



Finding DNA markers for feed efficiency FDE.05.09

Project Title: Whole Genome Scan for Feed Efficiency

Researchers: Dr. Stephen Moore, University of Alberta, Dr. Stephen Miller, University of Guelph, Dr. Graham Plastow, University of Alberta, Dr. Zhiquan Wang, University of Alberta, Dr. Paul Stothard, University of Alberta, Dr. Changxi Li, AAFC Edmonton (University of Alberta), Dr. John Basarab, ARD Lacombe, Dr. Tim McAllister, AAFC Lethbridge, Dr. Ira Mandell, University of Guelph and Dr. Kendall Swanson, University of Guelph

Background: The largest cost of raising beef cattle is due to feed. Feed efficiency is heritable, meaning that feed efficient parents produce feed efficient offspring. However, feed efficiency has rarely been the subject of breeding efforts because of the labor, pen space and specialized feeding equipment required to measure feed intake on individual animals. Individual feed intake is usually only measured in research situations or specialized bull test stations.

An animal's genetic potential is programmed in its DNA. Ongoing improvements in genomic tools are steadily increasing the number of DNA tests that can be done, while reducing testing costs. It is now possible to test animals at 50,000 different DNA markers at the same time. If several (or many) of these DNA markers on the "50K SNP chip" are strongly associated with feed intake, it may be possible to start pre-selecting animals based on an inexpensive DNA test instead of a requiring feed intake tests on every potential breeding animal.

Objective: The objective of this study is to improve the reliability of DNA tests for feed efficiency.

These researchers will use the 50K SNP chip to identify DNA markers associated with feed efficiency. They will first DNA test 2,000 more animals to confirm which DNA markers are most strongly associated with feed efficiency. Once the most informative markers have been identified, they will examine the surrounding DNA more closely to increase the chance of finding actual genes affecting feed efficiency. This will help them to develop a smaller commercial test kit composed of the most valuable feed efficiency markers.

Implications: A DNA test panel that accurately identifies an animal's genetic potential for feed efficiency will help cattle producers refine their procurement, pricing and management of breeding stock and feeder cattle.

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