The next big thing in edible ornamentals

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Top mass-market opportunities

Tier 1: Ever-bearing, high-yielding container strawberries & container raspberries

Tier 2: Ever-bearing, high-yielding wild strawberries & All types of blueberries
- Opportunity: Landscape blueberries capable of growing in a wide range of soil conditions

Top niche-market opportunities

Tier 1: Edible flowers

Tier 2: Saskatoon berry trees
- Opportunity: Compact variety

Tier 3: Lingonberries
- Opportunity: Improved flavour

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Background

- Edible garden plants for residential use (referred to henceforth as "edible ornamentals") have been identified as a growing trend by Canadian nursery industry experts.
- A focus group was held in September 2014 with CNLA members representing 17 organizations in the nursery sector value chain including growers, wholesalers and retailers. The group brainstormed a list of new edible ornamentals that may have potential for success in the market to narrow down the scope of the ensuing consumer study.
- Based on the results of the focus group, Vineland researchers compiled a list of 20 edible ornamental plants to test with consumers. A decision was made to omit garden vegetables and herbs as these are typically produced in greenhouses.

Objective
To identify the top opportunities for new edible ornamentals using a consumer-driven approach.

Methodology

- Online study engaging 492 consumers from across Canada.

Region	Number of respondents
Atlantic	79
British Columbia	81
Ontario	155
Prairies	85
Quebec	92
Total	**492**

- Study participants were recruited by a professional panelist recruitment company. The company specializes in recruitment of consumer samples that are representative of the Canadian population.
- In order to qualify, participants had to:
  - Be at least 18 years of age
  - Have a patio, balcony or landscape garden
  - Have purchased at least one outdoor plant in the 2015 gardening season
- 20 edible ornamentals were tested for consumer appeal. See **Appendix Figure 1** for listing of products that were tested with consumers.
- Max-Diff methodology: Consumers were presented with a series of 15 screens, each displaying a different combination of 5 products. On each screen, consumers were then asked to indicate which one of the 5 products they would be most likely to purchase and which one they would be least likely to purchase. See **Appendix Figure 2** for a sample screenshot of the survey participants' view. Data was analysed using hierarchical bayes estimation.
- All consumers then completed a questionnaire on demographics and gardening habits.

Results

Overall Canada-wide results

An analysis of the overall Canada-wide results revealed that there were 4 segments of consumers with different preferences for the 20 edible ornamentals examined within this study. The largest segment, nicknamed the "traditionals", provides insight into mass-market opportunities, while the 3 smaller segments provide insight into niche-market opportunities.

Note: The number given in brackets after each edible ornamental coincides with the product number listed in Appendix Figure 1

Segment Name	Traditionals	Edible flower lovers	Saskatoon berry lovers	Experimenters
% of Population	52%	25%	13%	10%
Segment Description	These consumers like **strawberries** (1) & **raspberries** (17). They also respond quite well to **wild strawberries** and **all types of blueberries**.	These consumers are most interested in **edible flowers** (16) and **strawberries** (1). They also respond fairly well to **raspberries** (17) and **wild strawberries** (2).	These consumers are highly drawn to **Saskatoon berry trees**. Although most would prefer a compact variety (product 11 in Appendix), many are also willing to accept the standard large-sized tree. Outside of Saskatoon berries, these consumers also respond fairly well to traditional garden plants such as **strawberries** (1), **raspberries** (17) and **highbush blueberries** (19, 20).	These consumers are highly attracted to unconventional garden plants. They are most strongly interested in **lingonberries** (particularly those with superior flavour). Their second greatest interest is **edible flowers** (16) followed by **strawberries** (1) and **pomegranate** (15).
Segment Profile	More likely to live in detached homes Less likely to live in Quebec	More likely to: • live in apartments • live in Quebec • grow edible garden plants on a balcony or patio Less likely to live in the Prairies	More likely to: • live in townhouse or detached house • live in the Prairies • grow edible garden plants in a landscape or on a patio Less likely to live in Quebec	

Note: *Although 492 consumers responded to the survey, the Canada-wide results are based on the results of 400 consumers. The data of 92 consumers was removed prior to analysis to ensure that the sample included consumers from the different regions of Canada in proportions equal to those found in the 2011 census.*

Regional differences

- Overall in each region of Canada, the largest segment of consumers, nicknamed the "traditionals", consisted of consumers who liked container strawberries and container raspberries and blueberries the most out of the 20 products examined within this study.
- However some regional differences did emerge:
  - Consumers who liked edible flowers made up an important secondary segment of the public in Atlantic Canada, British Columbia, Ontario and Quebec.
  - The Prairies had a secondary segment that most liked Saskatoon berry trees.
- Ontario and Quebec also had a third important segment of consumers, nicknamed the "experimenters" who liked unconventional products such as lingonberries and edible flowers.
- Significant differences in demographics across segments were only detected in the Ontario sample, possibly due to the larger sample size.

Atlantic *(n=79)*

Segment Name	Traditionals	Edible flower lovers
% of Population	68%	32%
Segment Description	These consumers like **strawberries** (1)**, raspberries** (17) and **all types of blueberries** (18, 19, 20) the most. They are uninterested in unconventional products.	These consumers are most interested in **regular and wild strawberries** (1, 2), **edible flowers** (16), **raspberries** (17) and **pomegranate** (15).

British Columbia *(n=81)*

Segment Name	Traditionals	Edible flower lovers
% of Population	62%	38%
Segment Description	These consumers like **strawberries** (1) and **raspberries** (17) the most. They also respond fairly well to **wild strawberries** (2) and all types of **blueberries**.	These consumers are most interested in **strawberries** (1) and **edible flowers** (16).

Ontario *(n=155)*

Segment Name	Traditionals	Edible flower lovers	Experimenters
% of Population	50%	31%	19%
Segment Description	These consumers like **strawberries** (1) and **raspberries** (17) the most. They also respond quite well to **wild strawberries** (2) and **all types of blueberries**.	Like the first segment, these consumers are most interested in **strawberries** (1) and **raspberries** (17), however also respond quite well to **edible flowers** (16) and **wild strawberries** (2).	These consumers are highly attracted to unconventional garden plants. They are most strongly interested in **lingonberries** (particularly those with superior flavour), **edible flowers** (16) as well as **strawberries** (1).
Segment Profile	More likely to be a Millennial Less likely to be generation X	More likely to grow edible garden plants on a balcony Less likely to grow edible garden plants in a landscape garden	More likely to grow edible garden plants in a landscape or on a patio Less likely to be a Millennial

Prairies *(n=85)*

Segment Name	Traditionals	Saskatoon berry lovers
% of Population	71%	29%
Segment Description	These consumers like **strawberries** (1) and **raspberries** (17) the most.	These consumers are most interested in **Saskatoon berry trees** (13, 14), **strawberries** (1) and **raspberries** (17).

Quebec *(n=92)*

Segment Name	Traditionals	Edible flower lovers	Experimenters
% of Population	39%	32%	29%
Segment Description	These consumers like **strawberries** (1) and **raspberries** (17) the most.	These consumers are most interested in **edible flowers** (16) and **strawberries** (1). They also respond quite well to **raspberries** (17) and **wild strawberries** (2).	Although, like the previous consumer segment, these consumers are highly attracted to **edible flowers** (16), they also like **lingonberries** (3, 4), **strawberries** (1, 2) and **compact Saskatoon berry trees** (13).

Recommendations

Mass Market opportunities

The Canadian nursery sector is advised to increase availability of **container strawberries, container raspberries as well as blueberries and container wild strawberries** in order to capitalize from the growing demand for edible ornamentals.

- Emphasis should be placed on obtaining strawberry, raspberry and blueberry varieties that are **high-yielding** and **produce fruit all season-long**
- **High yielding landscape blueberries that can grow in a wide range of soil conditions** also present a promising opportunity

Niche Market opportunities

- **Edible flowers** were identified as another promising opportunity. However, further consumer research would be required to determine which flowers would be preferred and how they should be positioned in the market prior to pursuing this opportunity.

- **Saskatoon berry trees** represent a good niche opportunity with a particularly strong demand among consumers residing in the Canadian Prairies. A compact variety would suit the needs of a larger range of consumers than the currently-available full-size variety.

- Niche market opportunities also exist for **lingonberries** (e.g. those with **improved flavor**) particularly in Quebec and Ontario.

Next steps

While CNLA growers consider which of the recommended plants may fit into their portfolio, Vineland will investigate the feasibility of obtaining suitable cultivars to bring to market. The goal is to identify which plants present the best opportunity (based on consumer feedback and gaps in market availability) and can be brought to market at low cost and in a relatively short timeline.

A list of these edible ornamentals opportunities along with what it would take from Vineland and from CNLA to bring these to the market will be presented at an upcoming teleconference with CNLA's new varieties committee. It is expected that this meeting will result in a decision on which edible ornamental opportunity(ies) to pursue.

Appendix

Figure 1. The 20 edible ornamentals presented to consumers included the following:

1	**Strawberry** / **Plant features** • Typical strawberry size and taste • Regular height (25cm) • Perennial • Produces fruit all season-long • Container or landscape	**2**	**Wild strawberry** / **Plant features** • Fruit is small and very flavourful • Low maintenance and minimal watering needed • Regular height (15cm) • Perennial • Produces fruit all season-long • Container or landscape
3	**Lingonberry** / **Plant features** • Container or Landscape • Perennial • Compact (15cm high) • Shade tolerant • Evergreen	**4**	**Lingonberry** / **Plant features** • Superior berry flavour • Container or Landscape • Perennial • Compact (15cm high) • Shade tolerant • Evergreen

5	**Goji berry** 	**Plant features** • Compact (1.5m high) • Superior berry flavour • Container (growing on a trellis) • Perennial	**6** **Goji berry** **Plant features** • Regular size (3m high) • Superior berry flavour • Container (growing on a trellis) • Perennial
7	**Hops** 	**Plant features** • Dwarf (3m high) • Container or Landscape (growing on a trellis) • Perennial • Cultivate hops (a key flavour ingredient in beer) for home beer brewing • Needs full sun	**8** **Gooseberry** **Plant features** • Thornless • Container gardening • Perennial • Compact (75cm high) • Produces many berries

9	**Gooseberry**	**Plant features** • Disease resistant • Container gardening • Perennial • Compact (75cm high) • Produces many berries	10	**Grapes**	**Plant features** • Produces small grapes of the variety used in wine-making (thicker skin, softer texture) • Powdery mildew resistant • Container gardening • Must be brought indoors for winter • Vine can be pruned to various sizes
11	**Grapes**	**Plant features** • Produces small grapes with the familiar taste of table grapes • Container gardening • Must be brought indoors for winter • Vine can be pruned to various sizes	12	**Grapes**	**Plant features** • Produces small grapes with the familiar taste of table grapes • Container or landscape gardening • Perennial • Vine can be pruned to various sizes

13	**Saskatoon Berry**	**Plant features** • Compact (2m high) • Landscape (tree) • Perennial
14	**Saskatoon Berry**	**Plant features** • Regular size (5m high) • Landscape (tree) • Perennial
15	**Pomegranate**	**Plant features** • Container gardening • Must be brought indoors for the winter • Dwarf (1m high) • Small and flavourful fruit
16	**Edible flowers**	**Plant features** Flowers can be used in salads and other foods

17	**Raspberry**	**Plant features** • Container gardening • Perennial • Compact (1m high) • Produces fruit all season-long	**18** **Wild blueberry** **Plant features** • Compact (35cm high) • Produces many small, flavourful blueberries • Perennial • Container gardening

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Raspberry

Plant features
- Container gardening
- Perennial
- Compact (1m high)
- Produces fruit all season-long

18

Wild blueberry

Plant features
- Compact (35cm high)
- Produces many small, flavourful blueberries
- Perennial
- Container gardening

19

Blueberry

Plant features
- Regular size (1m high)
- Produces many regular-sized blueberries
- Perennial
- Container gardening

20

Blueberry

Plant features
- Regular size (2m high)
- Produces many regular-sized blueberries
- Landscape gardening
- Grows well in a wide range of soil conditions
- Perennial

Figure 2. Sample screenshot of survey format presented to consumers.

Instructions
On each screen, consider the five products below and choose <u>one</u> product that you would be most likely to purchase and <u>one</u> product you would be least likely to purchase.

		Most likely to purchase	Least likely to purchase

Gooseberry

Plant features
- Thornless
- Container gardening
- Perennial
- Compact (75cm high)
- Produces many berries

Hops

Plant features
- Dwarf (3m high)
- Container or Landscape (growing on a trellis)
- Perennial
- Cultivate hops (a key flavour ingredient in beer) for home beer brewing
- Needs full sun

Grapes

Plant features
- Produces small grapes of the variety used in wine-making (thicker skin, softer texture)
- Powdery mildew resistant
- Container gardening
- Must be brought indoors for winter
- Vine can be pruned to various sizes

Gooseberry

Plant features
- Disease resistant
- Container gardening
- Perennial
- Compact (75cm high)
- Produces many berries

Goji berry

Plant features
- Regular size (3m high)
- Superior berry flavour
- Container (growing on a trellis)
- Perennial

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A special thanks to Vineland's consumer insights team, particularly Kristen Deyman and Jessica Turecek, for their contributions in carrying out this research as well as Amy Bowen for her feedback.

A big thanks to the CNLA members who provided their valuable input throughout this research by attending the industry focus group and in follow-up communications. We are also grateful for CNLA's financial contribution to this research.

This project was funded in part through *Growing Forward 2 (GF2)*, a federal-provincial-territorial initiative. The Agricultural Adaptation Council assists in the delivery of *GF2* in Ontario.

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