816 Use of pelleted sericea lespedeza (*Lespedeza cuneata*) for natural control of coccidiosis in weaned goats. T. H. Terrill*[1], D. S. Kommuru[1], S. Desai[1], J. E. Miller[2], J. M. Burke[3], and J. A. Mosjidis[4], *[1]Fort Valley State University, Fort Valley, GA, [2]Louisiana State University, Baton Rouge, [3]USDA/ARS, Booneville, AR, [4]Auburn University, Auburn, AL.*

Coccidiosis can be a devastating disease in goats, particularly for young, recently-weaned animals, causing diarrhea and even death. Feeding dried sericea lespedeza (SL; *Lespedeza cuneata*) to young goats has been reported to reduce the effects of internal parasites, but there have been no reports of the effects of feeding this forage on *Eimeria* spp. in goats. A confinement feeding study was completed on 24 recently weaned intact Kiko-cross bucks to determine effects of SL pellets on an established *Eimeria* infection. The bucks were assigned to 1 of 2 treatment groups based upon *Eimeria* oocysts per gram (OPG) of feces (n = 12/treatment group, 2 animals/pen), and then fed 1 of 2 pelleted rations ad libitum; 90% SL leaf meal pellet or a 14% crude protein commercial pellet. Fecal samples were taken from individual animals every 7 d for 28 d to determine OPG and gastrointestinal nematode eggs per gram (EPG), and blood samples to determine packed cell volume (PCV). After 7 d, the SL pellet diet reduced ($P < 0.05$) OPG and EPG in goats by 96.9 and 78.7%, respectively, compared with animals fed the control diet. The OPG and EPG remained lower ($P < 0.05$) in treatment than control animals until the end of the trial. There was no effect of diet on PCV values throughout the experiment. Dried, pelleted SL has excellent potential as a natural anticoccidial feed for weaned goats.

Key Words: coccidiosis, goats, sericea lespedeza

817 Sericea lespedeza as an aid in the control of *Eimeria* spp. in lambs. M. Acharya*[1], J. Burke[1], J. Miller[1], T. Terrill[1], and J. Mosjidis[1], *[1]University of Arkansas, Fayetteville, [2]USDA, Agricultural Research Service, Booneville, AR, [3]Louisiana State University, Baton Rouge, [4]Fort Valley State University, Fort Valley, GA, [5]Auburn University, Auburn, AL.*

Coccidia, a diarrhea causing protozoan parasite, is a significant health and production challenge for sheep during times of stress. Typical treatment involves the administration of sulfa drugs and amprolium, a thiamine antagonist. This research examines the effect of sericea lespedeza (SL) for control of coccidiosis in lambs. In Exp. 1, naturally infected lambs (n = 76; 23 ± 1 kg) weaned at 102.7 ± 1.4 d of age were randomly assigned to groups receiving 2% BW/d of either alfalfa pellets (n = 38, control) or SL (n = 38, treatment) with or without amprolium added to drinking water. Fecal oocyst count (FOC), fecal egg count (FEC), and fecal score (FS; 1 = solid pellets; 5 = slurry) were determined from the day of weaning to 21 d post-weaning in 7 d intervals. In Exp. 2, naturally infected lambs (n = 72; 20 ± 1 kg) were randomly assigned to groups. They were fed either control creep feed (n = 40, 16% CP) or SL pellets (n = 32, 14% CP) 30 d before weaning. Intake of SL was increased from 100 g/lamb/d (before weaning) to 454 g/lamb/d (after weaning). Lambs were weaned at 103.6 ± 0.9 d of age and moved to semi-confinement. The FEC, FOC, packed cell volume (PCV), FS, and dag score (soiling around rear of lamb; DS; 1 = no soiling; 5 = heavy soiling) were determined 14 d before weaning and in 7 d intervals from weaning until 21 d post weaning. A mixed model was used for data analysis. To determine treatment differences, chi-squared analysis was used. In Exp. 1, dietary group showed similar FOC, but in amprolium treated lambs FOC decreased ($P < 0.001$). Higher fecal score in control compared with SL lambs ($P = 0.05$) indicated signs of coccidiosis. In Exp 2, pre-weaning FOC was similar but decreased in post-weaning SL lambs and remained lower ($P = 0.004$). Post-weaning coccidiosis treatment was required for 33% of control ($P < 0.001$) but not in SL lambs. Dag ($P = 0.01$) and FS ($P = 0.001$) were similar pre-weaning, but lower at weaning and thereafter in SL-fed lambs. The use of SL was effective in prevention and control of coccidiosis in lambs.

Key Words: coccidia, lambs, sericea lespedeza

818 The relationship of OPP infection to performance and TMEM154 genotype in a Midwestern sheep flock. T. W. Murphy*[1] and T. A. Taylor[1], and D. L. Thomas[1], *[1]Department of Animal Sciences, University of Wisconsin-Madison, Madison, [2]Research Animal Resources Center, University of Wisconsin-Madison, Madison.*

Ovine progressive pneumonia (OPP) is an incurable, degenerative, viral disease of sheep affecting the respiratory and nervous systems in an escalating fashion over an animal's lifetime. Objectives of the study were to determine (1) effect of OPP status (POS or NEG) on the performance of Hampshire (H; n = 72) and Polypay (P; n = 58) ewes and their lambs, and (2) relationship between TMEM154 genotype and OPP status of the ewes. Data were from the UW-Madison flock at the Arlington Ag Research Station and consisted of 314 ewe and 425 lamb records. The flock is intensively managed with most ewes lambing in winter and a few ewes lambing in fall. Incidence of POS ewes was 58.3% and 43.1% among H and P ewes, respectively. The statistical model for analysis of ewe fertility, litter size, and weight of lamb weaned per ewe exposed included year, breed, OPP status, and age at lambing nested within year as fixed effects, and service sire and ewe as random effects. 70-d lamb weaning weight was analyzed similarly but with the addition of fixed effects of lamb birth type, sex, and the breed x birth type interaction. There were no differences ($P \geq 0.24$) between POS and NEG ewes for any of the traits. The ewes were enrolled in the National Sheep Improvement Program (NSIP), and EBV's for traits and indexes were available for each ewe. Within breed analyses considering only OPP status revealed no significant differences ($P > 0.14$) between POS and NEG ewes for the NSIP values. Frequencies of TMEM154 haplotypes across both breeds were 0.77, 0.13, 0.04, and 0.06 for haplotypes 1, 2, 3, and 4, respectively. Within and across breeds, ewes with 1 or 2 copies of haplotype 2 or 3 had a higher ($P \leq 0.024$) incidence of OPP than ewes of diplotype 1,1. Our results agree with some previous studies that have shown no effect of OPP infection on ewe performance, which suggests that intensive management from lambing to weaning may minimize negative effects of OPP infection. In agreement with very recent studies on genetic susceptibility to OPP, producers wishing to decrease genetic susceptibility to OPP infection should select 1,1 TMEM154 diplotype animals.

Key Words: sheep, ovine progressive pneumonia, TMEM154

819 Effect of feeding a pelletized diet containing 21% ground pumpkin seeds on BW, fecal egg count, and blood hematocrit in Katahdin cross lambs. E. N. Escobar, J. Rodriguez*, A. N. Gideon, V. Purnell-Cropper, and H. Taylor, *University of Maryland Eastern Shore, Princess Anne, MD.*

This investigation was conducted to evaluate the effect of a diet containing ground pumpkin (*Cucurbita* sp.) seeds (PS) on *Haemonchus contortus* infection in lambs. Katahdin cross female and wether lambs (n = 20, 4 to 6-mo old), with average BW = 22.6 ± 0.91 kg, were used. Following a 2-wk adjustment period, the lambs were randomly allocated to individual pens (1.9 × 2.3 m) with slotted floors and unrestricted access to fresh water. Individual feed intake was adjusted up to 4% BW to minimize orts and recorded daily. The lambs were dewormed with albendazole (Valbazen, 10 mg/kg) and moxidectin (Cydectin, 0.2 mg/kg). After a 21-d dewormer withdrawal period, all lambs were orally inoculated 3 times, every other day, with a larval inoculum containing 1,450 L3 *H. contortus*. After the experimental inoculation, a pelletized commercial 15% crude protein diet was fed as the control (CTRL, n = 10). The treatment (TRT) feed was formulated with similar ingredients as the CTRL diet plus 21% ground PS, and it was calculated to be similar in protein and energy content and fed to 10 lambs. To minimize feedstuff selection ground PS were incorporated into the pelletized mixture. The experimental diets were fed for 9 consecutive week. Weekly the lambs were weighed, and fecal (rectal) and blood (jugular venipuncture) samples were collected. A modified McMaster technique was used to determine fecal egg count (FEC, eggs per gram, epg), and hematocrit (% PCV) was determined in whole blood. The data were analyzed as repeated measures using the SAS statistical package. FEC+100 was natural log-transformed to stabilize variance. After 9 wk, overall BW of the Katahdin lambs was similar ($P > 0.05$) in CTRL lambs (25.85 kg) and the TRT lambs (24.11 kg). The only significant difference ($P < 0.05$) in BW was between weeks, as expected. After 9 wk, there was no significant difference ($P > 0.05$) between the CTRL and TRT groups on % PCV or FEC (31.02 vs. 31.58 and 380.8 epg vs. 502.3 epg, respectively). Ground PS incorporated into pelletized feed at a rate of 21% failed to affect *H. contortus* burden in lambs as expressed in FEC and PCV.

Key Words: ground pumpkin seed, *Haemonchus contortus*, lamb

820 Effect of ground pumpkin seeds (*Cucurbita* sp.) fed in a pelletized diet on BW, fecal egg counts, and blood hematocrit in experimentally *Haemonchus contortus* infected meat goat kids. E. N. Escobar*, J. Rodriguez, A. N. Gideon, V. Purnell-Cropper, and H. Taylor, *University of Maryland Eastern Shore, Princess Anne, MD.*

This investigation was conducted to evaluate the effect of ground pumpkin (*Cucurbita* sp.) seeds (PS) on *Haemonchus contortus* infections in meat goat kids. Sixteen 6- to 8-mo-old females and castrated male goat kids, average BW 20.8 ± 1.4 kg, were used. After a 2-wk adjustment period, the kids were randomly allocated to individual pens (1.9 × 2.3 m) with slotted floors and ad libitum access to water. Individual feed intake was adjusted up to 4% BW to minimize orts and recorded daily. The kids were dewormed with albendazole Valbazen (10mg/kg) and Cydectin (0.2mg/kg). After a 21-d dewormer withdrawal period, all goat kids were orally inoculated 3×, every other day, with a larval inoculum containing 1,450 L3 *H. contortus*. Then, a pelletized commercial 15% CP diet was fed as the control (CTRL) feed to 8 kids. The treatment feed (TRT) was formulated with similar ingredients as the CTRL diet plus 21% PS, calculated to be similar in protein and energy content and it was fed to 8 kids. To minimize kid feedstuff selection PS were ground and incorporated into the pelletized mixture. The experimental diets were fed for 8 consecutive weeks. Weekly, the kids were weighed (BW), and fecal (rectal) and blood (jugular venipuncture) samples were collected. A modified McMaster Technique was used to determine fecal egg count (FEC, eggs per gram, epg), and hematocrit (% PCV) was determined in whole blood. The SAS statistical package was used for data analysis. FEC+100 was natural log-transformed to stabilize variance and the data analyzed. After feeding 8 wk, overall BW was similar in CTRL (20.53 kg) and TRT (20.74 kg) fed kids ($P > 0.05$). The only significant difference ($P < 0.05$) in BW was between wk, as expected. The mean FEC was similar ($P > 0.05$) between CTRL (473.2 epg) and TRT (478.5 epg) groups of kids. The values for % PCV were 26.07% and 27.30% for the CTRL and TRT kids, respectively ($P > 0.05$). Ground PS fed at a level of 21% incorporated into a pelletized diet failed to affect *H. contortus* burdens in goat kids expressed as FEC and %PCV.

Key Words: goat kids, *Haemonchus contortus*, pumpkin seeds

821 Safety and efficacy of low-dose, subacute exposure of mature ewes to sodium chlorate. J. B. Taylor*[1], R. S. Dungan[2], and D. J. Smith[3], *[1]USDA, ARS, US Sheep Experiment Station, Dubois, ID, [2]USDA, ARS, Northwest Irrigation and Soils Research Laboratory, Kimberly, ID, [3]USDA, ARS, Biosciences Research Laboratory, Fargo, ND.*

The objective was to determine the safety and efficacy of low-dose, subacute exposure of mature ewes to $NaClO_3$ in the drinking water. Twenty-five ewes (BW = 62.5 ± 7.3 kg) were placed indoors in individual pens with ad libitum access to water and feed. After 7 d of adaptation, ewes were assigned randomly to 1 of 5 treatments: 0 (control), 30, 60, 90, or 120 mg $NaClO_3 \cdot kg\ BW^{-1} \cdot d^{-1}$. Treatments were delivered in the drinking water for 5 d (i.e., 120 h). Endpoints of subclinical toxicity were daily water intake, whole-blood methemoglobin percentage, and packed-cell-volume (PCV). Efficacy of treatments was based on fecal *Escherichia coli* concentrations. Based on water intakes and BW, actual daily $NaClO_3$ exposures were 0 and 28, 56, 80, and 110 ± 2 mg $kg\ BW^{-1}$ for control and 30-, 60-, 90-, and 120-mg treatments, respectively. Such doses neither induced methemoglobin formation (0.310, 0.304, 0.382, 0.334, and 0.300 ± 0.053%, respectively) nor altered PCV (42.5, 44.2, 43.8, 41.4, and 42.9 ± 1.9%, respectively). Ewes that consumed ≈110 mg $NaClO_3 \cdot kg\ BW^{-1} \cdot d^{-1}$ drank ≈14% less ($P < 0.05$) total water on d 2 than did other treatment groups. By d 5, the comparative reduction in voluntary water intake was nearly 30% less, which was accompanied with a reduction in feed intake. This response indicated that subacute exposure to ≥110 mg $NaClO_3 \cdot kg\ BW^{-1} \cdot d^{-1}$ may not be safe for mature ewes. Consumption of $NaClO_3$ for 5 d reduced fecal *E. coli* in a dose-dependent fashion ($P < 0.08$). Using unlike letters (a, b, and c) to indicate differences ($P < 0.10$) in fecal *E. coli* concentrations, the result of treatment contrasts for ewes consuming 0, 28, 56, 80, and 110 mg $NaClO_3 \cdot kg\ BW^{-1} \cdot d^{-1}$ were a, a, b, bc, c, respectively. These data suggested that subacute exposure to ≤28 mg $NaClO_3 \cdot kg\ BW^{-1} \cdot d^{-1}$ was not efficacious, with respect to fecal *E. coli*. At 22 d after treatments stopped, fecal *E. coli* in all $NaClO_3$-treated ewes were similar to control ewes, which indicated that the effect of $NaClO_3$ is rapidly reversible following subacute exposure. In summary, daily consumption of 56 to 80 mg $NaClO_3 \cdot kg\ BW^{-1}$ for 5 d was safe for targeted, short-term reduction of fecal *E. coli* in mature ewes.

Key Words: chlorate, diarrhea, *E. coli*

822 Cyclical and mild heat stress does not reduce dry matter intake but decreases average daily gain in Afshari lambs. E. Mahjoubi*[1], L. H. Baumgard[2], H. Amanlou[1], H. R. Mirzaei[1], N. Aghaziarati[1], M. H. Yazdi[1], G. R. Noori[1], and M. G. Khan[1], *[1]Zanjan University, Zanjan, Iran, [2]Iowa State University, Ames.*

Decreased DMI during heat stress (HS) does not fully account for decreased performance in dairy cows but does appear to completely

explain reduced growth in calves and pigs. To investigate the effect of heat stress on DMI and growth of Afshari lambs, 32 male lambs (38.1 ± 5.1 kg) were used in a completely randomized design in 2 periods (16 lambs per treatment). In period 1 (P1) all 32 lambs were housed in thermoneutral (TN) conditions [25.6 ± 2.6°C and a temperature-humidity index (THI) of 72 ± 2.6] and fed at libitum for 8 d. In P2, which lasted 9 d, 16 lambs were subjected to HS (29 to 43°C and a THI of more than 83 at least 14 h/d), the other 16 lambs were maintained in TN, but they consumed the same amount of feed (pair-fed, PFTN) as the HS lambs. During each period DMI and water intake were measured daily. Respiration rate, rectal temperature and skin temperature at the shoulder, rump, and front and rear leg were recorded at 0700 and 1400 h daily. All data were statistically analyzed using the PROC MIXED procedure of SAS to test differences between environments and periods. Water intake increased ($P < 0.05$) during P2 in both HS and TN lambs (88 and 35%, respectively). HS increased the 0700 and 1400 h temperature at the shoulder (3 and 10.6%), rump (2.7 and 12.7%), rear (3 and 13%), and front leg (3 and 13%) and respiratory rates (72 and 124%; $P < 0.001$, 0700 and 1400 h, respectfully) but only the 1400 h rectal temperature increased ($P < 0.01$; 0.62°C) in HS lambs. Interestingly, HS did not decrease DMI but average daily gain was reduced (36%; $P < 0.01$) compared with the PFTN lambs. These results imply that the direct effects of heat (not mediated by reduced DMI) are responsible for a portion of reduced sheep growth.

Key Words: Afshari lamb, heat stress, growth rate

823 The relationship between metatarsal and metacarpal condyle length and claw size in sheep—A postmortem study. S. Azarpajouh*[1], M. Mehdizadeh[2], and A. Mohamadnia[3], *[1]University of Missouri-Columbia, Columbia, [2]Shahrekord University, Shahrekord, Iran, [3]Ferdowsi University, Mashad, Iran.*

Understanding the hoof growth pattern in sheep could provide valuable information for proper hoof trimming to create appropriate weight bearing surfaces. The objective of this study was to determine whether differences in hoof growth result from the anatomic condition of distal condyles of the metacarpal and metatarsal bones in sheep. Fore and hind limbs of twenty 2-yr-old (average wt 27 kg) untrimmed pastured Afshari ewes were collected after slaughter. The following distances of the metacarpal and metatarsal bones were measured in mm: L1 = lateral end of the bone to the lateral border of the physis; L2 = lateral end of the bone to the abaxial border of the lateral condyle; X1 = lateral border of the physis to the abaxial end of the lateral condyle; X2 = the physis to the distal end of the condylar ridge; X3 = the axial aspect of physis to the axial end of the lateral condyle; D1 = lateral end of the bone to the medial border of the physis; D2 = lateral end of the bone to the abaxial border of the medial condyle. Analogous measurements were taken on the medial surfaces. Toe length, toe height, heel height, and sole length were also measured on the claws. Similar measurements between right and left legs were averaged and medial and lateral surfaces of each bone and medial and lateral claws on each limb were compared using a paired *t*-test. All the measurements in metacarpal bone were greater on the medial surface and the differences were significant ($P < 0.05$), except for X2 and X3. In metatarsal bone L1, X1 and X3 were greater on the medial surface but L2, X2, D1 and D2 were greater in the lateral surface and the differences were significant in X2 and D2. In forelimbs, toe length and toe height were greater in the lateral claws, but heel height and sole length were greater in the medial claws. In hind limbs, all the measurements except toe height were greater in the lateral claws. In conclusion, there is no relationship between metacarpal and metatarsal condyle length and the size of the corresponding claws, and there is no significant difference between claws in sheep. Therefore, beginning hoof trimming from a special claw is not necessary.

Key Words: hoof anatomy, hoof trimming, sheep

824 Doe fitness traits among four meat goat breeds in a reconstituted herd on humid, subtropical pasture. R. Browning Jr.*[1], J. Groves[1], M. L. Leite-Browning[2], L. Moore[1], and M. Byars Jr.[1], *[1]Tennessee State University, Nashville, [2]Alabama A&M University, Huntsville.*

This 2-yr study evaluated does brought together to rebuild the TSU research herd after natural disaster. Straightbred does (n = 253) were of the Boer (B), Kiko (K), Myotonic (M), and Spanish (S) breeds. The average doe age was about 4 yr for each breed. Does were mated each fall to produce purebred and F_1 kids. Herd management follows a low-input model to assess doe fitness. Does grazed on mixed-species pastures year-round at 9.5 head/ha supplemented with orchardgrass hay. Does had ad libitum access to 16% CP molasses tubs during winter. Does were dewormed once per year as a group at kidding and as individuals upon signs of endoparasitism. Does were sampled for fecal egg counts and pack cell volumes several times over the 2-yr study period to further assess internal parasitism. The proportional rates of does showing signs of endoparasitism once or multiple times annually were affected by breed ($P < 0.01$). Boer had higher ($P < 0.01$) annual treatment rates (78 ± 6%) than K, M, and S (41, 38, and 32 ± 8%, respectively); the other 3 breeds did not differ. Boer had higher ($P \leq 0.02$) multiple treatment rates per year (37 ± 15%) than K, M, and S (10, 15, and 6 ± 6%, respectively); the other 3 breeds did not differ. Fecal egg counts and packed cell volume were affected ($P < 0.01$) by breed, lactational status, and sample month. Boer had higher ($P \leq 0.03$) egg counts (1547 eggs/g feces) than K, M, and S (996, 723, and 890 eggs/g, respectively); the other 3 breeds not differing. Boer had lower ($P < 0.01$) hematocrits (14.5 ± 1.2%) than K, M, and S (19.5, 20.3, and 21.5 ± 1%, respectively); K and S also differed ($P = 0.01$). The proportion of does weaning kids per doe exposed and doe exit rates were affected by breed ($P < 0.01$). Weaning rates were higher ($P < 0.01$) for K (53 ± 13%) and S (54 ± 13%) than for B (7 ± 4%) and M (19 ± 9%). Annual doe exits due to illness or reproductive failure differed ($P \leq 0.03$) among all the breeds (B = 71 ± 6%; K = 18 ± 4%; M = 46 ± 7%; S = 17 ± 4%), except between Kiko and Spanish. Significant genetic variability was observed among doe breeds for fitness under the prevailing management conditions.

Key Words: breed, fitness, goat

825 Modeling the body composition of growing Santa Inês ewe lambs. L. F. L. Cavalcanti*[2,1], I. Borges[2], V. L. Silva[2], and L. O. Tedeschi[1], *[1]Texas A&M University, College Station, [2]Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.*

The most common breed of sheep in Brazil is the Sanat Inês. It is characterized by animals of small frame score and high capacity for storing energy in the form of fat deposits, mainly into the abdominal cavity. Therefore, the use of empirical equations based on body condition score to predict body composition (i.e., fat) may not be accurate. The objective of this study was to evaluate the Von Bertalanffy nonlinear equation [$Y = A \times (1\text{-}B \times e^{-k \times EBW})^3$; in which Y is the measured variable (kg), A is the asymptote (kg), B is a constant related to the intercept (kg), and k is the growth rate (1/kg)] to predict body composition of Santa Inês ewe lambs. Fifty 5 female lambs with initial live BW of 14 to 23 kg were confined and fed *Cynodon* spp. hay, corn meal, soybean meal, and mineral diet formulated to contain 2.3 Mcal/kg of ME, 22.5% CP, and

34.6% of NDF. The animals were divided into 2 groups in pairs and the first animal was fed at ad libitum regimen while the second animal received about 70% of the ad libitum animal DMI. Both animals were slaughtered when the ad libitum animal reached 20, 30, or 40 kg of BW (6 per BW). The body components were analyzed for ether extract (EE) and CP. The Von Bertalanffy nonlinear function was fitted using the CP% and EE% on the empty BW (EBW, kg, DM basis). The coefficients obtained to estimate CP were: A = 22.82 ± 4.6%, B = - 0.63 ± 0.07%, k = 0.07 ± 0.03 1/kg with a residual standard error (RSE) of 3.83%. For the EE, the coefficients were: A = 64.76 ± 3.7%, B = 1.36 ± 0.53%, k = 0.14 ± 0.03 1/kg with a RSE = 6.46%. When the predicted values of each model was linearly regressed on the respective observations, both had intercept = 0 and slope = 1 ($P < 0.001$). The mean bias (MB), Pearson correlation coefficient (r), and bias correction (Cb) for the CP% were, −0.0002, 0.8637, and 0.9893, respectively; and for the EE% these statistics were 0.0071, 0.8827, 0.9927. The observed increase in EE percentage and decrease in CP relative to BW as the EBW increased was in agreement with the literature for growth of mammals. The Von Bertalanffy nonlinear equation can satisfactorily predict the body composition of Santa Inês ewe lambs.

Key Words: evaluation, growth, Von Bertalanffy

826 Time limits of postmortem cell survival in goat ear skin stored at room temperature. M. Singh*, X. Ma, G. Kannan, and E. Amoah, *Fort Valley State University, Fort Valley, GA.*

Cloning of animals from somatic cells has been achieved in almost all livestock species in recent years. This technology has great potential for reviving endangered species, preserving lost genetics due to accidental death, and/or expanding use of superior quality animals. For a successful cloning experiment, integrity of nuclear DNA of the somatic donor cells is a pre-requirement. Any damage to DNA will lead to developmental defects in cloned offspring. In many instances, animals may be dead for days, leading to decomposition of cellular structures and ultimately damage to nuclear DNA. One way of ensuring nuclear integrity is by in vitro culture of cells to be used as nuclear donors. The goal of this study, therefore, was to determine the maximum time limit within which live cells can be obtained from animal tissues after their death. To achieve this goal, whole ears of 3 healthy Spanish goats of 2–3 yr old were collected from a slaughter facility and stored in the laboratory at 25–26°C. After 0, 2, 4, 6, 8, 10, 12, 14, 16, 18 and 20 d of storage, 2- to 3-mm^2 skin pieces (n = 30) were excised from ear skin for each time interval and cultured in DMEM media supplemented with 10% FBS, 50 units/mL of penicillin, and 50 μg/mL of streptomycin in 6 (60 mm) dishes. The outgrowth of fibroblast-like cells around the explants (>50 cells) was recorded after 10–12 d of culture. All explants exhibited growth of cells up to 8 d postmortem (dpm), 66.6% exhibited growth in 10-dpm, but none of the explants exhibited growth beyond 10 dpm. Secondary cultures were established from primary outgrowth of 0- and 10-dpm cultures from one of the goats and a growth-curve was generated using a 24-well microtiter plate format at passage 3 level. Although the primary cells from 10-dpm cultures took a longer time to reach the comparative confluence level of 0-dpm, the growth-curves generated from passage 3 cell populations of these cultures were not significantly different, and showed similar cell morphology. These results suggest that live cells can be cultured from dead animals up to 10 d after their death, with comparable growth profile to that of fresh tissues.

Key Words: cell survival, goat skin, postmortem

827 Validation of the role of chromium in reducing body fat by determining the expression of multiple transcripts involved in fatty acid biosynthesis in domestic goat. M. Sadeghi and M. J. Najafpanah*, *University of Tehran, Tehran, Iran.*

Understanding relationships between metabolic health and diet is one of the main goals of biochemistry researchers. Chromium is required for the normal role of insulin in the use of carbohydrate, protein and fat. In this study, we examined the expression of 7 genes related to lipid metabolism in 4 tissues (liver, visceral fat, subcutaneous fat and longissimus lumborum muscle) in Mahabadi kids after feeding. Twenty-four, 4–5 mo old male kids were individually penned for 90 d feeding period. Treatments included levels of 0.5, 1, and 1.5 mg/d of Cr^{3+} plus standard control diet and a standard control diet lacking Cr^{3+}. On d 90, the kids were slaughtered and tissue samples were collected. Total RNA was extracted and real-time PCR was performed using HSP-90 as a housekeeping gene. In the following table, the status of gene expression is shown. The results showed that except for SCD gene, lipid biosynthesis has increased significantly in all lipogenic tissues ($P < 0.05$). The beneficial role of SCD gene is to convert saturated into unsaturated fatty acids. In agreement with a previous study, this experiment suggests that the decrease in body fat synthesis can be explained by the decrease in gene expression.

Table 1.

Gene name	Liver	Visceral fat	Subcutaneous fat	LL muscle
Stearoyl CoA desaturase (SCD)	↑	↑	↑	↑
Fatty-acid-binding protein (FABP)	↓	↓	↓	↓
Lipoprotein lipase (LPL)	↓	↓	↓	NS
Fatty acid synthase (FASN)	↓	↓	↓	NS
Leptin (LEP)	NS	↓	↓	↓
Hormone-sensitive lipase (HSL)	NS	↓	↓	↓
Diacylglycerol acyltransferase (DGAT1)	↓	↓	↓	↓

Key Words: lipogenic tissue, metabolic health, multiple transcripts