

Breeding chickpea cultivars for western Canada

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SPG Contributions	Project Status	Duration/Timeline of Project (Year to Year)	Co-funders	Total Project Cost
\$279,954.85	Active	December 2020 – January 2025	Saskatchewan Ministry of Agriculture – Agriculture Development Fund	\$1,010,271.85

Project Description

To develop high yielding Kabuli chickpea cultivars for western Canada.

Outcome

In Saskatchewan, chickpea is best adapted to the brown and dark brown soil zones and is an important component of cereal-based crop rotations. The growth of chickpea production in Western Canada depends on the development of new cultivars with high yield, early maturity, and improved resistance to Ascochyta blight, which will enable the crop to be grown over a larger area with reduced production risks. Breeding efforts to address these challenges, while maintaining the acceptable seed quality, must continue. The main objective of the current research is to develop high-yielding Kabuli chickpea cultivars with improved agronomic and acceptable seed quality characteristics for Western Canada.

In 2022, the second year of the project, we continued breeding activities including the completion of two crossing cycles, developed 252 new cross combinations (populations), increased 223 F2 populations to F3, increased 415 F3 populations to F4 generation, and increased 364 F4 and F5 populations for single plant harvest. In 2022 we completed yield trials of the breeding lines at different generations including Preliminary Yield Trials, Advanced Yield Trials, Elite Yield Trials, and Regional Trials at two to three locations in Saskatchewan. Selections for superior lines were made at each generation and will be further evaluated in 2023. Concurrently, we initiated prebreeder seed development for six lines in the long plots and four lines for bulk seed increase. The best line(s) from 2023 regional trials will be selected for release in 2024. We made good progress and met the milestones for year 2 of the research despite 2022 still being challenging for Elrose and Lucky Lake locations due to above normal temperature and below normal precipitation.

Research Objective

OBJECTIVE 1

To develop high yielding kabuli chickpea cultivars for Western Canada.