The New! Canadian Berry Trial Network

SCOTIA HORTICULTURAL CONGRESS
JANUARY 28, 2019

BEATRICE AMYOTTE

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Introduction to the CBTN

BACKGROUND + OBJECTIVE

PARTICIPANTS

PHASES

OUTLOOK
BACKGROUND

The **Canadian Berry Trial Network** is a 5 year research activity of the Horticulture Cluster within the Canadian Agricultural Partnership (CAP) Program (2018-2023).

This project follows past berry research projects conducted through the Canadian Horticultural Council.
BACKGROUND

2007 - 2012: Growing Forward Horticulture Cluster
- Wild blueberry risk management
- Day neutral strawberry breeding
- Raspberry tunnel production

2012 - 2017: Growing Forward 2 Horticulture Cluster
- No small fruit activities (apple and potato only)
- *Discussions for the next policy framework*
BACKGROUND

CHC Berry research priorities

- Integrated Pest Management
- Cultivar Development
- Product-Market Development
- Health Research
- Production Research
BACKGROUND

AAFC vision for plant breeding

- **Private breeders**
  - Enhanced germplasm to include in elite cultivars

- **Seed distributors & nurseries**
  - Improved cultivars

- **Farmers**
  - Reduced fertilizers and pesticides
  - Adaptation to climate change
  - Yield and quality

- **Food processors**
  - Improved processing quality
  - Attributes and safety

- **Consumers**
  - Improved food security and quality
  - Local food, reduced imports

- **Strong partnerships informed by end-users**
  - AAFC
    - Collection of germplasm
  - Universities
    - Education of HQP

- **Genetic research & germplasm development**

- **Cultivar evaluation & commercialisation**

- **End-users**
  - Commodity/Partnership levy
    - Research priorities
    - Public good & knowledge
    - Accelerated adoption

Sylvie Jenni, Manager of Science Partnerships, AAFC
BACKGROUND

AAFC continues berry program in Kentville!
BACKGROUND

2017: Canadian Horticultural Council – Call for Proposals

- **Berry Priorities**: Cultivars, Production
- **AAFC Priorities**: Industry-led Plant Breeding
- Activity proposal developed: **Canadian Berry Trial Network**

- 2018: Activity approved ($1.3 M)
OBJECTIVE

- To combine the expertise of Canadian growers, plant breeders, horticultural production researchers and extension specialists in designing a **Canadian Berry Trial Network**

- To test new selections of **strawberry**, **raspberry** and **blueberry** and identify **new cultivars for the Canadian industry**

- To develop strong collaboration between researchers and stakeholders in **British Columbia, Ontario, Quebec** and **Nova Scotia**
PARTICIPANTS

Industry Associations
- Horticulture Nova Scotia
- L’Association des producteurs de fraises et framboises du Québec
- Ontario Berry Growers Association
- British Columbia Strawberries & Raspberries

Research Institutions
- Carrefour industriel et expérimental de Lanaudiere
- University of Guelph
- British Columbia Berry Cultivar Development Inc.
- Sky Blue Horticulture
- Agriculture and Agri-Food Canada

Ministries and Extensions Services
- Ontario Ministry of Agriculture, Food and Rural Affairs
- Perennia Food and Agriculture
- BC Ministry of Agriculture
- Québec Ministry of Agriculture & Réseau de lutte intégrée Orléans

Total Contributions:
$396,330
(30% project cost)
PARTICIPANTS

CBTN Project Management Committee

Jennifer Crawford
APFFQ
Stakeholder Engagement + KTT

Beatrice Amyotte
AAFC
Research Coordination (NS)

Eric Gerbrandt
Sky Blue Hort.
Research Coordination (BC)

Pierre Lafontaine
CIEL
Research Coordination (QC)

John Zandstra
U. of Guelph
Research Coordination (ON)

Image Sources: J Montreal, AAFC, Orchard and Vine, LaTerre, U Guelph
PARTICIPANTS

Research Trial Locations

- Fraser Valley, BC – Eric Gerbrandt
- Agassiz, BC – Michael Dossett
- L’Assomption, QC – Pierre Lafontaine
- Ridgetown, ON – John Zandstra
- Simcoe, ON – Adam Dale
- Kentville, NS – Beatrice Amyotte

Image Sources: AAFC, CIEL, U of Guelph
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British Columbia

Industry

- Raspberry  3000 acres
- Blueberry  30,000 acres
- Strawberry  600 acres

Research

- Eric Gerbrandt & Michael Dossett
- Industry-led berry breeding program
- Variety trials at AAFC Clearbrook
- On-farm trials across South Fraser Valley

Data and Images: E Gerbrandt, U. Fraser Valley
PARTICIPANTS

British Columbia

Blueberry postharvest firmness trial (Eric Gerbrandt 2018)
PARTICIPANTS

Ontario

Industry

- Raspberry 700 acres
- Blueberry 1000 acres
- Strawberry 3000 acres

Research

- John Zandstra & Adam Dale
- University-led berry breeding program
- Variety trials at Simcoe & Cedar Springs

Data: OMAFRA, Images: J Zandstra, Toronto.com
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Ontario

Recent varieties and selections (Adam Dale 2018)

Day Neutral Strawberries

- Summer Daisy
- Summer Flavor
- Summer Evening
- 33GY43
- Berrielle™
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Québec

Industry
- Raspberry 1300 acres
- Blueberry 75,000 acres
- Strawberry 5000 acres

Research
- Pierre Lafontaine & Jennifer Crawford
- No large berry breeding programs
- Variety trials at CIEL research station, l’Assomption

Data: Institut stat. QC, Images: P. Lafontaine
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Québec

Current projects at CIEL (Pierre Lafontaine 2018)

- In-field soilless strawberry cultivation
- Reduced risk fungicides for Anthracnose in strawberry + blueberry
- Effect of plant density in plasticulture for June bearing strawberry
- Forecasting model for Anthrachnose in strawberry
- New application methods for acaracide against cyclamen mite
- Comparison of IPM and CM in day neutral neutral strawberry

Data and images: P. Lafontaine
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Nova Scotia

Industry
- Raspberry <100 acres
- Blueberry 42,000 acres
- Strawberry 1000 acres

Research
- Beatrice Amyotte & Jennifer Haverstock
- AAFC berry breeding program
- Variety trials at AAFC Kentville
- On-farm trials in collaboration with NS nurseries

Objectives set by Industry
Process led by AAFC

Data: Stats Canada, Images: AAFC, Perennia
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Nova Scotia

June bearing strawberry yield trial (Jamieson, Rand, Amyotte 2018)

Data: AAFC

‘AAC Lila’
Jamieson et al. 2013

Data: AAFC
PARTICIPANTS

The CBTN: Collaborative variety trials across Canada!
<table>
<thead>
<tr>
<th>PHASE I: Implementation</th>
<th>PHASE II: Evaluation</th>
<th>PHASE III: Dissemination</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2021-2022</td>
<td>2022-2023</td>
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</tbody>
</table>
# PHASE I

**Implementation**

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**Design and launch the CBTN**

- Coordinate evaluation methods and choose varieties to evaluate
- Develop reporting and stakeholder engagement strategy
Plant and evaluate the coordinated trials

- Establish BLUEBERRY, RASPBERRY & STRAWBERRY trials
- Collect data on plant performance and fruit quality
- Conduct statistical analysis of multi-location, multi-year data
PHASE III

Share and communicate results

- Discuss ongoing observations and challenges
- Develop annual reports: documents, presentations and posters
- Present findings to stakeholders and decide next steps
# PHASE III

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**PHASE III: Dissemination**

## Key Deliverables

- Presentations at industry events in 4 provinces
- Reports for industry and scientific audiences
- Field days for industry stakeholders
- Bilingual fact sheets for top performing selections
PROJECT OUTLOOK

- This 5-year project will help to achieve the integration of AAFC and other small fruit breeding programs into a national berry cultivar development continuum, with industry leadership.
CONCLUSIONS

- This project aims to develop cohesive partnerships for science-based testing of new high value small fruits in Canada’s major growing regions.

- The work will lead to the development of new commercial cultivars suited to important fruit production regions.

- The project will be a framework for ongoing collaborations between Canadian berry industry stakeholders, breeders and researchers.