

New plant breeding tools need more than science

Global grain trade leaders say gene editing, crop protection tools and other innovations will only deliver value if farmers can continue accessing markets with confidence

BY LILIAN SCHAEER, Ontario Farmer

Plant breeders can develop new crop varieties with better yields, improved disease resistance and other valuable traits, but if importing countries don't agree on the rules for those crops, farmers may never get the chance to grow them.

That's what global grain industry representatives discussed during a panel at the World Seed Congress in Portugal last month where they looked at how new plant breeding technologies fit into an increasingly complex trading environment.

While gene editing is attracting significant attention in the seed sector, panelists warned that uncertainty around regulations and market access could slow adoption of new technologies unless governments and industry work together to avoid trade disruptions.

For grain traders, the concern is less about the technology itself than about what happens when different countries regulate it differently.

Krista Thomas, managing director of the International Grain Trade Coalition, said the industry has spent years working through trade challenges associated with earlier genetically modified crops and wants to avoid repeating those experiences with gene editing.

"We don't want to make the same mistakes made with traditional biotech," she said.

The challenge is particularly important in grain because of how commodity crops move through the system.

Unlike specialty crops that can be kept separate and traced throughout the supply chain, commodity grain is handled in large volumes. A typical vessel carries about 60,000 tonnes

of grain, and by the time that grain reaches an export terminal, crops from hundreds or even thousands of farms may have been blended together into that shipment.

That creates uncertainty when countries have different rules for gene-edited crops and complications for importers who want assurance that grain entering their market complies with domestic regulations.

Thomas said that uncertainty can delay or discourage the introduction of new crop traits, even when they offer benefits to farmers.

The discussion highlighted a challenge familiar to grain growers in Canada as well as elsewhere: innovation only creates value if markets are prepared to accept it.

The panel also pointed to crop protection regulations as another example of how policy decisions can directly affect farmers.

Jaine Chisholm Caunt, director general of the Grain and Feed Trade Association, said changes to maximum residue limits, or MRLs, can create significant uncertainty for farmers when importing countries alter standards after a crop has already been grown.

"They can't ungrow their crop, or untreat that crop," she said, adding that an MRL change made in one part of the world can suddenly affect market access for grain that is already in storage or moving through the export system.

While regulatory discussions often focus on technical details, farmers are often the people most directly affected by the outcomes, she said.

It's often unclear whether regulations are being

driven by scientific evidence or by politics and public perception, and the panel repeatedly returned to the importance of science-based decision-making and internationally recognized standards.

Chisholm Caunt said concerns about safety are often confused with concerns about legal or commercial risk. In some cases, regulators approve products after extensive review, but public discussion continues long after the scientific assessment is complete.

"It is about legal risk driven by consumer perception," she said.

Thomas expressed concern about regulatory approaches that move away from internationally accepted standards, particularly around crop protection products and residue limits.

The grain trade coalition supports global standards developed through organizations such as Codex Alimentarius because they provide a common framework for countries that both import and export grain.

Without greater consistency, grain companies face added costs and uncertainty, while farmers face a higher risk that markets could change after planting decisions have already been made.

Arnaud Petit, executive director of the International Grains Council, said trust between countries is also becoming increasingly important as geopolitical tensions affect global trade.



Global grain trade leaders called for consistency, stability and transparency in plant breeding – from left, Arnaud Petit of the International Grains Council, Krista Thomas of the International Grain Trade Coalition, Jaine Chisholm Caunt with the Grain and Feed Trade Association, and panel moderator Jean-Paul Judson

"If you don't have trust between countries, you increase the cost of trade," he said, adding that disruptions caused by the war in Ukraine have demonstrated how quickly grain markets can be affected when normal trade flows are interrupted.

Petit said global agriculture faces a straightforward challenge: demand for grain continues to grow faster than production in many regions and meeting that demand will require innovation, efficient trade and cooperation between countries.

As well, discussions about new plant breeding technologies need to involve more than just seed companies and regulators; food companies, grain handlers, exporters, retailers and consumers all influence whether new technologies are ultimately accepted.

Watching for European corn borer

BY IAN CUMMING, Ontario Farmer

Winchester - The invention of Bt corn put an end to the European corn borer (ECB) existing in Canada.

Until 2018, when it was discovered in Nova Scotia corn fields, said Josee Kelly, a Ph D student from the Ridgetown campus of the University of Guelph. Kelly was presenting here at the Field Crop Research day, with the re-emergence of ECB being a major portion of her ongoing research.

There has been no ECB found in Ontario or the U.S., to date, she said. But she detailed how in 2019 it was found near Montreal, and in subsequent years in New Brunswick, Manitoba and Alberta.

The hatched moths can travel up to 700 km, said Kelly.

Organic corn fields were the first site where they were detected, followed by only the single trait BT corn that was sold out in Nova Scotia. That was all that was available to Nova Scotia growers since, "it was too small of a market for the companies to care about."

With up to four traits in the most recent varieties, all designed to help repel ECB, there has been one case where it has appeared in a field with a BT variety, being resistant to three stacked traits, she said.

It is difficult, in the early corn growing stages, to distinguish the egg masses on the underside of the leaf from other bugs, said Kelly. It is only after they have hatched and formed eventually into larvae, that one can see the "shotgun holes" in the stalk, that they are now strong enough to penetrate.

Once in the stalk, the larvae tunnels up and down eating the stalk interior, "so spraying isn't effective," said Kelly. Some leaves will turn reddish in colour and the tassel will break off the top.

It is never found in the corn ear, she said.

Kelly and other researchers are following up to 40 Canadian colonies. The research here south of Ottawa has traps set up so they can monitor what types of bugs are prevalent, including any possible ECB.

They are also looking at any potential yield loss due to ECB, and at what concentration of infection does one see that happening, she said.



Josee Kelly, Ph D student from Ridgetown campus, University of Guelph