



# BCRC BEEF SCIENCE CLUSTER

# RESEARCH

# Facts




IN PROGRESS

## Canada's Beef Science Cluster: Feed Efficiency Research

- ✓  Reducing winter feeding costs by 1% would save Canada's cow-calf sector \$6 million annually.
- ✓  Improving feed:gain by 1% would save Canada's feedlot sector \$10 million annually.




**Objective:** Improve feed efficiency by developing and validating economical methods to identify feed efficient seedstock and by developing alternative feeding strategies.

**Genetic Improvement:** Feed efficiency is heritable, so selecting feed efficient breeding stock will improve the feed efficiency of the population over time. The challenge is that measuring feed efficiency in individual animals is time consuming and very expensive. Identifying and validating reliable DNA markers for feed efficiency could reduce testing costs and speed the rate of genetic improvement. It may also be possible to develop cost-effective ways to indirectly predict the feed efficiency of animals without measuring their actual feed intakes. Finally, understanding how genetics influence the winter feed requirements of pregnant beef cows, fetal growth and calf performance will clarify the benefits of selecting for residual feed intake.

- ✓  Finding DNA markers for feed efficiency (FDE.05.09)
- ✓  Predicting feed efficiency more economically (FDE.06.09)
- ✓  Effect of nutrition and genetics on fetal growth and winter feed costs for cows (FDE.07.09)

**Management:** Bioethanol production will generate approximately 1.8 million tonnes of distillers' dried grains with soluble (DDGS). As long as bioethanol production continues at current levels, the feedlot industry in Canada will use DDGS to produce beef as efficiently as our trading partners. Corn is the primary grain used in the United States and Eastern Canada whereas wheat is the grain used in the Western Canada.

There are several concerns related to feeding DDGS. High crude protein levels in DDGS may affect how efficiently cattle use dietary protein and energy. Secondly, ongoing developments in biofuel manufacturing processes may also impact the nutrient content of DDGS and animal performance. Thirdly, relatively high levels of phosphorus and nitrogen in DDGS may increase the levels of P and N in manure. Additional questions pertaining to the impact of feeding DDGS on animal health, food safety and beef quality are discussed in the "Animal Health and Diseases", "Food Safety" and "Beef Quality" sections.

- ✓  Optimizing protein levels in feedlot diets containing DDGS (FDE.01.09)
- ✓  Strategies to use oats, barley, and corn DDGS more efficiently (FDE.02.09)
- ✓  Effect of feeding DDGS on nutrient value of beef manure (FDE.04.09)

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