Blue Honeysuckle (Haskap) Production
Alberta Farm Fresh School 2013
Edmonton, AB

Blue Honeysuckle
• A.k.a. Haskap; A.k.a. Honeyberry
• Lonicera caerulea
• Found across Canada
• Until recently, availability had been limited to ornamental plant selections

Fruit Uses
• Japanese market = Haskap = many uses
• Canadian market
  ▪ Fresh; jams or jellies; dessert ingredient; etc.
  ▪ Wines?
  ▪ Dried Haskap?
• First fruit of the season
  ▪ compared to other prairie fruit – e.g. strawberries, raspberries, Saskatoon berries, sour cherries, apples
• High stability of fruit juice pigments

History
• Grown in Japan (Hokkaido Island) for centuries
• Grown in Russia for 50-60 years
• Relatively new to Canada (as a cultivated crop)
• Plant samples have been found across Canada
• Breeding:
  ▪ Oregon (uses Japanese selections)
  ▪ U of Saskatchewan Domestic Fruit Program
    • About a decade
    • Uses Russian, Kuril Island crosses

Variability in fruit shape in Lonicera species

Characteristics of Different Plant Material (Germplasm)

<table>
<thead>
<tr>
<th></th>
<th>SK</th>
<th>Russia</th>
<th>Japan</th>
<th>Kuril Islands</th>
<th>U of S varieties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit Size</td>
<td>Small</td>
<td>Med to</td>
<td>Large to</td>
<td>Large</td>
<td>Large (2x Russian)</td>
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<tr>
<td></td>
<td></td>
<td>small</td>
<td>small</td>
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<td>Productivity</td>
<td>Low</td>
<td>High</td>
<td>Variable</td>
<td>Low</td>
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<td>Cold Hardy?</td>
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<tr>
<td>Fruit Shape</td>
<td>Round</td>
<td>Tubular</td>
<td>Round</td>
<td>Oval</td>
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<td>Harvest season</td>
<td>Unknown</td>
<td>June</td>
<td>Probably</td>
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<td>Ripening</td>
<td>Unknown</td>
<td>Even</td>
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<td>Disease Resistance</td>
<td>Unknown</td>
<td>Variable</td>
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<td>Resistant</td>
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<td>Flavour</td>
<td>Unknown</td>
<td>Variable</td>
<td>Variable</td>
<td>Good</td>
<td>Excellent</td>
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Photo by Bob Bara
Biology

- Height (average) = 1.5-2 m (4-6 feet)
  - On own roots
  - No suckers
- Flowers
  - Born in pairs
  - Pale yellow/white flowers
- Fruit
  - Tubular shape
  - Made up of 2 ovaries each (1 flower per ovary), with a sheath that covers and joins the 2 ovaries

Note – opposite leaves

Individual Haskap bushes

Photo by Sharon Faye

Individual Haskap bushes

Photo by Sharon Faye

Honeysuckle bush in flower

Photo by Bob Bora

Honeysuckle flowers

Photo by Bob Bora

Immature fruit
Fruiting Blue Honeysuckle
– Note – presence of both ripe and green fruit

Another fruting Haskap selection

Fallen fruit after harvest

Hardiness

- All plant parts are very hardy
- Dormant plants = -45°C
- Young, active shoots = -18°C
- Open flowers = -7°C

Varieties

- Old Russian types (a.k.a. Honeyberries)
  - Berry Blue, Blue Belle, etc
  - Typically more irregular in shape
- Japanese varieties
  - Typically later flowering and somewhat less hardy
- U of Saskatchewan breeding program
  - Borealis; Tundra; 9-91; 9-92; 9-15 – UPDATE NAMES
  - U of SK cultivars = larger fruit, more uniform, better taste, hardier, minimal Powdery Mildew

U of SK fruit photos by Dr. Bob Bors
**Pollination**

- **Pollinator plants are required to ensure large, high quality fruit**
- **Pollinators must**
  - Not be directly related to fruiting bushes
  - Bloom at the same time as the fruiting bushes
  - Current U of S releases are related to some of the Russian varieties

**Recommended Pollinators**

- **Best**
  - Honey Bee (new release from U of S)
  - Larger plant, average fruit, good mildew resistance
  - Aurora (coming soon from UofS)
  - companion to Borealis but will pollinate Tundra & Indigo series
  - Russian types (bloom same time)
  - Berry Blue (A.A.A. Czech #4T3, Berel, Ganka, Ogenrnl Opal or Dew Drop)
  - Not as good (smaller fruit)
  - Other Russian types
    - Blue Belle, Blue Velvet, Kov #9, Torshchina
  - U of S varieties (closely related)
  - Not recommended
    - Japanese / Kuril Island types (bloom 2-3 weeks later)

**Pollination Strategy 1 – 1:1**

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**Pollination Strategy 2 – 1:2**

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**Varietal Comparisons**

<table>
<thead>
<tr>
<th>Russian Varieties</th>
<th>Target Market</th>
<th>Avg Berry Size (grams)</th>
<th>Yield</th>
<th>Berry Shape</th>
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<tbody>
<tr>
<td>Tundra</td>
<td>Commercial / Mechanical</td>
<td>1.49</td>
<td>Good</td>
<td>Long, flat, bullet / oval-shaped</td>
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<tr>
<td>Borealis</td>
<td>Home Garden</td>
<td>1.62</td>
<td>Good</td>
<td>Short, flat, boxy</td>
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<tr>
<td>Indigo Gem (9-15)</td>
<td>Processing?</td>
<td>1.30</td>
<td>2x other selections</td>
<td>Robust, short oval-shaped</td>
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<td>Indigo Treat (9-91)</td>
<td>Unknown</td>
<td>1.41</td>
<td>Good</td>
<td>Flat cylindrical</td>
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<tr>
<td>Indigo Yum (9-92)</td>
<td>Unknown</td>
<td>1.29</td>
<td>Good</td>
<td>Long flat oval-shaped</td>
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**Varietal Comparisons (cont’d)**

<table>
<thead>
<tr>
<th>Russian Varieties</th>
<th>Flavour</th>
<th>Suitability for mech harvest / sorting</th>
<th>Firmness</th>
<th>Other Comments</th>
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<tbody>
<tr>
<td>Tundra</td>
<td>Inferior</td>
<td>No / No</td>
<td>Variable</td>
<td>Non-uniform ripening - Good pollinators</td>
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<tr>
<td>Borealis</td>
<td>Good</td>
<td>Yes / Yes</td>
<td>Good</td>
<td></td>
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<tr>
<td>Indigo Gem (9-15)</td>
<td>Best Tasting</td>
<td>No / Limited</td>
<td>Less than Tundra</td>
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<tr>
<td>Indigo Treat (9-91)</td>
<td>Good</td>
<td>Chewy</td>
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<td>Easy to propagate than 9-92</td>
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<tr>
<td>Indigo Yum (9-92)</td>
<td>More tangy</td>
<td></td>
<td>Hard to propagate</td>
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Pollination Strategy 3 – 1:8

Pollination Strategy 4 – 1:24

INSTA-POLL
(1-4 FINGERS)
“WHICH POLLINATION STRATEGY DO YOU THINK IS BEST?”
1 = 1:1; 2 = 1:2; 3 = 1:8; 4 = 1:24

Haskap – Coming Soon
- Pollinator selections are being bred and are being released to propagators
  - Honey Bee recently released
- Other production varieties (Indigo series) were released in 2012 (more to come)
- Aurora released in 2013/2014 as a companion to Borealis
- New varieties are bred for faster growing and larger fruit, with similar taste to existing varieties

Site Selection / Requirements
- SOIL
  - Will tolerate a range of soil types
  - Well-drained soil is preferred
  - Wide range of soil pH is acceptable (5-8)
- Fairly drought tolerant (for short periods)
- Open sunny location

ORCHARD ESTABLISHMENT

Site Selection / Requirements

Site Selection / Requirements

Site Selection / Requirements

Site Selection / Requirements
Planting

Spacing:
- In-row
  - 1 to 1.3 m (3-4 feet) (wider spacing for individual bushes)
- Between row
  - U-pick = 8-10 feet (2.5-3 m)
  - Mechanical harvest = 16 feet (5m)

Other:
- Manage between-row spaces similar to Saskatoon berries
- Varies with usage, location, soil type, etc.

Fertility
- Specific fertility requirements are unknown
- General base fertility levels
  - 65 lb N/ac (70 kg N/ha)
  - 90 lb P/ac (100 kg P/ha)
  - 355 lb K/ac (400 kg K/ha)
- Apply starter fertilizer at planting (high P)
- If applying additional fertilizer, apply small amounts in the spring, rather than later in the summer

Irrigation
- Irrigate to ensure establishment (first 3 years)
- Some irrigation may be required annually (depending on soil type and location)
- Will tolerate some dryness for short periods
- Avoid late summer watering, to allow dormancy to develop

Harvest
- Plants reach full production age within a couple of years of planting
- Limited juvenile period
- Fruit is ready for harvest in mid-June(ish)
- Harvest fruit when colour has developed throughout entire fruit
  - Exterior may look ready, but inside will be green
- Fruit can be left on plants for some time
  - But, birds may eat or they may dry out
Yield
- Early yields will be around 3 kg per bush
- Full production is estimated at around 7+ kg per bush

Pruning
- No pruning requirement in early years
  - New shoots come from the base of the plants off the stems
- Some minimal renewal pruning may be required as plants age
  - Take out older growth – don’t remove more than 25% annually
  - Ensure good air flow in the canopy
- May need to prune to improve shape for mechanical harvesting

Pest Management
- No significant insect or disease issues have been identified at this point
- Powdery mildew does occur occasionally
  - Ensure good ventilation and air circulation
- Sunburn/Sunscald is also periodic
- Birds are the main pest issue
  - Netting is often required

Netting
- Probably a requirement once fruiting starts
- Should be:
  - Removable
  - Ground up
  - Small hole size (¼ inch netting)
- BUT:
  - Significant cost
  - Complicates orchard activities
- Range of different options available

Sunburn / Sunscald on leaves

Individual net for individual mature bush (U of S – Saskatoon, SK)
Close up of individual bush netting

Full acre netting with pole supports
(U of S – Saskatoon, SK)

Netting system for single row
(Ferintosh, AB)

Note – birds were finding their way IN through an open end (but not OUT)

Net over row of Blue Honeysuckle

Fully supported netting model for larger area orchards
Netting demonstration – moveable and supported

Key Points to Remember – Haskap
- Markets
- Customer Acceptance?
- Uses?
- New varieties
- New and better coming?
- Pollinators?
- Pest Issues
- Birds = netting = cost effective?

QUESTIONS???

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