

Soybean Acres Expand Throughout Western Provinces

The adoption of soybeans by Western Canadian farmers has been swift and wide-spread, and for good reason. This globally-traded crop fixes its own nitrogen, and, given its newness to the west, has faced few pest pressures. All that being said, soybeans are traditionally a long-season crop, and pushing the crop into less traditional areas creates some production and quality risks for new growers.

A key aspect of a large-scale, multi-year research project, co-funded by Saskatchewan Pulse Growers has been to identify the plant breeding components necessary to develop short-season, well-adapted varieties for Saskatchewan. Tweaking a long-season crop to thrive in a short-season region carries several challenges, but researchers are facing them head-on.

Dr. François Belzile, Université Laval, leads research, on a project that has made tremendous strides in making soybean genotyping affordable and accessible to all soybean research programs, moving short-season soybean breeding forward.

In Saskatchewan, several challenges remain as barriers to wide-spread adoption of the oilseed crop into rotations, and it all hinges on varieties adapted to the unique growing conditions in the province. Achieving acceptable levels of protein and oil in the resulting crop has been a challenge this far west and north of the traditional soybean growing regions of Canada.

Genetic disease and pest tolerance/resistance will also be a moving target, as plant breeders look to anticipate what the most likely problems will be, and incorporate that resistance into short-season lines. Researchers can now access powerful tools to rapidly identify races of key pathogens and pests, Belzile says, speeding up the process of selecting for resistance genes needed to offer resistance in improved varieties. The work has also been successful in identifying new genes and molecular markers to facilitate the development of varieties with increased disease/pest resistance.

Growing conditions themselves also pose a challenge, as, in some parts of Western Canada, drought stress can be likely. "Soybeans need water during pod and seed development for high yield," says Agriculture and Agri-Food Canada soybean breeder Elroy Cober. Further, Cober notes "cool soils can delay germination and development. While tillage may play a role in warming up spring soil, we cannot lose the benefits of no-till or reduced till, so we need to look for genetic differences in cool germination."

Researchers are quite confident that another five years will move excellent high-yielding, short-season soybeans even further west, however the complexity of the traits that must be combined in these new lines extends the breeding effort by a few years. Even still, the gains made to date in understanding how different combinations of maturity genes perform in different regions of the country, including four sites in Western Canada, is expected to result in better adapted lines in about five to eight years.



Soybean plots at 2017 Outlook field day.

