

to overall fertility. Our working hypothesis is that regulated genes involved in spermatogenesis may be useful predictors of male fertility. Our goals were to analyze alterations in gene expression in the goat testes during development and analyze alterations in gene products in sperm from mature bucks between breeding and non-breeding seasons. For the former, testes were harvested from 5 Alpine bucks at 0, 2, 4, 6, and 8 mo of age. Northern blotting and in situ hybridization indicated that the largest changes in gene expression during testes development happen in the first 4 mo in the goat. Sertoli cell marker Sex determining region Y-box 9 (SOX9) mRNA peaked at 2 mo of age then declined. At 4 mo, expression of Stimulated by Retinoic Acid gene 8 (STR8) and Protamine 1 genes was strongly upregulated in early and maturing germ cells, respectively. RNA from ejaculated sperm collected from 3 mature Alpine bucks in October (peak breeding season) and April (not peak breeding) was interrogated for 44,000 gene products on Bovine Gene Expression Microarrays (Agilent). 43 gene products were expressed 3-fold or more highly in peak breeding season, while concentrations of 12 mRNAs decreased 3-fold or more ($P < 0.01$). Discovery of 5-fold greater levels of glycerol kinase 2 (GK2) mRNA in sperm from the peak breeding season and 6-fold lower levels of Sperm Adhesion Molecule 1 (SPAM1) mRNA are being confirmed and extended to more Alpine and Boer goat sperm samples with real time PCR. Results of these experiments may be useful in developing novel fertility tests based on mRNA levels in testes and ejaculated sperm that will assist improving reproductive efficiencies in animal production systems. USDA 2009-34136-119794 to GRN.

Key words: goat, sperm mRNA, fertility

W413 Feeding management affect the occurrence of self-suckling in dairy goats. J. Martínez-de la Puente, I. Moreno-Indias*, A. Morales-de la Nuez, L. E. Hernández-Castellano, M. D. Ruiz-Díaz, N. Castro, and A. Argüello, *Universidad de las Palmas de Gran Canaria, Arucas, Las Palmas, Spain.*

Self-suckling, an animal suckling on its own teats, is an abnormal behavior observed in dairy livestock. To investigate the effect of feeding management on self-suckling, the occurrence of this behavior was recorded in 21 dairy goats during periods of 20 min at 3 different times per day (immediately after milking and the first feed (10:30), immediately after the second feed (13:30) and in the afternoon (17:00)) along 3 consecutive experimental periods of 9 d each. During the first (PRE) and the third (POST) periods goats were fed with corn, soy 44, dehydrated lucerne, dehydrated beetroot, lucerne hay and a vitamin-mineral corrector. During the second period goats were supplemented ad libitum with wheat straw in addition to their ordinary diet. Statistical analyses were conducted using Wilcoxon Matched Pairs Tests and a Friedman ANOVA (a nonparametric alternative to one-way repeated measures ANOVA). During each 20 min period, an average of 6.9 ± 2.5 , 5.1 ± 1.9 and 7.5 ± 2.9 goats suckled on their own teats during the PRE, ad libitum and POST periods respectively. During each 20 min period, a lower number of self-suckling goats were observed during ad libitum than during both PRE ($Z = 3.26$; $P = 0.001$) and POST periods ($Z = 3.74$; $P < 0.001$). Moreover, during PRE, ad libitum and POST experimental periods, each goat suckled on their own teats at least one time during an average of 8.9 ± 8.7 , 6.6 ± 7.4 and 9.6 ± 8.6 20 min periods respectively. These differences reached significance ($n = 21$; Chi Sq. = 9.34; d.f. = 2; $P < 0.01$) with a lower self-suckling frequency during ad libitum than during POST period ($Z = 2.66$; $P < 0.01$). The same trend was found comparing PRE and ad libitum peri-

ods ($Z = 1.91$; $P = 0.06$). Overall, this study strongly supports the role of feeding management as a major factor affecting the occurrence of self-suckling in dairy goats.

Key words: behavior, feeding management, self-suckling

W414 Withdrawn

W415 Finishing performance of lambs fed fresh or dehydrated spineless cactus (*Opuntia ficus-indica*). M. I. Aguilar-Yañez¹, O. Hernández-Mendo¹, G. Aranda-Osorio*², J. E. Ramírez-Bribiesca¹, S. S. González-Muñoz¹, and M. M. Crosby-Galvan¹, ¹Colegio de Post-graduados, Montecillos, Estado de Mexico, Mexico, ²Universidad Autónoma Chapingo, Chapingo, Estado de Mexico, Mexico.

The objective of this study was to evaluate the effect of cactus (*Opuntia ficus-indica*) supplementation on finishing lambs performance, during an 11-week period. For this purpose, 27 male commercial crossbred lambs were used, with initial body weight (BW) mean of 21.4 ± 2.18 kg. They were distributed homogeneously into 3 groups of 9 each (each lamb being an experimental unit), and randomly assigned to the following treatments: (T1) control diet (representative lambs finishing diet for the central region of Mexico), (T2) diet with 17% dehydrated cactus (dry basis), and (T3) diet with 17% fresh cactus (dry basis). Variables were in situ dry matter digestibility (ISDMD), dry matter intake (DMI), average daily gain (ADG), feed:gain ratio (F:G) and gain:feed ratio (G:F), backfat depth (BFD), hot and cold carcass yield (HCY and CCY), biological hot and cold carcass yield (BHCY and BCCY), and carcass pH at slaughtering and 24 h post mortem. The experimental design was completely randomized, analyzed under the Proc GLM of SAS, and means were compared with Tukey test ($P \leq 0.05$). There ISDMD was higher (42.0%) for T1 at 6 h and for the T3 (88.6%) at 48 h ($P \leq 0.001$). No differences ($P \geq 0.05$) were found between treatments for average final BW (37.7 ± 1.21 kg). Backfat (BFD) was lower ($P \leq 0.001$) in lambs fed dehydrated (4.1 mm) or fresh (3.3 mm) cactus diets, compared with those fed the control diet (7.8 mm). Average values for hot and cold carcass yield, biological hot and cold carcass yield, and carcass pH at slaughtering and 24 h post mortem, were 50.6 and 47.0%, 55.4 and 49.5%, and 6.6 and 5.8, respectively ($P \geq 0.05$). Feeding lambs a diet including cactus seems to be a viable alternative for finishing systems in Mexico where cactus is readily available all around the year at a low cost. Besides, cactus could have a beneficial effect on meat traits.

Key words: cactus, sheep, productivity

W416 Finishing performance of Pelibuey sheep fed with different levels of alfalfa. V. Resendiz-Cruz¹, O. Hernández-Mendo¹, J. Gallegos-Sánchez¹, P. A. Martínez-Hernández², G. Aranda-Osorio*², C. Sánchez-Del Real², and S. S. González-Muñoz¹, ¹Colegio de Post-graduados, Montecillos, Estado de Mexico, Mexico, ²Universidad Autónoma Chapingo, Chapingo, Estado de Mexico, Mexico.

The objective of this study was to evaluate the effect of feeding different levels of alfalfa to sheep on animal performance, during a period of 11 weeks. For this purpose, 36 Pelibuey male sheep were used indoors, with initial body weight (BW) mean of 22.3 ± 0.3 kg. They were distributed homogeneously into 4 groups of 3 each, with 3 replicates per group, and then randomly assigned to each of the following treatments: