What is Vineland?

• A world class horticulture innovation centre and commercial hub
• An independent objective not-for-profit corporation
• An engine to drive multiple innovation pipelines for horticulture

Why is Vineland Unique?

• Focus on partnering
• Unique innovation mindset
• Unique set of capabilities

What are the benefits of Vineland?

• Speeds up the delivery of innovation by working along the value chain
• Aggregates fragmented innovation capabilities into highly effective pipelines
• Enables better products for Canadian consumers
• Creates a stronger and more competitive horticulture industry
## Research Expertise

<table>
<thead>
<tr>
<th>Applied Genomics</th>
<th>Production Systems</th>
<th>Consumer and Sensory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioinformatics</td>
<td>Biological Control</td>
<td>Sensory Analytics</td>
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<td>Ornamental Breeding</td>
<td>Plant Pathology</td>
<td>Horticultural Economics</td>
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<td>Vegetable Breeding</td>
<td>Greenhouse Technology</td>
<td>Postharvest Technology</td>
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<tr>
<td>Tree Fruit Breeding</td>
<td>Environmental Horticulture</td>
<td>PARTNERSHIPS</td>
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<td>BUSINESS DEVELOPMENT</td>
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The People

- teamwork
- innovation
- excellence
- partnerships
Research and Innovation at Vineland

Priority Setting

Opportunity Analysis

Project Management

Project Development and Evaluation

Cross-disciplinary Science and Business

Outcomes that grow the Horticulture Sector

Stakeholder engagement
Opportunity Analysis

1. Right Customer Concept
2. Right Science
3. Right Partners

Outcomes that grow the Horticulture Sector
The Partnerships
Overview of Research Activities

1. Consumer and market intelligence for horticultural products
2. Understanding the Healthy Consumer
3. Post harvest analysis of horticultural products

1. Development of the world’s healthiest vegetables
2. Mutagenesis – tomato, pepper (funded by CAAP)
3. Breeding world crops
4. Association Mapping in apples and peaches (funded by CAAP)
5. Rose Breeding

Applied Genomics

Consumer Insight

Production Systems

1. World Crop production in Ontario
2. Biocontrol to reduce pesticide loads
3. Automation Technologies
4. Tempwave technology for frost protection
Edible Horticulture 2010 Industry Priorities

- Food for Health

1. Understanding, defining and quantifying the health benefits of horticultural crops
2. Understanding the bioavailability of foods
3. Understanding the health conscious consumer
4. Marketing strategies to increase fruit and vegetable consumption
5. Making fruits and vegetables more convenient to the consumer (eg. innovative packaging or processing)
6. New and/or improved products that target the health conscious consumer
7. Understanding and marketing the health benefits of vegetables to consumers
Identify mushroom strains that have the highest concentrations of vitamins and antioxidants to create healthy processed and fresh mushrooms.
Identify Determinants of Healthy Eating Habits

Issue: Ontarians have not significantly changed their eating habits over the last decade

1. Characterize current eating habits
2. Determine the effect of fresh produce accessibility on consumer eating habits
3. Focus on fresh fruits and vegetables consumption

Outcome: Develop strategies to increase fruit and vegetable consumption
Evaluating Nutrient Diversity of Ethnic Crops

<table>
<thead>
<tr>
<th>Crop</th>
<th># Accessions</th>
<th>Target Nutrients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eggplant</td>
<td>216</td>
<td>Chlorogenic acid, Caffeic acid, Nasunin</td>
</tr>
<tr>
<td>Okra</td>
<td>288</td>
<td>Vitamin A, Vitamin C, Vitamin K, Manganese</td>
</tr>
<tr>
<td>Yard long Bean</td>
<td>93</td>
<td>Vitamin A, Vitamin C, Vitamin K, Manganese</td>
</tr>
<tr>
<td>Amaranth</td>
<td>233</td>
<td>Lutein, Zeaxathin, Iron</td>
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Selection and evaluation to be done in 2012 planting season
Collaboration - Challenges & Opportunities

1. Finding the right partners
2. Ownership of intellectual property
3. Industry support
4. Fill in gaps within value chain (e.g. bioavailability studies)
5. Successful outcomes
Acknowledgements