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405 The effects of feeding levels on the growth, reproductive performances and mammary gland development in early weaned goats.

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In dairy goats, the reproductive and productive performances depend on rearing management, notably on strategies aiming at the optimization of the growth, body development, onset of puberty and mammary gland development, while ensuring future milk potential and longevity. In the recent years, early weaning has become more used for numerous reasons, including reduction of the costs and flexibility. A high plane of nutrition just after weaning is an interesting way to offset the low weight of early weaned goats. In any case, the impacts of the diet supplied during early life on the growth, reproduction and the development of the mammary parenchyma have not been determined in goat kids. Hence, the objectives of this study are to investigate the effects of different feeding levels applied until 8 mo of age on the growth, reproduction performances and mammary gland development in early weaned goats. Ninety Alpine goats were weaned at 9.7 ± 1.4 kg (30 d old) and subjected until 8 mo of age to 3 feeding levels: Low (L, 365 g DM/d, n = 30), Moderate (M, 730 g DM/d, n = 30) or High (H, 1090 g DM/d, n = 30) concentrate diet. Goats were weight twice a month and morphometric parameters (heart girth, height at withers and crown-rump length) were performed once a month. At 7 mo of age (before puberty), 5 goats of each group were slaughtered and mammary glands were analyzed. At 4 mo of age, the BW of the L group was 23% lower than in the 2 others groups ($P < 0.001$). Morphometric parameters were consistent with BW observations ($P < 0.001$). At slaughter, the mammary glands of the L group were twice lighter than those of M and H group ($P < 0.001$). Proportion of parenchyma, determined by histological analysis, suggested that the mammary glands are less developed in the L goats group. The CK19 expression, analyzed by Western blot as a marker of luminal cells, was consistent with histological results. Finally, the onset of puberty and reproduction performances were not impacted by feeding levels. To conclude, low feeding level from early weaning to 8 mo old negatively impacted the pre-pubertal growth and mammary gland development.

Key Words: growth, mammary gland, feeding level

406 Postpartum calf management influences dam colostrum components.

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Colostrum composition is influenced by many maternal and environmental conditions; however, it is unknown what influences the calf has on colostrum components. The objective of this study was to determine the relationship between postpartum calf management techniques on colostrum components. Prior to birth, Angus (Ang; n = 33) and Charolais (Char; n = 35) calves were allotted to 1 of 5 treatment groups: calves naturally reared and suckled from their dam (AngCON, n = 21 or CharCON, n = 25), calves born via C-section (AngC-Sect, n = 3 or CharC-Sect, n = 10), or calves administered 5 g of a commercial probiotic (AngPROB, n = 9; Probios) shortly after birth. There was no probiotic treatment for Charolais calves. Colostrum was collected at 24 h post-calving, placed on ice, and stored at −4°C until analyses. Samples were analyzed for percentage fat, percentage true protein, percentage solids nonfat, lactose, somatic cell count, acetone, β-hydroxybutyrate, and urea. All components were non-normally distributed; therefore, the transreg procedure in SAS was used to determine appropriate transformations. An ANOVA was used to determine the effect of treatment with birth weight and sex included as fixed effects for each breed separately. An ad hoc analysis with a Tukey adjustment was used to account for multiple comparisons. In Angus, colostrum true protein, solids nonfat, and urea levels were increased in AngPROB compared with AngCON; whereas, lactose levels decreased. Somatic cell count increased for AngPROB compared with both AngCON and AngC-Sect. In Charolais, urea was increased in CharC-Sect (34.39 ± 3.62 dL/mg) compared with CharCON (17.60 ± 1.96 dL/mg). Additionally, Colostrum true protein and solids nonfat tended to increase in CharC-Sect compared with CharCON. Interestingly, similar patterns were observed for colostrum components between Angus and Charolais for mode of delivery (i.e., natural birth versus C-Section). It is possible that how a calf is managed during and(or) shortly after birth may impact colostrum composition. However, more research is needed to elucidate these relationships.

Key Words: calf influence, colostrum, postpartum