

# Canadian Agri-Science Cluster for Horticulture 3



## Update to Industry

### Semi-Annual – Spring 2022

**Activity title:** 16A: Variety Evaluation

**Name of Lead Researcher:** Erica Fava, Agriculture and Agri-Food Canada

**Names of Collaborators and Institutions:**

AB: Chandra Singh, Lethbridge College; Michele Konschuh, University of Lethbridge; Parkland Seed Potatoes;  
BC: Heather Meberg, BC Agriculture in the Classroom, University of the Fraser Valley;  
MB: Darin Gibson, Gaia Consulting Ltd; Dr. Tracy Shinnars-Carnelley, Peak of the Market;  
ON: Dr. J. A. Sullivan and Vanessa Currie, University of Guelph; Ontario Potato Board;  
PEI: Mary Kay Sonier, PEI Potato Board; David Main, AAFC Charlottetown; Real Potatoes;  
QC: André Gagnon, Progest Inc. 2001.; Sophie Massie – Progest Inc. 2001; Kristine Naess – CRLB  
SK : Jazeem Wahab, AAFC Saskatoon

**Activity Objectives (as per approved workplan):**

This activity aims to enhance the profitability and sustainability of the Canadian potato industry by identifying superior selections that can be produced more efficiently than current potato varieties in major production areas. Evaluations included: adaptation; yield performance (total and marketable); external and internal quality; cook quality; and visually-rated reaction to pests and disease as compared to industry standards when grown under regional conditions at 8 trial sites across Canada. Evaluations were performed on three market types including: French Fry, Fresh Market and Chip types.

- Production of breeder's selection seed at Benton Ridge Substation (NB) and distribution to cooperators for National Potato Variety Trials (NPVT) (10-30 clones)
- Production of breeder's selection seed at Vauxhall Substation (AB) and distribution to cooperators for NPVT (10-30 clones)
- Conduct National Trial in NB (in coordination with NB Ag)- (20-60 clones) site TBD
- Conduct National Trial in Saskatchewan- (20-60 clones) Outlook site
- Conduct National Trial in PEI - (20-60 clones) Harrington site
- Coordination of NPVT and collection of data from all trial sites
- Data analysis and report
- Cooperators meeting to review the data

**Research Progress to Date (use plain language, not to exceed 500 words):**

In 2021, all of the objectives above were met. Thirty selections and 8 checks were grown at 9 sites across Canada. The locations included: Prince Edward Island, New Brunswick, Quebec, Ontario, Manitoba (2 locations), Saskatchewan and Alberta with demonstration sites at all locations and in British Columbia.

The AAFC Potato Breeding Program continued with the two tiered trialing system at all National Potato Variety Trial (NPVT) locations. Tier 1 selections are in the first year of the National trialing system at 8 sites (Charlottetown, PEI; Sainte-Croix, QC; Wilmot, NB; Elora, ON-Chip; Winkler, MB; Carberry, MB-French Fry selections; Outlook, SK; Brooks, AB). The Tier 2 selections were grown at the same 8 locations described above. Due to the extreme drought in 2020 at the Benton, NB seed farm, 2 reps were planted if enough seed was available. Particularly effected by the drought were the French Fry selections and preference for site evaluations was given to AB, MB, NB, and PEI. Twenty-one Tier 1 selections were trialed with 8 check varieties and nine Tier 2 selections with 8 check varieties. This included French Fry, Chipping and Fresh Market types. Trials were planted, grown and harvested following commercial production practices common in the local area.

All field data were collected on time and as required. The harvest was also done in a timely manner, but a few of the sites had labour shortages during grading (due to illnesses and isolation requirements) and there were delays getting the harvest data. The season was generally extremely hot and dry in the Western provinces and hot with seasonable precipitation in the Eastern provinces. The variable growing conditions at each location are allowing for evaluation of varieties under a wide range of environments.

**Extension Activities (presentations to growers, articles, poster presentations, etc.):**

Most of the field day extensions activities were canceled or reduced this year because of COVID-19. In British Columbia, a socially-distanced field day was had with over 100 attendees that was spread out over a 6 hour period. New Brunswick and Ontario also had a last minute socially distanced field day. Manitoba had a small event showing the French Fry selections to the processors and another day in conjunction with the Peak of the Market Field Day showcasing all the selections in the NPVT. Quebec did not have a field day, but opted to invite a few local industry members to see the selections. The field days are an important part of showcasing the selections to industry.

A presentation entitled "Better Varieties Faster: In Partnership with Industry and Growers" was given at the Potato Summit organized by Potatoes in Canada on Feb 2, 2022 to describe the changes made to the Potato Breeding Program as well as the NPVT and some of the newly licensed varieties. Another presentation entitled "National Potato Variety Trials: Moving Towards the Next Cluster" was given at the Potato Breeding Stakeholder Engagement Session on Feb 22, 2022.

**COVID-19 Related Challenges:**

As mentioned above, one of the key COVID-19 related challenges has been scheduling and holding field days. Many sites were reticent to schedule field days before they knew what the impacts were of the fourth wave or what the provincial requirements would be for gatherings and/or proof of vaccination. In addition, the pandemic prevented AAFC sites from having a field day to get industry feedback on the pre-National Trial and NPVT selections. Some sites also had some COVID related labour issues that caused some delays in data collecting at harvest and/or grading. However, all sites were planted, harvested and were graded with the appropriate data collected.

**Key Message(s):**

These trials are important for industry stakeholders to observe selections and review regional data for promising new varieties. The value-chain nature of the trial and efforts to provide data as required for each stakeholder will result in the uptake of new varieties for the Canadian potato industry. Specifically, for French Fry selections, one request was made for F14021, four requests for VF14016, and five requests for VF140855-07 and VF140855-11 by industry partners, based on their success over multiple locations and/or their own experience trialing the material in 2020 & 2021. The Fresh Market selection, F14119 and the Chip selection, FV16324-08, were requested by 2 industry partners for further

trialing. In addition, 9 sole variety license agreements have been signed for new varieties from the Accelerated Release Program.

The AAFC National Potato Breeding Program is focusing its efforts to work in unison with all stakeholders to increase the value of the program and to make the new commercialization model relevant to the various market classes of the Canadian Potato Industry.

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