the gap is 30%-80%) of cattle and winged meats samples is contaminated by Clostridium perfringens and it explains how the meat products are often the food implicate in cases of outbreaks. Uncommon is the involvement of fishing products even if this bacterium is present in the skin and in the intestine of fishes. Clostridium perfringens was isolated, even if less frequently, from: spices, vegetables, milk and dairy products, dehydrated foods, gelatin, soy protein and products exposed to soil (5-6-7). In the light of these facts, the authors report the results of an investigation carried out in different kinds of animal original food in order to estimate the presence and the spread of Clostridium perfringens in our country and the role of foods in the spread of this microorganism.

701. STUDIES ON THE MICROBIAL STATUS OF FRESH MEAT AND MEAT PRODUCTS IN KHARTOUM. A. E. Ibrahim. faculty of Veterinary Medecine, University of Khartoum, North Sudan.

The paper reviewed some recent studies on the microbial status of meat cuts, minced beef and bovine livers sold in Khartoum. The viable bacterial counts of fresh meat cuts, and again after their storage at 40°C for 7, 10 and 15 days were tabulated. The change which took place was analysed. Conventional methods for bacteria isolation and identification were used for assessing the microbial status of minced beef and bovine livers. The viable bacterial load of the fresh meat cuts was higher than the standard set up by Ayres (1955). Gram positive bacteria were more predominant than the Gram negative bacteria. The bacterial load showed linear increase after 10 days of storage at 40°C. The predominant types of bacteria isolated from minced meat were Gram negative bacteria i.e. proteus sps, Eschericia coli, other Eschericia sps, Enterococcus faciens, Klebsiella prexmonieae and Citrobacter sps. Together with few isolates of Micrococcus sps. Many types of both Gram positive and Gram negative bacteria were isolated from the livers. It was concluded that more attention should be paid to sanitation in preparing and handling of meat and meat products in the Sudan.
Salmonellosis is the most food born disease in the world and Iran. The poultry meat is one of the sources of food infection. In a descriptive cross sectional study, a total of 120 samples of fresh and frozen poultry meat were examined during a period of 4 months from market centers of Mashhad city. From each of the chicken was taken three samples including, skin, muscle and viscera for microbiological examination on selective media. 9 samples (7.5 %) were contaminated with Salmonella spp. The rate of contamination was more in fresh poultry meat than frozen. The most frequency of isolated salmonella was S.typhimurium and S.enteritidis respectively. Due to high contamination rate of poultry meat and risk of salmonellosis, higienic rules of slaughter and poultry meat processing must be observed.


Le présent travail a pour objectif la comparaison de la qualité d’hygiène de laits provenant respectivement de traite manuelle et de traite mécanique en se basant sur le dénombrement d’Escherichia coli, considéré comme témoin d’hygiène. La première partie consiste en une mise au point bibliographique sur les modalités de contamination du lait et des produits laitiers par Escherichia coli, sur l’hygiène de la traite ainsi que sur les méthodes de recherches d’Escherichia coli.
La deuxième partie est expérimentale. Elle consiste à dénombrer Escherichia coli dans 30 échantillons de lait provenant de traite manuelle et 30 échantillons de lait provenant de traite mécanique. Les résultats ont montré que : Pour la traite mécanique, les trois quarts des échantillons, soit 73%, renferment un nombre de colonies, par millilitre, compris entre 0 et 30. 27% renferment un nombre compris entre 30 et 60. Pour la traite manuelle, ces mêmes proportions se situent respectivement dans les intervalles [0-10] et [10-20] U.F.C/ml. Leur interprétation statistique révèle une différence significative en faveur du mode manuel. Les observations ponctuelles qui ont eu lieu lors de notre étude ont permis de conclure qu’une traite manuelle correctement conduite est supérieure au plan de l’hygiène à une traite mécanique relativement défaillante par un ou plusieurs éléments de sa conduite.

704. THE FUTURE OF FOOD SAFETY VETERINARIANS. Buntain B.J. Food Safety and Inspection Service, U.S. Department of Agriculture. USA.

In 1999 the USDA Food Safety and Inspection Service (FSIS) established a Blue Ribbon Task Force of experts internal and external to the agency to evaluate the role of veterinarians in public and animal health, and food safety. The veterinarian’s role is described as the purveyor of knowledge and expertise bridging animal and human health. The intent of this report is to fuel a renaissance in thinking about how veterinary medical expertise is considered, cultivated, nurtured, and utilized in government service. The Task Force developed recommendations around five major issues: defining the role of the FSIS veterinarian; education, training, recognition and recruitment; partnerships; coordinated information management; and veterinary contributions to international efforts. In 1996, the Food Safety and
Inspection Service issued the Pathogen Reduction; Hazard Analysis and Critical Control Point (HACCP) Systems final rule to control and reduce foodborne pathogens on meat and poultry products. Federal and State meat and poultry plants must adopt HACCP, a system based on hazard prevention, with performance standards set by FSIS. The rule gives all FSIS employees a much greater role in food safety and public health. Overseeing HACCP systems requires veterinarians to increasingly make science-based judgments. Government veterinarians now have unique opportunities to enhance food safety by interacting more with other animal and human health professionals; promoting implementation of farm-to-table food safety and quality systems; improving sharing of information; conducting scientific analysis of complex food safety systems; and enhancing public health through better use of resources. National food safety systems adopting HACCP systems and Codex Alimentarius standards will depend more and more on the veterinarian’s analytical and problem solving skills in order to perform broad public health policy development and evaluation, risk assessment, data management and evaluation, leadership, and administrative activities that have international impact. Veterinarians and other public health officials involved in international programs need to enhance cooperation and collaboration on animal health, food safety and public health issues. Examples where veterinary experts can contribute to collaborative efforts in public health include the Office International Des Epizooties (OIE), Codex Alimentarius committees and the newly formed Pan American Commission for Food Safety (COPAIA). An increasingly important role will be that of evaluators of risk-based data systems. Data collection and evaluation is an essential component risk analysis (assessment, management and communication). Veterinarians need to lead effective food safety monitoring and surveillance programs to identify risks, evaluate interventions and improve the allocation of risk-based resource management. The data results will guide veterinary epidemiologists in their risk analysis duties from farm-to-table. The expanded duties of government veterinarians will also include more opportunities as educators, managers of teams, creators of partnerships with researchers, industry and consumer groups. In the future, partnering will require veterinarians to build consensus among diverse groups external to the agency. Commodity groups, government agencies, academe, and the food industry are key partners in producing safe food from farm-to-table. Veterinarians will play increasingly important roles in food safety and public health and in verifying HACCP-compatible systems all along the food chain.


Thermophilic Campylobacter are a part of germs of new interest called pathogenic emergent. The epidemiological inquiries show more and more relation between gastro-enteritis to Campylobacter and consumption of meat poultry. For that purpose, 108 samples of chicken carcasses were tested to know the level of contamination of the poultry as well as the influence of the mode of slaughter and the mode of conservation. The results showed that the global rate of superficial contamination (skin) is 48 % (52/108). Campylobacter jejuni sub species jejuni 1, was the dominant species isolated. This results showed as well, that skin contamination is more important (33 %) than the contamination of the abdominal cavity (23 %). The contamination of cooled chicken is 58 %, and it is more important than the one of frozen chicken (35 %). The contamination rate of chicken slaughtered by poulterer is more important (73 %) than the contamination of chicken slaughtered in a slaughterhouse (43 %).

Listeria monocytogenes est considérée comme un agent majeur d’infection d’origine alimentaire par sa gravité. Sa répartition est quasi mondiale avec toutefois une incidence relativement plus importante dans les pays fortement industrialisés à climat froid (1,6 à 14,7 cas pour 1 million d’habitants), liée vraisemblablement aux particularités écologiques de cette bactérie. Les épidémies de listérioses humaines survenues en Amérique du Nord et en Europe Occidentale, au cours de ces dernières années, ont mis en évidence le rôle étiologique de certains aliments, en particulier les produits laitiers et les produits carnés, dans l’infection humaine. Des données épidémiologiques relativement précises existent à l’heure actuelle concernant les cas collectifs d’infections d’origine alimentaire recensés dans le monde. En Tunisie, bien qu’aucun cas d’infection d’origine alimentaire dû à Listeria monocytogenes hormis 2 cas d’infection humaine au service des maladies infectieuses du C.H.U de Sousse (JEMNI L., 1993), les recherches réalisées sur certaines denrées alimentaires, notamment d’origine animale, ont révélé la présence de Listeria monocytogenes. Les principaux travaux ont porté sur les viandes fraîches, les produits carnés (Merguez, viande hachée...) enfin sur le lait cru et les dérivés laitiers.

707. DEVELOPMENT OF ENDOPEPTIDASE ACTIVITY ASSAY FOR DETECTION OF CLOSTRIDIUM BOTULINUM NEUROTOXIN TYPE A. D. K. Sharma1, M. W. Peck2, M. R.A. Morgan2 and D. Sesardic3.1Department of Veterinary Public Health, College of Vety. Science, Punjab Agricultural Univeristy, Ludhiana-India. 2 IFR, Nowich, UK 3 NIBSC, UK

The endopeptidase activity assay developed for measurement of purified botulinum neurotoxin type A (BoNT/A) in clinical therapeutic preparations has been adopted to provide a specific measure of BoNT/A activity in culture supernatants of proteolytic C. botulinum type A. Electrophoretic studies and inhibition of BoNT/A activity by anti-A antibody confirmed the specificity of the assay. The minimum detection limit was 0.2 MLD50/ml indicating the assay as more sensitive than the standard mouse bioassay or any other in vitro assay available to date. Whilst the assay did not exhibit any cross reactions with non-proteolytic (saccharolytic) clostridia, proteolytic C. botulinum types B and F and C. sporogenes showed some cross reactions. The endopeptidase assay was used to investigate physiological aspects of BoNT/A production by proteolytic C. botulinum type A strain NCTC 7272. Growth studies at 15°C, 25°C and 37°C with strain NCTC 7272 demonstrated that the first appearance of BoNT/A (0.1-1.0 MLD50/ml) occurred during mid-late exponential or early stationary phase of growth. Extracellular BoNT/A formation was not proportional to viable count. Slightly more BoNT/A was detected at 25°C than 37° or 15°C. The results of BoNT/A formation by one of the growth curves at 25°C measured by the endopeptidase assay and mouse bioassays were very similar confirming the specificity of the assay. A simple method was developed to lyse the cells so that BoNT/A formation could be subsequently measured in the endopeptidase assay. The data obtained following lysis of cells and measurement of intracellular BoNT/A showed that both intracellular BoNT/A and total BoNT/A formation is not constitutive but are more closely proportional to viable count than extracellular BoNT/A. Release of BoNT/A from cells was not associated with autolysis. The conversion of BoNT/A from the single-chain to dichain form during growth
has been measured. The use of the endopeptidase assay has been also exploited to study BoNT/A formation by this strain within the population of cells. There was only a four-fold difference in BoNT/A production by cells of strain NCTC 7272, and further work in this area is warranted.


One of the most common problems encountered with meat products is to demonstrate first that sanitary conditions are acceptable regarding legislation and then to verify that the composition of meat products is in good agreement with labelling. According to the so-called « code des usages en charcuterie et salaison de viande », chorizo sausages are made of meat, pork or other species fat and is mainly characterised by its seasoning and the coloration obtained with red pepper. However, addition of ~ is forbidden. In the same way, the replacement of animal proteins by vegetal ones or the addition of ~ are forbidden. Chemical composition is easy to check since official methods are used to measure water content, lipid, carbohydrates, collagen and protein concentrations. However, even if these parameters are correct, the quality of the product must be demonstrated by an histological examination in order to check the exact composition. This will be discussed with several examples of chorizo sausages in which can be found pork skin, salivary glands, mechanically separated meats, textured vegetal proteins... Other examples dealing with minced meats will demonstrate that it is possible to find with this technique forbidden constituents such as bone remains, vegetal proteins... It is conclude that histological examination of meat preparations is a good tool to evaluate the composition of such products, combine with other methods such are electrophoretic or chemical determinations.

709. CORRELATION BETWEEN CHEMICAL AND SANITARY PARAMETERS OF SHEEP MILK. V. Cuteri 1; M. Morgante 2; M. Pauselli 3; C. Stelletta 2; F. Splendiani 2; M. L. Marenzoni 4; C. Valente 4 1. Dipartimento Scienze Veterinarie -Università di Camerino –Italy. 2 Dipartimento di Igiene e Sanità Animale, Università di Padova -Italy 3-Dipartimento Scienze Zootecniche -Università di Perugia –Italy. 4 Dipartimento di Tecnologie e Biotecnologie delle Produzioni Animali -Università di Perugia -Italy.

The chemical characteristics of sheep milk and their correlation with the presence or absence of bacteria are known. For this reason it was evaluated the evolution of some chemical and sanitary parameters during a lactation period. Thirty Comisana breed sheep were utilised. Considering a pre-established table, samples of milk were collected with a sterile procedure from each mammary gland and submitted to somatic cell count (SCC), transformed then in Linear Score (LS), and bacteriological examination. From each samples was obtained the whey which was submitted to chemical analysis. Sodium, Potassium, Chloride, Urea and Osmolarity were evaluated. On the basis of SCC and on the presence or absence of microrganisms the samples were submitted to a statistical analysis using the FREQ, GLM and CORR procedures of the SAS statistic software package. There was a different correlation, in some situation statistically significant (P<0,01), between microrganisms, chemical parameters and SCC.
The occurrence of bovine spongiform encephalopathy (BSE) and the transmission to other animal species and man demonstrated the importance of a surveillance of this disease in all countries having import meat and bone meal from Great Britain. This surveillance concerns BSE but also scrapies in small ruminants, which can have, also ingest these feedstuffs. Disease appears after a long incubation phase (about 5 years in cattle, one in two years in small ruminants). The clinical signs are similar in the three species (cattle, sheep and goat) but variations can be seen in many cases. At the beginning the attention of the owner is attracted by behavioural changes. The owner best recognizes these first signs of alarm. The changes are progressive. Hypaesthesia is common (most marked on touching of the head and neck). The animal can become aggressive or, on the contrary, stay apart from their herd mates. Other changes are unusual movements of ears, excessive licking, and head tossing … Animals present also disorders of the sensitivity. They overreact in response to touch, visual or sound stimuli. Pruritus is a more common feature in small ruminants, with an increasing intensity over the course of the illness. Consequently there may be secondary wool loss and dermatitis or excoriation of the skin. When the pruritic areas are stimulated by scratching, the animal present a « nibble reflex ». Ptyalism and urinary incontinence are characteristic of neurovegetative disorders. Ataxia and tremors are seen in more advanced cases. Locomotors disturbances lead to decubitus and death. There is no preclinical test available in common practice for the diagnostic of TSE in ruminants. The diagnosis is based on microscopic examination of the brains or on tests that identify the pathological form of the prion protein (PrPres) in brain or in spinal cord tissue. In small ruminants, the detection of PrPres can be made in lymphoid tissues (spleen, tonsils…).

Transmissible spongiform encephalopathies (TSEs) also named prion diseases such as Creutzfeldt-Jakob disease (CJD) in humans are neurodegenerative disorders characterized by the presence of a modified, partially proteinase-resistant host protein, PrPres, which accumulates in the brains of infected individuals. The nature of the agents responsible and mechanism of infection are still elusive. CJD is a novel major issue for the public health in France. Indeed, at least 54 patients have developed iatrogenic CJD after their treatment with probably contaminated batches of human cadaveric pituitary hormone (hGH). Retrospective epidemiological studies define a period of risk during which about 1000 patients could have been potentially infected. On the other hand, the recent reports concerning 116 cases in the UK, one case in Irland and 6 cases in France of a new variant of CJD in relatively young patients and the possibility that they are causally linked to BSE has re-emphasized the need for the development of therapeutic approaches for these diseases. Today there is no available treatment for TSEs, and amphotericin B (AmB)
is one of the few drugs that have been shown to prolong the incubation time of experimental scrapie. However, the efficacy of AmB is limited by its acute toxicity. The beneficial effect of AmB also seems to be restricted to scrapie-infected hamsters with 263K agent. The development of new AmB derivatives such as MS-8209, which is at least five times less toxic has resulted in an improvement of the therapeutic benefit of polyene antibiotics in scrapie and to extend this effect to other TSEs models. All treatments with MS-8209 used in this work lengthened the incubation period of hamster and mice scrapie. Indeed this derivative is able to delay PrPres as well as GFAP (glial fibrillary acidic protein) and scrapie agent replication in the brain. Moreover, MS-8209 is actually the unique molecule able to prolong the survival time of scrapie-infected animals when treatment is administered at the late stages of the disease. Our results suggest that polyene antibiotics may interfere, all along the experimental disease, with the propagation of the scrapie agent. The exact mode of action of AmB and MS-8209 in TSEs is still unknown. However the analysis of our clinical and molecular results indicates a common mechanism of action of this category of drugs on the different TSEs strains. This could be due to an interaction with the PrP conversion process leading to the formation of PrPres. Finally, other therapeutic strategies in TSEs will be reviewed and discussed.

712. NATURAL SCRAPIE IN SMALL RUMINANTS AND RISK FOR HUMAN HEALTH.
C.M.Chang1, K. Adjou1, K.H. El Hachimi1, H. Brugère1, J. Brugère-Picoux1. 1Ecole nationale vétérinaire d’Alfort, France. 2Hôpital Pitié-Salpêtrière, Paris, France. 3Taiwan.

For more than two centuries, the natural scrapie of small ruminants has generally been considered as of no risk for human health. However, the occurrence of bovine spongiform encephalopathy (BSE) shows that the risk linking the scrapie of small ruminants must be revalued due to the fact that the bovine agent crosses easily the specie barrier, especially for felid and human. The first reason of such a revaluation is the possibility of a transmission of the bovine agent to small ruminants through the contaminated meat and bone meals that were distributed until 1994 in most European countries. The second reason is the existence of scrapie strains, which could be identical to other strains of the sporadic Creutzfeldt-Jakob disease (sCJD). That is why it is important, on the one hand, to have a strict and extensive epidemiological survey of the natural scrapie in small ruminants with the aim of an effective eradication of this under recognized disease, and on the other hand, to distinguish clearly the different strains of the natural scrapie and of the sCJD in order to know if scrapie can be dangerous for human.

713. TISSUE HANDLING AND IMMUNOHISTOCHEMICAL PROCESSING IN SUSPECTED TRANSMISSIBLE Spongiform enCEPHALOPATHIES (PRIONS DISEASES) IN SMALL RUMINANTS. K. H. EL Hachimi1, K. T. Adjou1, C. M. Chang2, J. Bruger-picoux2. 1Ecole Pratique des Hautes Etudes and INSERM U106, Hôpital Pitié-Salpêtrière, Paris, France. 2Ecole Nationale Vétérinaire d’Alfort, Service de Pathologie du Bétail, Maisons-Alfort, France.

Scrapie is a neurodegenerative disorder which belongs to the group of transmissible spongiform encephalopathies (TSEs) or prion diseases. These affections are not contagious in the usual sense. The transmissibility (intra and/or inter-species ) requires specific material (particularly brain or tissue adjacent to brain from affected individual) and modes of transmission (intracerebral contact is more «efficient» route of transfection). Nevertheless, specific safety precautions must be scrupulously adopted to avoid
accidental transmission and to decontaminate any infectivity. The given specific precautions can be followed without imposing disproportionate hardship and there is no reason to refuse an autopsy when TSEs was suspected in small ruminant. The precautions are based on the current scientific literature and legal regulation. The definite diagnosis of TSEs is based on histological investigations of brain tissue or the biochemical detection of the protease-resistant isoform of the prion protein (PrPsc). Histologically, the lesions are the vacuolization of the neurones and the neuropile, neuronal degeneration, glial reaction (predominantly astrocytic) and amyloidosis. The fine structure of these lesions could be precised at the electron microscopic level when appropriate fixation has been used. Immunohistochemically, two techniques with various inherent advantages and disadvantages, can be used for detection of PrPsc in human and animal TSEs. 1) Immunohistochemistry, highly sensitive, shows a high anatomic resolution and can be performed in formalin-fixed and paraffin-embedded tissue so useful for archival material. 2) The histoblot technique combines sensitive protein detection with anatomical tissue preservation. A major disadvantage of the histoblot is its requirement for unfixed material. This technique is extremely used in research. The combination of the two techniques has been also proposed for research. Very rare cases of TSEs might not be diagnosed by these criteria. Confirmation may be sought then by PrP immunoblotting, electron microscopy examination of scrapie associated fibrils (SAF), or experimental transmission.


Zoonosis refers to a disease that is transferable from vertebrate animals to humans and vice versa. This presentation is a summary of zoonotic diseases diagnosed in Federation of Bosnia and Herzegovina during the period 1996-2001. The diseases include anthrax, echinococcosis/hydatidosis, leptospirosis, rabies, brucellosis, bovine tuberculosis, cysticercosis, trichinellosis, Q-fever. Socioeconomic conditions such as uncontrolled growth of cities with inadequate development of public health policies and increasing international animal trade favor the spread of these diseases. These diseases are considerable problem in our country and require effective control measures. Continuous cooperation between veterinary and medical authorities in research institutes and industry is needed to reduce losses caused by these diseases.

715. INVESTIGATION THE RATE OF FMD IN HERDS IN KHIRASAN PROVINCE, IRAN. S. Fahiminia, Gh.R. Hashemi Tabar. Pathobiology Dept, School of Veterinary Medicine, Ferdowsi University of Mashhad, P.O.Box: 91775-1793, Mashhad, Iran.

FMD is one of the contagious and dangerous disease whose agent is Aphthovirus. This disease is considered as one of the main financial problems in husbandry in the world. Contagion characteristics of this disease in countries contaminated with FMD is quietly different from those in non contaminated countries. Enterance of serotypes which have no previous record in those countries also causes out break of FMD with violent symptoms. This disease have become endemic in Iran and the main preventive policy is vaccination. Khorasan is the largest province of Iran in which about 15% of herbivorous animals of Iran exist. In this province, There are 11500000 Sheep/goat and 530000 cows. Numbers of animals are
Vaccinated each mouth and the success percentage of work on sheep/goat and cows is 89% and 95% respectively. The number of existing, contaminated, survived at the end of the mouth, annihilated, slaughtered, dead and vaccinated sheep/goats and cows are discussed in this article from March to December 2001.


The Global Rinderpest Eradication Programme (GREP) has made significant progress in the last decade. As recently as 1994 rinderpest was persisting in some 10 countries and numerous others were affected by epidemic extensions from them. Now in 2002 there is growing confidence that rinderpest reservoirs are to be found only in the Indus River buffalo tract of Sindh Province in Pakistan and in the Somali pastoral ecosystem of Somalia and Kenya. Even in these places it is increasingly difficult to find infected herds. A decade ago rinderpest was a frequent element of emergencies created by civil strife. The lack of such rinderpest alarms in recent years is testimony to the reduction in the global weight of infection. With assistance of the European Union both surviving reservoirs of infection are receiving attention and the goal is final eradication by the end of 2003. Already started, efforts will then be directed to the process of verification of rinderpest freedom through the OIE/GREP Pathway. There is no doubt that global eradication of rinderpest is feasible but whether or not it will actually be achieved depends on continuing commitment of the countries, international organisations and donors. It should be unthinkable at this stage that the eradication process could be allowed to falter yet the GREP is seriously underfunded and fighting complacency as the impact of the disease lessens. Failure would inevitably result in pandemic resurgence of rinderpest devastating the lives of millions of livestock-dependent families and subsequent return to endemicity with cycles of epidemic escalation.

Emerging epizootics of Rift Valley fever virus in Africa: current status and future. Karrar A.; Aradaib Imadelin E., Magid Ali A. (Sudan) T (ill Valley fever (RVF) virus (RVFV), an arthropod-borne virus, is a member of the phleboviridae genus~ in the family Bunyaviridae. The virus emerges periodically through different parts of the African continents. Recently all epizootic of RVFV in the Middle East and Asia have been reported in Saudi Arabia. Illness was the first time ever RVFV was reported in Asia. The virus may cause clinical hemorrhagic disease in human and animal populations, and hence the disease is of public health importance. Strains of RVFV have been isolated in many African and Mediterranean countries. The economic impact of the disease is mainly attributed to deaths among animals and humans, direct or indirect associated with clinical disease resulting in abortions, fetal malformation; encephalitis, ocular and visual complications. Unfamiliarity with the ecology, biology and molecular epidemiology of RVFV has led to restrictions on the international trade of livestock and associated animal-derived products, unless the animals are certified free of infection by conventional virus isolation and serological techniques. Spectrum vaccine, which provides protective immunity against all RVFV serotypes, is yet to be produced. Seven Nubian goats were experimentally inoculated with RVFV isolates from the Suda. 1es isolates of palyam orbiviruses serogroup. Th infection was monitored by virus isolation and rectal temperatures measured daily for pyrexia. The experiment revealed no clinical signs. Rectal temperatures were normal and no clinical signs were detected in any of the experimental animals through out the course of the experiment. The virus was consistently isolated from all inoculated goats by second post inoculation. The scientific data presented in this communication indicated that the Sudanese isolates of Palyam orbiviruses serogroup cause transient infection in Nubian goats. The experiment revealed no clinical signs.
acted by virus isolation attempt. It is suggested that, scats may serve as reseVoir of the disease. Thus providing virus for insect transmission to more susceptible ruminants. Application of A reverse trancriplase (RT) polymerase chain reaction (RT -PCR) for detection of p111YQn orbivirus3c-scrogroup infection in susceptible ruminants is in progress.


Rift Valley Fever is an acute viral disease, which is transmitted primarily by Mosquitoes. It is a Zoonotic disease, which can also infect humans and cause mortality. It is caused by RFV virus, which is a member of the Phlebovirus genus of the family Bunyaviridae. The first signs of an emerging epidemic are usually abortion storms in pregnant sheep and goats but also in cattle and camels. Outbreaks are often associated with periods of heavy rainfall, after which the mosquito population increase. Outbreaks have been reported in Kenya, Sudan, Egypt, Cameroon, Mali, Mauritania, Madagascar, Nigeria, Senegal, Somalia, South Africa, Tanzania, Zambia, and Zimbabwe. The 1977/78 and 1993 Egypt outbreak was thought to be caused by an unexplained spread from Sudan, possibly from the wind, imported camels or sheep; or by mosquitoes. In the Horn of Africa which is the most important import area for livestock to Yemen, a major RVF epidemic occurred between October, 1997 and March, 1998 in Northern Kenya and Southern Somalia after unusual heavy long rains (El Nino rains). The situation in the region was the subject of an FAO Report on the Risk Assessment for RVF in 1998. This examined the dangers of importation of RVF into the Yemen and Saudi Arabia from the Horn of Africa. No longitudinal studies on RVF have ever been carried out in either of these countries however, to examine the possibility that the virus may have been present, but cryptic for many years. On September 19, Year 2000, Yemen officially announced the presence of RFV cases in Al-Zohrah district, Alhodyedah Governorate, in the Tihamah part of the country, while Kingdom of Saudi Arabia announced the presence of the disease four days before. It was the first time RVF reported outside Africa.


The aim of this study was to verify if helicobacters that occur naturally in animals could be identified in human beings in North Parana - Brazil. We analyzed endoscopically-obtained biopsies from the antrus and fundic region of the stomach of 38 patients presented to the Gastroenterology Service of the Hospital of the Universidade Estadual de Londrina. Genus and species were identified by PCR using genus Helicobacter primers, species-specific primers to H. pylori, H. heilmannii, H. felis, and consensual primers to H. bizzozeronii or H.salomonis. PCR results for genus Helicobacter were confirmed by enzymatic restriction using Vsp I (295 bp and 104 bp fragments), whereas cleavage with Hinf I (277 bp and 134 bp) confirmed the presence of H. pylori. Of the 38 patients evaluated, 32 were positive to the genus Helicobacter, 30 of which were identified as H. pylori. The remaining two samples were negative to all species tested. Small bacteria (3.2 to 5 um long) resembling H. pylori were identified in the superficial mucosa and pit glands using Warthin-Starry stain. These results suggest that people in North Parana - Brazil are infected mostly with H. pylori.

Présente dans le Bassin méditerranéen depuis 1998, la fièvre catarrhale du mouton a été suspectée puis confirmée en octobre 2000 dans le sud du département de la Corse ; elle s’est rapidement développée vers le nord dans le mois suivant, touchant à la fois les ovins et les bovins. Le principal vecteur de la maladie s’est révélé être Culicoides imicola, vraisemblablement apparu en Corse deux à trois ans plus tôt depuis la Sardaigne. Deux évolutions distinctes de la maladie ont été observées suivant l’état sanitaire des animaux : dans les troupeaux où des affections intercurrentes (gale, pasteurellose, parasitisme) étaient observées, la morbidité avoisinait 60% et la mortalité 40% sur les malades. Dans les troupeaux en bonne santé, nourris et abreuvés en quantité suffisante, la maladie a évolué sous une forme bénigne, la morbidité avoisinant 20% et la mortalité 5% sur les malades. Les symptômes et lésions se sont avérés cohérents avec ceux observés en Sardaigne et en Tunisie en 2000 mais les oedèmes semblaient être toutefois plus atténués. Une dizaine d’isolats viraux ont été obtenus. Les séquences nucléidiques des segments génomiques 7, 10 et 2 (des souches corse mais aussi tunisienne) ont été déterminées et comparées avec celles de la souche vaccinale utilisée en Corse. Les séquences des isolats corse 2000 et 2001 sont identiques et semblables à celles de la souche tunisienne ; en revanche, des mutations sont observées dans les segments de la souche vaccinale, ce qui permet une différenciation entre souche sauvage et souche vaccinale. Deux campagnes de prophylaxie médicale ont été instaurées, la première dès janvier 2001, et la seconde, en novembre de la même année avec un vaccin monovalent acquis auprès de l’Institut Vétérinaire d’Onderstepoort (RSA). Les modalités et résultats de cette vaccination seront détaillés au cours du congrès.

720. CURRENT EPIDEMIOLOGICAL SITUATION AND CONTROL MEASURES OF BRUCELLOSIS IN NORTH AFRICA AND MIDDLE EAST. A. Benkirane. Hay Ryad secteur 10, numéro 55, avenue Al Haour, Rabat, Morroco.

Brucellosis is well established among livestock in all countries of North Africa and the 1 Middle East. Surveys are repeatedly conducted in several countries of the region to determine its point prevalence. However they seldom lead to meaningful and 1 conclusive figures on which an efficient control programme can be built. Both l, Brucella abortus and Brucella melitensis infection have been reported in their respective conventional hosts and recent available. data indicate increasing incidence of Br. melitensis biovar 3 also in cattle. Human brucellosis is also known to be f prevalent. Most Middle East and North African countries have recognized the i importance of brucellosis and attempted to control it for the last 5-6 decades. Although in some cases these efforts were fruitful in reduction of brucellosis incidence in cattle mainly, they generally fell short of eliminating the disease, especially in small ruminants. This was due, among other factors, to the difficulties encountered in identifying, vaccinating and following up infected flocks, and in controlling their movements. Thus, there is still need to redefine the objectives of control and the means to be adopted to achieve a more effective control of brucellosis within the sub- ! region. An animal disease surveillance and control network, named RADIS CON, was :
established by FAO in 1996 in each of the 29 participating countries, including all North African and Middle Eastern countries, and selected Brucellosis as one of the 4 priority diseases (besides rinderpest, PPR and FMD). For a better knowledge of, brucellosis distribution in the region and a better understanding of the patterns of the disease, it was felt that there is a need for an active brucellosis surveillance system. Such system would determine the presence of the disease on the basis of scientific, epidemiological knowledge of the disease, using statistical methods to quantify prevalence. This will be carried out using appropriate disease reporting sample collecting forms, standard laboratory diagnostic methods, together with electronic methods to collect, collate, analyse and feed back information. The information provided could then be used with advantage to assure selection of appropriate control strategy, establish priorities of control and monitor progress of the control programme. For the realization of these aims, a mission was launched in seven RADIS CON participating countries: Algeria, Iran, Kuwait, Morocco, Oman, Syria and Sudan. This paper will review the findings of this said mission.

721. SITUATION DE LA CLAVELÉE EN TUNISIE DURANT LES DOUZE DERNIÈRES ANNÉES. S. Hammami; F. Thabti, M. Bahrini, E. Fakhfakh.


722. IDENTIFICATION OF LEPTOSPIRAL VECTORS IN HUMAN AND ANIMALS. Moradi Bidhendi.s, Vandy Yousefi.dj

Leptospira is a anthropozoonoses that can cause serious disease in human and animals. Leptospirosis in humans occurs throughout the world as an acute infection ranging in severity from unnoticed and
subclinical to fatal. The ultimate reservoir of all leptospirosis is a non human carrier animal that excretes the casual bacteria in its urine. Leptospira have several species and more than 240-250 serological serovars, each of which has some special diagnostic, prognostic or epidemiological significance. Leptospira transfer direct or indirect way to human and rodent are the important reservoir of leptospira in nature. In ecological environment in different area we can see different serogroups of leptospira.

In this survey we work on 5514 serum samples and 810 urine samples and in which 24.26% of the serum samples had titer of antibody against leptospira. Also we isolated from urines serogroups of icterohaemorrhagiae, pomona, canicola, sejro hardjo and grippotyphosa. The relationship between these serogroups in human and rodents shows that the disease can transmitted through urine of the rodents.

723. SEROEPIDEMIOLOGICAL INVESTIGATION OF LEPTOSPIROSIS IN INFECTED AREA IN IRAN. Vand Yousefi D., Moradi-Bidhandi S. Iran.

Leptospirosis is probably the most important Zoonoses and has been reported from more than half of the world’s countries. Knowledge of the distribution of leptospirosis however in complete. Over 160 serovars belonging to 25 serogroups have been recognized. Yet the list is expanding with descriptions of new serovars. In Iran a serological survey of antibodies against 20 leptospira strains were carried out. 2365 sera were obtained from 13 local government areas of Iran between 1372-1374, of which 1365 (75%) had leptospira antibody titers of 1/200 and above. The prevalence of antibodies to Individual serovars were: Canicola hond 177 (133%), Canicola chiffon 155 (11,35%), Crippatyphosa 292 (21.39%), sejro hardjo 180 (13,18%) ict. Copenhagen: 179 (13.11%), ict.icterohaemorrhagiae 231(17%) and Pomona 182 (13.3%) we described the result of mat in different 8 cities. There was statistical difference in the prevalence rate of leptospiosis in different 8 cities.

724. RINDERPEST ERADICATION PROGRAMS IN SUDAN. A.M. Hassan. P.O.BOX 293 Khartoum, Sudan.

Sudan is a very large country with an area of 2.5 square kilometers. It lies in the tropical zone. Nine countries border il. The common factor beh’een the se counLrit: ~ and SudwJ is common tribes and free movements of livestock across the international borders. Livestock plays an important role in national econI?cal support. Thus the government started carlicr to pro-:-dc thG neccess~ nçAlth .scvices. V~l-rill”4IY 1services in the country were introduced earlier at the beginning of last cent’W-y. Rinde~est is the main reason for introduction of veterinarj services in the country. Based on the feasibility of disease contrai and hence eradicatio~ Sudan joined an the regional Rinderpest calllpaings in Africa. These campaigns, nalnel’, Joint ProjeCt 15 (JP-15), Pan Afrlcan Rinderpest Campai--rn (PARC) and Pan African Program for Control of Epizootics (PACE) resulted in a significant impaCt in the elimination of the disease from entire areas of the country. They significantl)’ reduce the number of disease incidencs and outbreaks for other diseases. Rinderpest although inflicted heavy losses in the country, but its eradication facilitates the promotion of livestock trade to importulg coW1tr””es. Other benefits the livestock gained from these controLeradication progran1S are namely; ?Itroduction of new refonn policies, wrnch help in development of livestock. diseasc control is one of the out standing poli ci es included in National Comprehensive Strategy (NCS). Also these programs help Sudan to proceed in the track of strengthening ifs relationslùp\ith international community through proper adoption and interaction with the intemationalla~’s, standards, nonns and regulations.
725. DE LA GESTION DE CRISE LORS D’ÉPIZOOTIE. S. Kacem¹, W. Chelly².¹Commissariat Régional au Développement Agricole de Sidi Bouzid, Tunisie. ²Hôpital régional de Ouled Chamekh, Tunisie.

Les vétérinaires s’ils sont compétents dans leur domaine, ne possèdent malheureusement pas de notion de gestion de crise qui reste plutôt une “culture de pompiers”. Or, toute crise requiert une gestion pour une réponse raisonnée et adaptée au contexte. Par la présente, les auteurs passent en revue les démarches théoriques à adopter pour structurer une réponse à une situation d’urgence (épizootie). Cette réponse devrait être instaurée non seulement en théorie mais en pratique aussi dans le cadre d’exercice “à blanc” afin d’aboutir à la constitution d’un réseau de compétences l’local” et d’inculquer aux différents acteurs l’esprit de hiérarchisation et de chronologie des actions à entreprendre par temps d’épizootie.


Un système d’Infonnation Géographique (SIG) est un outil infonnatique pennettant de représenter et d’analyser toutes les choses qui existent sur terre ainsi que tous les événements qui s’y produisent. Des systèmes de positionnement par stellite pennettent l’acquisition des positions des exploitations d’élevage. L’intérêt du système d’infonnation géographique en agriculture est multiple car les SIG sont un outil précieux de prévision, d’analyse, d’anticipation et donc d’aide à la décision. La gestion des crises en cas d’épizootie nécessite la localisation des élevages et leur identification possible (prévention vaccinale éventuelle, la surveillance ou l’interdiction d’une zone). Les SIG procurent à la fois des outils simples d’interrogation et de puissantes solutions d’analyses, deux d’entre eux apparaissent comme particulièrement essentiels: L’analyse de proximité et l’analyse spatiale. Les SIG offrent à la cartographie moderne de nouveaux modes d’expression pennettant d’accroître de façon significative son rôle pédagogique, pennettant surtout la localisation des unités d’élevage sur les cartes géographiques qui constituent de formidables outils de synthèse et de présentation de l’infonnation.

727. NUCLEOTIDE AND AMINO-ACID SEQUENCE OF CAPSID PROTEIN VP1 OF FOOT AND MOUTH DISEASE VIRUS TYPE 01 IRAN. Masoudi, S.; Khedmati, K.; Ashitani, M. Razi Vaccine & Serum Research Institute Iran

Foot-and-Mouth disease virus (FMDV), an aptovirus, is a member of Picomaviridae family and causes a highly contagious and debilitation disease of cloven-hoofed animals such as cattle, sheep, goats and pigs. The disease is widespread in many parts of the world and is the most economically important viral disease of live stock.

FMDV consist of a single stranded positive sense RNA molecule of about 8500 bases and four capsid proteins (VP1-VP4). Like many other RNA viruses, FMDV has a high mutation rate, particularly in VP1 gene, and in the range of 10-3-10-4 substitution per nucleotide and RNA doubling. Mutations are generated during genome replication by the viral replicase owing to lack of proof reading activity. Therefore FMDV genome is highly variable; this variation leads to antigenic diversity and occurrence of seven different serotype (A, 0, C, SAT1-SAT3, and Asia1) and many subtypes. Hypervariable region of FMDV genome that is responsible for this antigenic diversity lies in the VP1 gene segment. Therefore
FMDV antigenic diversity is due to nucleotide and amino acid substitution of VP 1. This Sequence diversity can be used in FMDV type diagnosis by RT-PCR. In addition VP1 sequence determining would provide use ful data about virus antigenicity. One of the main FMDV serotype that infects livestock in Iran is 01. In order to specifically identify the 01 FMDV serotype of Iran the complete coding sequence of VP1 protein was amplified by RT-PCR and nucleotide and amino acid sequence of the PCR product was determined.

728. A RETROSPECTIVE STUDY ON EFFICACY OF BOVINE TUBERCULOSIS ERADICATION ON INCIDENCE OF HUMAN TUBERCULOSIS. M. Sakha. Division of large Animal. Internal Medicine, Department of Clinical Studies, Faculty of veterinary medicine, Shahid Bahonar University of Kerman, Kerman, Iran.

Tuberculosis (TB) is a chronic and zoonotic disease that had known for many years, the cause of the disease is acid-fast bacillus belong to the family of mycobacteriaceae, mycobacterium tuberculosis. weakness, emaciation and chronic respiratory symptoms are common signs of the disease. the main group of human TB is pulmonary TB and the other is extrapulmonary TB. it seems that many cases of extrapulmonary TB is related to animal tuberculosis. this article is a retrospective study in ten years of 1991 to 2000 on incidence of human and bovine TB and evaluation of bovine TB control project in relation of human TB incidence in city of kerman, IRAN. bovine TB control project is a national project that is many years have performed in IRAN. All of datas of this study were gathered from the veterinary centre in KERMAN for bovine TB control project and the centre of human tuberculosis control for files of human cases. This study have showed that the most patients are over 60 years old and the other range of 21 to 30 years old, the women were more exposed with the disease, prevalence of the extrapulmonary TB in the first year of the study was 11.9 in 100,000 and two years later was relatively higher than in seven years later prevalence had a decreasing slope so that it had reached to half of early record. Among 219375 cows that were tested for TB in ten years, 65 cows were reactor, the most incidence is belong to first and second years, that were 37 and 18 cases respectively, in later years there was obviously a decreasing slope with only one or two reactor in 1993 to 1998 and there was no cases in 1999 and 2000. It seems that there is positive relation between decreases in human TB (extrapulmonary TB ) and bovine TB control project in kerman, so that with the obvious decreasing of bovine reactors in last year of this study, human cases also had a decreasing slope, although the human extrapulmonary TB is nearly one third of total human cases and it needs supplemental projects to control of human tuberculosis.


La rage est une encéphalomyélite quasiment toujours mortelle qui peut atteindre tous les animaux à sang chaud et dont l’agent étiologique est un virus qui appartient au genre Lyssavirus. La maladie continue à représenter un problème important de santé publique et un coût économique très élevé en raison des traitements post-expositions et des campagnes de prophylaxie. Une étude détaillée des vaccins antirabiques dans le monde, nous a permis de conclure que la solution pour lutter contre ce fléau dans certaines régions du monde, y compris la Tunisie, passe par l’utilisation de vaccins plus efficaces, plus stables et moins chers. La vaccination à base d’ADN peut constituer un excellent moyen mis à disposition pour contrecarrer ce fléau. En effet, il a été bien démontré que la vaccination à base d’ADN contre la rage
en pré-exposition dans le modèle murin est fort prometteuse. Pour cela, nous allons discuter la possibilité de l’application de la vaccination à base d’ADN contre la rage chez le chien et la comparer à l’utilisation des vaccins classiques produits soit sur culture cellulaire, soit sur encéphales d’animaux. D’autre part, en ayant l’espoir que cette approche de vaccination à base d’ADN contre la rage, puisse être utilisée un jour chez l’homme, si toutes les garanties de précautions sont prises, nous avons testé un protocole de traitement en post-exposition chez la souris. Nous avons comparé l’utilisation d’une seule injection du vaccin à base d’ADN par rapport à un régime de cinq injections du vaccin classique produit sur cultures cellulaires chez des souris BALB/c challengées par le virus rabique par la voie périphérique.

730. MONITORING EMERGING ZOONOTIC DISEASES VIA THE INTERNET WITH SPECIAL REFERENCE TO SOUTHERN AFRICA: A BRIEF SUMMARY OF PROMED-MAIL’S SURVEILLANCE FROM 1996 TO 2001 P. Cowen 1, M.E. Hugh-Jones 2, T. Garland 3, R. A. Morales*. 1College of Veterinary Medicine, North Carolina State University, Raleigh, NC USA; 2 College of Veterinary Medicine, Louisiana State University, Baton Rouge, LA USA; 3College of Veterinary Medicine, Texas A & M University, College Station, Texas USA; and 4Research Triangle Institute, Research Triangle Park, NC, USA.

One of the outcomes of the United States National Academy of Science’s first forum on emerging diseases, chaired by Joshua Lederburg in 1992, was the establishment of the ProMED-mail intranet based surveillance system for new diseases. ProMED-mail monitors emerging diseases in a comparative fashion, tracking new disease events in humans, animals and plants. The program for Monitoring Emerging Diseases (ProMED) began as a small email listserv in 1994. Currently, ProMED-mail has over 20,000 participants from 160 countries including hundreds of sites at CDC, USDA, Institute Pasteur and Institute Robert Koch. South Africa ranks 10th in the number of email subscribers with 257 and 9th in the number of website visits. This paper will provide a brief history of ProMED-mail’s development, present a description of the global and Southern African distribution of emerging zoonotic and other animal diseases since 1994. Finally, we will briefly review current ideas explaining the emergence of new zoonotic and animal diseases, with a particular emphasis on economics, trade and modern animal/food production systems. ProMED-mail topic files were obtained for the period October 1996 to October 2001. Reports of zoonotic and animal diseases are summarized by etiologic agent, geographic distribution, number of reports and species of affected animals. Statistically unusual outbreaks will be summarized in detail with emphasis on the identification of factors promoting the occurrence of an emerging disease event. Descriptive epidemiology and statistics for all outbreaks in Southern Africa will be compared to other regions in the world. Complete results for the past five years will be presented. Only partial results have been calculated to date. For example, limited results from 1998 show 596 reports of “human only” disease, 328 reports of zoonotic or animal disease and 22 reports of plant diseases. In 1996, the most reported diseases included cholera, dengue, ebola, equine encephalitides, spongiform encephalopathies, foodborne E. coli, hantavirus, influenza, legionellosis, eningitis, rabies, salmonella and yellow fever. In conclusion, time and time again, over the past five years, new diseases in humans can only be fully understood when the animal components have been delineated.

731. COMPARISON OF FREQUENCY OF BACTERIA, ISOLATED FROM ABORTED SHEEP AND GOAT FETUS ALONG 1997-98 WITH EPIDEMIOLOGICAL STUDY OF SOME OF
Factors causing abortion of sheep and goat fetus, samples of which were sent to Veterinary Laboratory of Isfahan Province were studied during a period of two years. Amongst 207 tested cases of abortions in 1998 and 259 cases in 1997, bacteria of Brucella, Salmonella, Escherichia coil, Campylobacter fetus, Corynebacterium were isolated. Cases of Salmonella and Brucella through epidemiological studies were compared with human cases in human laboratories. Many bacterial causative factors can be involved in abortions in sheep and goat herds that with regard to their frequency, Salmonella and Brucella are more important. In our country, operations and activities of Brucella eradication began since several years ago. This research is a study on effects of this eradication project on average frequency of these two agents and their effect on pathogenicity in Human.

Comparison of findings shows that in 1998 compared with 1997 percent of contamination to Brucella has decreased, however, in other instances a considerable increase is seen that is comparable with human cases of salmonellosis. Comparing two tables A and B, it can be concluded that bath human and cattle cases of salmonellosis has increased while a considerable decrease of either human or cattle brucellosis has been observed. A review of brucellosis eradication operations at archives of General Bureau of Veterinary of Isfahan Province, one can conclude that one of the main reasons for decrease of cases of brucellosis has been increasing operations of eradicating this disease at a wide level.


Cette étude a été réalisée dans la région de Hazoua du gouvernorat de Tozeur qui ne connaît qu’un élevage de petits ruminants. Dans cette région, la brucellose humaine sévit chez les jeunes adultes des deux sexes. La contamination se fait essentiellement à partir des chèvres. Le délai moyen de diagnostic de la maladie est de 14 jours, avec des extrêmes allant de 1 à 50 jours. Le tableau clinique est celui d’une brucellose aiguë, marqué par une fièvre sudoro-algique. La fièvre est le signe le plus constant (87%) suivie des sueurs (44%). La myalgie et la céphalée sont les moins fréquentes (21 % et 18 % respectivement). Par contre l’examen physique est pauvre. Le contrôle sérologique par l’épreuve à l’antigène tamponné (E.A. T), la réaction de fixation du complément (R.F.C) et le test E.L.I.S.A a montré 101 sérums positifs par un ou plusieurs tests soit 45,5% de positivité. Le traitement est basé sur l’utilisation de l’oxytétracycline et/ou la rifampicine. La guérison clinique est observée chez la totalité des individus. Cependant, la négativation de la sérologie est observée chez 121 patients soit 54,5%. Cette guérison sérologique est fonction de la durée de l’antibiothérapie.


La fréquence de la brucellose humaine en Tunisie est corrélée à la fréquence et la nature de la brucellose animale et notamment celle des petits ruminants. En effet, le même germe [espèce et type de brucelles]

**734. LA BRUCELLOSE DIAGNOSTIC BIOLOGIQUE ET SENSIBILITÉ AUX ANTIBIOTIQUES.** Dekhil M. Laouar M. M. Dekhil1, M. Laouar2. 1Laboratoire Central de Microbiologie, Hopital Dorban, 23000 Annaba, Algérie. 2Service des Maladies Infectieuse, Dorban, 23000 Annaba, Algérie.

La Brucellose demeure une anthropozoone préoccupante, en dépit des efforts réalisés par j’O.M.S et par les politiques de santé vétérinaire des pays concernés. Bien qu’en nette régression grâce aux progrès accomplis dans la lutte contre cette WONOSE, l’endémie brucellienne est encore bien souvent sous évaluée. En effet sur un total de 200 malades suspects de brucelloses cliniquement confirmées nous avons colligé 64 brucelloses confirmées serologiquement par Sero-Agglutination de wright et Cardliui Test et 30 brucelloses confirmées bacteriologiquement par hémocultur, les 64 brucelloses confirmées serologiquement répondent a un profil clinique identique contrairement au 146 malades qui présentaient des profils cliniques différents et très variés. L’étude de la sensibilité aux antibiotiques des 30 souches a montré l’efficacité synergique de la tétracycline avec la streptomycine ou la rifampicine.

**735. APPROCHE ECOPATHOLOGIQUE DU SYSTEME DE LUTTE CONTRE LA BRUCELLOSE EN TUNISIE : ETUDE DESCRIPTIVE.** M.Gharbi1; B. Faye2, H. Bouzghaia3. 1Gharbi Mohamed. 12, Rue Belhassine Jrad. 2080, Ariana. Tunisie. 2CIRAD TA 30 / A, Campus International de Baillarguet. 34398, Montpellier Cedex 5. France. 3Ecole Nationale de Médecine Vétérinaire. 2020, Sidi Thabet. Tunisie.


La brucellose des petits ruminants pose un véritable problème de santé publique en Tunisie avec plusieurs centaines de cas humains recensés par an. La lutte contre cette zoonose repose actuellement essentiellement sur un programme national basé sur la réalisation de campagnes de vaccination de masse annuelle. Le vaccin destiné aux petits ruminants est utilisé par instillation oculaire de la souche Rev-1. Cette souche peut être à l’origine d’une brucellose humaine dans certaines circonstances. L’étude de la possibilité de son excrétion post vaccinale dans le lait des petits ruminants et notamment des caprins revêt à cet égard un intérêt majeur afin d’apprécier les risques de sa transmission à l’homme. Dans une étude comparée de trois protocoles de vaccination anti-brucellique des caprins par la souche Rev-1 [109 UFC par injection sous cutanée, 109 UFC par instillation oculaire et 0,5 109 UFC par instillation oculaire], l’excrétion mammaire des Brucella a été recherchée quantitativement pendant 35 jours. — Cette excrétion a été retrouvée à partir du 7ème jour après la vaccination et jusqu’au 35ème jour. Elle semble débuter d’autant plus tôt que la dose vaccinale est importante (aucune excrétion n’a été décelée à J7 avec 0,5 milliard d’UFC par instillation oculaire), alors qu’à J21, 23,8 % des chèvres ayant reçu un milliard d’UFC ont excrété des Brucella contre 9,52 % de celles ayant été vaccinées avec 0,5 milliard et qu’à 135 ces dernières ont excrété dans une proportion de 30,76 % contre 21,42 % de celles ayant reçu un milliard d’UFC. Quel que soit le protocole vaccinal, aucune chèvre excrétrice à J21 n’a excrété des Brucella à J3, ce qui est en faveur d’une excrétion limitée dans le temps. La vaccination par la voie sous cutanée semble engendrer une excrétion plus précoce que la vaccination par instillation oculaire à dose égale soit respectivement 5,26 % contre 2,85 % à J7. A l’inverse, l’instillation oculaire semble produire une excrétion plus durable que la voie sous cutanée avec respectivement 23,8 % contre 14,28 % à J21 et 21,42 % contre 10 % d’excrétion à J35. Ainsi, les risques pour la santé publique existent à la suite de la vaccination anti-brucellique par l’intermédiaire du lait de chèvres. Il est donc important de quantifier ces risques et surtout de préconiser les traitements spécifiques à ce produit (thermique par exemple) afin de limiter ces risques au moins pendant un mois et demi à compter de la date de vaccination anti-brucellique à l’aide de la souche Rev-1 des chèvres laitières.

737. PERFORMING MILK RING TEST AND ITS EFFECT ON DECREASING HUMAN AND CATTLE BRUCELLOSIS. M.H. Niazi¹, H. Tajbakhsh². ‘Departement of Isfahan Province. Veterinary Faculty of Tehran University.

Brucellosis is one of the most important Zoonosis in Iran. For the control and prevention of this disease, a lot of budget, facilities, and manpower are devoted yearly by the government. One of the ways of diagnosing animal brucellosis in Iran is blood-taking and serological testing, but in a research study done in 40 villages in Lenjan (a region in Isfahan province) during 1998 and 1999, 2294 samples of mixing milk from 9149 cows in the these villages were collected and after testing them, 219 centers of positive or suspicious MRT were diagnosed. In these centers there were 838 milk cows. After taking blood from these cows and performing serological tests on them, 23 reactor cows in 1998 and 6 ones in 1999 (totally, 29
reactor cows) were spotted and slaughtered; while, in 1996 and 1997, four cows out of 2972 cows which were studied for the same purpose in the region were known to be infected and slaughtered. The followings are the results of the above-mentioned research: Taking blood from all the cows of the villages is difficult and time-consuming and, in some cases, almost impossible. In addition, the villagers showed no interest in blood taking from their cows but were interested in delivering the milk to the veterinary centers. Therefore, the research was welcomed by the people, and all the cows in the region were involved in the study. By performing this research, the cattle population of this area was classified into two groups, healthy and suspicious, and there was no need for blood testing from healthy groups. Therefore, it was possible to diagnose more reactor cattle by less blood testing. In 1998 and 1999, the proportion of the number of the reactor cattle to the number of the blood tested cattle (reactor/test) increased 26 times regarding the same time the previous years. During this study, the number of the reactor cattle which were recognized and slaughtered were 7 times as many as those in the previous years. According to the latest information obtained by the Health and Cure Network and Veterinary Center of the region, after performing the research, the rate of human brucellosis decreased 10 times and the rate of cattle brucellosis decreased 6 times. So, in the areas in which brucellosis is spread, if this study is carried out simultaneously with cattle vaccination, the rate of human and cattle brucellosis will be reduced.

738. CAPRINE BRUCELLOSIS IN KHARTOUM STATE. El Tijani T.M. ; Hayfa Mohamed Ismail Sudan.

The goat has become an important animal in Khartoum State, raised for milk production and local consumption and meat for export. Caprine brucellosis (caused by \textit{B. melitensis}) is a serious disease, which causes economic losses in goats and a serious human illness if transmitted to man. This study was, therefore, carried out to determine the prevalence of caprine brucellosis in Khartoum State. A total of 3484 samples consisting of 1200 milk, 1000 sera and 1200 whey were examined for the presence of antibodies to \textit{Brucella}. In addition, demonstration and isolation of the organism was attempted from 82 lymph nodes (L.N) and two foetal stomach contents. The samples were collected from different localities in Khartoum, Khartoum North and Omdulman and also from goat’s slaughtered at Omdulman and Elkadaro slaughterhouses. For serological tests, Tube agglutination test (TAT), Rose Bengal Plate test (RBP), Capillary Tube agglutination test (CTAT) and the Agar Gel Precipitation test (AGP’l-) were carried out. The two tests were conducted for the first time in Sudan to diagnose caprine brucellosis during the present work. Milk Samples were tested by the Milk Ring test (MRT), whey agglutination test (WAT) and Capillary Tube agglutination test (CTAT). The results showed that the rate of positive reactors was 2% by T and 1.5°/0 by RBPT and CTAT. A much lower percent of positive reactors, 0.70/0 was obtained with milk and whey tests. No organisms were seen in smears from lymph nodes milk and foetal stomach contents and no Brucella was isolated from these samples.

739. AMÉLIORATION DE LA QUALITÉ DU LAIT DANS LE GOUVERNORAT DE MONASTIR DE LA RÉPUBLIQUE TUNISIENNE. L. BOUGHAZLA¹, S. BEN AHMED¹, Y. HACHANA² ¹CRDA Monastir, ²LIAL Ksar Hellal. Tunisie.

Ce travail a pour objectif l’identification des principales contraintes techniques et sanitaires et les perspectives de développement du secteur laitier. Les recherches et analyses du lait ont porté sur 22 247
prélèvements de lait durant l’année 2001 chez les éleveurs opérant auprès de 17 centres de collecte de lait du Gouvernorat de Monastir. Ces analyses ont été pratiquées au laboratoire interprofessionnel du lait de Ksar Hellal par comptage des noyaux cellulaires. Elles ont révélé que la répartition de la concentration en cellules somatiques (CCS) chez les éleveurs est comme suit : < 300 mille cellules somatiques par ml de lait : 61,7 % des éleveurs
De 300 mille à 1 million de cellules somatiques par ml de lait : 26,8 % des éleveurs > à 1 million de cellules somatiques par ml : 11,5 % des éleveurs. Par ailleurs, ces mêmes analyses ont révélé que la CCS est élevée pendant les saisons d’été et d’automne. L’enquête technique et les analyses bacteriologiques effectuées auprès de 100 éleveurs bovins laitier ont révélé que la mauvaise conception des étables dans 88 % des cas, la pratique d’une traite non hygiénique dans 32 % des cas, le mauvais réglage et entretien des machines à traire dans 35% des cas, contribuent largement au développement des mammites colibacillaire et staphylococcique, à l’élévation de la CCS, de la protéolyse lipolyse et à la diminution de la qualité du lait

739. AN IMPROVED DETECTION METHOD OF Vibrio parahaemolyticus IN SEA FOODS USING MODIFIED ENRICHMENT AND A NEW CHROMOGENIC AGAR MEDIUM. Y.Hara-Kudo1, T. Nishina2, H. Nakagawa1, H. Konuma1, S. Kumagai3. 1 National Institute of Infectious Diseases, Tokyo, 2 Tokai University Junior College, Shizuoka, 3 Tokyo Kenbikyoin Foundation, Tokyo, 4 National Institute of Health Sciences, Tokyo; 5 The University of Tokyo, Tokyo, Japan.

We have developed a new effective procedure for detecting Vibrio parahaemolyticus in seafoods using enrichment and plating onto a chromogenic agar medium. Samples were cultured in salt tryptic soy broth, which is a nonselective medium, and then a portion of the culture was cultured with salt polymyxin broth, which is a selective medium for V. parahaemolyticus. This two-step enrichment was more effective than the one step enrichment in salt polymyxin broth alone. The enrichment cultures were then plated onto the chromogenic agar which was developed specifically to differentiate V. parahaemolyticus from other bacteria, by using a chromogenic substrate. The V. parahaemolyticus colonies developed a purple color on this growth medium that distinguished it from other related bacterial strains. V. parahaemolyticus was isolated more frequently from naturally contaminated seafood samples using the chromogenic agar than thiosulfate citrate bile salts sucrose agar medium which is currently used for the isolation of V. parahaemolyticus. Our findings suggest that this new enrichment and isolation scheme is more sensitive and accurate for identifying V. parahaemolyticus in seafood samples.

740. ELISA SCREENING METHOD FOR DETECTION OF ANIMAL ORIGIN PROTEIN IN FEED AND MEET PRODUCTS. M. Smajlovic1, F. Caklovica2, A. Smajlovic1, F. Kaukcija1, S. Nurka3, B. Elzana3, P. Slavica3. 1 Food Hygiene Department, 2 Department of Pharmacology and Toxicology Veterinary faculty Sarajevo, 3 Cantonal Veterinary Inspection Sarajevo Bosnia and Herzegovina

The process of identification of animal origin proteins is interesting in accidental cases of manifestation of zoonoses like Bovine Spongiform Encephalopathy (BSE) as well as in cases of toxic residues (Dioxin) in the meat of animals and poultry used for slaughtering. Also identification of meat species is being used in many countries for different reasons, like economic as well as religious and health reasons. The aim is to prevent replacement of the appropriate meat, assigned for human nutrition, with unsuitable
or less valuable types. In this paper we have presented results of laboratory analyses of feed and meat products undertaken in the Department for Food Hygiene and Quality of Veterinary faculty Sarajevo in order to determine the presence of non declared animal origin proteins. The laboratory analyses were carried out by commercially available enzyme immunoassay (ELISA).

741. INFLUENCE OF DIFFERENT CONSERVATION METHODS AND METHODS AND TECHNOLOGY OF PROCESSING ON QUALITY, HYGIENICAL CORRECTNESS AND DURABILITY OF “Smoked Beef from Breko”. I. Dajic-Hukic¹, F. Caklovica², M. Smajlovic³, A. Bedrijan², S. Hukic¹. ¹Veterinary Inspection of District Brcko. ²Food Hygiene Department of Veterinary faculty Sarajevo, Bosnia and Herzegovina.

Smoked beef is considered as very popular delicates and technological method for its preparation is very demanding. Specificum of “Smoked beef from Breko” is in its process of conservation with only natural additives: salt, sugar and water. In this paper, authors are presenting two technological methods of salting and smoking with laboratory examination of final product and comparative evaluation of both methods.

742. KID-GOAT CARCASS OF CROSSBREED DOMESTIC BALKAN WHITE AND SAANEN BREED. Sakic, V.(Bosnia-H). KID-GOAT CARCASS OF CROSSBREED DOMESTIC BALKAN WHITE AND SAANEN BREED V. Sakic, F. Caklovica. Faculty of Veterinary Medicine, University of Sarajevo; Bosnia-Herzegovina

Research defined in this paper took place in the Department for Food Hygiene and Quality of Veterinary Faculty Sarajevo from 1998 to 2000. Experiment included 44 uncastrated crossbreed kid goats of Domestic Balkans white and Sanen goat in age of 3 - 4 and 6 - 7 months. By investigating and analyzing of slaughter parameters it was found that carcass with head male kids in age 3 - 4 months was 50,50%, in female kids 50,43%. Carcass with head in male kids in age 6 - 7 months was 51,33%, in female kids 51,30%. Slaughter yields of carcass weight with head male kids in age 3 - 4 months was 49,60%, in female kids 49,29%. Slaughter yields of carcass weight with head male kids in age 6 - 7 months was 50,36%, in female kids same age 50,35%. There was not significantly influence of sex on slaughter yields carcass in both investigated age groups. Average weight other edible parts of carcass of female kids in age 3 - 4 months was significantly greater than male kids in same age (P < 0,05). Average liver weight of male kids in age 3 - 4 months was significantly greater than female kids in same age (P < 0,05).


Les T.I.A.C. font l’objet d’une surveillance continue et exhaustive depuis 1994 dans la région de Bizerte. Une base importante de données relatives à cette pathologie a été rendue ainsi disponible pouvant être utile pour mieux comprendre l’épidémiologie des TIAC et par là d’orienter et de mieux cibler nos activités de prévention d’un tel fléau.

La source de déclaration semble demeurer univoque puisque 92,6% des foyers ont été déclarés par des médecins de santé publique.

Quant à l’origine géographique des foyers elle a été marquée par une concentration du maximum de foyers au niveau de l’est du gouvernorat de Bizerte (76 foyers), contre (33 foyers) au niveau de l’ouest du gouvernorat.

L’évolution du taux d’incidence déclarée a été marquée par des fluctuations annuelles avec des extrêmes de 11,2/100.000 habitants en 1995 et 41,5 pour 100.000 habitants en 1999.

Le pic saisonnier classique se repête chaque année avec plus ou moins d’accentuation. C’est ainsi que près de 56% des foyers ont été notifiés au cours des mois de Juillet - Aôut-Septembre.

La taille moyenne des foyers est de 8,3 personnes avec une étendue de 02 à 47 personnes.

La répartition des malades en fonction du sexe est presque équitable (50,7% de sexe masculin).

L’âge adulte semble être le plus touché (60,2% des cas).

Un seul décès a été déploré, soit un taux de léthalité faible de 0,11%.

L’hospitalisation a été préconisée pour 136 malades soit un taux d’hospitalisation de 14,9%.

Les trois quarts des foyers environ (75,2%) ont concerné le milieu familial.

Les plats cuisinés viennent en tête des aliments contaminant (47,7% des foyers) talonnés par les produits pâtissiers (24,8% de foyers).

Ainsi les particularités des TIAC dans la région de Bizerte ont pu être dégagées.

Les données ainsi recueillies ont déjà été utilisées à des fins opérationnelles au fur et à mesure de l’investigation de tout nouveau foyer de TIAC.

Nous appelons à leur utilisation future en vue d’affiner nos stratégies d’intervention dans le cadre de la lutte et de la prévention des maladies d’origine alimentaire.

De cette manière l’information sera couplée à l’action et notre système de surveillance aura fait ses preuves.

744. MELISSOPALYNOLOGICAL CHARACTERISTICS OF THE MAIN TYPES OF GREEK UNIFLORAL HONEYS. Tsigouri, A, Olga Sabatakou1, Maria Pasaloglou-Katrali Institute of Veterinary Research of Athens, National Agricultural Research Foundation, Veterinary surgeon, Trion Ierarchon 7, Thisseio, Athens, Greece

Melissopalynology, analysis of the pollen content of honey, despite of its limitations, still remains the main tool for determining the botanical and in some cases the geographical origin of honey. Since microscopical data related to Greek honeys were rather poor, a new study was carried out in the framework of the National Programme based on EU Regulation 1221/97. More than 250 honey samples of different botanical origin were collected and analyzed. The analyses performed involved organoleptic evaluation, melissopalynological analysis (qualitative and quantitative), as well as measurement of some physico-chemical parameters of diagnostic value (electrical conductivity and color). The main types of Greek unifloral honeys and their contribution to total annual honey production combined with the melissopalynological indexes found, are summarized in the Table below.

<table>
<thead>
<tr>
<th>Botanical Origin</th>
<th>% of Total Production</th>
<th>% of Main Pollen</th>
<th>HDE/P Ratio</th>
<th>Representative Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pine honeydew</td>
<td>60</td>
<td>Variable II, III</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abies honeydew</td>
<td>5</td>
<td>Variable II, III</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thymus capitatus</td>
<td>35</td>
<td>S I, II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gossypium hirsutum</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
IM, S II 4 Helianthus annus P, S II 4 Castanea sativa P III, IV, V 4 Citrus spp. IM, S II 3
1 P: predominant pollen (>45%), S: secondary pollen (16-45%), IM: important minor pollen (3-15%), M: minor pollen (<3%); 2 HDE/P: Honeydew elements/pollen; 3 Total number of plant constituents/10g - Representative classes: I = < 20 000, II = >20 000 & < 100 000, III = > 100 000 & < 500 000, IV = > 500 000 & < 1 000 000 V = > 1 000 000; 4 The rest represents minor productions and multifloral honey

745. OBSERVATIONS ON CLOSTRIDIUM PERFRINGENS PRESENCE IN ANIMAL ORIGIN FOOD. Caracappa, S.(Italy). Istituto Zootecnico Sperimentale della Sicilia “A. Mirri “Via Rocco Dicillo, 4 90129 Palermo (PA) Tel. 091-6565111 Fax 091-6570803

Clostridium perfringens is a microorganism responsible for two forms of foodborne diseases: a form commonly known as “pig-bell” supported by strains kind C and wide-spread principally in Nuova Guinea; and a “classical form” supported by strains kind A and wide-spread in various parts of the world. However real incidence of classical form is not very known because often it is an asymptomatic infection. In the light of these facts, the authors carried out an investigation in order to estimate the spread of this microorganism in different kinds of animals original foods some considered most at risk (meats).

In all 2000, 166 food samples were examined: 46 samples of cattle, pork and sheep chopped or minced meat, 10 chicken samples, 8 samples of processed meat, (hamburger, fresh sausage, salami, wurstel, ham, bacon, roasted chicken), 20 preserves of meat, 48 preserves of fish (anchovies in salt and in oil, sardines in salt and in oil, mackerel in oil), 3 samples of fishing products, 24 samples of milk and dairy products, 5 honey samples, 2 samples of gastronomics prepared food.

Clostridium perfringens was isolated in two samples of cattle meat and in six samples of cheese. During the investigation also sulphite-reducing Clostridium was isolated and it was identified as an indicator of hygienic deficiency.

746. RESULTS OF VETERINARY INSPECTOR OF SLAUGHTERED ANIMALS AND MEAT IN POLAND IN 2000. Henryk, L.Poland.

More than 20 millions animals – about 1,3 mln cattle, 241420 calves, more than 18 million pigs, 23096 sheep and more than 37000 horses were slaughtered in Poland in 2000. During pre-and post – slaughter examinations in that year pathological lesions were found in 46% of the carcasses: 25,14% in cattle, 3,84% in calves, 49,09% in pigs, 66,94% in sheep, 10,45% in horses.

More than 81000 of the slaughtered animals (0,39%) were considered to be unfit, less valuable and relatively unfit. The following diseases were diagnosed: tuberculosis, septicemia and pyemia, neoplasms, leukemia, icterus, emaciation, watery muscles, purulent foci, hyperemia and others. Tuberculosis – like lesions were diagnosed in 0,006% cattle and 0,08% in pigs. Extensiveness of liver fluke invasion in cattle – 10,93%, in sheep – 12,57%. Bovine cysticercosis was found in 0,18%, in pigs – 0,0004%; echinococcosis in pigs – 4,95%, trichinosis in pigs – 0,0004%. The cattle were free from neurological disorders.

The war and its consequences, among other things, are regularly followed by the lack of food and the famine. That was manifested in the most severe form in the besieged Sarajevo, and so all potential possibilities were activated in order to decrease food shortage and deficit in the population diet. Only possibility was rabbit production, which was first organised at Veterinary Faculty, and later in cooperation with the citizens within the city and suburban areas.

This study presents research results of relation between “live weight” and exploitation values after slaughtering of “Sarajevo” rabbits, which were raised during the war. Rabbits came from numerous litters and they were fed with hay, green stuff and food from humanitarian aid hygienic invalid for human consumption like rice, beans, lentils and dried bread. Rabbits were slaughtered at various ages, as follows: 81-90, 91-100, 11-120, 121-130, 131-140, 141-150 and 151-160 days. Before slaughtering, “live weight” was determined for all rabbits, and in average it was: for males from 1814,17 g (81-90 days) to 2737,92 g (151-160 days); and for females from 2240,83 g (81-90 days) to 2428,33 g (151-160 days). Meat use percentage was: for males from 48,80% (81-90 days) to 51,86% (151-160 days); and for females from 49,58% to 51,14% (151-160 days). Differences in weight gain, total weight and meat use percentage are consequences of various slaughter age and unbalanced nutrition due to the war.

748. LEPTOSPIROSIS IN CATTLE IN BOSNIA AND HERZEGOVINA. Pasic, S.; Rifatbegovic, M.; Velic, R. (Bosnia-H). Institut for epizootiology, Veterinary faculty, University of Sarajevo.

During the period of one year (2000/2001), at the microbiology laboratory of the Veterinary faculty in Sarajevo, 9983 semples of blood sera from cows were tested for leptospirosis. Sera were tested by microscopic agglutination test for four serotypes of L. interrogans: hardjo, grippotyphosa, icterohaemorrhagiae and pomona. Of the total number of sera 2,18% were positive in minimal titre 1:100. The highest percent (59,6%) of positive semples had specific antibodies for serotype pomona. Compared with last investigations (1996-2000) of leptospirosis of cows imported in Bosnia and Herzegovina, differences in percent of positive semples and serotypes are evident.

Semso Pasic, Dr.Sc., associate professor; Maid Rifatbegovic, M.Sc., assistant; Ramiz Velic, M.Sc., senior assistant;

749. MISE EN PLACE DES RÉSEAUX D’ÉPIDÉMIOSURVEILLANCE DES MALADIES ANIMALES TRANSFRONTALIÈRES EN TUNISIE: SITUATION ACTUELLE, ET PERSPECTIVES. Hammami S1, Seghaier C1, Gerbier G2, Sanaa M3 & Moutou F2 Institut de la Recherche Vétérinaire de Tunisie (IRVT), Tunis, Tunisie Agence Française de Sécurité Sanitaire des Aliments (AFSSA), France Ecole Nationale Vétérinaire d’Alfort, France.

Les maladies animales transfrontalières continuent d’être une réelle menace. Aucun pays, même les plus développés, ne peut prétendre en être à l’abri. La mondialisation, en particulier le commerce international intense d’animaux et de produits d’origine animale et les perturbations climatiques de ces dernières années ont rendu le capital animal constamment menacé par les maladies épizootiques. En santé animale, chaque pays membre de l’Organisation Mondiale du Commerce (OMC) doit connaître et surtout pouvoir prouver l’état sanitaire de son cheptel pour faire valoir ses droits. Donc une connaissance régulière de la situation épidémiologique de maladies est nécessaire. L’épidémiosurveillance est la méthode qui répond le mieux à ce besoin. L’objectif du présent travail est de présenter une synthèse des étapes à franchir en
vue de mettre en place un réseau d’épidémiosurveillance des principales maladies animales en Tunisie. Une étude de faisabilité dont l’objectif était de connaître les moyens tant humains que matériels et de mesurer les connaissances et les pratiques relatives à la fièvre aphteuse (FA) et la brucellose a été réalisée. Cette étude a été suivie par un essai pilote de mise en place d’un réseau d’épidémiosurveillance de la FA dans deux districts. Ces études ont été accompagnées de travaux visant le développement d’outils d’épidémiosurveillance et l’évaluation des campagnes de vaccination de masse des animaux sensibles contre la FA ainsi que de l’organisation de cycles de formation sur le thème de lépidémiosurveillance. Les limites d’une approche nationale de surveillance des maladies animales seront présentées et la nécessité ainsi que l’intérêt d’une approche régionale seront discutés.

750. PREVALENCE OF HUMAN TOXOCAROSIS IN THE HERZEGOVINA REGION.
Omeragic, J.; Zuka, A.; Zarema, O. University of Sarajevo, Faculty of Veterinary Medicine, Department of Parasitology and Invasive Diseases, Department of Public Health of Mostar Zmaja od Bosne 90, 71000 Sarajevo, Bosnia and Herzegovina

Toxocarosis, a zoonotic helminthiasis is caused by Toxocara sp. larvae. Three clinical forms in humans are classically described: visceral larva migrans (VLM), ocular larve migrans (OLM) and covert toxocarosis (CT). Larva migrans is the prolonged migration of a larval parasite, usually a nematode, in the skin or internal organs of an abnormal host, usually humans (Beaver, 1956.). The aim of this study was to determine the prevalence of toxocarosis in humans in the Herzegovina region.

During 2 years, the clinical examination of 180 patients including anamnestic data, laboratory values, clinical signs and symptoms, epidemiological data and eosinophil level were realised in Department of Public Health Mostar. Blood samples were collected from the same patients, with different sex and age, with and without clinical symptoms compatible with the diseases, and serum samples were sent to the Parasitology laboratory of Veterinary faculty. Serum samples were examined by ELISA - test (Bordier Affinity Products SA), using E/S Toxocara antigen with a sensitivity higher than 90%. The results of clinical examinations of 180 patients have been various, and 19 (10,55%) sera were positive.

751. PREVALENCE OF RABIES AMONG DOMESTIC ANIMALS AND WILDLIFE FEDERATION OF BOSNIA AND HERZEGOVINA. Bajrovic, T.; Rukavina, L.J.; Velic, R.; Rukavina, D. (Bosnia-H). Department of biology, Veterinary Faculty, University of Sarajevo; Bosnia-Herzegovina

Rabies remains a permanent threat to human population in many parts of the world. Bosnia and Herzegovina is not exemption. Bosnia and Herzegovina has a significant level of rabies endemic tu its wildlife population. There were 89 cases reported during the period 1996-2001.

Twelve cases were reported in domestic animals during the same period. All diagnoses were made through fluorescent antibody technique. Mandatory prophylactic vaccination of domestic cats and being instituted as is a program to reduce fox and stray dog populations. A public health education program is also being developed.

PhD Tarik Bajrovic, professor, Dr Ljubomir Rukavina, associate professor, MS Ramiz Velic, assistant senior, Institute of epizootiology, Dipl.ingineer Dunja Rukavina, assistant,
Rabies is a virus induced neurologic disease of warm-blooded animals that, with rare exceptions, is fatal. Because of its fatal nature, rabies is a most important zoonotic disease. Although all species of warm-blooded animals are susceptible to infection with rabies virus, there are differences in susceptibility. Cattle are among the most susceptible species, but dogs and humans are intermediate in susceptibility to rabies.

In 10th August 2000, a downer cow was referred to the veterinary hospital of Kazeroun University. On the basis of anamnesis the clinical picture is as follows: some vague neurologic signs such as incoordination, depression and somehow decreased sensation for three days that then passed to sternal recumbency from two days ago(8th August 2000).

Two hours after arrival, the cow was died and systematic necropsy was done . In necropsy, unusual foreign bodies were have been found in rumen but no other gross lesion was noticed .In histopathologic examination, Microscopic lesions of the central nervous system was nonsuppurative encephalitis, acidophilic intracytoplasmic inclusion bodies (Negribodies) in purkinje`s cell layer in cerebellum. We know that Negribody formation within neurons of the central nervous system has long been the hallmark of rabies so the disease was confirmed to be rabies and we notified the cow’s owner and also his neighbors of hazards of rabies. It was afterthat the farmer stated that, one month ago; a stray dog violently attacked his farm.

After 25 days another stray dog attacked other farm in the previous mentioned area. The dog was captured and killed by farmers, so histopathologic examination of its brain was done. Microscopic lesions were meningitis, gliosis, encephalitis and also intracytoplasmic inclusion bodies (Negribodies) in neurons that are pathognomonic for rabies in dog. At last Recommendations for immunization of farmers were also considered.

In order to serologic study of bovine enzootic leukosis by experts of natural resource and domestic animal research center and veterinary headquarters of Markazi province, totally, 643 full blooded , hybrid and native cattle have been bleeded.

after separating serum, samples have been tested according to agar gel immunodiffusion test (Kit wereprepared from rhone merieux company) .totally 19 (3%) serologic samples of tested cattle were positive.

contamination percentage in below 2 year old cattle was zero and in three or four year old cattle it was 84.24% .also a high percentage (84.24%) of positive case in full blooded cattle was observed.

Les agents transmissibles non conventionnels (ATNC) ou prions sont à l’origine des encéphalopathies subaiguës spongiformes transmissibles (ESST), maladies neurodégénératives lentes toujours mortelles. Les ATNC se distinguent par leurs propriétés atypiques au sein du règne des micro-organismes. Leur
résistance inhabituelle aux procédés d’inactivation et la composition exclusivement protéique des fractions infectieuses spécifiques a fait proposer l’hypothèse que ces agents pourraient être des entités infectieuses purement protéiques; le seul composant variant avec le titre infectieux est la quantité de protéine PrP, une protéine de l’hôte qui s’accumule sous une forme pathologique la PrP-res ou PrP-sc. La protéine PrP est une sialoglycoprotéine de 30-35 kDa, majoritairement exprimée par les neurones chez l’individu normal. An dehors du système nerveux central, elle est exprimée par les cellules du système immunitaire. Chez l’individu infecté, la protéine PrP devient résistante partiellement aux enzymes protéolytiques et échappe au catabolisme cellulaire. On pense à ce jour que les seules différences entre PrPc et PrP-res siègent au niveau de la structure tridimensionnelle: la structure secondaire de la protéine PrP normale (PrP-c) est majoritairement en hélices alpha, et celle de la protéine pathologique est majoritairement en feuillets bêta plissés. L’accumulation de la protéine anormale se fait selon un mécanisme post-transcriptionnel.

Plus de180 000 cas d’encéphalopathie spongiforme bovine ont été réservés au Royaume Uni depuis 1986. L’apparition, en 1996 de 10 cas de maladies de Creutzfeldt.Jakob (MCJ) chez des sujets de moins de 40 ans a fait proposer l’hypothèse que l’agent bovin était passé dans l’espèce humaine. En effet, ces cas de MCJ étaient tout à fait atypiques tant dans leur présentation neuropathologique (présence de plaques florides) que dans leur symptomatologie clinique [phase de début essentiellement psychiatrique, durée relativement longue de la maladie (en moyenne 14 mois)] : il s’agissait donc d’une nouvelle forme de MCJ, la “variante de la maladie de Creutzfeldt.Jakob” (vMCJ). La contamination par l’agent bovin a tout de suite été évoquée. A ce jour, 136 cas de vMCJ ont été décrits [125 en Grande Bretagne, 1 à Hong Kong, J. en Italie, 1 au Canada, 1 aux USA, 1 en république d’Irlande et 6 en France].

755- INTEGRATED FOOD SAFETY AND QUALITY SYSTEMS. APOSTOLOS T. Rantsios. Greece.

The current trend in Food Safety and Quality control is the establishment of integrated systems. In these systems a dual track flow of information provides, to the end inspector or user, all necessary information for diligent decisions and, also, to the producer, processor or distributor information for improving the safety and quality of foods, and additionally gain financial benefits. The core of the integrated systems is the identification of the products at the end of the production -distribution chain and traceability back to the beginning of production. For achieving the above the integrated systems are supported by data banks. Military Food Safety and Quality Services are not always themselves in a position to control, or to, at least, have available credible information concerning, more specifically, primary production. Therefore, contemporary Military Forces, while they have to exploit the existing Integrated Food Safety and Quality systems, cannot allow themselves to strip of their traditional end product inspection, including laboratory support.

Consequently, Military Services have to continue to appropriately expanding food specifications on information concerning identification and traceability of foods Establishing electronic links with integrated systems, functioning by third parties. Developing the ability of auditing 0 Integrated systems 0 Production, processing, distribution units, as parts of integrated systems implementation.

Transparency is not always the case in the integrated systems. Military Services are obliged to sustain the ability of verifying the claims of the subsistence suppliers. The source of information should be readily accessible. If the supplies are purchased at a local market, where no credible information on the origin of the food is available, then again confirmation of identification and traceability and the ability for laboratory confirmation is required.
Water is a particular case. If it comes from a field source again laboratory confirmation of its safety is necessary. If it is supplied centrally by known suppliers identification and traceability systems are required.

**756- ANIMAL DISEASES AFFECTING THE SAFETY OF FOODS OF ANIMAL ORIGIN**

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Carlos Eddi, Andrew Speedy.

It is estimated that in the next 20 years, the world population will double (12 billion). In developing countries the proportion of the human population that lives in urban centres will increase more than 50% with a parallel increase in environmental pollution. In addition to the economical and social difficulties that humankind will face, the global temperature will increase with an impact at local and regional levels. There will be an increase in: heat stress mortality, pathogen infections such as *Salmonella* and *Giardia*, urban pollution and vector-borne diseases in particular those transmitted by mosquitoes. Zoonotic diseases and foodborne pathogens are currently a matter of concern. However under the conditions mentioned above, Veterinary Public Health systems at a world level should implement proper measures to avoid a tremendous impact on food borne diseases in human populations.

The increase in food borne diseases is driven by the same forces as the emergence in other infectious diseases such as increase of trade in live animals, travellers, refugees, immigrants, change in human population dynamics, incidence during long storage of food and inadequate transportation. Emergence of antibiotic resistance, availability of drinking water and intensification of animal production schemes are other causes of outbreaks of food borne diseases.

In a developed country such as the USA, foodborne diseases are estimated to cause 76 million illnesses, 325,000 hospitalizations and more than 9,000 death per year and cost an estimated 5 billion U.S. dollars. More than 250 foodborne diseases have been described. Among the main etiological agents of animal origin recognized are: *Salmonella spp.*, *Campylobacter jejuni*, *E. coli* O157:H7, *Staphylococcus aureus*, *Listeria monocytogenes*, *Brucella abortus*, *Mycobacterium bovis*, *Vibrio vulnificus* and *V. parahaemolyticus*, *Yersinia enterocolitica* *Giardia intestinalis*, *Cryptosporidium parvum*, *Trichinella spiralis*, *Taenia saginata* and *T. solium*, *Toxoplasma gondii* and Norwalk-like viruses.

Zoonotic and food borne diseases are discussed in the context of the BSE crisis. Addressing emerging food borne diseases will require more sensitive and rapid surveillance, enhanced methods of laboratory identification and subtyping, and effective prevention and control measures.

The role of FAO through the Veterinary Public Health Network at global level is also addressed.

**757- CAN GLOBAL ERADICATION OF RINDERPEST SUCCEED? P. Roeder. Global Rinderpest Eradication Programme Secretary FAO Animal Health Service Rome, Italy.**

The Global Rinderpest Eradication Programme (GREP) has made significant progress in the last decade. As recently as 1994 rinderpest was persisting in some 10 countries and numerous others were affected by epidemic extensions from them. Now in 2002 there is growing confidence that rinderpest reservoirs are to be found only in the Indus River buffalo tract of Sindh Province in Pakistan and in the Somali pastoral ecosystem of Somalia and Kenya. Even in these places it is increasingly difficult to find infected herds. A decade ago rinderpest was a frequent element of emergencies created by civil strife. The lack of such
rinderpest alarms in recent years is testimony to the reduction in the global weight of infection. With assistance of the European Union both surviving reservoirs of infection are receiving attention and the goal is final eradication by the end of 2003. Already started, efforts will then be directed to the process of verification of rinderpest freedom through the OIE/GREP Pathway. There is no doubt that global eradication of rinderpest is feasible but whether or not it will actually be achieved depends on continuing commitment of the countries, international organisations and donors. It should be unthinkable at this stage that the eradication process could be allowed to falter yet the GREP is seriously underfunded and fighting complacency as the impact of the disease lessens. Failure would inevitably result in pandemic resurgence of rinderpest devastating the lives of millions of livestock-dependent families and subsequent return to endemcity with cycles of epidemic escalation.

758- PRACTICAL EXPERIENCE IN USING EPIDEMIOLOGICAL TOOLS TO MANAGE FMD IN AN ENDEMICALLY INFECTED COUNTRY. W. Hanyunan. Thailand.

Human Rabies Prevention and Animal Rabies Control in Thailand Rabies is essentially a zoonosis and remains a disease that is wildly Fear in developing country, canine rabies is still endemic, almost all human rabies deaths are due to dog bites. No specific treatment exists for rabies virus infections in human. Persons exposed to rabies virus should receive post exposure prophylaxis including local wound management and post exposure vaccination. Active and passive immunization must be instituted as soon as possible following the exposure. Human or equine rabies immune globulin (HRIGor ERIG) should be given together with the first dose of vaccine to all patients who have been severely exposed to rabies. Vaccine regimens (intra-muscular and intra-dermal regimens) for administering cell or avian cell rabies vaccine following exposure to rabies virus or for pre exposure prophilaaxy are used worldwide. Health education and publicity for the public awareness on rabies through several type of media is one of the main principles that should be initiated as early as possible and is aiming at teaching primary school children regarding rabies post-exposure treatment, training of local community health volunteers in provision of immediate first -aid care for dog bitten neighbors. Contrai animai rabies such as control of the canine population through responsible pet ownership, contraception, capture of stray dogs, vaccination in animals I epidemiological surveillance, village volunteer training for being assistant of veterinary official at local area. Achievement in rabies control need the government policy and supply of the efficacious vaccines in man and animal as well as an extensive educational campaign and the community participation.

FMD is one of the contagious and dangerous disease whose agent is Aphthovirus. This disease is considered as one of the main financial problems in husbandry in the world . Contagion characteristics of this disease in countries contaminated with FMD is quietly different from those in non contaminated countries.. Enterance of serotypes which have no previous record in those countries also causes out break of FMD with violent symptoms. This disease have become endemic in Iran and the main preventive policy is vaccination. Khorasan is the largest province of Iran in which about 15% of herbivorous animals

759- INVESTIGATION THE RATE OF FMD IN HERDS IN Khorasan Province, IRAN. Fahiminia S., Hashemi Tabar Gh.R. Pathobiology Dept, School of Veterinary Medicine, Ferdowsi University of Mashhad, P.O.Box: 91775-1793, Mashhad, Iran.
of Iran exist. In this province, there are 115,000,000 sheep/goat and 530,000 cows. Numbers of animals are vaccinated each month and the success percentage of work on sheep/goat and cows is 89% and 95% respectively. The number of existing, contaminated, survived at the end of the month, annihilated, slaughtered, dead and vaccinated sheep/goats and cows are discussed in this article from March to December 2001.

760- PERFORMING MILK RING TEST AND ITS EFFECT ON DECREASING HUMAN AND CATTLE BRUCELLOSIS. Dr. Mohammad Hossein Niazi, Dr. Hassan Tajbakhsh. 'Veterinary Head Department of Isfahan Province. 'The Superior Professor of Veterinary Faculty of Tehran University.

Brucellosis is one of the most important Zoonosis in Iran. For the control and prevention of this disease, a lot of budget, facilities, and manpower are devoted yearly by the government. One of the ways of diagnosing animal brucellosis in Iran is blood-taking and serological testing, but in a research study done in 40 villages in Lenjan (a region in Isfahan province) during 1998 and 1999, 2294 samples of mixing milk from 9149 cows in the these villages were collected and after testing them, 219 centers of positive or suspicious MRT were diagnosed. In these centers there were 838 milk cows. After taking blood from these cows and performing serological tests on them, 23 reactor cows in 1998 and 6 ones in 1999 (totally, 29 reactor cows) were spotted and slaughtered; while, in 1996 and 1997, four cows out of 2972 cows which were studied for the same purpose in the region were known to be infected and slaughtered. The followings are the results of the above-mentioned research: Taking blood from all the cows of the villages is difficult and time-consuming and, in some cases, almost impossible. In addition, the villagers showed no interest in blood taking from their cows but were interested in delivering the milk to the veterinary centers. Therefore, the research was welcomed by the people, and all the cows in the region were involved in the study. By performing this research, the cattle population of this area was classified into two groups, healthy and suspicious, and there was no need for blood testing from healthy groups. Therefore, it was possible to diagnose more reactor cattle by less blood testing. In 1998 and 1999, the proportion of the number of the reactor cattle to the number of the blood tested cattle (reactor/test) increased 26 times regarding the same time the previous years. During this study, the number of the reactor cattle which were recognized and slaughtered were 7 times as many as those in the previous years. According to the latest information obtained by the Health and Cure Network and Veterinary Center of the region, after performing the research, the rate of human brucellosis decreased 10 times and the rate of cattle brucellosis decreased 6 times.

So, in the areas in which brucellosis is spread, if this study is carried out simultaneously with cattle vaccination, the rate of human and cattle brucellosis will be reduced.


Rinderpest is a livestock disease of great economic importance in Nepal where cattle population density is very high and livestock sector plays a vital role in the agriculture-based national economy. It was rampant in this country until the early sixties killing thousands of cattle and buffaloes. It was important
that veterinary services in this country were established and strengthened particularly to combat this disease. Although the National Rinderpest Eradication Programme was in place in early eighties and no clinical cases of rinderpest were reported for a long time (1976-1983), the issue of complete eradication was taken very lightly. Lack of regional approach, high concentration of low productive cattle and buffaloes and uncontrolled movement of cattle and buffaloes across the Southern border were the main reasons that eradication campaigns were not completed. Following the resurgence of rinderpest in 1984, His Majesty’s Government became committed to a policy of final eradication of the disease. The National Rinderpest Eradication Campaign was initiated in 1995 with the co-operation of the EC-funded Strengthening of Veterinary Services and Livestock Disease Control Project. Mass vaccination campaigns had brought the disease under control and the last clinical report of rinderpest in Nepal was in 1990. In the light of this background it was possible for Nepal to make a provisional declaration of freedom from rinderpest disease in 1996. A network of field veterinary offices was established within the country down to sub-district level and activities were initiated to prepare groundwork for a detailed epidemiological surveillance, based on the OIE pathway. Laboratory diagnostic facilities were developed in the Central Veterinary Laboratory and staff became experienced in the c-ELISA and AGIDT for rinderpest. The necessary legislation was put in place to allow zoo sanitary control of animals moving into and within the country and rinderpest was made a notifiable disease. It was clear from the previous history of the disease, from the pattern of livestock movements, and from the geography of the country that some parts of Nepal were at far greater risk than others. The country was therefore divided into two zones, high-risk and low-risk. Clinical surveillance was carried out over two consecutive years in 300 wards. These wards were randomly selected each year with a sample size calculated to detect with 95% confidence the presence of clinically affected animals supposing that at least 1% of units was affected and where the within unit prevalence was at least 1%. In this survey a total of 1,31,612 animals was clinically examined. Similarly, again over two consecutive years, a serological survey was conducted in both high risk and low risk zones. The sample size was set to detect, with 95% confidence, infected units at 1%, at a within-unit prevalence of 20% in accordance with the then existing GREP guidelines. The within unit prevalence was later narrowed in the OIE guidelines to 5%. In practice the number of samples collected per ward would have given 95% confidence or 1% infected wards at a prevalence of between 4.1 and 5.4% within ward when viewed on a Nepal wide basis. Additional purposive surveys have been carried out at 48 sites where the risk was estimated to be very high. A total of 67,130 serum samples was collected from cattle, buffaloes, and goat and sheep populations and tested by c-ELISA. Of these, 40 samples showed positive reaction. These were followed up by field epidemiological investigation. During this investigative work a further 1,510 serum samples were collected from those areas where positive reactor animals were identified. None of them gave a positive result and there was no evidence of clinical disease suggestive of rinderpest in the wards concerned. Nepal’s population of cattle and buffaloes has been highly susceptible to rinderpest disease after the cessation of mass vaccination in July 1992. Under these circumstances there is every possibility that the presence of rinderpest would be quickly brought to the attention of the veterinary services. The reporting system has been reinforced through training and awareness programmes and reporting of rinderpest like diseases encouraged through offering financial awards. Even so, not a single clinical case of rinderpest was confirmed during the clinical surveillance work. The epidemiological, clinical and serological evidence resulting from the surveillance carried out since 1997 have satisfied OIE criteria indicating that there is no rinderpest disease prevalent anywhere in Nepal. In May of his year the 70th OIE General Assembly declared Nepal to be free of rinderpest
infection, making Nepal the first country to have successfully verified the eradication of rinderpest through OIE approved procedures.

762- INFLUENCE OF DIFFERENT CONSERVATION METHODS AND METHODS AND TECHNOLOGY OF PROCESSING ON QUALITY, HYGIENICAL CORECTNESS AND DURABILITY OF “SMOKED BEEF FROM BREKO” Indira Dajic-Hukic, Caklovica F., Smajlovic M., Bedrija Alic, Hukiæ S. Veterinary Inspection of District Brcko, Food Hygiene Department of Veterinary faculty Sarajevo, Bosnia and Herzegovina.

Smoked beef is considered as very popular delicates and technological method for its preparation is very demanding. Specificum of “Smoked beef from Brcko” is in its process of conservation with only natural additives: salt, sugar and water. In this paper, authors are presenting two technological methods of salting and smoking with laboratory examination of final product and comparative evaluation of both methods.

763- THE STUDY OF HYGIENIC QUALITY AND MICROBIAL CONTAMINATION OF RAW MILK IN THE MILK COLLECTION CENTER OF GARMSAR. Dayyani Dardashti, A. Iran.

According to the importance of hygienic quality and microbial contamination of raw milk in public health and quality of final products, in this study 81 samples of raw milk in milk collection center of Garmsar (a small town south of Tehran) have been collected and examined. The samples have been collected during 9 weeks in spring of year 2000. The acidity and total bacterial count of the samples have been determined. The average rate of the acidity and the total bacterial count were 1/56 gr/lit and 1/172X10^6. To insure the safety and quality of the milk as an valuable and important animal origin food product in human health and nutrition, the improvement of the hygienic and microbial quality of the raw milk in farms and during transportation chain is necessary.

764- TRAITEMENT DES ALIMENTS PAR RAYONNEMENT IONISANT BARKALLAH JEBALI. Insaf Centre National des Sciences et Technologies Nucléaires.

Du fait des rupture de liaison qu’ils entraînent lorsqu’il interréagissent avec le vivant, les rayons gamma du cobalt 60, sont actuellement avec les électrons accélérées l’outil de choix pour éliminer à froid et avec une grande fiabilité les micro-organismes : bactéries, moisissures, parasites, …. De façon schématique, il existe pour chaque type de microorganismes une dose caractéristique qui réduit d’un facteur de 10 le nombre de survivants d’une colonie. Mais généralement les doses utilisables dépendent du but recherché, de la matrice et des conditions de traitement (Température et atmosphère). Dans le secteur agroalimentaire, le traitement ionisant des aliments permet certes de réaliser une gamme très diversifiée de traitement : antigermination, désinsectisation, maturation différée……. Toutefois, seuls le traitement de radicidation, radurisation ou pasteurisation ou radappertisation ou stérilisation conduisant à assurer la qualité hygiénique de certaines denrées, connaissant une pratique appréciable. En effet, ce traitement constitue pour ces produits une garantie extrêmement fiable d’élimination des Salmonelles, des Campylobacter, des Listéria… et des risques d’intoxications correspondants. De ce point de vu, l’ionisation en association avec d’autres traitements classiques éventuellement ( Exemple : froid) s’avère un auxiliaire précieux pour l’amélioration de l’hygiène alimentaire et la prolongation de la conservation.
des aliments. Pour les faibles doses utilisées (quelques kGy) la sécurité, la qualité nutritive et organoleptique ne sont pas compromises d’autant que sont traités les produits stabilisés (séchés ou surgelés), moins sensibles à la radiolyse. Outre, l’absence de risque nucléaire pour l’aliment traité telle que la contamination radioactive ou la radioactivation, une absence de toxicité de ces denrées jusqu’à la dose de 10 kGy a été conclu par un comité mixte d’expert (AIEA/FAO/OMS) en 1981. Ces mêmes organismes ont confirmé l’innocuité de ces produits ionisés par la levée des limites supérieures de doses en 1997. L’irradiation des aliments offre aux pays en développement un nouveau moyen d’ enrayer leurs pertes élevées et les maladies d’origine alimentaire tout en élargissant les perspectives d’exportation de diverses denrées alimentaires. Les applications commerciales croissantes de cette technologie dans les pays avancés ne peuvent qu’inciter les pays en développement à y recourir davantage.
Traditionally Military Veterinary Services were responsible for: Military animals health, Military personnel protection from zoonoses, Food safety assurance for military personnel. In older times, the whole situation was well understood and the threat was clearly recognized. Therefore, it was relatively easy for the Military Veterinary Services to be trained, organized and accordingly function to fulfill their mission. Changes in the international relations, of the last years of the previous century, resulted in asymmetrical threats. Mobility of populations and increased exchange of goods, but, also of information, provided for re-emerging of forgotten diseases and situations, as well as the emergence of new ones, some of them deliberately man made. Further, this population mobility renders impossible to distinguish between armed forces and civilians. Additionally, this population mobility potentially provides for spreading diseases and developing problems, related with poor living conditions and unsafe food consumption. Also, for conditions of deliberate spread of human health and life, as well as animal and plant health, threatening agents. These changes influence the means and ways modern Military Veterinary Services are implementing for fulfilling their mission. They still carry the same responsibilities. However, they have to operate in a new environment and for this to device new approaches. More specifically Military Veterinary Services have to develop: Strategies, using the methodology of risk assessment The ability for fast responses The ability to exploit rapid diagnostic methods The ability to assess situations in an Integrated manner Water safety is getting especially important. We therefore experience changes: In the methodologies In the field of application Additionally, current Military Veterinary Services, further to their ability to support armed forces, are getting important in cases of: Peace keeping operations Development programs Humanitarian aid Emergencies

La période de croissance des chiots Berger allemand qui s’étend du troisième au sixième mois d’âge constitue une phase sensible dans la vie du chien. Durant cette période, tout déficit en nutriments et en minéraux se répercute par un retard de croissance et l’apparition de pathologies d’origine nutritionnelle. Ces causes sont à l’origine d’une mauvaise conformation du chien et constituent des motifs précoces de réforme. Dans ce travail, les auteurs présentent les résultats de l’amélioration de la croissance d’es chiots, observée sur une année, suite à une complémentation phosphocalcique de la ration.

Cette communication passera d’abord en revue l’organisation et les attributions des services vétérinaires militaires Tunisiens, Français et Suisse. Les similitudes et les divergences entre ces différents services seront ensuite mis en exergue. Enfin les spécificités et l’originalité de certains aspects des activités et attributions du service vétérinaire militaire tunisien seront relatés.


A set of 3273 data of Brazilian An11Y Horses was analyzed to determine factors affecting their growth and estimate the heretability of production and reproduction traits, for 4 breeds: English Thoroughbred, Hanoverian, Brazilian Show jumper and crossbreds. Data was analyzed using SAS and MTDFREML programs. The results revealed that the means for weight, height and foaling interval did not meet desired values, although there was a marked tendency for improvement. Sex did not influence weight and height of animals at any age. Weight and height were influenced by breed, year and month of measurement and were highly heritable. Foaling intervals were very high, especially for Thoroughbred horses while the heritability of this trait was zero.

769. THE MISSIONS OF THE US ARMY VETERINARY CORPS. G. Vroegindewey. American College of Veterinary Preventive Medicine

The U.S. Army Veterinary Corps fulfills three vital missions for the Department of Defense; Food Safety, Animal Medicine and Research and Development. As the DOD Executive Agent for Veterinary Services we provide worldwide food testing, inspection and surveillance to protect the health of our service members and families. Army veterinarians provide care for government owned animals including military working dogs and pack animals as well as care for native animals in the counties where we work. Approximately 30% of our veterinarians are engaged in Research and Development programs ranging from basic cancer research to vaccine development.

770. ACTION DU SERVICE VÉTÉRINAIRE MILITAIRE TUNISIEN DANS LE DOMAINE DE L’HYGIÈNE ALIMENTAIRE. M. M’Zah,. Laboratoire Ministère de la Défense Nationale, Tunisie.

Cette communication exposera l’action du service vétérinaire militaire Tunisien dans le domaine de l’hygiène alimentaire, les moyens et méthodes mis en œuvre, les résultats obtenus et les contraintes enregistrées.

771. INTÉRÊT DES CYCLINES DANS LA PROPHYLAXIE DE L’EHRLICHOSE CANINE. B. Davoust1, A. Keundjian2, J.L. Marie1, S. Mercier1, D. Parzy1 1Direction du Service de santé des armées en région Sud-Est, BP 16, 69998 Lyon Armées, France 2Institut de médecine tropicale du Service de santé des armées, BP 46, 13998 Marseille Armées, France 3Secteur vétérinaire interarmées, BP 05, 31998
L’ehrlichiose monocyttaire canine est une infection transmise par la tique *Rhipicephalus sanguineus*. Elle est due à une bactérie intracellulaire (*Ehrlichia canis*) qui infecte les monocytes. Dans les chenils de l’armée française situés, en particulier, en région méditerranéenne et en Afrique, l’ehrlichiose a été à l’origine, dans le passé, d’une morbidité et d’une mortalité importante (fièvre et syndrome hémorragique). En Afrique, la chimiprévention est systématiquement mise en œuvre dans certains chenils militaires français depuis 1988. Les chiens, d’environ 30 kg, ont reçu, tous les jours, *per os*, jusqu’en 2000, un comprimé de 250 mg de chlorhydrate de tétracycline (soit environ 8 mg/kg). Depuis 2000, le protocole de prophylaxie fait appel à la doxycycline, dont l’activité bactériostatique est supérieure à celle de la tétracycline. Les chiens reçoivent tous les jours, *per os*, un comprimé de 100 mg de monohydrate de doxycycline (soit environ 3 mg/kg). L’efficacité de l’application de ces mesures est évaluée lors du dépistage sérologique systématique (immunofluorescence indirecte). Sur 462 chiens mis sous cyclines, 6 chiens ont présenté une sérologie positive après un séjour en Afrique. Le taux d’échec de la prophylaxie a été de 1,29 %. Il est peut-être lié à un défaut d’observance du traitement ou à une mauvaise absorption individuelle. Par ailleurs, nos études pharmacocinétiques, réalisées sur 47 chiens, ont montré que la concentration plasmatique en doxycycline (Cmax : 1,6 mg/ml) est supérieure à celle de la tétracycline (Cmax : 0,4 mg/ml) et que le temps d’élimination de la doxycycline est plus long. Sachant que les bactéries du genre *Ehrlichia* ne se divisent qu’environ une fois par jour et que la concentration minimale inhibitrice des cyclines est inférieure à 0,03 mg/ml, notre stratégie de protection des chiens paraît adaptée.

**772. RECHERCHE DES CAMPYLOBACTER SUR LES CARCASSES DE POULET. S. Baatout-El Fekih, laboratoire vétérinaire des armés DHS, Manouba, Tunisie.**

Dans une première partie, l’auteur présente une synthèse bibliographique relative aux connaissances actuelles sur les bactéries du genre *Campylobacter* et plus particulièrement les *Campylobacter* thermotolérants. Dans une seconde partie, il présente, commente et discute les résultats de l’étude effectuée sur 48 échantillons de carcasses de poulets PAC (prêt à cuire) congelées appartenant au même lot. Cette étude effectuée en Tunisie, a pour objectif l’évaluation du niveau de contamination par les *Campylobacter* thermotolérants, de ces carcasses de poulets. La méthode de référence NF-ISO 10272 est utilisée dans cette étude. La recherche des *Campylobacter* a été faite en parallèle à partir de prélèvements de peau et à partir de prélèvements dans la cavité abdominale. *Campylobacter* a été isolé sur 17 carcasses ce qui représente un taux de contamination des échantillons de 35,4 % (17/48). L’espèce la plus fréquente est *Campylobacter jejuni* (*C. jejuni*) qui a été trouvée dans 72 % des échantillons contaminés. Elle est suivie par *Campylobacter coli* (*C. coli*) qui est présent dans 22 % des échantillons contaminés. Enfin, sur les 48 prélèvements de peau réalisés 16 ont été positifs soit un taux de contamination de 33 %. Alors que sur les 48 écouvillonnages (cavité abdominale), réalisés 11 ont été positifs soit un taux de contamination de 23 %.

**773. Maîtrise de l’hygiène des denrées alimentaires sur une plate-forme de distribution en opération extérieure. T. Lemoine, Service central d’études et de réalisation du commissariat de l’armée de terre 78120 Rambouillet, France.**

L’approvisionnement des troupes dans le cadre d’une opération extérieure s’appuie sur une logistique parfois complexe, comprenant le cas échéant l’implantation d’une plate-forme de stockage et de distribution sur le territoire. L’alimentation ne doit en aucun cas nuire à la santé des consommateurs:
l’apparition d’un cas de toxi-infection alimentaire collective, outre l’impact psychologique défavorable, est susceptible d’amoindrir la capacité opérationnelle des combattants. À l’exception des denrées alimentaires appertisées et des produits secs, pour lesquels les risques sanitaires sont peu importants, il est donc nécessaire de mettre en œuvre un système de maîtrise des risques de type HACCP (hazard analysis critical control point -analyse des dangers, points critiques pour leur maîtrise) pour les denrées dites périsposables. Les dangers identifiés sont essentiellement de nature microbiologique (contamination, multiplication de bactéries d’altération et/ou de bactéries pathogènes). Les points de maîtrise des risques se situent donc au niveau des achats, du transport, de la réception et du stockage sur la plate-forme, puis de la distribution aux ordinaires, qui peuvent être relativement éloignés du site de stockage.

774. ROLES DU VETERINAIRE DE LA GARNISON DE BIZERTE, TUNISIE. M. Raach Base aérienne El Kharouba, Bizert, Tunisie.

Après une évocation rapide des attributions du vétérinaire militaire tunisien en général, la communication s’intéressera aux rôles assignés au vétérinaire de la garnison de Bizerte (Nord tunisien) qui touchent outre les domaines classiques de l’hygiène alimentaire et de la santé animale, des secteurs d’activité particuliers comme l’élevage des ovins et la lutte anti-vectorielle.

775. L’ELEVAGE BOVIN DANS L’ARMÉE : L’EXPERIENCE TUNISIENNE. M.L. Smaoui, Ministère de la Défense, Tunisie.

Dans le cadre de l’exploitation des terrains militaires à vocation agricole, un centre d’élevage de vache de race locale croisée ainsi qu’un centre d’engraissement de veaux sevrés destinés à l’engraissement ont été mis en place dans la ferme militaire de Jédeida et El Battan (Gouvernorat de La Manouba). Une amélioration génétique du troupeau des femelles a été entreprise par un croisement d’absorption avec l’introduction de la race charolaise (race à viande). Le stade de croisement atteint est de 75% avec l’apparition de conformation culard.

XVI-2. VETERINARY DISASTER MANAGEMENT – EMERGENCY VETERINARY MEDICINE

776. EXPERIENCASI DE CUBA EN EL DESARROLLO DE LA MEDICINA VETERINARIA DE DESASTRES, P.R. Chavez, la Sociedad cubana de medicina Veterinaria Para casos de Desastres, Cuba.

La civilizacion reconoce que desde su creacion existen nexos indisolubles entre el hombre y los animales el papel de los animales junto al hombre y la aparicion de desastres naturales y guerras que deterioran su bienestar, formas de convivencia y salud. Cuba por su ubicacion en el Continentene Americano, en particular al centro del Golfo de México, esta sometida a las amenazas de fenomenos naturales tales como los huracanes, las intensas lluvias, las prolongadas sequias, las penetraciones del mar y los sismos asf como otras afectaciones ; provocadas por el surgimiento de enfermedades exoticas o reemergentes.

When the herds are dead, the end for human beings is not far" -African Proverb Agriculture plays a critical role in both developed and developing nations. In disasters, man-made, complex, natural or epizootic there are effects on the agricultural sector and livestock production. These animals are necessary for not only food and fiber, but also shelter, fuel, transportation, and farm power. They also serve as the savings account, investments and future economic potential. The veterinarian plays an critical role in returning an area to the pre-disaster end state. The response activities include: assessment, zoonotic surveillance/control, epizootic surveillance/control, food safety/sanitation, laboratory testing, carcass disposal, anima treatment, and grief counseling guidance. Recent disasters such as the Mongolia (Severe Winter), conflict in East Timor, the Taiwan Foot and Mouth outbreak ail have required veterinary support and illustrate the need for veterinarians to recover from the crisis and restore a normal end state. Military veterinarians with their public health training and agricultural background are the best resource to assist in the economic recover of agricultural based societies. In addition, veterinarians have a well-established reach back capability to epidemiology, pathology, infectious disease and public health support. In a global economy food production and agriculture will continue to play a significant role. Disaster will continue to occur at a high rate. And the international veterinary community with its dedicated cadre of trained personnel will continue to play a critical role in medical disaster response.

778. PLANNING AND SIMULATION OF VETERINARY PUBLIC HEALTH INTERVENTIONS IN CASES OF FLOOD OF PO VALLEY. R. Borroni, A. Mantovani, M. Aguzzi, L. Camana, P. Gallarali. 1Who/FAO the collaboration centre for veterinary public health, Rom 2prevention department of local Agency, Pavia, Italy.

Italy is subjected to various injuries (earthquake, volcanic eruptions, fires, industrial risks...) Floods are very frequent events, which periodically cause important economic and environmental damages with loss of human lives. Po is the main Italian river, and flows in the Po valley in the northern part of the country. This region has a rich economy with developed agricultural, zootechnical and industrial activities. Since floods are predictable events, the Italian department of civil defence has decided to prepare a plan of intervention and to verify it by simulations. Presentation of the Italian model of planning and of intervention in emergencies situations (method “Augustus”). Role of veterinarians in management of public health interventions (not only in veterinary field) in emergencies (water sanitation, social assistance, first aid coordination...) Descriptions of veterinary activities provided for during the preparedness and emergency phases: 1-collection of information on the involved area. 2-Localisation of veterinary facilities on a map or by geographic information system in the at-risk area (livestock farms, slaughterhouses, feed industries, kennels, etc...) 3-formulation of a schedule defining the ability to face by themselves the early phase of emergency. The schedule may also serve for damage evaluation. 4-Evaluation of resources such as animal housing, premises for food and feed storage and distribution, transport vehicles, availability of personnel, volunteers, etc... 5-Verification of the command chain at different levels (regional and provincial rescue co-ordinating centres) and of the operative structures of the department of prevention of the local health Agencies (to which veterinary services belong. Short description of the others interventions of public health performed.

The involvement of the Italian Veterinary Services in activities of Civil Defence started in 1980 on the occasion of the earthquake that affected southern Italy. During these 20 years the subject has greatly evolved in different areas: 1. Legislation. Veterinary activities have been introduced in national and regional civil defence regulations. A veterinarian is included among the members of the “Commissione Nazionale Previsione e Prevenzione dei Grandi Rischi - Rischio Sanitario”. 2. Field of action. Veterinarians have been active in natural disasters (earthquakes, floods, volcanic eruptions, landslides, etc.) and in man-made emergencies. 3. Training courses have been organised covering the general field of veterinary action along with special fields such as earthquakes, floods, carcass destruction, management of refugee camps, food control. Attention has been paid to veterinary assistance to dogs employed in disaster rescue operations. The following languages were used: English, French, Italian and Spanish. Training courses and lectures were held in the different Italian regions and in other countries of Europe, Africa, Latin America and Middle East. 4. Publications and guidelines on the issues dealt with in the courses were published in different languages. 5. Evolution. Over the last 20 years, the veterinary action in disasters has evolved from an exceptional to a routine activity of most veterinary services; an extension can be predicted to all exposed areas which, in Italy, practically represent the whole territory. Initially, veterinary activities were meant as a direct action in case of disaster in Italy. In more recent times, the action was extended to the management of refugee camps also in foreign countries. Preventive activities have been started based on the development of plans of intervention, food provision and safety, simulations and service organisation. The activities described have been performed by the Public Veterinary Services of different Italian regions, the Italian Department of Civil Defence, the European Centre for Disaster Medicine of the Republic of San Marino, and by the WHO/FAO Collaborating Centre for Veterinary Public Health of Rome. Veterinarians may be members of the Italian Association for Disaster Medicine.

780. COMPETENCE OF VETERINARY SURGEONS IN NATURAL DISASTERS AND CURRENT ITALIAN LEGISLATION. Passantino¹, C. Di Pietro¹, S. Passannanti², M.C. Aprile³, C. Fenga³, M. Passantino¹ ¹ Dipartimento di Medicina e Farmacologia Veterinaria – Università degli Studi di Messina – Via S Cecilia, 30 – 98123 Messina, ² Medico Veterinario, ³ Dottoranda di Ricerca in «Economia delle Risorse alimentari e dell’ ambiente», Instituto Universitario Parthenope, Napoli, ¹ Dottore di Ricerca in «Normative dei Paesi della CEE relative al benessere e protezione animale».

Frequent occurrence of natural disasters (droughts, floods, volcanic eruptions, earthquakes, and so on), with cause damages or endanger the safety of both human and animal populations, has led our Government to put a series of initiatives into practice to prevent or solve the many problems which may arise, and draw up specific operative procedures to ensures the welfare and safety of humans, and protection for animal populations. Achieving these objective requires the cooperation of people from many categories, from individual citizens to the Authorities responsible, from voluntary organizations to the various professions, ach in their own field, but natural disaster. Of many law in Italy (Law February 24 1992, no.225; President of the Republic’s Decree September 21 1994, no.613; Law March 15 1997, no.59; Legislative Decree March 31 1998, no.112) which regulate civil protection as a co-ordinated system of competence, only President of the Republic’s Decree February 6 1981, no.66 “Regulations for enforcement of Law no.996, December 12 1970, containing norms for relief and assistance to populations hit by natural disaster” count veterinary surgeons amongst the figures called to intervene. The Authors have carefully examined current legislation in Italy relative to the institution of a National Service of Civil Protection, stressing the important role of the veterinary surgeon in the case of natural disasters.
781. RÉPERCUSSION DES DÉSASTRES SUR LES ANIMAUX ET RÔLE DU VÉTÉRINAIRE.
A. Souad Mohamed Ahmed, B. Mohamed, El Fateh Mohamed. Sudan.

Tâches des catastrophes sur les animaux et rôle du vétérinaire.

En cas de désastres, les catastrophes touchent les animaux et le rôle du vétérinaire.

Les animaux sont touchés par les catastrophes et doivent être pris en charge par le vétérinaire.

Le Brésil est un pays de dimensions continentales puisque nous avons une surface de 8.511.965 Km². Grâce à notre situation géographique nous avons une grande variété de climats et les espèces idéales pour l’élevage varient d’une région à l’autre. Cette situation doit être considérée quand il s’agit de discuter la formation des Médecins Vétérinaires. Avec le développement de la Science Vétérinaire et des techniques appliquées aux différentes pratiques Vétérinaires le problème qui se pose est la discussion du profil des professionnels qui seront formés: soit des généralistes, soit des spécialistes. Dans nos Cours de Médecine Vétérinaire nous avons une partie du programme qui est obligatoire et qui fait l’enseignement général et une série de matières dont le contenu est spécifique. Tous les élèves sont obligés à suivre les cours et travaux pratiques des matières générales et ils doivent choisir un certain nombre de matières spécifiques suivant leurs préférences personelles ou leurs tendances professionnelles. En plus tous les étudiants, à la fin de leurs Cours de Médecine Vétérinaire, suivent un Stage Curriculaire Obligatoire dont le directionnement est spécifique et choisi en accord avec les besoins de chaque étudiant. Donc, le Médecin Vétérinaire qui finit ses études doit avoir une formation généraliste avec une ligne spécifique acquise à travers le choix des matières spécifiques et des stages optatifs, aussi bien que le stage obligatoire. Ce professionnel doit être capable de travailler non seulement dans la ligne spécifique préalablement choisie mais, s’il en a besoin, il aura les conditions d’exercer une activité dans une autre spécialité. Cette possibilité est très importante parce que le marché de travail a souvent des demandes très précises et change d’un moment à l’autre- c’est à dire la chance d’obtenir une bonne place pour travailler sera toujours plus grande pour les généralistes. Par contre, si les Universités forment des généralistes il faut tenir compte de l’importance de la formation continue puisque c’est elle qui donnera l’habilitation spécifique et qui ira assurer le recylage pour que les Médecins Vétérinaires puissent répondre aux demandes du marché de travail. La formation continue peut être offerte par les universités qui compléteraient leur rôle dans la formation professionnelle du Médecin Vétérinaire. En plus le retour des anciens élèves aux Universités pour des périodes de recyclage ou pour une formation spécifique, peut fonctionner comme un pont pour assurer une liaison plus forte entre les Universités et le marché de travail. D’autre part, dans les Universités on voit souvent que les professionnels qui travaillent à temps plein perdent un peu le contact avec la réalité, donc le retour des collègues dans les programmes de formation continuviendrait renforcer les liens des professeurs et des chercheurs avec le marché de travail et la réalité du pays.

783. EVALUATION OF TEACHER’S PEDAGOGIC ACTIVITY AT ALFORT VETERINARY SCHOOL. B. Toma, Ecole vétérinaire d’Alfort, 94704 Maisons-Alfort, France.

Three years ago, questionnaires have been built for the evaluation of teacher’s pedagogic activity in Alfort Veterinary School, by Delphi method. The method of evaluation is a quantitative one (with a score of 100
points). It is used for the three steps of teaching: before, during, and after. Before teaching: didactic analysis: 25 points. During teaching: lecture, or practical, or tutorials, or clinics: 50 points. After teaching: evaluation of examination: 25 points. The evaluation is conducted in parallel by students and by a couple of colleagues (if possible one from inside of the School and another from outside). This system is free for teachers (no obligation) and totally confidential. During the academic year 1999-2000 the pedagogic activity of 11 teachers has been evaluated and for the following academic year of 20 teachers. An evaluation of satisfaction of the evaluated teachers has been made during the last academic year. On 17 people who gave an answer, 15 did find their evaluation “useful” or “very useful” and 14 did change one or several points in their way of teaching after the result of the evaluation. For this evaluation system, the participation of students does not arise difficulty. In most cases, the scores given by students are higher than those given by colleagues. The organization of evaluation by a couple of colleagues is more difficult (availability of people). However, it is very helpful for evaluated colleagues because there are generally proposals and recommendations for the improvement of the teaching which are not (or less) done by students. A reflection is on the way to see if this method could be adapted for the promotion of teachers.


Searching through library catalogues, it is almost impossible to find any reference to ‘Human Disability and the Veterinary Profession.’ Many veterinarians will experience no surprise at this gap in veterinary knowledge. In fact they will not even consider it to be a gap, but will view it rather as an irrelevance which belongs to the domain of their colleagues working in the field of human medicine. This situation will have altered dramatically by the end of this decade. Major changes taking place at the level of society as a whole, as well as within the veterinary world, will guarantee that veterinarians of the future know that to human disability is as important for them as knowledge about animals. Although circumstances obviously vary between countries and continents, generally speaking there are now far higher expectations of achievement of and by people who have a disability. The most striking evidence of this is shown by the expectation that disabled people could actually work – an unknown concept to many non-disabled people in the past. These expectations are accompanied by rapid technological advances offering disabled people increased opportunities to share in the same activities as others. Veterinarians will find that increasing numbers of their colleagues have a disability. As veterinary medical schools around the world study how to work together with students with disabilities, the wider veterinary world will find that it is learning how to integrate successfully disabled colleagues into the profession. The effort to focus upon ‘the whole veterinarian’, looking at his/her weaknesses as well as strengths, will have far-reaching effects upon veterinary medicine. Simultaneously, consideration of the needs of clients who have a disability will also acquire a higher priority. The high-flying veterinarian of the 21st century will be able to work with human disability wherever it is encountered.

785. STANDARDS OF VETERINARY EDUCATION IN FUTURE, NECESSARY TO ENSURE PUBLIC CONFIDENCE PREP ARING THE PROFESSION FOR THE NEW CENTURY,. B. Zemljic, Slovenia.
Veterinarian of new age must be armed with the new knowledge’s, mostly different from those necessary and needed today. Veterinary surgeon of 21st century must have more knowledge in emerging disciplines of the veterinary science and public health, because veterinarians are on some extent guardians of human health as it relates to zoonoses. Consumers require reassurance as the quality of food products from “stable to table” and veterinarians seem to be most appropriate for this job. Study programs and enrolment procedures on veterinary faculties must ensure in the future such recruitment of candidates, that enough veterinarians for the large animal practice, food inspection and control and research work would be ensured, where today lack of professionals were observed. With all this described mechanisms it is also necessary to introduce in veterinary teaching institutions such core curriculum, which should lead to omni competence of the future veterinary candidates. In that case essential competences required from common core veterinary curriculum can be listed in three main areas as follow: theoretically and practically based veterinary competences and general competences, which are not necessarily restricted only to I, the veterinary graduate. Free movement of persons and services are amongst the major democratical principles of any profession. As these become a global principle, also veterinary profession must take in to the assumption that an equivalent level of training is provided all around the world. Consumer and public demands for better security of the food and feedstuff, public concern about animal welfare and clients demands for saver, cheaper and more effective production, put in front of the whole profession new obligations and tasks, never met before. Therefore it is necessary to develop control mechanisms to ensure that the quality of the veterinary training and the quality of the service provided by the profession are kept to the highest possible level. Some steps must be taken in the near future among which standardization of the level of pre-graduation education must be set down, controlled with external system of accreditation and ensure that students at the begin of the study are aware and informed, that learning is life long process, all that necessary to ensure public confidence, consumer protection and client needs and necessities. Such system of accreditation must put down a legal framework of recognition of veterinary degrees in all those countries where those measures will be placed in practice. It is necessary that such accreditation schemes should be run by veterinary professional organizations, use standards set by veterinary profession, which need to be under permanent review and to function in the most transparent way, having in mind profession and certainly the public.

786. ACCREDITATION OF VETERINARY COLLEGES AND PROFESSIONAL CERTIFICATION IN MEXICO. F. J. Trigo, Panamerican association for veterinary sciences, Mexico.

In 1995 the National Council for Veterinary Medicine (CON EVET) was established with the purpose of accreditation of colleges of veterinary medicine and certification of veterinarians and specialists. This council was established with the support and participation of the Mexican Veterinary Medical Association and Mexican Association of Colleges of Veterinary Medicine. Of the thirty state-funded colleges of veterinary medicine in the country, 6 have been accredited and will be reevaluated each 5 years. These colleges belong to the following universities: Universidad Autonoma del Estado de México, Universidad Nacional Autonoma de México, Universidad Autonoma de Baja California, Universidad Veracruzana, Universidad Autonoma de Yucatan y Universidad de Guadalajara. In the area of professional certification, since 1995 0 non-mandatory professional national examination is provided to the graduates from the veterinary colleges in the country. Up to now, more than 2500 veterinarians have been evaluated. Also, specialty board examinations have been developed in the areas of canine and feline medicine, avian medicine and production, laboratory animal medicine and veterinary pathology. The exams in swine and
bovine medicine and production are being developed at this time. It is considered that in the long term these procedures will promote veterinary medicine quality in Mexico.

787. ON-LINE CONTINUING EDUCATION COURSES OFFERED AT W ASFFIGNTON SA TE UNIVERSITY. M.A Memon, C. Dhein, International Programs & College of Veterinary Medicine, Washington State University, PO Box 645110, Pullman, Washington 99164-5110 USA.

Two on-line dog reproduction continuing education (CE) courses were designed for veterinarians and offered several times from 2000 through 2002. The participants, registered on-line for the course by paying a nominal fee by a credit card. The course contents were available as ‘class’ notes which the ‘students’ could print. A video and 1. audio version of the course was also available to participants, The audio/video presentations were made available in 3 resolutions, allowing participants to select the resolution most compatible with the speed of their internet connection. Each course also included an online glossary of terms unique to the topic of the course. Each course was offered for two weeks. During this time, students asked questions on-line in writing. The answers were provided by the instructor within 24 hours. All questions and answers were seen by all the course participants. On a limited scale, these courses were also made available ‘on demand’, where the course can be taken at anytime but the instructor was not available to answer the questions. However, all the questions and answers from the previous courses were made available to the participants of the on-demand courses. The participants took an on-line test at the end of each course, if passed, received CE credits from the university. Fifty five veterinarians from 16 US States and from other countries (Canada, Jordan, United Kingdom) participated in these courses. Similar courses were designed and offered to dog breeders and owners. 141 participants from 31 US States and from other countries (Australia, Brazil, Canada, New Zealand, Portugal) took the courses. Due to legs CE opportunities available for dog owners/breeders, more participants were registered than the veterinarians. Use of new educational technologies was suggested to overcome some of the barriers offering CE (J Vet Med Assoc. Oct 1, 2000). Private veterinary practitioners in California were asked to respond where they obtain information to improve their practice, what motivates them to participate, what obstacles to CE exist, and, ways CE providers and practitioners could overcome these obstacles. The respondents’ CE activities ranged from problem-oriented chats with colleagues to formal educational programs. Timing of events, distance, money, solo practice, and family demands were identified as barriers to participation. On-line CE offerings eliminate many of the barriers identified, including the travel, distance, time zone differences, etc. Use of computer technology also provides additional opportunities for international collaboration offering CE courses, team taught courses with teachers from different locations.

788. VETERINARY STUDENTS AND VETERINARIAN WITH DISABILITIES. A.T. Tynan The Royal Veterinary College, University of London

An exciting research project likely to influence future developments in the veterinary profession has been taking place in the UK since late 2000. The project, ‘Opening the Stable Door’, is examining the extent to which people with a disability can realistically expect to follow their dream of becoming a veterinary surgeon. The first part of the research, ‘At the Portal of the Profession’, was published in November 2001, based on a study trip made to the United States earlier that year. The report is divided into 3 sections. Part
One examines why the profession should give consideration to people sometimes regarded as being ‘useless for such a tough profession’. Part Two analyses the experiences of a number of veterinary schools and of students and veterinarians with disabilities. Part Three suggest solutions to some of the difficulties that may arise – and encourages veterinary schools to appreciate the benefits of having people with disabilities among their student cohorts. 2002 marks the second stage of the project. Responses to ‘At the Portal of the Profession’ have been coming in from across the world and from all types of people. Veterinary school staff and students, qualified veterinary surgeons, disability organizations, UK government ministers and departmental officials, representatives of other professions – the list would appear to be endless. It has been possible to gain an overview of attitudes and experiences worldwide – apart from the specific information gathered relating to disability, it has also offered a wonderful insight into how the veterinary profession views itself and how other people view it. Veterinary schools will always be in the front line in dealing with people with disabilities who want to enter the profession. This paper will look at how veterinary school staff can face up to this challenge.


Le développement des capacités de gestion de l’information et de la communication est aujourd’hui un enjeu stratégique pour les Services vétérinaires et pour le développement harmonieux de l’agriculture et de l’élevage. Le contexte de la mondialisation des échanges et ses enjeux, la sensibilité croissante des consommateurs aux conséquences possibles des maladies d’origine animale et alimentaire, l’augmentation des transactions commerciales internationales de produits d’origine animale et les besoins en savoirs et en informations qu’ils suscitent, conduisent aujourd’hui les Services vétérinaires à renforcer leurs capacités et leurs ressources humaines et techniques pour répondre à ces besoins. Par ailleurs le développement des technologies de l’information et de la communication offre aujourd’hui des possibilités nouvelles de collecte, de traitement, de stockage et de mise à disposition et d’accès à l’information pour le public, les consommateurs, les professionnels et les scientifiques. Mis au service des systèmes de contrôle et de surveillance, de la gestion des risques, des campagnes de prévention ou de vaccination, de la sensibilisation et de la formation des éleveurs, de l’application des normes et réglementations ou encore d’une présentation claire de la situation zoo sanitaire, l’apport potentiel de la communication est considérable. La plupart des pays, particulièrement les pays en développement, ont pris pleinement conscience de cette nécessité et des possibilités nouvelles offertes notamment par les technologies de l’information et de la communication. Demeurent cependant le planque de formation de personnels qualifiés dans ces domaines au sein des Services vétérinaires et surtout l’absence fréquente de réelle stratégie d’information et de méthode de travail pour une démarche d’information structurée tant en situation de routine que de crise. De plus Il apparaît également que le cursus de formation des jeunes vétérinaires dans les Universités et Institutions Académiques n’inclut que peu ou pas le développement de ces nouvelles qualifications et compétences requises aujourd’hui et œ malgré la forte demande professionnelle. L’OIE, au cours de la 69ème Session Générale en 2001 a souligné cette réalité et recommandé aux Etats Membres de soutenir la préparation de stratégies et la mise en place d’activités d’Information et de Communication au sein des Services vétérinaires; et de promouvoir la formation des futurs vétérinaires dans ces domaines La présente communication aura pour but de présenter un modèle de formation pour l’acquisition de ces nouvelles compétences et
The veterinary profession has experienced major changes in the past few years, as new areas of intervention have been identified and classical ones are tending to a higher level of specialization. The veterinarian graduate performance reflects both its potential and main interests and the educational environment influence. Universities aim at producing a graduate of identified comparably high standards of training. Nevertheless, the majority of the European Veterinary Education Establishments adopt the principle that the students do not have to follow identical teaching/learning programs. In fact, diversity of curricula must be encouraged to incorporate an optional part, although maintaining a “basic” competence and high quality level of skills in different fields of Veterinary Sciences. VET 2020, a 3-year wide Thematic Network Project, gathers Veterinarian Education Institutions from 22 E.U. and Associated Countries, the European Association of Establishments of Veterinary Education (EAEVE) and the Federation of Veterinarians of Europe (FVE), considering that adaptation of curricula and educational methods should be studied and tackled on a long term basis and according to social and market needs. The main activities developed were the identification of present key issues of veterinary involvement and the study the possible evolution of veterinary social intervention, from and within the main areas of activity. The major outcome to achieve is the harmonization of educational strategy adjustments involving curriculum development and to propose adaptations to meet future requirements of the profession.

Need for the Symposium: Free trade in food animals and products makes animal agriculture and public health in ever country vulnerable to emerging pathogens and exotic diseases, either accidentally (the risk increases as trade expands), or deliberately (bioterrorism). Veterinarians will be the first to respond to such problems, especially those that affect food safety and security. Just as universities prepare business leaders who understand and can deal with global issues, veterinary colleges must develop programs that enable the new veterinarian met the same challenges. The 27th World Veterinary Congress is a unique opportunity to engage world veterinary educators, regulators and corporate leaders in a process that makes then aware of the vital role they play in training the new generation of veterinarians. Population growth economic stagnation and environmental stress are global issues that have changed the way veterinarians view their role in society, and what they are beginning to understand as their responsibility to the global community. New veterinarians generally lack a comprehensive understanding of how information technology, food security, and sustainable agriculture are related to the production of sate food. New veterinarians are also being asked
to promote risk analysis, food safety and trade policy, subjects that are directly related to veterinary medicine but are only minimally visible in the curriculum. Veterinarians working for multinational corporations are being challenged to evaluate and use new technologies, to expand the production of pathogen free food animals and products, and to operate in a globally competitive and environmentally responsible way. All of these critical issues demonstrate that the breadth and quality of the education that veterinarians receive now clearly impacts international trade. Proposed Symposium: The objective of the symposium will be to focus attention on the critically important relationship between veterinary education, veterinary regulation, and the world food industry, and stimulate international dialog on the issues of food safety, food security and safe trade, not just free trade. The audience for the symposium will include 1) veterinary educators, especially faculty who want to discuss the educational program that would lead to a “global veterinarian;” 2) veterinary regulators from various countries, especially the animal health trade negotiators who might be attending the Congress; 3) leaders of multinational corporations involved in the production and trade food products, and, perhaps most importantly, 4) veterinary students attending the Congress. The audience of the proposed symposium will, of course, depend on the participant. We will show, for instance, that many veterinary colleges around the world are well positioned to engage industry and talent into the world food enterprise. On the other hand, we will also address the critical need for the “global veterinary” with knowledge not only in areas traditionally associated with veterinary medicine, but also in the global issues of food safety, trade and information management. Finally, we will develop a plan for a working, Internet-based structure to implement action items and maintain continuing dialog.

792. LA FORMATION DES VETERINAIRES: LES BASES ACTUELLES ET L’ÉVOLUTION FUTURE. A. Malek, L’école Nationale de Médecine Vétérinaire 2020 -Sidi Thabet -Tunisie.


793. THE ROLE OF VETERINARIANS IN THE CONSERVATION OF SPECIES. A.M. Babje, Malaysia.

As the human population continues to grow it erodes the wildlife habitats and causes the reduction in their numbers or total loss of species. The delicate balance between human survival and that of other species is intertwined in ecosystems. Because this relationship of men and other living creatures is fading on our quest for material progress some “unnatural” actions have to be taken to conserve some species. Veterinary Science provides a broad base training and exposure to subject matters that are highly relevant and crucial to the conservation of the threatened animal species. A veterinarian with a love for nature would be an asset to the team given the responsibility to save wildlife species. With additional training a veterinarian could contribute to not only the health aspects of wildlife but also nutrition, breeding and understanding of behavior.
Les auteurs ont survolé très rapidement l'historique de la profession vétérinaire en Tunisie pour entamer la profession au 3ème millénaire, dont la situation est très préoccupante. Heureusement, cette dernière est tempérée par l'importance que prend le commerce international et la mondialisation de l'économie et des échanges. La profession vétérinaire est intimement liée à la situation économique du pays : d'où l'adaptation du vétérinaire aux nouvelles données socio-économiques, est éminente, nécessaire et suffisante. Ainsi, la médecine vétérinaire est une médecine économique ; et, par conséquent, le préventif, qu'il s'agit de prophylaxie médicale ou de conseils, est appelé à prendre, de plus en plus, le pas sur le curatif. Les domaines de compétence propre sont principalement ceux de la santé animale, de l'hygiène publique, de la pharmacie vétérinaire et de l'élevage. De même les nouveaux domaines d’activité (protection de l’environnement, lutte contre la pollution protection du bien-être des animaux et protection de la faune sauvage) permettent au vétérinaire de se présenter en qualité de : -Protecteur de la santé et du bien-être de l’animal. -Protecteur de la santé de l’Homme et de son environnement.

Domestication of dogs, buffaloes (?), elephants and fowls occurred in India between 6000 to 4500 BC. Strong archaeological evidence is available for existence of an advanced civilization in Mohenjodaro, Harrapa (now in Pakistan) and certain other places in northern India around 2500 BC. The people of these civilizations had both humped and humpless cow bulls, buffaloes, elephants, goats, fowl, etc. Cattle husbandry was well developed during the Rig-Vedic period (1500-1000 BC) and the cow (Kamdhenu) was adored and considered the ‘best wealth’ of mankind. Aryans laid great emphasis for protection of cows. Artharva-Veda, the Holy text of Hindus dealing with the physical sciences and vocations provides interesting information about ailments of animals, herbal medicines and cure of diseases. Salihotra, the first known veterinarian of the world, expertised in horse husbandry and medicine. He composed a text Haya Ayurveda i.e. Science dealing with longevity of horses. The veterinarians were better known as Salihotriyas after his name in this country. Rishi Palkapya was an expert dealing with elephants. He composed a Sanskrit text, Gaja Ayurveda i.e. The science dealing with longevity of elephants. Indians had rich knowledge of life saving herbal medicines of the Himalayas. The use of Sanjivini Booti, to revive the consciousness of a moribund prince Lakshman is well documented. During Mahabharata period (1000 BC), Nakula and Sahadeva, the two Pandava brothers were experts of horse and cattle husbandry, respectively. Nakula composed a Sanskrit text known as Asva Chikitsha i.e. the treatise of horses. Lord Krishna was an expert caretaker, conservator and cow husbandry man (Gopal). Gokul and Mathura were famous for excellent breeds of cows, high milk production, quality curd, butter and other products. Originator of Buddhism, the Buddha was great protector of all kinds of animals and birds (including game) in ancient India as he preached lessons of non-violence to masses. Greaco-Romans imported livestock from India after invasion by Alexander. These descriptions are available in Indika, a book authored by Megasthenese, the ambassador of Seleucus Nikator, king of Mecedonia in the court of Chandragupta Maurya. The great king, Ashoka (300 BC) erected the first known veterinary hospital of the world. He arranged cultivation of herbal medicines for men and animals in his empire and adjoining kingdoms. In a famous text, the Arthsasthra (science of economics) composed by Kautilya, the guide and political advisor of emperor Chandragupta Maurya, a lot of information is available about different animal (elephant, horse and cow) department’s, grazing lands, rules of meat science, livestock products like skin and fur and veterinary jurisprudence. This knowledge flourished during the great Hindu kings of Gupta’s period up to 800 AD before Islamic followers invaded India.
paper we will discuss diseases and zoonosis. Animal contagions diseases in the ancient world have been referred to in various sources. Xenophon in Education of Cyrus (d. 529 D.C.) has referred to animal contagions diseases in Iran. Epizootic diseases and animal losses were the source of many Iranian historical events in various ages. These have imposed heavy losses on economic wellbeing of the society and have sometimes overthrown dynasties. The nature of these diseases is often unknown. According to Ibn al-Athir, a cattle pest broke out in Iran in 855 A.D. and killed the majority of cows plus a notable number of quadrupeds. In 953 (A.D.), Nouh ibn Mansour of Samanids sent his commander in chief of the armed forces, the tight Robn al- Doowleh Hassan Douyeh of Deylamltes. According to Gardzlz, “At the time contagious diseases had struck the cattle in Rey; Rey and animal losses were high. According to JuwaYili, in 1223, a number of Ginghis Khan’s men and animals got sick in his stop by the side of the Indus River for air pollution. This made him return to Mongolia. The equine plague was a common animal disease in Iran that laid heavy losses to horse population. Ibn al-Athir is the first one to report about outbreak of an equine-like plague in Iran. According to him, equine choiera broke out in 1045 and killed 12,000 horses in the cavalry of the ruler of Isfahan, Abi Kalijar. The disease spread to other cities. The outbreak of equine plague (equine choiera) was an advantageous factor for Tamerlane in overpowering the Mongolian arroyo Al- Malek al- Mujahed, king of Yemen and Arabia, in his Al- Aqval al-Katia writes about an undifferentiated highly contagious fatal disease in horse that broke out in his reign in 1327, that was unprecedented with records in documents. This is the first precise report on African Horse Sickness. In this paper we will discuss especially in the subject of Anthrax, Rinderpest and African Horse Sickness in the course of history of Iran and some other Muslim countries.

798. THE ROLE OF ETHNO VETERINARY MEDICINE IN LIVESTOCK. B.M.D. Kambewa, Lake Chilwa Welland Project, Box 249, Zomba, Malawi

In Malawi there are two veterinary systems for livestock: the formal and informal. The formal system supplies imported drugs and medicines to both smallholder and commercial farmers. The informal system is an animal health-care system also called ethnoveterinary medicine (EVM), practiced by people based on indigenous veterinary practices. In Malawi this system is mostly used in the rural and remote areas among smallholder farmers. In these areas, livestock owners and raisers have learnt about livestock diseases and tried some treatments and practices to keep their livestock healthy. The knowledge covers a range of domestic animals like goats, pigs, cattle, poultry, sheep and dogs. This knowledge has/is being passed on by word of mouth from parents and grand parents to children and grand children, friends, relatives. Some knowledge is known through spirits in dreams. Technological biasness towards the formal system has separated the two systems and there seem not to be any complimentarily between the two systems. It is worth looking into what the two systems offer and how they can together contribute to livestock development. The challenge now is to prove and show that EVM system works or not. Results from the study by Kambewa (1997) showed that indeed EVM does exist in Malawi and farmers are sing it for various reasons. Trials during the study showed that some medicinal plants were potential pesticides. There is need to carry out more trials, which can give more information about the effectiveness of EVM.

799. HISTOIRE DE LA MÉDECINE FÉLINE. A.C. Chappuis – Gagnon, 29 rue Tupin, 69600 OULLINS, France.
La domestication du chat et sa relation affective avec l’homme remonte à deux siècles avant notre ère, et est attestée dès cette époque en Égypte. C’est d’Orient que nous viennent les premières légendes qui prétendent à Mahomet d’avoir préféré couper un pan de sa robe plutôt que de réveiller le chat qui y dormait. Le premier hôpital pour chats, vraisemblablement un refuge, se situe en Égypte, en 1260 avant JC. Mais alors que la médecine vétérinaire se met en place, d’abord hors école, puis avec Bourgelat à partir de 1762 au sein des écoles vétérinaires, en réponse à des attentes économiques pour la santé des chevaux, puis des ruminants, il faut attendre la toute fin du XIXème siècle pour voir apparaître les premiers traités de pathologie féline. Les vétérinaires qui traitent du sujet doivent d’abord et avant tout plaider la cause féline, et justifier l’intérêt de porter attention et traitement à cet animal. Les courants de protection animale apportent leur contribution à une meilleure protection des chats. L’exposé fera le panorama chronologique des contributions vétérinaires à la médecine féline dans les différents pays du monde, puis fera un état des lieux de l’avancée de la médecine féline actuellement, une médecine d’avenir puisque le chat est l’animal de compagnie préféré des européens et des américains, et que la spécialisation en médecine féline est reconnue aux États-Unis. Feline Medicine History Domestication of cat is dated from two thousand years before Christ, as well as the beginning of the relationship between cat and human. Egypt is the very first place where this is well documented. The first legends come from Orient where Mahomet is supposed to have cut a piece of bis dress to let the cat who was slept on it quiet. The very first hospital for cats -which was probably more a shelter -is located in Egypt in 1260 before Christ. Although veterinary medicine began in 1762 with Claude BOURGELAT and the settle of vet schools, feline medicine must wait until end of XIX century to have its place. Veterinarians who deled with this topic needed to convince first their colleagues that we need to care for cats. Associations against cruelty to animals have helped them much. A chronologic panel of veterinarian contributions to feline medicine will be given, throughout the world, and an up-to-date of the current feline medicine academic training will be given. Feline medicine is well recognized in the States and in Europe as well, and, due to the predominant status of cats as pets, will be at the forefront of the veterinary medicine of tomorrow.

800. RESEARCH SUPPORT UNDER THE SIXTH FRAMEWORK PROGRAMME. J. Claxton, European Commission, Brussels. Belgium.

The sixth framework programme (2002-2006) is the main instrument for the European Union to fund research in Europe. The total budget is euro 17.5 billion. The new framework focuses on the creation of the European Research Area (ERA) and is divided into funding to support the integration of European research; to structure the ERA and to strengthen the foundations of the ERA. Accounting for the majority of the budget, the initial section deals with seven major thematic priorities: genomic and biotechnology for health; information society technologies; nanotechnologies and nanosciences; aeronautics and space; food quality and safety; sustainable development, global change and ecosystems and citizens and governance. In addition, it has specific coverage for policy support, small and medium sized enterprises and international co-operation. The presentation will cover the main area of funding, with emphasis on those relevant to research in animal health. In addition it will outline the instruments that are available for project support and, in particular, will discuss the two new instruments, the Network of Excellence and the integrated project.
In Ancient Iran, to remedy ill domestic animals like human had reward, and medical & veterinary business accomplished by single. From the last period of Sassanian, separation of functions began. In the first century of Hegri, treatment of ill animals and humans had been done by single one or group. Between medical, and veterinary was existence unity, and person who cured human, also cured animals. All animals are creation of God, who cure human is dear and who cure animal also is dear. Basic principals is one and the doctor also is one. In vendidad discuss from wage of doctor and tell, “The doctor’s wage to cure home older is like the smallest quadruped, the doctor’s wage to cure quarter chief is like middle quadruped, and its wage for curing major is like the large quadruped”. Thus, it is clear that, the doctor who cures human and animal had been one. In the last period of sassanian, that the separation function of doctor and veterinarian began. Iranians called veterinarian quadruped doctor “and they called its chief to AKHVARBAD”. From the different documents, it distinguished that in the ancient Iran, many diseases like bovine plague, Anthrax, Angina, Intestine worm, meningoencephalitis, and etc. had been known and surgery had advanced state. Islam also have very attention to Animal~ And in the 38 sura of koran say: “certainty known that any moving in Earth and any bird that by two wing fly in air, all representing the Mankind “Ghasy, Ebne Ekhre”. In the seven century of Hegri lunar) says: “Veterinary is a great knowledge and philosopher gived an account it, in their books, that remedying the sick animals is more difficult from human, because the animals are tongue tied and can’t expressing their pain but with studying it can be understand their disease, and municipal must not act sluggishly”, SO control on veterinarian and. To export business permission was in municipal organization that there was especial, section for control veterinarian or doctor and we can to account medical or veterinary discipline in the Islamic period, the Arabic word “Bitar” means veterinarian, that’s, from the Persian word “Behdar”, in the 1316 solar Hegri, the Persian word ampezeshk was replaced, The Greek ward veterinarius or English ward veterinarian At present time, veterinary education in Iran is accomplished in three sessions. 1- The period, veterinary ingenuity for training sagaciouses, who can polish, to control and eradicate animals diseases under the the auspices of veterinarian, 2- The period doctor veterinary medicine education, presentation units in this period is 236 units Minimum That is presented in 6-7 years, to bring to an end, the Students are bound To present a thesis in different questions in veterinary medicine. In general, in this period the lessons are presented as theoretical, practicable, externship and internship. 3- The period, veterinary specialized, The aim of this period is training specialized veterinarian that is accomplished as the aim of securing investigational and educational staff of veterinary and medicine Faculty. The duration of this period is 3-4 years and residents are bound to pass almost 80 units also The veterinarian can attend as a member for depatch to another country.
In Italy, the prevalent interpretation of arbitration is as a private instrument for resolving controversies, an alternative to ordinary jurisprudence. The law allows the parties to make use of arbiters, that is to say, of private citizens rather than the organs of jurisdiction, whenever they feel that a controversy can be settled by persons equipped with specific technical knowledge. National and international trade in animals is a growing reality in present-day commerce and litigation is frequent, so arbitration has taken on an important role in veterinary medicine. The authors examine the essential specific characteristics of arbitration and conclude that it could become a valid mean of settling an ever growing number of controversies in animal trading. It would be specially of use where the slowness the judiciary mechanism in civil cases benefits persons who ignore or violate the principle of fairness in animal trading and, paradoxically, by making the application of general norms of guarantee difficulty.

803. FARM EFFLUENTS IN ITALY: VARIATIONS AND ADDITIONS INTRODUCED BY LEGISLATIVE DECREE NO. 258/00 M. Venza, C. Fenga, A. Passantino, C. Di Pietro, M. Passantino (Dipartimento di Medicina e Farmacologia Veterinaria - Università degli Studi di Messina - Via S. Cecilia, 30 - 98123 Messina Dottore di Ricerca in “Normative dei Paesi della CEE relative al benessere e protezione animale”).

Legislators in Italy thought it useful to make same variations and additions to recent norms (Legislative Decree no.152/99 which puts into effect the Directives 91/271/EEC and 91/676/EEC and almost completely abrogates the old Merli Law - Law no. 319/76) concerning safeguards for superficial, marine and underground water. They did so in Legislative Decree no. 258/00 and this paper analysed and comments on its implications for farm effluents. They underline the importance of the specific identification of an “agronomic use” of farm effluents (art. 1 letter d) and the obligation to communicate it to the competent authorities (art. 17 point 1). The prohibition in “safety zones” of stocking and spreading fertilisers (art. 5 point 5 letters b and c) and of grassing and stabling livestock, where this causes a presence of nitrogen above 170 kg. per hectare in effluents after losses from stockage and distribution (art. 5 point 5 letter n) assimilation by domestic waste water of waste water from animal breeding establishments, aquaculture and pisciculture establishments which satisfy specific conditions (art.9 point 7, letters b and d); the provision of penal sanctions for the agronomic use of breeding effluents in cases and manners specified (art. 23 point 1 letter g).
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