Rootstock/Cultivar Selection

PSS 221: Tree Fruit Culture
M. Elena Garcia
Variety and Rootstock

- Large selection
  - Apples ~10,000 cultivars
- Questions to consider
  - Uses
  - Maturity
  - Storage
Cultivars and Rootstocks

- Most commercially sold fruit trees consist of two parts

Scion

Graft union

Rootstock
Cultivar and Rootstock

- Why are most fruit trees grafted?
- Most are open pollinated
  - genetic variability
- To get certain characteristics
Cultivars and rootstocks

- What to look for in a rootstock
  - Hardiness
  - Soil type adaptability
  - Pest resistance
  - Overall tree size
    - standard
    - semidwarf
    - dwarf
Apple Rootstocks

Mark
M. 9
CG 30
M. 26
MM. 106
M. 111
Seedling

8-9 ft
>15 ft
NC-140 Rootstock Evaluation
Cherry Rootstocks

GI-5
GI-148-2
GI-7
GI-148-8
GI-6
Mazzard
Rootstocks

- http://orchard.uvm.edu/uvmapple/hort/rootstocks/index1.htm

- Rootstocks for Vermont
Cultivar and Rootstock

- What to look for in a cultivar
  - Type and use for fruit
  - Disease resistance
  - Type of tree
  - Cold hardiness
  - Pollination
Commonly used apple cultivars

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Color</th>
<th>Harvest</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>McIntosh</td>
<td>Red</td>
<td>Mid-Sept</td>
<td>Fresh, dessert</td>
</tr>
<tr>
<td>Delicious</td>
<td>Red</td>
<td>2 weeks after Mc’s</td>
<td>Fresh</td>
</tr>
<tr>
<td>Northern Spy</td>
<td>Red</td>
<td>20 days after Mc’s</td>
<td>Cooking</td>
</tr>
</tbody>
</table>
Disease Resistant Cultivars

- Resistance cultivars
- Apple scab resistance
  - have varying degrees of resistance to other diseases
- http://orchard.uvm.edu/uvmapple/hort/cultivars/
  - Liberty, Redfree, Novamac, Jonafree
    Williams Pride
- Fireblight resistance in pears
- Bacterial spot resistance in peaches
Cultivars

- [http://orchard.uvm.edu/uvmapple/hort/cultivars/index.htm](http://orchard.uvm.edu/uvmapple/hort/cultivars/index.htm)
- Cultivars for Vermont
- Apples for organic production
Critical temperatures for bud kill

Critical temperatures in degree F at which 90% of the flower buds are killed at various stages of development

<table>
<thead>
<tr>
<th>Species</th>
<th>Bud developmental stages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Apple (Red Del)</td>
<td>2</td>
</tr>
<tr>
<td>Apple (McIntosh)</td>
<td>2</td>
</tr>
<tr>
<td>Pear</td>
<td>-0.4</td>
</tr>
<tr>
<td>Apricot</td>
<td>-0.4</td>
</tr>
<tr>
<td>Cherry</td>
<td>5</td>
</tr>
<tr>
<td>Peaches</td>
<td>1.4</td>
</tr>
</tbody>
</table>
European Pears

Zone 3
- Only few cvs are hardy:
  - Gourmet
  - Flemish Beauty
  - Summcrisp

Zone 4
- Clapp’s Favorite
- Golden Spice
- Maxine
- Moonglow
- Parker
- Seckel
Plums

European Plum
Zone 3
- None
Zone 4
- Stanley
- Mount Royal

Japanese and Asian Plums
Zone 3
- South Dakota, Toka’ Underwood
Zone 4
- Alderman, LaCrescent, Pipestone, Redglow, Superior
Peaches and nectarines

- Not hardy in zones 3 and 4
- Reliance has done well in fringes of zone 4
Cherries

Sweet Cherry
  ‣ Not hardy in zones 3 and 4

Sour Cherry
  ‣ Not hardy in zone 3
  Zone 4
  ‣ Meteor
  ‣ Montmorency
  ‣ North Star