

Research sees promise in new barley toolkit

By Kieran Brett

Producers can potentially improve their results with newer varieties, seed treatments and Plant Growth Regulators. Funding from ACIDF and ALMA helped make this research possible.

Is barley production in Alberta in a rut? It seems that, with canola and pulses, new varieties and crop protection products are widely publicized, discussed and adopted. Is barley, a vital crop for malt and livestock feed, somewhat taken for granted?



Allen Terry wants Alberta barley to have the best agronomic care possible, and believes that if it does, growers will like the yields, malt outcomes and economic returns they'll see.

“Some growers put barley in the ground almost with the feeling that it’s a filler crop,” says Terry, Calgary-based Research Director with Syngenta. “If they get malt, great; if not, it goes for feed. Growers in Western Canada who are successful getting malt year after year see the value of

in-season crop inputs. Even so, some growers who are really good with malt haven’t changed their practices in a long time. We feel there’s an opportunity to tweak farming practices to get more from your barley crop.”

Between 2013 and 2015, Terry led a two-part research project to investigate how new approaches to barley production can pay off for growers. This work was supported by the Alberta Crop Industry Development Fund (ACIDF) through the \$8 million Feeding Initiative funded by the Alberta Livestock and Meat Agency (ALMA).

Newer varieties, with and without seed treatment



In the first part of this project, Terry asked three leading barley breeding programs (Alberta Agriculture and Forestry, Agriculture and Agri-Food Canada and the University of Saskatchewan) for their best newly registered varieties and experimental cultivars. He set up trials of these varieties three ways: naked, untreated seed; with a fungicide seed treatment and with a combination fungicide/insecticide treatment. These varietal rookies performed well compared to current standards, but regional yield variation was higher than expected.

“We looked at a lot of different varieties, and some performed better in certain areas than others,” says Terry. “This points to the need to understand how a variety will perform on *your* farm, not how well it grows across the entire region.”

In general, the seed treatments improved seedling vigor and disease protection which resulted in numerically higher yields, but did not improve the malt quality of the grain. Seed treatment wasn't found to make the barley more likely to go malt.



PGRs could play a role

Suppose a producer plants barley on manured land. The manure provides a welcome shot of fertility and the crop develops strong yield potential as harvest season approaches. At this point, the weight of the crop causes it to lean or lodge. Fall rains may also cause the barley crop to sprout. With this, a good yield opportunity can be lost. Is there a better way?

“Plant Growth Regulators have been used in other parts of the world, and on barley,” says Terry, “but in Canada PGRs haven’t been registered for barley. We wanted to investigate whether PGRs can keep the plant standing, so that it’s not leaning or lodging at the end of the year, and still retain its malt qualities.”

For this part of the project, Terry and the team grew barley in a high-intensity fashion, with high seeding rates (25 to 30 plants per square ft.), average to high nitrogen, with or without fungicide and with or without Plant Growth Regulator. He adds that Syngenta is working to get barley on the proposed label for its Plant Growth Regulator known as trinexapac.

In general, over three seasons of study, PGRs kept the crops standing amid higher nitrogen use, improving ease of harvest without sacrificing malt quality. A fungicide application at flag-leaf stage was associated with higher yield and increased grain plumpness.

As Terry sees it, barley growers don’t have to accept so-so returns on their seed, fertility and crop protection investment. Newer varieties, seed treatments, foliar fungicides and Plant Growth Regulators could be a difference-maker in the years to come.

“A few varieties coming through the system right now have good agronomic performance and maltsters are also very keen on them,” says Terry. “Changing growing practices can increase the rewards of growing barley.”