Agriculture Research and Development

Advanced Release Potato Trial

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Project Objectives

The main objectives of this project include:

- Monitor growth characteristics of new varieties;
- Evaluate yield and quality of new varieties; and
- Complete a storage evaluation of selected varieties.

Potato has been a staple of the Newfoundland and Labrador diet since its introduction by early European settlers. While the crop is as important today as it was then, the cultivars of potato used today are considerably different. At present there are approximately 5,000 varieties of potato in existence; however, only about 200 are commercially produced and sold in North America. The high number of varieties is due to the adaptability and popularity of potato as crop.

Development of new varieties of potato that have higher yield and better adaption to the climate and soils of Newfoundland and Labrador would help to improve the economic potential of the potato industry and improve the security of an important staple food.

To achieve this goal, the Government of Newfoundland and Labrador has partnered with Agriculture and AgriFoods Canada (AAFC) to implement the Advanced Release Potato Program. This program gives an opportunity to trial new varieties of potato developed by AAFC in the province to see if they show greater yield and adaptability than the varieties currently available. This partnership has already yielded the potato cultivars Exploits and Fortune, which have been used widely throughout the province.

August 2018

Background

A local supply of quality potato tubers is essential to food security in the province. Acquiring new genotypes of potato with improved yield, resistance to diseases and adaptability to the Newfoundland and Labrador climate will help to maintain a secure source of this important commodity and help to expand potato production in the province.

- Potato is a staple crop in the Province of Newfoundland and Labrador;
- At present only a fraction of the total potatoes consumed in the province were grown here;
- The Island of Newfoundland harbors two pathogens: potato wart (Synchytrium endobioticum) and the golden nematode (Globodera rostochiensis), not usually found in other potato-producing areas; and
- Developing potato varieties resistant to these pathogens is crucial to maintaining high levels of potato production in the province.

Technical Details

New genotypes were purchased from AAFC and will be tested for two years in the province to assess their adaptability and productivity in the Newfoundland and Labrador climate. Four producer sites in different parts of the province are used to trial these new genotypes annually.

- Trial sites for the 2017 season included St. John's, Wooddale, Pynn's Brook and Robinsons;
- New genotypes in 2017 included a red skinned (AR2017-04; Red Island x Goldrush) and a russet (AR2017-07; Innovator x unnamed AAFC genotype);
- New genotypes are tested against Yukon Gold to gauge performance; and
- Plants are monitored for grades and yields of tubers, susceptibility/resistance to pest and disease, occurrence of physiological disorders (hollow heart).

Preliminary Results and Observations

- AR2017-04 (Red Island x Goldrush) is showing good promise in terms of relative yield and resistance to physiological disorders;
- Several producers have commented on the attractiveness of the tuber of AR2017-04, indicating that the shallow eyes and deep red color will be of value at market;
- Both genotypes show reduced hollow heart when compared to Yukon Gold; and
- Both genotypes are being tested again in the summer of 2018.

Recommendations

- Use only CFIA-certified seed potato (list of certified producers is available through the Department of Fisheries and Land Resources);
- Make record of yearly pest and disease pressures and use resistant varieties when possible;
- Make special note of the incidence of potato wart (Synchytrium endobioticum) and the golden nematode (Globodera rostochiensis) and move to resistant varieties when encountered; and
- Use varieties that have been tested in the Province of Newfoundland and Labrador.

Agriculture Industry Benefits

The reduced incidence of potato pests has significantly contributed to the development of Newfoundland and Labrador potato industry, as producers have experienced higher yields and quality, making locally grown potatoes more marketable. Production is market responsive and evaluation of new seed varieties not previously used in this province is crucial to the development and growth of both the seed potato sector and the continued commercialization of table potato production.

The Department of Fisheries and Land Resources, along with the growers, have responsibility to evaluate the production merit of these new varieties prior to inclusion into the program to ensure as much as possible that they do not negatively impact agricultural production now and for the future.

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