

BCRC BEEF SCIENCE CLUSTER

RESEARCH

Facts

IN P R O G R E S S

Strategies to use oats, barley, and corn DDGS more efficiently FDE.02.09

Project Title: New Strategies to More Efficiently Utilize Cereal Grains (Oats, Barley, Corn) and Bioethanol By-Products for Beef Cattle

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Background: Corn, barley and oats are the primary ingredients in beef cattle finishing rations. However, the protein and starch are degraded very rapidly and extensively in the rumen (particularly for barley and oats). This can result in three big problems: (a) digestive disorders like bloat and acidosis, which cost beef producers millions of dollars each year; (b) an imbalance between protein breakdown and microbial protein synthesis, resulting in unnecessary N loss from the rumen and inefficient use of dietary energy; and (c) inefficient feed utilization can result in nutrient loss in the manure. A strategy to optimize barley and oat utilization and availability for beef cattle is needed. Corn is to be included in the study as a grain of reference to most other areas of North America.

Objective: To optimize utilization of barley, oats and corn in feedlot diets that combine one or all of these grains with bioethanol co-products.

These researchers will perform a series of digestion trials and mathematical modeling to develop optimal blends of barley, oats and corn with DDGS that are used more efficiently in feedlot diets.

The chemical and nutrient profiles, protein and carbohydrate fractions, energy content, rumen degradation characteristics, nutrient metabolism and nutrient supply of barley, oats, corn and DDGS will be determined using digestion studies, and lab techniques. Mathematical modeling methods will be used to estimate optimal inclusion levels. A beef feeding trial will be carried out to test optimal inclusion rates for corn, barley, and oats compared to a traditional Western Canadian feedlot diet.

Implications: These researchers will develop strategies to optimize cereal grain utilization in combination with ethanol by-products for finishing cattle.

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