

NORTH DAKOTA-Influence of Forage Inclusion in Finishing Steers

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Modern feeding strategies must consider nutritional and management factors affecting feed efficiency, feeding behavior, and overall gain. One strategy is altering the forage:concentrate balance within a diet. Research objective: determine effects of forage inclusion level on growth performance, feeding behavior, and carcass characteristics in finishing steers.

Forty-four steers (~994 lbs each), mostly of Angus and Simmental origin, were in a randomized block design and fed dry-rolled corn-based diets including a grass hay and corn silage mixture. Dietary treatments were 5, 10, 15, or 20% forage and fed for 84 days. Feed intakes and behavior were measured using the Insentec system. A visit was defined as each time the system detected a steer at a bunk. A meal was defined as eating periods which may include short breaks separated by intervals not longer than 7 minutes. Animals were weighed the first 2 days, every 28 days after, and the last two days of the study. Steers were slaughtered with an average weight of 1,375 lbs.

Steers fed the 5% diet did not exhibit acidosis, indicating adequate rumen buffering. There was a linear decrease in dry matter intake, average daily gain, and gain:feed as forage inclusion increased. Number of visits and meals per day and eating time per visit, per meal, and per day were not affected. Dry matter intake per visit did not differ by treatment but eating rate per meal decreased linearly with increasing inclusion. Eating rate (lb/min) responded quadratically; fastest rate was the 10% treatment. Hot carcass weight and dressing percentage decreased linearly as inclusion increased.

Results indicate a decrease in forage inclusion in a finishing diet increases dry matter intake, average daily gain, and gain:feed as well as increase dry matter intake per meal. Optimizing forage inclusion level is critical for maximizing production efficiency and reducing incidence of acidosis. Optimal forage inclusion level in finishing diets likely differs depending on forage source and specific group of cattle fed as well as the relative costs of forage versus concentrate.