

# SCREENING PROGRAM SPANS EARLY GERmplasm TO CO-OP TRIALS

How Alberta-specific germplasm screening helps keep yields rising, agronomic traits improving and our pulse growers globally competitive.



Thousands of peas, faba beans, lentils and lupin lines are evaluated for their suitability to Alberta environments.

For field pea, faba bean and – starting in 2019 – lentils, the screening process is led by Christy Hoy, Pulse Crops Agrologist with Alberta Agriculture and Forestry.

It's a big undertaking. In 2019, field pea, faba bean and lentil germplasm was evaluated in a total of 29 trials, encompassing 4,698 plots at six locations: Barrhead, Brooks, Lacombe, Lethbridge, Namao and Vegreville.

"The strength of the project is that it provides Alberta data from multiple locations, to ensure that lines going

forward perform well under Alberta conditions," Hoy said.

### Many are evaluated, a few advance

To be approved for registration, each new pulse variety in Western Canada must survive a rigorous and highly selective screening process. It begins when Hoy receives germplasm from multiple breeding programs in Western Canada, the U.S and up to half a dozen countries in Europe. (Alberta returns the favour, by helping organizations navigate Plant Breeder's Rights and the registration process in Canada.)

"Early germplasm screening trials are conducted, and those that perform well advance forward," Hoy said. "From those locations, data is collected on agronomic traits."

Selection criteria go far beyond yield, with careful attention paid to factors such as emergence, days to flower, height, lodging resistance, maturity and seed weight. New varieties need to yield well in addition to showing resilience in the face of a potentially tough growing season. The best performers at this stage move a little higher up the iceberg, but they're still far from the surface.

"Data is sent back to the breeding programs and used to make breeding selections," Hoy said. "The most promising lines eventually advance to the co-op trials that are used for registration, and the others drop out."

The past year marked the entry of lentils into the project (Dr. Manjula Bandara being the principal investigator), with 24 early germplasm trials taking place at Vegreville and Brooks.

For growers wanting an inside look at the process, Hoy's program holds crop walks or field days annually at each of the six locations.

"It's a chance for us to talk about the project and show people what we're doing," Hoy said. "They like seeing the different germplasm from the different programs growing side by side."

Currently two years into a five-year funding commitment from Alberta Pulse Growers and Alberta Agriculture and Forestry, Hoy will keep hunting for the new varieties of tomorrow.

"It's important to know how germplasm performs under Alberta's different agro-ecological climates," Hoy said. "We evaluated a large array of genetic material from multiple breeding programs in 2019, and it was an exciting year."