

Benefits of soy-based amino acids in forage-based growing diets

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a. Objectives of the Research

Objectives include 1) To evaluate the effects of increasing supplemental metabolizable lysine supplied by treated soybean meal on growth performance (rate of gain, intake, and feed efficiency) of steer calves consuming grower diets. 2) To isolate feed amino acid flow from various levels of supplemental lysine supplied by treated soybean meal and measure the digestibility of treated soybean meal in beef cattle grower diets.

b. Completed Work

A graduate student has been assigned to both experiments within this grant. Steers from the Central Grasslands Research Extension Center were acquired for experiment one (growth performance study) and are currently being trained to consume feed out of individual bunks at the Beef Cattle Research Complex. Steers were acquired for experiment two (digestibility research) and underwent fistulation surgery for proper fitment of collection cannulas. They will be ready to begin the digestion experiment in early January 2023. All feeds have been sourced and are available for both experiments. Treated soybean meal has been acquired and is onsite. Sample collection equipment (i.e., vacutainer tubes for blood collections, sample collection bags, etc.) have been acquired.

c. Preliminary Results

No preliminary results are available at this time. Experiment one (growth performance) will begin first week of December. Experiment two's (digestibility study) timeline required adjustment from the initial proposal because animals were not ready for surgery until November. Therefore, experiment two will begin at the beginning of 2023. This delay should not alter the timeline of outputs from this grant.

d. Work to be Completed

Experiment 1: begin the 84-day experiment first week of December. Collect blood samples every 28 days during the experiment. Experiment 2: begin the 56-day experiment in January of 2023. Collect digesta and feed samples to measure flow of lysine supplied by treated soybean meal. Upon completion of each experiment, laboratory analysis of feeds, blood samples, and digesta samples will start. Followed by statistical analysis of both experiments. An abstract will be submitted and presented at an Animal Science Society conference. Finally, a technical report and executive summary will be submitted to NDSC.