Technology Fuels Plant Breeder's Passion for Soybeans

When you combine passion and technology you have a tremendous recipe for success. It's a formula that soybean breeder Eric Gagnon is using to build the soybean of the future – one that delivers early maturity and excellent agronomic performance for growers, and traits that please the palates of end users and consumers.

Since joining Semences Prograin, the largest private developer and producer of value-added soybeans in Canada, Gagnon has developed more than 60 soybean varieties and lines that are planted across Canada and throughout Europe.

While earning a Master's of Science degree at Laval University, Gagnon focused primarily on barley, but that all changed when he joined Prograin. "It was a big change for me, but now I prefer soybeans. Without exaggeration, it is my passion and a tremendous challenge," says Gagnon. And thanks to a major commitment from Prograin, Gagnon has the tools required to tackle soybean industry challenges ranging from better field performance to the quality of tofu delivered to consumer plates.

Last year, Prograin invested $1.3 million on a new research centre that will include a molecular marker lab as well as a soybean food lab. For Gagnon, molecular markers that can identify the presence of plant genes that carry specific traits will help him build a better soybean much faster. For example, over the last 10 years Prograin has worked with Laval University to develop resistance to white mould, a disease that can devastate a soybean crop. Great strides have been made using an inoculation method that allows new varieties to be tested for the presence of white mould resistance. With genetic markers, the speed of this process is accelerated greatly, helping to get the new varieties to growers faster. Genetic markers also make it possible to quickly incorporate other desirable traits such as resistance to iron deficiency chlorosis, which would benefit growers in Ontario and Manitoba.

Prograin's new food lab will also help Gagnon and co-worker Marc Ham evaluate which varieties deliver the characteristics demanded by Japanese markets for products such as tofu, soymilk, natto and miso. In the lab, only 150 grams of seed will be required to evaluate a variety's quality characteristics. Information from the lab will also make it possible to develop molecular markers to identify and detect the traits that confer these characteristics.

Gagnon says he's very excited about the role he and other plant breeders can play in shaping the future of the soybean industry. "Growers will want to have a lot of genes to protect their soybean fields from different problems. End users talk about the need for protein quantity, but also the quality of the protein and sugar characteristics," says Gagnon. "I think we'll be able to have what growers and end users are looking for in the same soybean line."

But for breeders like Gagnon to have the opportunity to pursue their passion, seed companies need the confidence to invest. That's why intellectual property protection is so important, says Gagnon. "If growers purchase pedigreed seed, it will be possible for a company like Prograin to reinvest in research and development. That will allow us to develop better varieties and also develop new markets for the varieties."

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New technology, however, does pose some struggles for Gagnon. It can be tough to set research priorities when you have the capability to do so much. "It's not possible to work on all our goals at the same time." But that's a challenge Gagnon is happy to wrestle with.

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