

Canadian Agri-Science Cluster for Horticulture 3



Update to Industry

2018-2019

Activity Title: The Canadian Berry Trial Network

Name of Lead Researcher: Beatrice Amyotte, Agriculture and Agri-Food Canada

Names of Collaborators and Institutions:

Eric Gerbrandt, Sky Blue Horticulture Ltd.
 Pierre Lafontaine, Carrefour industriel et expérimental de Lanaudière
 John Zandstra, University of Guelph

Activity Objectives (as per approved workplan):

The Canadian Berry Trial Network project involves testing new varieties and selections of strawberry, raspberry and blueberry in four provinces across Canada: British Columbia, Ontario, Quebec and Nova Scotia. The objective for Phase I (2018-2019) was to initiate the project through an in-person meeting and the development of an experimental design. Plant propagation, field preparation and the acquisition of research materials and supplies were also part of Phase I.

Research Progress to Date (use plain language):

In October 2018, the project team met in person to design and launch the Canadian Berry Trial Network (CBTN). This meeting was a successful opportunity to discuss the research, plan logistics, and form positive relationships between stakeholders in the Canadian berry industry. The project team engaged with plant breeders Michael Dossett and Adam Dale, who along with Beatrice Amyotte, agreed to provide the Canadian-bred strawberries, raspberries and blueberries to be evaluated. Varieties and planting designs were chosen by the group, and methods to evaluate the plants and fruits were discussed. Files from this meeting are available to view in the online [CBTN Share Folder](#).

The research team decided that the trials would use the standard planting methods and conventional crop management strategies currently used by modern producers in each region. For example, the raspberries in British Columbia will be loop-trellised and machine harvested whereas those in Ontario, Quebec and Nova Scotia will be t-trellised and hand-picked. This decision was made to ensure that the results of the trial will be relevant to producers in each province, which follow specific cultivation methods based on local environments and local markets. The statistical design of the trials will ensure that the results can still be compared across provinces in order to find out which varieties perform best

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in which locations.

The research team decided that the trials will be planted annually to allow for continuous adoption of new varieties throughout the project. The specific varieties to be planted in 2019 will include six strawberries and six raspberries from Agriculture and Agri-Food Canada's Kentville Research and Development Centre, one day neutral strawberry and one summer fruiting raspberry from BC Berry Cultivar Development Inc. breeder Michael Dossett, and three short day strawberries from University of Guelph breeder Adam Dale. Reference varieties have been chosen independently by each provincial research institution, based on the most popular local cultivars. In all cases, at least one reference variety will be replicated across years and locations. CBTN trial plants of strawberry and raspberry were propagated in the winter of 2019 and will be ready for planting in spring 2019. Blueberry plants from the BC small fruit breeding program, which are slower growing, will be multiplied by Dr. Dossett during 2019-2020 and transferred to the trial locations in early 2020. Additional trial varieties from Canadian and international breeding programs will be planted annually throughout the project.

As a method to ensure the rigour of our findings, the research team chose a standard list of plant and fruit quality traits to evaluate across all four provinces. The plant characteristics including vigour, disease incidence and climate susceptibility, will be evaluated based on visual rating scales that do not require additional instrumentation. The fruit quality data will be collected using analytical instruments including weigh scales which measure fruit size and yield, penetrometers which measure firmness, refractometers and titrators which measure fruit sugars and acids, and colourimeters which measure the hue and intensity of fruit colour. These instruments, along with other materials and supplies needed to prepare the fields and manage the crops, were purchased by the project team in 2018-2019. The first berry trials will be planted in 2019, and the research team will analyse the initial plant performance data in the fall of this year. The preparation and planning work performed in 2018-2019 will ensure that this project generates robust and reliable information regarding the potential of new berry varieties to be grown commercially in British Columbia, Ontario, Quebec and Nova Scotia. The results of our preliminary assessments will be shared with the Canadian small fruit industry through presentations and reports in 2019-2020.

Although most of the work we have completed in 2018-2019 has involved planning and preparation for the first trial plantings, one unique aspect of the CBTN is the special work conducted by Eric Gerbrandt in British Columbia. Dr. Gerbrandt has for the past several years lead on-farm trials with respected BC growers. The BC small fruit growers who support the CBTN research project have valued Dr. Gerbrandt's large on-farm demonstration trials which continued without interruption throughout 2018-2019. The goal of these trials is to translate the efforts of the local berry breeding program to growers' fields. These trials rely on importing the most recently developed blueberry, raspberry and strawberry cultivars and advanced selections from Canadian and international propagators and breeding programs. The selections and cultivars are planted in large blocks on commercial farms where they are evaluated over several years. The information generated through the on-farm trials will be used to supplement the data collected in the replicated trials, in order to ensure that the results can easily be compared and shared across the four provinces.

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

The project team was active in communication throughout 2018-2019. The first opportunity for engagement was the October 2018 CBTN Launch Meeting. The project team came together with twelve participants including grower association representatives and extensions specialists from British Columbia, Quebec, Ontario and Nova Scotia. Together, the team discussed the technical objectives of the project, and the broader implications of working together as a cohesive network. The importance of open communication and transparency with industry was highly emphasised. To this end, the CBTN was introduced to stakeholders in British Columbia, Quebec, Ontario and Nova Scotia through several oral presentations in 2019. Events showcasing the CBTN included the APFFQ journée provinciale fraises et framboises, the Scotia Horticulture Congress, the Lower Mainland Horticultural Improvement Association's Grower Short Course, the Ontario tender fruit growers' Fruit Research Update meeting, and the Canadian Horticultural Council Berry Working Group Annual General Meeting. In all instances, the project team received valuable comments from grower associations and producers. The feedback was favourable at this stage, and industry representatives expressed anticipation for the results of the project. One key piece of feedback was the expressed desire for members of industry to visit the trials in person. As a result of this request, the research team has planned to host field days at their trial locations beginning as soon as summer 2019.

Early Outcomes (if any) or Challenges:

We had some challenges getting this project started, however we are confident that this will not impact the overall objectives of the project. Research agreements between the government, the Canadian Horticultural Council, and the research institutions were signed quite late in 2018-2019, which delayed the official start of the project to the fourth quarter of 2018-2019. Despite this delay, the project team was able to achieve the objective of coordinating and designing the berry trials in preparation for 2019-2020. We held an in-person meeting at a central location in Ontario, and traveled to several industry conferences in our respective provinces. We purchased materials and supplies such as fertilisers, crop protectants, trellises and plasticulture supplies, small farming equipment, and fruit quality analysis instruments. However some funds, particularly those related to expected labour costs, were left underspent. We anticipate the project to proceed as planned during 2019-2020, with full expenditure of the project budget. We will share the early results of the project with growers and other stakeholders after the 2019 growing season.

Key Message(s):

The Canadian Berry Trial Network was off to an exciting start in 2018-2019. We thank the organizations and institutions who are supporting this project with their financial contributions and their important feedback to the research team. Over the next few years we look forward to inviting you to visit our research locations and tell us what you think of the newest high quality Canadian strawberry, raspberry and blueberry varieties and selections. We wish you all, our friends and collaborators, a productive 2019-2020.

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