Improving barley and triticale feed

Project Title: Germplasm and variety development of barley and triticale for animal feed with a focus on feed quality, yield and disease resistance of both grain and annual forage production

Researchers: James Helm, Ph.D., Patricia Juskiw, Ph.D., Joseph Nyachiro, Ph.D., Kequan Xi, Ph.D., Mazen Aljarrah and Jennifer Zantinge (Alberta Agriculture and Rural Development) Bill Legge, Ph.D., Harpinder Randhawa, Ph.D., and Kelly Turkington, Ph.D. (Agriculture and Agri-Food Canada), Flavio Capettini, (International Center for Agricultural Research in the Dry Areas), Karim Ammar, Ph.D. (International Maize and Wheat Improvement Center)

Background

For over 40 years, the FCDC has used germplasm from CIMMYT and ICARDA to develop barley varieties with improved disease resistance, agronomic, yield and quality traits. In order to take advantage of all aspects of the genetic screening, the participants will carry out individual breeding programs. Continued improvements in the yield and nutritional quality of barley grain and annual forages are essential to maintain a competitive cattle feeding sector in Canada.

Objectives

1. To develop varieties of barley (grain and forage) and triticale (forage) with improved nutritional quality, yields, yield stability, disease resistance, and water use efficiency, and
2. To expand the germplasm resources available to ensure that future varietal development continues into the future.

What they will do

This research team has unique access to international genetic resources and scientific expertise. They will apply traditional selection and molecular marker technology to improve the yields, digestibility (evaluated using NIRS technology), efficiencies of nitrogen water use of barley (focusing on both grain and forage) and triticale (focused on forage). An important foundational trait for all crops is disease resistance. Access to international germplasm will ensure that new varieties developed contain genes that confer resistance to diseases that affect barley in other parts of the world, and that can be expected to arrive in Canada over time.
Beef cluster funding will be directed towards the disease nursery activities being conducted through AAFC Brandon.

**Implications**

In addition to promising new sources of germplasm, over 2000 potential new lines and crosses will be made and screened each year. This project will result in the release of more than six new varieties with higher energy density, energy yield, better agronomics, and improved yield stability.

**Proudly Funded By:**

The Beef Cattle Industry Science Cluster is funded by the Beef Cattle Research Council, a division of 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.

**For More Information Contact:**
Beef Cattle Research Council  
#180, 6815 - 8th St. NE  
Calgary, AB T2E 7H7  
Tel: (403) 275-8558 Fax: (403) 274-5686  
info@beefresearch.ca

**For More Information Visit:**
[www.beefresearch.ca](http://www.beefresearch.ca)