Diversifying Your Space with Disease-resistant Hazelnut Varieties

September 2012
Haley Argen & Dr. Thom O’Dell

Nature Tech Nursery, Langley, BC
# Nature Tech Nursery, Ltd.

*Established 2010*

<table>
<thead>
<tr>
<th>Haley Argen</th>
<th>Thom O’Dell</th>
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</thead>
<tbody>
<tr>
<td><strong>Business and Nursery Production</strong></td>
<td><strong>Lab Production, operations and Scientific consultation</strong></td>
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<td>Haley has a Horticulture diploma with honours from the University of Guelph. She was a grower in a greenhouse and nursery in the far north for nine years, and returned to the Fraser Valley to work in a native plant nursery 6 years ago. She is experienced with all aspects of nursery management.</td>
<td>Thom has a Ph.D. in Botany and Plant Pathology from Oregon State University. He has over twenty years professional experience in biological research. He has particular expertise in fungi and plant-fungal interactions, especially mycorrhizae.</td>
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Oregon State University
Hazelnut breeding program

- Since 1969
- In collaboration with the Nut Growers Society of Oregon, Washington & British Columbia
- Largest collection in the world
- Classic plant breeding

Foci
- Disease & pest resistance
- Nut quality

Highly Successful
- High resistance to EFB
- High yields
- Many new varieties:
  - Jefferson
  - Lewis
  - Santiam
  - Sacajewea
  - Yamhill
  - others
  - pollenizers
Nature Tech Tree production
Production Challenges

- Sourcing plants *in vitro*
- Late and short orders
- Timing of shipments not optimal
- Integrated Pest Management (IPM)
- Plant Nutrition/Irrigation
- Inconsistent growing media

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Variety Trial

participants
orchards
Nature Tech Nursery
BCHGA
IAF
Variety Trial

Goals

- Evaluate several highly EFB-resistant nut varieties and pollenizers for suitability to BC orchards
- Especially timing of pollen shed and flowering; nut yield and quality

Funding

- Investment Agriculture Foundation
- BCHGA

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Variety Trial Schedule

2010 – planning, production of trees

2011-13 – production of trees, removal of old trees, other site preparation, planting, orchard maintenance, begin data collection

2014 and forward – data collection, orchard maintenance, summarize and report data

2017 – final report due for this round of funding, November 30

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Why a Trial?

Need to confirm suitability to this climate

Flowering period for pollination

Harvest timing (fall rains)

Yields

Value to all growers, processors and consumers in BC!

Blight resistance + Increased yields = Industry revitalization!

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Figure 7. Average flowering time of 'Jefferson' (2006–2008) and possible pollinizers. Pollen shed of 'Yamhill' overlaps receptivity of the earliest female flowers of 'Jefferson' in most years, but 'Yamhill' flowers emerge early and will need an additional pollen source. Tree size, nut maturity, and nut size are additional factors to consider when selecting pollinizers.

Data from Oregon (except Sacajawea estimated)
Progress to date

Site-specific plans are developed

Some trees are removed

Soil analysis for 5 sites

All varieties in production

Plantings begun

Brochure describing the Cultivar Trial distributed at last year’s field day

Sixth site added fall 2011
## About the cultivars

<table>
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<tr>
<th>Jefferson</th>
<th>Sacajawea</th>
<th>Yamhill</th>
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<tbody>
<tr>
<td>30 % smaller than Barc., upright growth</td>
<td>15 % smaller than Barc., upright growth</td>
<td>50 % smaller than Barc., spreading growth</td>
</tr>
<tr>
<td>Good pollenizer for Yamhill</td>
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<td>Smaller nuts for kernel market</td>
</tr>
<tr>
<td>Large nuts for in-shell market</td>
<td>Medium-sized nuts for in-shell or kernel markets</td>
<td>High yield (8th – 10th Lf trees @ 10’x20’ averaged 3600#/ac.*)</td>
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<tr>
<td>Ripens = Barcelona</td>
<td>Ripens early (2 wks before Barc.)</td>
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* Willamette Hazelnut Growers
Agro-Forestry Applications

- Intercropping
  - Grains, oil seed, livestock
- Livestock feed
- Oil/fuel crop
- Hedgerows
- Truffles

Nature Tech Nursery, Langley, BC
Advantages of hazelnuts

- Diverse Uses
- High yields
  - Good oil & protein content
- Low inputs
- Small stature
  - Close spacing
  - Hedging
- Precocious
  - Commercial yields at 7-10 years

Nature Tech Nursery, Langley, BC
“When we develop an agriculture that fits this land, it will become an almost endless vista of green, crop-yielding trees.”

J. Russell Smith

Tree Crops: A Permanent Agriculture, 1950
Thank You!

 вопросы?