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three days of opening) with three replicates; to evaluate the effect of the addition of soybean hulls, sunflower crushed seeds and urea on the nutritional quality of sunflower silage. The averages were analyzed by the Tukey test to 5% of probability. The treatments were: Control (100% of Sunflower plants - SS), SS + 5% of soybean hulls, SS + 5% of crushed sunflower seeds and SS + 5% of urea. The silos were opened at 14, 21 and 28 days after ensilage. There was no effect (P>0.05) for day of opening, or addition on organic matter (OM), neutral detergent insoluble protein (NDIP), mineral matter (MM), neutral detergent fiber (NDF) or acid detergent fiber (ADF), (mean = 91.12, 8.66, 9.29, 62.54, 46.02%, respectively). Dry matter (DM) and ether extract (EE) presented interaction for addition and days of opening (P<0.05). 5% of soybean hulls increased the DM after 28 days of ensilage (34.9%), for the crushed sunflower seeds the MS were higher after 21 days (31.7%). The DM of SS at 28 days was 26.4%. The addition of 5% crushed sunflower seeds presented higher EE to the 28 days of ensilage (6.96%) The control presents at 28 silage day of 4.8% EE and 26.4% DM. There was an effect on crude protein (CP), acid detergent insoluble protein (ADIP) and total carbohydrates (TC), for additions (P<0.05), but not for opening dates. Urea provided increment of nitrogen′s fractions, and consequently larger crude protein and acid detergent insoluble protein (23.5 and 1.3% DM), while others treatments presents a media of 11.8% and 0.8% of AIPD. The addition of 5% of soybean meal and crushed sunflower seeds increased the total carbohydrates in sunflower silage (76.9 and 71.5%), this didn't happen with the urea addition (63.1%). The SS presents total carbohydrates of 73%. The addiction of urea provides a higher CP and ADIP and 5% of sunflower crushed seeds and soybean hulls increases DM and EE after 21 days of silage and the total carbohydrates of sunflower silage.

Key Words: crushed sunflower seeds, soybean hulls, urea

W125 In situ dry degradation coefficients of whole crop barley silage treated with *Lactobacillus plantarum* or mixed with *Pediococcus pentosaceus* plus *Propionbacter freudenreichii*. M. Vatandoost, M. Danesh Mesgaran*, A. Heravi Mousavi, and A. R. Vakili, *Ferdowsi University of Mashhad*, *Mashhad, Iran*.

The aim of the present study was to determine the chemical composition and in situ dry matter (DM) degradation of whole crop barley silage (WCB, 35% DM) as untreated or treated with *Lactobacillus plantarum* (8×1010 CFU (LP8) or 16×1010 CFU (LP16) per g of DM) or mixed with *Pediococcus pentosaceus+Propionbacter freudenreichii* (5.5×1010 CFU (PP5.5) or 11×1010 CFU (PP11) per g of DM) for 30 days (n = 4). Standard procedures were used to determine the chemical composition of the samples. The pH of the silage extract was determined using a pH meter (Metrohm 691, Swiss). NH3-N concentration was determind in acidified silage extract (5 ml of the extract + 5 ml of 0.2 M HCl) using a distillation method (Kjeltec 2300 Autoanalyzer, Foss Tecator, Sweden). The rumen degradable parameters of DM of the silages were determined using in situ procedure. Four sheep (44±5 kg liveweight) fitted with rumen cannula were used in the present study. About 5 g DM of each sample was placed in each polyster bag (10×12 cm, 52 µ por size), then incubated (n = 4) for 2, 4, 8, 16, 24, 48, 72 and 96 h. For zero time, bags were washed using cold tap water. The equation of $P=a+b(1-e^{-ct})$ was applied to determine the coefficients (a = quickly degradable fraction, b = slowly degradable fraction, c = fractional degradation rate constant). The inoculants caused to decrease the pH and NH3-N concentration (mg/dl) (WCB = 4.07 and 9.10, LP8 = 3.69 and 8.47, respectively). Neutral detergent fiber content of the treated silages was significantly increased (P< 0.05) than WCB (WCB = 554, LP8 = 581, LP16 = 627, PP5.5 = 542 and PP11 = 617 g/kg DM; SEM = 6.22). Treated silages had a greater slowly degraded fraction of DM compared with WCB samples (WCB = 0.44 ± 0.03, LP8 = 0.48 ± 0.02, LP16 = 0.49 ± 0.01, PP5.5 = 0.47 ± .02 and PP11 = 0.49 ± 0.02 g/kg DM; SEM = 6.22).

Key Words: silage, *Lactobacillus plantarum*, degradation

W126 The effect of propionic acid or propionate ammonium on chemical composition and in situ dry matter degradation of whole crop barley silage. M. Vatandoost, M. Danesh Mesgaran*, A. Heravi Mousavi, and A. R. Vakili, *Ferdowsi University of Mashhad*, *Mashhad, Iran*.

The aim of this study was to evaluate the effect of propionic acid or ammonium propionate on chemical composition and in situ dry matter (DM) degradation of whole crop barley silage. It was harvested (about 35% DM), chopped, and then ensiled as untreated (UT) or treated with propionic acid (3 or 6 g per Kg of DM; P3 or P6, respectively) or ammonium propionate (1 or 1.5 g per Kg of DM; AP1 or AP1.5, respectively) for 30 days (n = 4). Standard procedures were used to determine the chemical composition of the samples. Silage extract pH was determined using pH meter (Metrohm 691, Swiss). NH3-N concentration was determined in acidified silage extract (5 ml of the extract + 5 ml of 0.2 N HCl) using distillation method. The ruminal degradable parameters of DM of the silages were determined using in situ procedure. Four sheep (44±5 Kg Body Weight) fitted with the rumen fistulae were used in the present study. Bags (10 × 12 cm) were made of polyester cloth with a pore size of 52 µm. About 5 g DM of each sample was placed in each bag, and four bags for each treatment were incubated for each time (2, 4, 8, 16, 24, 48, 72, 96 h). For zero time, bags were washed using cold tap water. The equation of $P=a+b(1-e^{-ct})$ was applied to determine dry matter degradation coefficients (a = quickly degradable fraction, b = slowly degradable fraction, c = fractional degradation rate constant). Both additives did not have any significant effect on pH (UT = 4.07, P3 = 4.05, P6 = 4.03, AP1 = 3.95 and AP1.5 = 3.93; SEM = 0.15) or crude protein concentration (UT = 7.98, P3 = 8.03, P6 = 8.11, AP1 = 8.06 and AP1.5 = 8.08 g/kg DM; SEM = 0.09). However, these additives caused a significant (P < 0.05) increase in neutral detergent fibre content (UT = 554, P3 = 661, P6 = 664, AP1 = 577 and AP1.5 = 595 g/kg DM; SEM = 7.7). NH3-N concentration (mg/dl) was significantly increased when ammonium propionate was applied (UT = 9.10, AP1 = 11.69; SEM = 0.53). The additives caused an increase in slowly degradation faction of DM (UT =0.46 ± 0.03, P3 = 0.56 ± 0.03, P6 = 0.57 ± 0.04, AP1 = 0.49 ± .02 and AP1.5= 0.52 ± 0.03).

Key Words: silage, propionic acid, propionate ammonium

W127 Antioxidant activity and white blood cells on plasma of lambs fed with Manzarina. H. E. Rodríguez-Ramírez*[1,2], C. Rodríguez-Muela[1], R. Bocourt-Salabarría[3], C. Chávez-Hernández[2], O. Ruiz-Barrera[1], C. Hernández-Gómez[1], R. Jasso-Ibarra[2], and C. Holguín-Licón[1], [1]*Universidad Autónoma de Chihuahua*, *Chihuahua, México*, [2]*INIFAP, Campo Experimental Delicias*, *Delicias, Chihuahua, México*, [3]*Instituto de Ciencia Animal*, *Habana, Cuba*.

Apples have positive effects as a natural antioxidant. Manzarina (Mzn) is a solid state fermentation product of apple byproducts. Mzn could preserve some of the apple properties; in addition, it has high yeasts content. The objective was to evaluate Mzn influence over plasma antioxidant activity (AA) and white blood cells concentration on lambs