Alberta Beef Producers

Research

Increasing Silage Yield and Quality

"Measuring and breeding for fiber digestibility in cereals"

Project No. 0007-054

Research Institution: Alberta Agriculture and Rural Development Field Crop Development Center (FCDC)

Lead Researcher: Dr. Pat Juskiw

Objectives:

- Determine the range of forage digestibility in the triticale and barley germplasm at the FCDC;
- Determine relationships between digestibility and other desirable crop productivity and quality traits;
- Develop a rapid methodology to screen for differences that can be used to improve forage digestibility in barley and triticale;
- Select for plant types that have desirable fiber levels and crop productivity traits.

Background: Breeding work on cereal crops often focuses on grain characteristics (particularly protein content) and yield, but these may not always make the best silage. For example, the fiber structure in the stem that leads to lodging resistance may also cause the silage to be less digestible.

The purpose of this project is to breed new lines of triticale and barley with improved forage quality, while maintaining other preferred traits such as yield, straw strength and disease resistance. Triticale and barley germplasm available at Lacombe (genetic lines that are not commercially available yet) will be assessed for whole plant nutrient content and yield. Near infrared spectroscopy equations will be developed and calibrated to allow rapid measurement of nutrient content on forage samples grown from these seed samples. The best candidate lines will be pursued, with the intent of developing silage varieties with improved yields and digestibility. This project is scheduled to be completed in 2011.

Implications of the Research: Improved yields and digestibility should help to improve industry profitability through increased silage production per acre and increased feed efficiency.