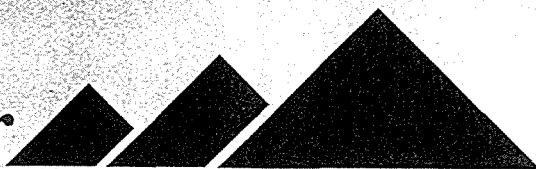


Denver



1998 ADSA-ASAS JOINT MEETING

Hosted by Colorado State University

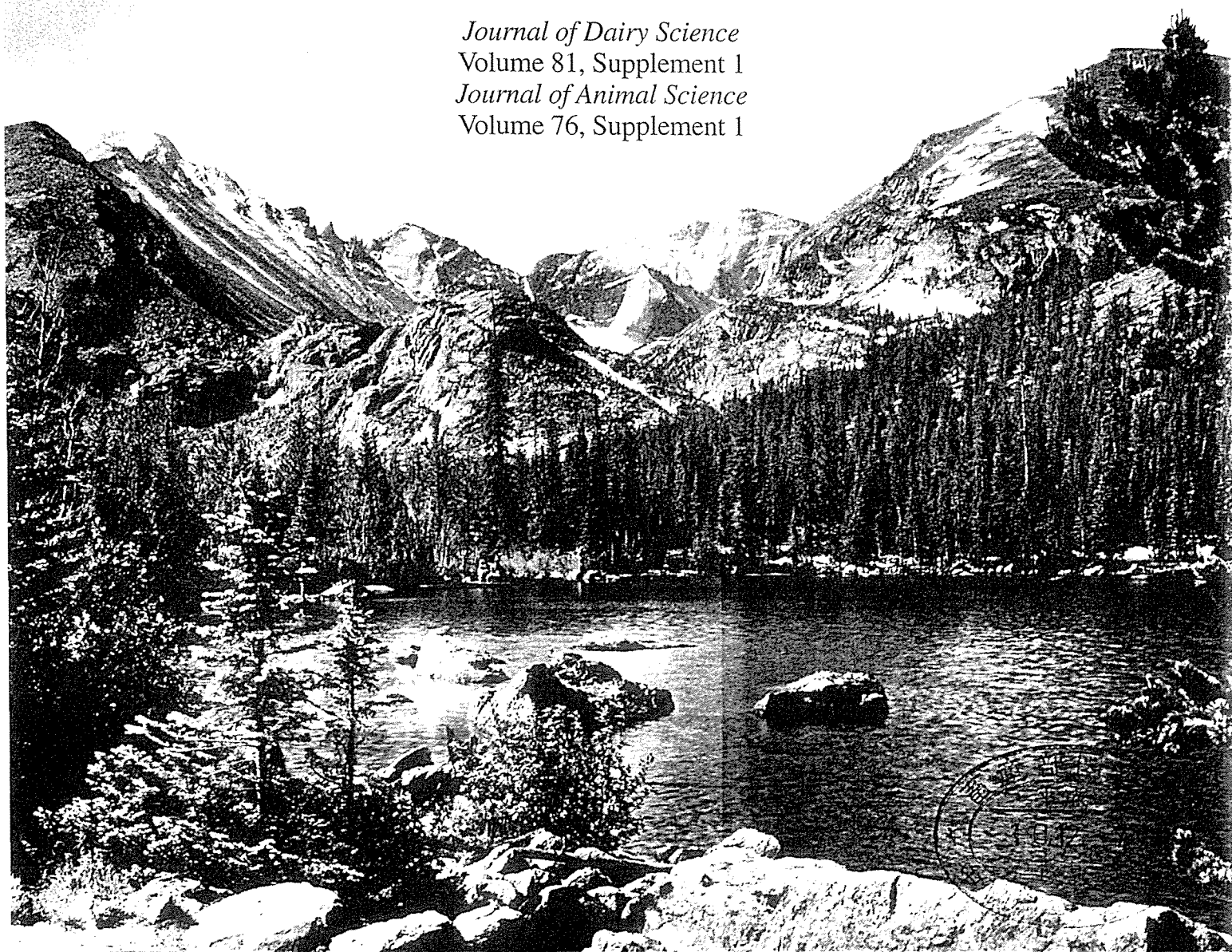
1998
JOINT MEETING
ABSTRACTS

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591 Live linear body measurements in Spanish-type meat goats of differing sex, age, weight, and conformation. K. W. McMillin¹, S. Gebrelul^{*2}, J. M. Fernandez¹, O. Phelps², K. E. Mellad², G. Simon², N. Dawkins², and F. Pinkerton³, ¹Louisiana State Univ. Agric. Center, Baton Rouge, LA, ²Southern Univ., Baton Rouge, LA, ³The Goat Man, Grapeland, TX.

The demand for goat meat in the U.S. is increasing with increased ethnic populations and demands for leaner meat. Classifying of live market goats, carcasses, and cuts would provide increased marketing opportunities in the goat and meat industries. This study had the objective to compare live characteristics of Spanish-type meat goats from male and female kid and yearling goats of two weights (<20kg and >20 kg) and three body conformation types (low, medium, high). Goats (n=137) were selected from ranches in Texas to fit into the appropriate treatment combination cell, transported ~14 h to the University Meat Laboratory, held over night, and weighed and measured prior to sacrifice by humane procedures. Tape measures and calipers were used to determine linear body measurements. Analyses of variance indicated that live conformation scores of independent observers matched the desired cell grouping, although yearling goats and males weighed more than kids and females within conformation groups. Rump was longer ($P<0.05$) in lighter goats and loin and chine were longer ($P<0.05$) and chest was wider in light males, yearling males, and heavy females compared with goats in other classifications. Chest was deeper ($P<0.05$) in heavy females compared with lighter females. Heavier or yearling goats had larger ($P<0.05$) barrel circumference and heart girth and were taller at withers ($P<0.05$) than lighter or kid goats. The linear body measurements were representative of differences in maturation patterns with age and sex, but were not influenced by body conformation grouping. Live Spanish-type goats could be classified into marketing groups based upon objective linear body measurements and subjective conformation scores.

Key Words: Goats, Conformation, Marketing

592 Carcass traits and primal cut yields in Spanish-type meat goats of differing sex, age, weight, and conformation. O. Phelps^{*1}, K. W. McMillin², S. Gebrelul¹, J. M. Fernandez², K. E. Mellad¹, G. Simon¹, N. L. Dawkins¹, and F. Pinkerton³, ¹Southern Univ., Baton Rouge, LA, ²Louisiana State Univ. Agric. Center, Baton Rouge, ³The Goat Man, Grapeland, TX.

The increased consumer demand for goat meat in the U.S. requires knowledge of carcass traits and primal cut yields to facilitate the marketing of goat meat. The objective of the study was to characterize carcass traits and determine yields of primal cuts from goats of kid and yearling male and female Spanish-style goats (n=137) selected from Texas ranches for weight (<20kg or >20 kg) and body conformation type (low, medium, or high). Goats were transported ~14 h to the University Meat Laboratory and rested overnight before humane sacrifice. Carcass traits were measured and primal cuts were fabricated at 24 h postmortem after 1°C chilling. Hot and cold carcass weights corresponded to live weight classifications with a 49.5% average dressing % (s.e.m.=1.46) across all classes of goats. Carcass conformation did not match the live conformation classification. Estimated and actual kidney and pelvic fat % was increased ($P<0.05$) in heavier and in female carcasses. Rib eye area was greater ($P<0.05$) in heavier compared with lighter goats and in yearling compared with male kids. Flank color was darker ($P<0.05$) in carcasses from heavier or older goats compared with lighter or younger goats. Flank streaking was less ($P<0.05$) in low conformation carcasses of light males and heavy females while rib feathering was less in light male and light female carcasses compared with those in other classifications. Higher ($P<0.05$) shoulder and loin primal cut % in light male carcasses were attributed to the cutting procedures for this group. Light or female kid carcasses resulted in higher % leg than male and heavy or yearling female carcasses. Raw shoulder cuts from carcasses had only minor variation in moisture, crude fat, protein, or ash. Live conformation classes for Spanish-type goats were not predictive of subsequent carcass characteristics or primal cut yields.

Key Words: Goats, Carcasses, Primal Cuts

593 Mode of inheritance of triacylglycerol fatty acids in beef adipose tissue. A. E. O. Malau-Aduli^{*}, B. D. Siebert, C. D. K. Bottema, and W. S. Pitchford, *University of Adelaide, Australia.*

Subcutaneous adipose tissues were biopsied in 67 Jersey, Limousin and Jersey x Limousin calves at the age of 9-10 months. All calves were grass-fed in a single management group and biopsied from the same anatomical site. Triacylglycerol fatty acids were extracted and analysed by gas-liquid chromatography. Genetic effects of heterosis, additive and maternal variances were estimated to investigate the mode of inheritance of fatty acids. Sex and genotype differences were also examined. Heifer calves had significantly higher proportions of palmitoleate, total monounsaturated fatty acids, desaturase enzyme activity index and lower stearate than bull calves. Genotype differences were observed: Limousin calves had the highest proportions of palmitate and total saturated fatty acids, while Jersey calves had the most palmitoleate and desaturase enzyme activity index. The mode of inheritance of palmitate, stearate, desaturase and elongase enzyme indices was by dominance. Myristate, palmitate and total saturated fatty acids showed significant additive genetic effect. The study showed that triacylglycerol fatty acids are heritable. Heterosis can also be exploited in reducing the percentage of saturated fatty acids in beef by crossbreeding Limousin and Jersey cattle.

Key Words: Fatty acids, Triacylglycerols, Inheritance

594 Modification of fatty acid profile in muscle lipids of ruminants. K. Nuernberg, K. Ender^{*}, S. Grumbach, H.-J. Papstein, and G. Nuernberg, *Research Institute for Biology of Farm Animals, Dummerstorf (Germany).*

The relative proportion of nutrients and the fatty acid composition depends on various factors like fatness, species, diet, age/weight, sex, breed, keeping, hormones, and depot site. The effects of dietary fat on the fatty acid composition of ruminant fatty tissues are relatively small because of the partial or complete hydrogenation in the rumen. The objective of the studies was to determine the effects of different feeding systems (Group 1: extensive without supplement, Group 2: keeping on pasture and finishing indoor, Group 3: intensive feeding with concentrate and roughage) and the effect of breed on fatty acid composition of muscle fat in lambs, steers, and bulls. The composition of intramuscular fat in longissimus muscle of lambs (at 39 kg live weight) and steers (300-340 kg live weight) was significantly affected by diet. The relative content of n-3 fatty acids of intramuscular fat was increased in lambs up to 4 % and in cattle up to 3.5 %. Grass fat contains about 50 % linolenic acid. When young ruminants (lambs, steers) are fed relative high concentrations of linolenic acid the level of the n-3 fatty acids increases in fatty tissues. The intramuscular fat quality of longissimus muscle in lambs and steers kept on pasture was more valuable for human nutrition because of the high percentage of n-3 fatty acids and the low cholesterol concentration.

The effect of breed was investigated in an experiment with White-blue Belgian (WBB) and Black Pied (BP) bulls. There were genetically based differences in intramuscular fatty acid composition of longissimus muscle. WBB bulls produced a very high content of lean meat with very small total carcass and intramuscular fat compared to Black Pied bulls. The relative content of linoleic acid in WBB muscle was very high. The percentages of phospholipids in genetically different longissimus muscles did not differ.

Key Words: Fatty Acid, Muscle, Ruminant