

Nicole Tillquist, oral, Poor nutrition during gestation impacts sheep offspring weight but not feed efficiency. Major advisor-Kristen Govoni.

Poor nutrition during gestation impacts sheep offspring weight but not feed efficiency

Tillquist, N. M, A. S. Reiter, M. Y. Kawaida, B. I. Smith, S. A. Reed, S. A. Zinn, K. E. Govoni.

*University of Connecticut, Department of Animal Science, Storrs, CT, 06269

The objective of this experiment was to determine the impact of poor maternal nutrition during gestation on growth and feed efficiency in sheep offspring. We hypothesized that residual feed intake (RFI) would increase in offspring of restricted- and over-fed ewes. Forty-six multiparous Dorset ewes pregnant with twins were fed 100% , 70%, or 140% of NRC requirements from d30 of gestation until parturition and offspring will be referred to as CON (n=10 ewes; n=12 rams), RES (n=13 ewes; n=21 rams), and OVER (n=16 ewes; n=13 rams), respectively. Lamb body weights (BW) were measured weekly from birth to d28 and biweekly until d252 of age. From birth to d252, ram lambs were heavier ($P < 0.001$) than ewe lambs. Control ewe lambs were heavier than RES and OVER ($P < 0.05$) from birth to 9 months and CON rams were heavier ($P < 0.01$) than RES. Lambs were transitioned onto complete pelleted feed two weeks prior to RFI trial. At $d167 \pm 13.6$, daily intake was recorded using a Super SmartFeed (C-lock Inc., Rapid City, SD) over a 77d feeding trial period. Average BW were taken two days before, at mid-point, and two days after the feeding trial period. As an estimate of feed efficiency, RFI was calculated for each animal. Rams were more efficient than ewes ($P < 0.01$); however, no treatment difference was observed ($P = 0.57$). Rams were necropsied at $d284 \pm 12$ and body morphometrics, loin eye area (LEA), back fat thickness, and organ weights were collected. A difference in muscle mass, LEA, and adipose deposition was expected but not observed ($P = 0.58$). These data indicate that poor maternal diet during gestation impacts sheep offspring growth but not feed efficiency. Further investigation is warranted to determine if differences in BW are a result of metabolic alterations impacted by poor maternal nutrition during gestation.