

Better barley and triticale for livestock feed

by Kieran Brett

Over the past two years, this major breeding program registered several new barley varieties and improved the quality of its germplasm bank. Funding from ACIDF and ALMA helped make it possible.



Photo supplied by FCDC

For Alberta livestock producers, having ready access to locally grown, high-quality feed grains is a key competitive advantage. How can producers boost their competitive advantage even further in the future? If these crops had better natural defenses against diseases and were higher yielding, that would mitigate supply risk and help keep prices reasonable for buyers.

The good news is, a dedicated team of scientists and technicians is pursuing this goal and achieving success year after year. That's according to Flavio Capettini, Head of Research at Alberta Agriculture and Forestry's Field Crop Development Centre in Lacombe.

“For feed and forage production, at this time, it is mostly about quantity,” says Capettini, “but we are also interested in improving the quality. Our mission is to create varieties, and there's always room for improvement.”

For decades now, the breeding program Capettini leads has been remarkably successful in bringing crop producers a steady stream of new varieties. With an eye to improving barley and triticale specifically, the Breeding program has been supported since 2013 by the Alberta Crop Industry Development Fund (ACIDF) through the \$8 million Feeding Initiative which in turn was funded by the Alberta Livestock and Meat Agency (ALMA).

An international effort

The world's crop-producing nations are accustomed to thinking of other crop producers as competitors, fighting it out for sales in a tough global market. Crop scientists, on the other hand, regularly work together to increase crop yields and food security for the world. For cereal crops, this cooperation often takes place through two international organizations: International Maize and Wheat Improvement Center (known by its Spanish acronym CIMMYT) and International Center for Agriculture Research in the Dry Areas (ICARDA).

As Capettini points out, FCDC's long association with these institutions, and co-operation with fellow Canadian breeders, has paid immense dividends.

"This program has collaborated for more than 40 years," he says, "to help programs around the world with germplasm and information exchange. Varieties that are well-adapted to our conditions often have a strong international component."

More resources, more progress

Because of the long-term nature of FCDC's breeding program, having more financial resources allows researchers to investigate more germplasm, make more crosses, screen more extensively for desirable traits and, ultimately, put more candidates forward in a shorter period of time for variety registration. Capettini explains that FCDC's Feeding Initiative funding has played a key role over the past two years.

"With this project, we've been able to do more screening for disease resistance in Mexico," he says, "for diseases such as fusarium head blight, scald, stripe rust and leaf rust."

How do Capettini and his team define success for their program? They keep score by the number of new varieties they register or develop to a commercial-ready stage, and how many acres of these varieties are grown. By that standard, the past few years have been a stand-out success. Two new barley varieties -- a six-row covered and a six-row hulless -- were registered in 2015. This followed the registration of two barley varieties in 2014 and three in 2013. Two new triticale varieties could be registered by 2017.

This breeding program, so prolific for crop and livestock producers over the past four decades, continues to move forward on yield and disease resistance. To Flavio Capettini, living up to the program's past will help guide it toward the future.

"In terms of getting varieties approved for registration, this has been a very productive program," he says. "Just as important, our germplasm base has increased. We need germplasm to make the crosses that will result in higher yields and better disease resistance. So, the new varieties are better and the basis of our program is stronger."

