



**SOUTH DAKOTA
STATE UNIVERSITY**

Department of Animal Science

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Cow/Calf

Influence of winter cow feeding strategies on cow response

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Objective

The objective of this study was to investigate the effects of the primary maternal prepartum dietary energy source (forage vs. concentrate) during mid- and late-gestation on dam body weight (BW), body condition score (BCS), pregnancy rate, and economic responses.

Study Description

Two experiments were conducted to evaluate alternative winter-feeding strategies when drought limits local feed resources. Under these circumstances, cattle are often transported to locations with less-limiting feed resources. Roughage is available but often expensive at the alternative location, so limit-fed, concentrate-based rations become the least-cost option to meet nutrient requirements of gestating cows.

Experiment 1: Angus x Simmental crossbred cows from the SDSU Antelope Research Station were stratified by BW and age into three treatment groups (n = 48/treatment): Control (winter grazing with protein supplement), Forage-based diet fed in drylot, and limit-fed Concentrate-based diet fed in drylot. Cows in control remained at Antelope and cows in drylot treatments were transported to a commercial drylot facility near Java, SD. Drylot treatment cows were returned to Antelope in late gestation and calved.

Experiment 2: Angus cows from the NDSU Hettinger Research Extension Center were stratified by BW and age into two treatment groups (n = 35/treatment): Forage-based diet or limit-fed Concentrate-based diet fed in drylot. All cows were transported to the drylot facility near Java for winter feeding, then returned to Hettinger in late gestation and calved.

Drylot treatment diets were formulated and fed in amounts so energy (TDN) and crude protein intakes were equal and balanced to maintain BCS during the winter-feeding period. The forage-based diet included 71.9% wheat straw, 21.8% grass/alfalfa hay, 3.7% corn silage, and 2.6% liquid supplement (DM basis). The concentrate-based diet included 56.6% corn grain, 13.3% modified distiller's grains with solubles, 24.1% wheat straw, 4.6% liquid supplement, and 1.4% limestone (DM basis). In both experiments, BW and BCS were recorded before and after treatment application. Cows were ultrasounded at weaning to determine pregnancy status. All inputs were recorded to calculate economic response to treatments.

Take home points

Data analysis will be conducted to understand the influence of maternal prepartum dietary energy source on cow performance and economic responses.

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Keywords: beef, dam response, dietary energy source, fetal programming