

shade and ad libitum water. Treatments were: 1) control, no zilpaterol supplementation (ZIL-0); 2) zilpaterol for 20 d (ZIL-20); 3) zilpaterol for 30 d (ZIL-30); and 4) zilpaterol for 40 d (ZIL-40). Zilpaterol was supplemented at a rate of 0.15 mg/kg of live weight d⁻¹ (as zilpaterol chlorhydrate, Zilmax, Intervet México, México City). Zilpaterol supplementation improved the final weight (3.6%), ADG (15.2%), and feed conversion (10%), compared with control group ($P \leq 0.05$). When compared with ZIL-0, ZIL-30 tended to increase ($P \leq 0.08$) the final weight (4%), ADG (16.9%), and feed conversion (11.2%). However, no significant differences were found between ZIL-30 and ZIL-20. Dry matter intake averaged 1.566 ± 0.042 kg/d and there were no differences ($P = 0.34$) among treatments. The orthogonal polynomials (ZIL-20, ZIL-30 and ZIL-40) had similar responses (linear $P = 0.28$, and quadratic $P = 0.74$). The results showed that there were no differences among zilpaterol treatments, and that zilpaterol supplementation upto 30 d maintained improvement in lamb growth performance. Since there were no significant differences between ZIL-20 and ZIL-30, it is concluded that due to the high cost involved, a 20-d supplementation is sufficient to improve the growth performance in lambs. However, zilpaterol supplementation in lambs for longer periods can be considered based on local market needs and economic returns.

Key Words: growth performance, lamb, zilpaterol

TH402 Effect of prepartum administration of recombinant bovine somatotropin (rbST) on plasma beta-hydroxybutyrate levels in ewes subjected to subclinical ketosis. D. Perazzoli*¹, J. O. Feijó¹, A. C. J. Silva¹, A. M. Oliveira¹, L. Mielke¹, L. G. C. Silva¹, I. Bianchi¹, A. Schneider¹, E. Schmitt¹, C. F. Martins¹, F. A. B. Del Pino¹, C. Brauner¹, M. N. Corrêa¹, S. F. Faria Junior², M. B. Ferreira³, ¹Federal University of Pelotas, Pelotas, Rio Grande do Sul, Brazil, ²University Anhanguera-Uniderp, Campo Grande, Mato Grosso do Sul, Brazil, ³MSD Animal Health, São Paulo, São Paulo, Brazil.

The aim of this study was to determine the effect of rbST prepartum administration on plasma BHB profile of pregnant ewes subjected to subclinical ketosis. Twenty-seven Pantaneiro ewes were divided into 2 groups: rbST (n = 14) and control (n = 13). The rbST group received 2 injections of 1 mg/kg of rbST (Boostin 500 mg, Intervet Schering-Plough, Brazil), in a 14 d interval, with the first application at 97 d of pregnancy, whereas the control group received 2 doses of sodium chloride solution, 0.9% (placebo). Blood samples were collected weekly to evaluate BHB, from d 90 of pregnancy until 20 d before expected lambing (pre-induction). During food restriction (from 20 to 15 d prepartum), blood samples were collected twice a day. From d 15 until lambing (post-induction), blood samples were collected every 3 d. Blood samples were collected weekly for 8 wk postpartum. Statistical analysis was performed using SAS software by ANOVA Mixed Model procedure with Tukey Test. Control groups had significantly higher ($P < 0.05$) BHB (2.19 ± 0.21 mEq/dL) compared with rbST-treated group (1.35 ± 0.20 mEq/dL). From the data obtained in this study, we found that the group that received prepartum doses of rbST had lower BHB levels than the control group. Administration of rbST may promote adaptation to lipid mobilization, decreasing the level of ketone bodies produced postpartum, and therefore may be an alternative for ketosis prevention in ruminants.

Key Words: ewe, peripartum, recombinant bovine somatotropin

TH403 Application of wood model to lactation curves of dairy ewes in an organic production system. J. C. Angeles Hernandez*¹, M. Gonzalez Ronquillo², B. Albarran Portillo², J. H. Gutierrez², and

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The Wood mathematical function (1967) has been widely used in the description of the lactation curve of different livestock species. The Wood model (WD) is structured by 3 parameters, where a is the initial milk yield; b and c are the parameters of inclining and declining slopes of lactation curve before and after the peak yield, respectively. The objective of the present study was to assess the degree of fit of Wood's model to the lactation curves of dairy ewes in an organic milk production system in Mexico. A total of 4,861 weekly test-day milk yield (TD) records from 193 lactations of F1 dairy ewes were analyzed to assess their lactation curves. The evaluation criteria were the correlation coefficient between estimated and observed values (R), the coefficient of determination (R²), and the mean square prediction error (MSPE). Total milk yield (TMY), peak yield (PY), and time at peak yield (TPY) were calculated. The WD model showed an adequate fit (R = 0.95, R² = 0.92 and MSPE = 0.024), but is not accurate in predicting PY and TPY, underestimating both due to the presence of atypical curves (51.3%). All WD model parameters had high standard deviations, with higher SD values for parameter b, which indicated high variability in the lactation data used, and a marked polymorphism in the lactation curves due to a high number of atypical curves. There was a negative correlation (-0.39) between parameters a and b, and positive correlation (0.83) between parameters b and c, indicating a high association between different stages of lactation curves. The atypical curves generated model values outside the biological range due to organic system management characteristics, including animal genotype and nutrition.

Key Words: dairy sheep, organic management, atypical curve

TH404 Over-expression of adipose triglyceride lipase (ATGL) gene in mammary gland epithelial cells of dairy goats. J. Li, J. Luo, H. Tian, H. Shi, and W. Wang*, Shaanxi Key Laboratory of Molecular Biology for Agriculture, Northwest A&F University, Yangling, Shaanxi, China.

The objective of this study was to analyze tissue expression profile of adipose triglyceride lipase (ATGL) in Xinong Saanen dairy goat, and to detect its effect on lipid metabolism in goat mammary epithelial cells, to further reveal its important roles in the process of lactation. The tissue expressions of goat ATGL gene were analyzed by RT-qPCR. Total RNA of various tissues were extracted with Trizol reagent. The first strand cDNA was synthesized using the PrimeScript RT kit to conduct the real-time expression. The data were analyzed with SPSS to compare the difference. The results showed that the goat ATGL gene mRNA expression level of subcutaneous adipose tissue was the highest among all the analyzed tissues. It was followed by the lung and mammary gland. The mRNA level of ATGL gene in mammary gland was higher in lactating stage than in dry period. To analyze the function of ATGL, the recombinant plasmid pAdTrack-CMV-ATGL linearized by *PmeI* was transformed into *E. coli* BJ5183 competent cells containing the backbone vector pAdEasy-1 to construct vector pAd-ATGL by homologous recombination. pAd-ATGL was linearized by *Pac I* and transfected HEK 293 cells for packaging. The recombinant adenovirus vector with the titer of virus of 10⁹ U/mL was used to infect goat mammary epithelial cells for overexpression of ATGL gene. The results showed that compared with Ad-GFP controls, mRNA level of ATGL increased by 600-fold in Ad-ATGL infected goat mammary gland epithelial cells for