Cold Hardy Berry Meeting
April 23, 2019
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Berry Coordinator
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Harvest

Timing

Labor

Efficiency

Food Safety
On-Farm Food Safety

- FSMA-Food Safety Modernization Act
- GAP- Good Agricultural Practice
- GHP-Good Handling Practice
- GMP-Good Manufacturing Practice
Good Agricultural Practices

GAP

• Do not use agriculture water for irrigation
• Consideration for raw or composted manure
• LOCATION
• Animals out of food growing area
• Treatments used are approved for use and proper withdrawal is followed
• Toilet & handwashing stations are available and utilized
• TRAINING & DOCUMENTATION
Good Handling Practices
GHP

• Hygiene & illness
• Sanitize tools, equipment, containers
• Clean Large equipment
• Workspace for sorting
• Proper storage available
• PROTOCOLS, TRAINING, DOCUMENTATION
So Many Resources!

- County Extension Agents
- WARC Personnel
- MT Department of Agriculture
- Lake County Community Development Corporation
- Ravalli County Economic Development Authority (RCEDA)
Timing & knowing when to Harvest?

• Color
  - Red Currants
  - Black Currants
  - Aronia
  - Dwarf Sour Cherries
  - Saskatoon/Serviceberry
  - Haskap

• Desiccation
• Flavor
• Brix (°)
• All of the above
Color Desiccation
• Color
• Desiccation
• Flavor
• Brix (°)
• All of the above

Red Currants
Black Currants
Aronia
Dwarf Sour Cherries
Saskatoon/Serviceberry
Haskap
To Measure Brix, you use a refractometer
Haskap

Color Change
10 days – 2 weeks
Interior *may* change from green to red
Flavor and Brix will be your guide
(>14° brix)
When is an approximate harvest?

<table>
<thead>
<tr>
<th></th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haskaps</td>
<td></td>
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<tr>
<td>Saskatoons</td>
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<tr>
<td>Sour cherries</td>
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<tr>
<td>Currants</td>
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<tr>
<td>Aronia</td>
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Evolution of the Harvest...
2017 Harvest into containers or over sheets
Indigo Harvester
1 acre = 1000 plants
1000 plants x 5 minutes/plant = 5000 minutes
5000 minutes/60 minutes/hour = 83 hours
83 hours x 2 workers = 167 hours
167 hours x $10/hour = $1670.00
1 acre = 1000 plants
1000 plants x 5 minutes/plant = 5000 minutes
5000 minutes/60 minutes/hour = 83 hours
83 hours x 2 workers = 167 hours
167 hours x $10/hour = $1670.00

Fresh: 1000 plants x 5lbs/plant x $10/lb = $50,000/acre
Mid-range: $25,000/acre
Low price: $10,000/acre
At what point do you consider a mechanical Harvester?
<table>
<thead>
<tr>
<th>Parameters</th>
<th>JOANNA-4 STANDARD</th>
<th>JOANNA-4 SLIM</th>
<th>JOANNA PREMIUM</th>
<th>VICTOR</th>
<th>VICTOR Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>distance between rows</td>
<td>from 4m (14ft)</td>
<td>from 3,5m (12ft)</td>
<td>from 3,5m (12ft)</td>
<td>from 3,8m (12ft 5in)</td>
<td>from 3,8m (12ft 5in)</td>
</tr>
<tr>
<td>distance between bushes in one row</td>
<td>from 0,5m (1ft 8in)</td>
<td>from 0,5m (1ft 8in)</td>
<td>from 0,5m (1ft 8in)</td>
<td>from 0,5m (1 ft 8 in)</td>
<td>from 0,5m (1 ft 8 in)</td>
</tr>
<tr>
<td>height of berry bushes</td>
<td>up to 2m (7ft)</td>
<td>up to 2m (7ft)</td>
<td>up to 3m (9ft)</td>
<td>up to 3m (9ft)</td>
<td>up to 3m (9ft)</td>
</tr>
<tr>
<td>turnin area</td>
<td>from 9m (29ft)</td>
<td>from 9m (29ft)</td>
<td>from 9m (29ft)</td>
<td>from 9m (29ft)</td>
<td>from 8 (26ft)</td>
</tr>
</tbody>
</table>
Final Thoughts...

Consider early in the planning stages:

Farm & Food safety

Sharing a harvester or labor, contract harvester?

The layout of your orchard to accommodate a mechanical harvester

Harvesting the best high quality fruit and getting it to market for best market prices
Questions?

Thank you!