

BCRC BEEF SCIENCE CLUSTER

RESEARCH

Facts

IN PROGRESS

Will feeding DDGS affect beef composition and quality? FDE.03.09

Project Title: Composition and Meat Quality of Cattle Fed Wheat or Corn-Based Distillers Grains with Solubles from New Generation Ethanol Plants

Researchers: Dr. John McKinnon, University of Saskatchewan, Dr. Kendal Swanson, University of Guelph, Dr. Jennifer Aalhus, AAFC Lacombe, Dr. Mike Dugan, AAFC Lacombe, Dr. Tim McAllister, AAFC Lethbridge and Dr. Phyllis Shand, University of Saskatchewan

Background: Research from the U.S. has reported that feeding corn DDGS may affect carcass weight, yield grade, marbling and tenderness. Much of the DDGS produced in Western Canada will be from wheat. Compared to corn DDGS, wheat DDGS has less fat and a lower energy content, so it may have different effects on the carcass. The effect of feeding DDGS on the fatty acid composition of marbling fat has not been studied.

Objective: To provide beef producers with information on the extent to which wheat and corn-based DDGS can replace barley or corn without decreasing carcass and meat quality.

These researchers will evaluate carcasses and beef from cattle on feeding trials in Ontario (wet vs. dry corn DGS) and Saskatchewan (wheat DDGS, corn DDGS or a blend). Ribeye samples from the University of Guelph will be analyzed for intramuscular (marbling) fatty acid content. Animals from the University of Saskatchewan will be transported to AAFC Lacombe for processing, grading and total saleable yield dissection. Samples will be collected for full objective meat quality analyses, shelf life and sensory evaluation (taste panel evaluation of flavour, juiciness, tenderness and odor). The fatty acid composition of meat and backfat will also be determined.

Additional meat quality work at the University of Saskatchewan will be carried out to determine the effect of DDGS on oxidative stability (i.e. resistance to rancidity) of value-added beef products. Top rounds that have been frozen or refrigerated for extended periods will be evaluated for shear force, water holding capacity, chemical composition, sensory evaluation and oxidative stability. Beef patties made from chuck muscles will be analyzed for texture, water holding capacity, oxidative stability, sensory evaluation and fatty acid analyses will be conducted.

Implications: This research will help determine optimal wheat and corn-based DDGS inclusion rates that will not negatively impact animal performance, carcass value and meat quality of feedlot cattle.

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