

Fisher's LSD multiple-comparison test were used to determine the differences among genotypes. Feeding efficient varied from 5.20 to 6.87, with the highest feed efficiency in St. Croix lambs. Standardized daily live weight gain ranged from 0.34 to 0.55 kg, with the highest rate of gain in the Callipyge wool x St. Croix lambs. Whole sale weight (kg) was the highest in the Callipyge wool x wool (19.26) and lowest in the St. Croix (15.38). Quality grade among the seven genotypes of lambs ranged from 5.5 to 7.6, with the St. Croix and St. Croix x wool lambs having the higher values. The highest value for the percent wholesale

body weight was observed in the Callipyge wool x wool (64.1) while the value for St. Croix was the lowest (55.6). Percent loin eye of carcass weight was the highest in the Callipyge wool x wool (4.5) and the lowest is the St. Croix (3.0). The overall sensory acceptance rating was the highest in the St. Croix (6.8) and the lowest in the Callipyge wool x wool.

Key Words: Carcass evaluation, Feed efficiency, Sheep

Beef Species: Beef cattle performance and genetic relationships in the feedlot

W148 Genetic relations among carcass fat, tenderness, and age at slaughter in beef cattle managed under a constant finishing program. T. L. Fernandes^{*1}, J. W. Wilton¹, I. B. Mandell¹, and C.J.B. Devitt², ¹University of Guelph, Department of Animal and Poultry Science, ²Beef Improvement Ontario.

Objectives were to estimate genetic parameters on carcass fat traits, tenderness at 7 days of aging (Angus x Simmental cows), and age at slaughter. Data on 744 crossbred animals from 3 research herds, fed at the Elora Beef Research Centre. Each year throughout the five-year period, the cattle were fed either a high-energy diet from start to finish or a haylage based diet the first 112 days and then a high-energy diet. All animals were targeted to finish at a constant backfat thickness of 8 mm, as determined by ultrasound measurements taken every 28 days. Forty sires were included, with a range of 8 to 34 progeny per sire. Carcass fat traits included: subcutaneous fat % and intermuscular fat % as measured from a rib section dissected into lean, fat (subcutaneous, body cavity, and intermuscular fat), and bone. Subcutaneous fat (SUBQ) % and intermuscular fat (INTER) % were calculated as percentages of overall rib weight. Chemical fat was determined by ether extraction of the dissected lean. Marbling score was determined subjectively. Tenderness was measured using Warner-Bratzler shear force with samples aged for 7 days. A multiple trait model was used to analyze the data with the model including regression on breed proportion, the covariate carcass backfat, fixed effects of herd of origin and contemporary group (year, nutritional treatment, and sex), and the random effect due to animal. Heritability estimates were 0.42, 0.44, 0.23, 0.53, 0.22, and 0.22 for marbling, SUBQ %, INTER %, chemical fat, shear force and age at slaughter, respectively. The genetic correlation between marbling score and chemical fat was 0.90 indicating that subjective marbling score is a good indicator of intramuscular fat. Marbling had a genetic correlation of -0.08 with shear force, and 0.02 with INTER. Selection for marbling should not affect carcass quality for tenderness and intermuscular fat.

Key Words: Beef, Meat-quality, Selection methods

W149 Effects of growth promotant (Revalor-G) implantation on feed efficiency and meat quality in Korean native cattle. S. Sun^{*1}, B. Ahn¹, K. Myung¹, Y. Cho², and K. C. Olson³, ¹Chonnam national Univeristy, Gwangju, Korea, ²National Livestock research Institute, Namwon, Korea, ³University of Missouri, Columbia, MO.

The objectives of this study were to examine improving feed efficiency and meat quality by implantation of growth promotant in Korean native cattle. Fourteen steers (Korean beef cattle, BW 250+10kg, 14-month-old) were randomly assigned to either a control and implanted group. Steers were castrated at 3 months of age. Growth promotant (Revalor-G, 120 mg TBA + 24 mg estradiol benzoate) was implanted subcutaneously in the ear of seven steers at 15 months old. Animals were managed in a feedlot unit and slaughtered locally. Concentrate ration was fed 1.5kg per animal per day from 14 to 20 months, and then fed at 1.0kg per animal per day from 21-28 months of age. Rice straw was fed ad libitum. The implanted group was slaughtered at 24 months old (BW 638±14kg) and the control group was slaughtered at 28 months old (BW 635±17kg). Live weight was measured every 60 d and feed consumption was calculated daily. Daily weight gain and feed consumption were increased 53.3% and 18.9%, respectively, but feed requirement was decreased 22.6% by growth promotant implantation ($P < 0.05$). Plasma glucose content was enhanced, but urea-N was diminished by treatment. Also, serum cholesterol level was decreased significantly ($P < 0.05$) by the treatment. Carcass weight and yield grade were slightly increased in treatment group. These results indicated that growth promotant implantation improved daily weight gain and feed efficiency, but meat quality was decreased in Korean native cattle.

Key Words: Korean native cattle, Growth promotant, Meat quality

Ruminant Nutrition: Dairy and Beef

W150 Ruminal and intestinal protein digestion of tropical alfalfa and corn silage measured by mobile nylon bag technique in steer. A. Taghizadeh, M. Danesh Mesgaran^{*}, R. Valizadeh, and F. Eftekhari Shahroodi, *Ferdowsi university, Mashhad, Iran.*

The ruminal and intestinal disappearance of dry matter (DM) and crude protein (CP) of tropical (Iranian) alfalfa and corn silage were measured in three steers (370±16), with ruminal and intestinal canulae, using mobile nylon-bag technique. The experimental samples, 18 replicates, were placed in nylon bags (3 x 6 cm, pore size 47µm), then incubated in the rumen of steers for 12 h prior to being inserted into the intestine. Dry matter and crude protein disappearances in the rumen, intestine and total tract were calculated as the difference between the each nutrient in the intact feeds and the remaining after incubation in the rumen and intestine. The disappearance of DM in the rumen, intestine and total tract for alfalfa and corn silage was 410 and 380, 190 and 460, 540 and 810 g kg⁻¹, respectively. The disappearance of CP in the rumen, intestine and total tract for alfalfa and corn silage was 510 and 290, 730 and 890, 870 and 730 g kg⁻¹, respectively. The results of intestinal and total tract DM disappearance of alfalfa were significantly different from the corn silage data ($p < 0.05$). The alfalfa CP disappearance in the rumen, intestine and total tract was significantly higher compared with corn silage ($p < 0.05$). The disappearance results of DM and CP of al-

falfa and corn silage may related to the growing condition, species and conservative processing.

Key Words: Dry matter, Nylon bag, Intestine

W151 Influence of low-level protein supplementation on forage intake, diet digestion and selection by beef steers grazing tallgrass-prairie range during the fall. D. A. Llewellyn^{*}, R. C. Cochran, T. T. Marston, C. G. Farmer, and T. A. Wickersham, *Kansas State University, Manhattan.*

An experiment was conducted to evaluate the effect on forage utilization of providing a limited quantity of a high-protein (45.5% CP, DM basis) supplement to beef cattle grazing tallgrass-prairie during the fall period. Sixteen ruminally fistulated Hereford x Angus steers (BW = 259 kg) were blocked by weight and randomly assigned to one of two treatments (i.e., fall supplementation or no fall supplementation) in a two-period study to evaluate the effect of low-level supplementation on forage intake and digestion during September and November. Within each treatment, four steers were used for measuring diet selection (by ruminal evacuation) and four were used for total fecal collection (via fecal bags). Each period consisted of a 15-d diet adaptation, a 4-d diet sample collection period, and a 6-d period in which total feces production was measured. The diet to feces ratio of the internal marker acid detergent insoluble ash was used to calculate diet digestibility and this