

# BCRC BEEF SCIENCE CLUSTER

# RESEARCH

# FACTS

## REVIEW

## 2011 Review of Canada's Beef Cattle Industry Science Cluster

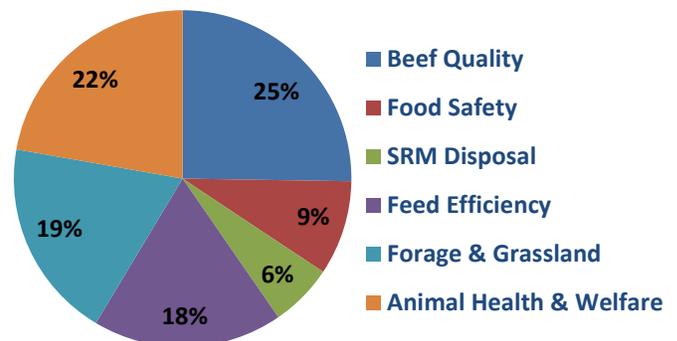
Canada's Beef Cattle Industry Science Cluster brings together Canada's largest public and industry check-off research funding agencies, Agriculture and Agri-Food Canada (AAFC) and the Beef Cattle Research Council (BCRC). Collaboration and investments under the Beef Cattle Industry Science Cluster are focused on advancing research of priority to improve production efficiencies (65% of funding, 23 projects) and consumer confidence and beef demand (35% of funding, 9 projects).

### Improved Production Efficiencies

**The Beef Cattle Industry Science Cluster has directed 18% of its funds to seven feed efficiency research projects.**

Feed is the single largest variable input cost in both cow-calf and feedlot production. Feed efficiency of Canadian cattle has made marked progress. Cattle that took 3 to 5 years to finish in the late 1880's now reach the same finished weights in less than 24 months. Feed conversion ratios published in Canadian scientific literature improved by 40% between the 1950 and 2001. At current feed prices, that historical rate of improvement in efficiency has been worth \$8 million per year. Improving feed efficiency also has measurable environmental benefits; a 20% improvement in feed efficiency translates to a 30% decrease in manure production, as well as a 30% reduction in methane production. Moving forward, continued improvements in feed efficiency through research investigating alternative feeding strategies, new feed development, improvements in genetics, and selection tools will all be essential to facilitating the growth and sustainability of the beef industry in a new realm of higher feed prices due to growing global food and fuel demand.

Allocation of Beef Science Cluster project funds (\$8.4M) by priority area



**The Beef Cattle Industry Science Cluster has directed 19% of its funds to improve forage and grassland productivity.** Because cow-calf production is pasture-based, feed costs are best addressed by both increasing forage productivity and reducing winter confinement-feeding costs. In addition to providing wildlife and bird habitat, plant biodiversity, minimizing soil erosion, protecting watersheds, well managed natural grasslands store more carbon in the soil than cropland or forested vegetation. In the project Reducing the Cost of Swath Grazing Cows by Increasing the Swathed-Crop Yield, Vern Baron (AAFC Lacombe) and collaborators at Alberta Agriculture are comparing different seeding dates and annual crops (eg. corn, barley, triticale) to identify strategies to maximize forage nutrient yield and minimize daily winter feeding costs for the cow herd. Preliminary results from this trial suggest that total winter feeding costs can be reduced by 27-45% by swath grazing corn or triticale compared to a traditional confinement-fed control. This has significant implications for Canada's beef industry, as reducing total winter feeding costs by as little as 1% would save Canada's cow-calf sector \$6 million annually.

**The Beef Cattle Industry Science Cluster has directed 22% of its funds to seven animal health, welfare and production limiting disease research projects.** In Effect of Ventilation Management Strategies and Stocking Density During Transport on Trailer Microclimate and Calf Welfare, researchers at AAFC Lethbridge and the Universities of Calgary and Saskatchewan are building on previous industry funded research that examined the influence of current beef industry cattle transport practices (loading densities, time, distance and weather conditions in transit) on the risk of harm to newly weaned calves, feeder cattle, fed cattle and market cows. This study, which was the largest of its kind done globally under industry conditions, has found that at least 99.95% of cattle reach their destination with no identifiable problems of any sort. This has proven useful in countering unfounded and sensational activist claims to the contrary. It has also helped to identify specific cattle populations that may benefit from modified transport practices. As a direct outcome of this research, the Beef Cattle Industry Science Cluster project is examining whether modified trailer ventilation practices affect the incidence of respiratory disease in feedlot calves, which is a leading cause of death and treatment costs at feedlots. Reducing the death loss in feeder calves from 2% to 1.5% would save the Canadian beef industry more than \$10 million annually in direct savings realized by reduced treatment and feed costs.

## Consumer Confidence and Beef Demand

### **The Beef Cattle Industry Science Cluster has directed 9% of its funds towards food safety research projects.**

Scientists from Alberta Agriculture, AAFC Lethbridge and private industry (Feedlot Health Management Services) are studying The Impact of Wheat Distillers Grains on the Shedding of *E. coli* 0157:H7. This research addresses concerns that feeding wheat dried distillers grains with solubles (DDGS) to feedlot cattle may increase the risk of *E. coli* O157:H7. Cattle were fed finishing diets containing no DDGS, 22.5% corn DDGS, or 22.5% wheat DDGS. The research has found that diet did not affect the numbers of *E. coli* O157:H7 shed in manure, surviving in manure, or found on cattle hides at the end of the feeding period. This is good news for Canadian cattle feeders, given that saving 1 cent per pound due to reduced food safety recalls could save Canada's beef industry \$21 million per year. Notably, this research would likely not have been conducted in the US, where most finishing diets are based on corn rather than barley, and little wheat DDGS is used.

### **The Beef Cattle Industry Science Cluster has allocated 25% of its funds to four beef quality research projects.**

Researchers from AAFC and the Canadian Cattlemen's Association are conducting a National Beef Quality Satisfaction Survey and Carcass Audit (BQU.01.09). The first stage of this project assessed Canadian consumer demographics and satisfaction with retail beef quality. Compared to previous surveys done in 1995 and 2001, the researchers found that consumers' satisfaction levels have improved on measures of tenderness (76% in 2009 vs. 68% in 2001), juiciness (78% vs. 72%) and flavour (82% vs. 76%). This suggests that the beef industry has been moving in the right direction. This is important in that a 1% improvement in the value of cuts from the loin, rib and sirloin due to increased demand is worth an estimated \$27 million per year to Canada's beef industry. Likewise a 1% improvement in the value of cuts from the hip, chuck, brisket and shank is worth an estimated \$39 million per year to Canada's beef industry. The Beef Quality Audit is still underway, and is collecting information about the frequency of horns, carcass defects such as bruises and locations of injection site lesions.

These Beef Cattle Industry Science Cluster research projects, and others accounting for 7% of funding, will be concluded in 2013.

## Technology Transfer and Knowledge Dissemination

For industry to adopt and profit from the scientific knowledge and technology developed through research, they must be aware of how the research could fit into their operation, and understand how to implement it. As an initial step to this end, the Beef Cattle Industry Science Cluster is investing funding to develop and implement a Technology Transfer and Knowledge Dissemination plan. This is intended to encourage and cultivate technology transfer skills among the research community, make pertinent research available to industry in a timely and user-friendly manner, and foster relationships between applied researchers and early research adopters so that the technology will move from the lab and into operations that stand to benefit. This will complement ongoing BCRC efforts to ensure that industry and policy makers are aware of the value and results of industry funded research, and ultimately help fill the technology transfer functions that were at one time carried out by federal and provincial agriculture departments.

The Beef Research Cluster is funded by the Canadian Cattlemen's Association and Agriculture and Agri-Food Canada to advance research and technology transfer supporting the Canadian beef industry's vision to be recognized as a preferred supplier of healthy, high quality beef, cattle and genetics.

*Proudly funded by:*



For further information regarding the Beef Cattle Industry Science Cluster and research being funded through this initiative, please visit the Beef Cattle Research Council website at [www.cattle.ca/research](http://www.cattle.ca/research) or contact BCRC Science Director Dr. Reynold Bergen at [bergenr@cattle.ca](mailto:bergenr@cattle.ca).