



SOUTH DAKOTA
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Department of Animal Science

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Meats & Human Nutrition

Comparison of Winter Cow Feeding Strategies on Offspring Performance and Meat Quality

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Objective

The objective of this study was to investigate the effects of maternal prepartum dietary energy source (forage vs. concentrate) during mid- and late-gestation on offspring growth performance, carcass characteristics and meat quality.

Study Description

Experiment 1: Angus x Simmental crossbred cows from the SDSU Antelope Research Station were stratified by body weight (BW) and age into two treatment groups (n=48/treatment): Forage-based diet, and limit-fed Concentrate-based diet. Cows in both treatments were transported to a commercial drylot facility near Java, SD and returned to Antelope in late gestation to calve.

Experiment 2: Angus cows from the NDSU Hettinger Research Extension Center were stratified by BW and age the same two winter-feeding treatments as described for Experiment 1 (n=20/treatment). Cows were transported to the same drylot for winter feeding, then returned to Hettinger to calve.

Treatment diets were formulated and fed so that energy (TDN) and crude protein intakes were equal and balanced to maintain cow body condition score during the winter-feeding period. Calves from Antelope were finished at the SDSU Cow-Calf Education and Research Facility and calves from Hettinger were finished at the SDSU Ruminant Nutrition Center. Calf BW and average daily gains (ADG) were calculated and calves were ultrasounded to project marketing dates. Carcass measurements were recorded at the time of harvest. Striploins were collected for meat quality analyses.

Take home points

For Experiment 1: there was no treatment by time interaction for BW or ADG. Treatment did not influence BW or ADG of the offspring. There was no treatment by sex interaction for carcass measurements. Offspring from the concentrate treatments tended to be fatter ($P = 0.06$) than the offspring from the forage treatment, and tended to have increased ($P = 0.08$) yield grades. Offspring from the concentrate treatment had higher ($P < 0.05$) a* and b* values than the forage treatment. Maternal energy source did not significantly alter offspring growth

performance or carcass merit. However, decreased backfat measurements, along with lower yield grades were observed in offspring from dams fed a forage-based diet, without compromising marbling score. Data analysis is ongoing, including meat quality analysis for Experiment 1 and all data analysis for Experiment 2.

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