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GenomeCanada

Whole Genome Selection through Genome Wide Imputation in Beef Cattle

Status	Approved
Competition	2010 Large-Scale Applied Research Project Competition
Sector	Agriculture
Genome Centre	Genome Alberta
Project Leaders	Stephen Moore, University of Alberta and Stephen Miller, University of Guelph

Project Description

Improving the Canadian cattle herd. The beef and dairy industries contribute more than \$40 billion to the Canadian economy every year. Global demand for animal protein is expected to double by 2050 and genetic improvement will be key to enabling cattle producers to meet that demand. With support from Genome Canada, Canadian researchers were directly involved with a major international undertaking to sequence the bovine genome. Now, Canadian scientists are at the forefront of developing genomic selection techniques to boost genetic improvement in cattle. Specifically, they are targeting traits that are difficult to improve through conventional means. Low-cost tests are being developed that will allow an animal's entire genome to be inferred from a relatively small number of genetic markers, giving valuable information about its breeding value at a very early age. This will bring immediate benefits to breeders, enhance product traceability and lay the foundation for the next generation of technologies aimed at environmentally sustainable production. It is estimated that this research will generate benefits in excess of \$300 million over the next ten years. Researchers are also studying public perceptions about the use of genomic technologies to enhance livestock attributes.