

# **Livestock Research Briefs and Cattle Growers' Short Course**



**March 22, 1990**



**Agricultural Experiment Station  
Cooperative Extension Service  
College of Agriculture and Home Economics  
and the New Mexico Cattle Growers' Association**

EFFECT OF FSH-P DOSAGE AND BODY WEIGHT ON ESTROUS  
SYNCHRONIZATION AND SUPEROVULATION IN FINE-WOOL EWES

Steve Lucero and Jack Ruttle

(Key Words: Sheep, Superovulation, Estrous Synchronization)

Twenty-four commercial fine-wool ewes aged 3 to 4 years were used to study response to follicle stimulating hormone (FSH-P). The ewes ranged in weight from 105 to 150 lbs. and had all lambed the previous year. Synchronization was accomplished by implanting 3 mg of Norgestomet subcutaneously behind the ear. Implants were removed after 12 days in place. Beginning on day 10 following implantation, 12 of the ewes received 18 mg of FSH-P given in twice-daily dosages of 4 mg, 3 mg and 2 mg on days 10, 11 and 12. The remaining 12 ewes received 24 mg of FSH-P with twice-daily injections of 5 mg, 4 mg and 3 mg on days 10, 11 and 12. Following implant removal, ewes were exposed to one fertile ram equipped with a marking harness. Estrual activity was monitored and recorded twice-daily. Ewes were flushed surgically 5 days following mating. Recovered embryos were classified as to quality.

Ovulatory response was measured by counting corpora lutea (CL) on each ovary. There was no difference ( $P > .05$ ) between dosage levels of FSH-P or ewes of varying body weights. Ewes treated with 18 mg had an average of 13.3 CL present compared to 9.3 for ewes receiving 24 mg FSH-P. Embryo yield for ewes receiving 18 mg FSH-P was 9.9 per flush compared to 4.5 for ewes receiving 24 mg FSH-P. Estrous was effectively synchronized with both dosages of FSH-P. Ewes treated with 18 mg FSH-P tended to demonstrate estrus earlier with 6 (50%) in estrus 24 hours following implant removal. None of the ewes receiving 24 mg FSH-P were detected in estrus until 36 hours following implant removal.

ESTROUS SYNCHRONIZATION OF EWES WITH  
NORGESTOMET AND ESTRADIOL VALERATE<sup>1</sup>

Jack Ruttle, Javad Arshami, Javier Colin,  
Don Bryant, Jim Ruttle and Will Griggs

(Key Words: Sheep, Norgestomet, Synchronization)

One-hundred fine-wool ewes belonging to the Flying H Ranch were utilized in a study to compare response to two levels of Norgestomet administered with or without estradiol valerate. The ewes ranged in age from 2 to 4 years and had all lambed in 1989. In November 1989 the ewes were divided into four equal groups of 25 ewes each based on age and body weight. Treatments consisted of 25 ewes receiving an ear implant containing 3 mg Norgestomet, 25 ewes a 3 mg Norgestomet implant plus 0.5 ml of estradiol valerate (EV), 25 ewes a 1.5 mg Norgestomet implant and 25 ewes a 1.5 mg Norgestomet implant plus 0.5 ml estradiol valerate. All implants remained in place 12 days. Estradiol valerate

<sup>1</sup>CEVA Laboratories, Overland Park, KS.

was injected IM as time of implantation.

On day of implant removal, four vasectomized rams equipped with marking harnesses were joined with the ewes for detection of estrus. Little estrual activity was observed until 48 hours following implant removal when 92% of the ewes receiving the 1.5 mg implant were marked. Among ewes receiving a 3.0 mg implant, 80% were marked at 48 hours. The use of estradiol valerate in conjunction with the implant appeared to delay onset of estrus with 48% of the 1.5 mg + EV ewes and 46% of the 3.0 mg + EV in estrus at 48 hours, respectively. By 72 hours following implant removal, 100% of the 1.5 mg implant ewes had been observed in estrus. Among the ewes implanted with 3.0 mg of Norgestomet, 88% were in estrus within 72 hours. Ewes receiving a 1.5 mg implant + EV had 80% in estrus by 72 hours. Among ewes receiving a 3.0 mg implant + EV, 92% were in estrus within 72 hours.

Results of this trial indicate that a 1.5 mg Norgestomet ear implant will suffice to synchronize estrous in ewes. A 3 mg implant will also synchronize efficiently with slightly fewer ewes in estrus at 48 hours. An IM injection of 0.5 ml estradiol valerate was found to delay estrus and does not appear to be of benefit in synchronizing ewes.

#### LAPAROSCOPIC EMBRYO TRANSFER IN SHEEP

Jack Ruttle, Javad Arshami, Floyd Lee II,  
Javier Colin and Carman Melendrez

(Key Words: Sheep, Embryo Transfer, Laparoscopic)

Harvesting of embryos from outstanding ewes mated with outstanding rams offers the sheep producer a method to make rapid genetic improvement. However, size of the ewe has required recovery of embryos to be done by surgical means, which is a highly technical procedure requiring surgical skill and involving some risk to the ewe. Transfer of embryos to recipient ewes has also been done utilizing a surgical approach. Research at NMSU has been conducted the past two years to investigate the feasibility of ovine embryo transfer via a laparoscopic approach, which is essentially non-surgical. This procedure does require considerable skill and knowledge of anatomy, yet is far less complicated than the surgical method and involves less risk to the ewe. During 1987 and 1988, embryos were transferred to a total of 39 fine-wool ewes using the laparoscopic approach where the uterus is visualized by the insertion of an endoscope through the abdominal wall. Transfer of embryos is made directly to the uterine horn employing a pipette also inserted via a cannula through the abdominal wall. The procedure requires less than 10 minutes when done by a skilled technician. No surgery or sutures are required and post-surgical stress is avoided. Successful maintenance of pregnancy by this method was 50% in 1988 and 56% in 1989, which compares favorably to results obtained by surgical procedures.