Today's Outline

- What fruit can be grown where
- Pollination and bloom time
- Chill units
- Rootstocks
- Varieties and Planting
- Irrigation and Fertilizer
- Training and Pruning
- Thinning, Frost Control, Insects
Climate Conditions

What are some of the problems associated with growing fruit trees in Utah?
Problems growing tree fruit

Length of growing season
Winter temperatures
Summer heat
Wind
Late spring frosts
Soils
Insects & diseases
Agricultural Research Service
United States Department of Agriculture

Find Your Plant Hardiness Zone
Enter ZIP Code: 84302  Find

Zone 6b: -5 to 0 (F)

USDA Plant Hardiness Zone Map

The 2012 USDA Plant Hardiness Zone Map is the standard by which gardeners and growers can determine which plants are most likely to thrive at a location. The map is based on the average annual minimum winter temperature, divided into 10-degree F zones.

For the first time, the map is available as an interactive GIS-based map, for which a broadband Internet connection is recommended, and as static images for those with slower Internet access. Users may also simply type in a ZIP Code and find the hardiness zone for that area.
# Fruit Tree Zones

<table>
<thead>
<tr>
<th>Fruit</th>
<th>Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apples</td>
<td>Zone 3 to 9</td>
</tr>
<tr>
<td>Apricots</td>
<td>Zone 4 to 9</td>
</tr>
<tr>
<td>Pears</td>
<td>Zone 4 to 9</td>
</tr>
<tr>
<td>Plums</td>
<td>Zone 4 to 9</td>
</tr>
<tr>
<td>Peaches</td>
<td>Zone 5 to 9</td>
</tr>
<tr>
<td>Asian Pears</td>
<td>some down to Zone 5</td>
</tr>
<tr>
<td>Pluots, Apriums</td>
<td>Zone 5 to 9</td>
</tr>
<tr>
<td>Cherries</td>
<td>Zone 5 to 9</td>
</tr>
</tbody>
</table>
Usual Order of Bloom

Apricots
Japanese Plums
Peaches
Asian Pears
European Plums
Cherries
Pears
Apples
Fruit Pollination

Apples
   Need cross pollination
Apple Pollination Chart

- Lodi
- Pristine
- Gala
- Jonathan
- Jonafree
- Honeycrisp
- Liberty
- Empire
- Red Delicious
- Jonagold
- Golden Delicious
- Braeburn
- Enterprise
- Mutsu (Crispin)
- GoldRush
- Winesap
- Fuji
- Granny Smith
- Arkansas Black
- Red York
- Rome Beauty

- Should be pollinated by another variety for best results
- Not a satisfactory pollinator

EXTENSION
Utah State University
Apple Blooming Time
Apple Blooming Time

<table>
<thead>
<tr>
<th>Bloom period</th>
<th>Early</th>
<th>Mid</th>
<th>Late</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idared</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manchurian crab</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liberty</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honeycrisp</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jonafree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Akane</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redtree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jonathan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jonagold</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red Delicious</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gala</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Golden Delicious</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Winter Banana</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Snowdrift crab</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Granny Smith</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mutsu (Crispin)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuji</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Braeburn</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pristine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>York</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enterprise</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GoldRush</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rome</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Bloom Time and Pollination

- Bloom period:
  - Early
  - Mid
  - Late

- Varieties:
  - Idared
  - Manchurian crab
  - Liberty
  - Empire
  - Honeycrisp
  - Jonafree
  - Akane
  - Redtree
  - Jonathan
  - Jonagold
  - Red Delicious
  - Gala
  - Golden Delicious
  - Winter Banana
  - Snowdrift crab
  - Granny Smith
  - Mutsu (Crispin)
  - Fuji
  - Braeburn
  - Pristine
  - York
  - Enterprise
  - GoldRush
  - Rome

- Varieties that should be pollinated by another variety for best results:
- Varieties that are not a satisfactory pollinator
# Pollination Requirements

<table>
<thead>
<tr>
<th>Variety</th>
<th>Cross Pollination</th>
<th>Self Fruitful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apples</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Peaches</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nectarines</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>European Pears</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Asian Pears</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>European Plums</td>
<td>Mostly</td>
<td>Some</td>
</tr>
<tr>
<td>Japanese Plums</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Sweet Cherries</td>
<td>Yes</td>
<td>Some</td>
</tr>
<tr>
<td>Tart Cherries</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Apricots</td>
<td>Some</td>
<td>Mostly</td>
</tr>
</tbody>
</table>
## Pear Pollination

<table>
<thead>
<tr>
<th></th>
<th>B. P. Morettini</th>
<th>Conference</th>
<th>Bartlett</th>
<th>Kalle</th>
<th>Clapp's Favorite</th>
<th>Ubileen</th>
<th>Warren</th>
<th>Rescue</th>
<th>Highland</th>
<th>Harrow Delight</th>
<th>Seckel</th>
<th>Orcas</th>
<th>Bosc</th>
<th>Comice</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. P. Morettini</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conference</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bartlett</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kalle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clapp's Favorite</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ubileen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warren</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rescue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highland</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harrow Delight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seckel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orcas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bosc</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Cherry Pollination

<table>
<thead>
<tr>
<th></th>
<th>Early Burlat</th>
<th>Lapins</th>
<th>Angela</th>
<th>Stella</th>
<th>Bada</th>
<th>Hedelfingen</th>
<th>Compact Lambert</th>
<th>Montmorency</th>
<th>English Morello</th>
<th>North Star</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Burlat</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lapins</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angela</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stella</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bada</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hedelfingen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compact Lambert</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montmorency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English Morello</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Star</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Chill Units

Units vary by the type of fruit.

Apples
1 hour 35-36°F = 0.5 unit
1 hour 37–48°F = 1 unit
1 hour 49-54°F = 0.5 unit

Low Chill Peaches

UF Gold Peach (PP#10315)
An attractive, high-quality, yellow and non-melting flesh peach. It produces fruit with tree-ripened full flavor while retaining firmness for longer shelf life than fruit from conventional non-melting flesh market varieties. It possesses a very low chilling requirement (200 chill units). Fruit shape is nearly round and averages about 110 g and 6.4 cm in diameter. Flesh is non-melting and clingy with a little separation from the stone when soft ripe. Leaves and fruit are moderately resistant to bacterial spot.

UF 2000 Peach (PP#12019)
An attractive, high quality peach with yellow non-melting flesh. It produces fruit with tree-ripened aroma and sweetness with softens slowly, allowing for longer shelf life than fruit from conventional melting-flesh, fresh market cultivates. Trees possess a low chilling requirement of 300 chill units. Fruit is large and average 150 g and 7 cm in diameter. Ripe fruit has 50% to 70% bright red skin with a deep orange ground color.

Flordadawn
One of the first commercially shipped peaches to ripen in North America (usually late April in north Florida); good color, shape, and flavor; heavy, prolonged bloom; blooms early; fruit are relatively small but acceptable for their season.

Flordaglobe
Early ripening (with or before Flordaking); blooms

FlordaRio
Large fruit; good shape, color, and flavor; blooms

Flordglo
Large fruit for its season; firm, nonbrowning white

Units vary by the type of fruit.
How big will my tree get?
Apple Rootstock Size

Dwarf

Semi-Dwarf

Standard

Percent of standard tree size

M.27  M.9  Mark  M.26  M.7  MM.106  MM.111
30’ by 30’ = 1 Standard Apple Tree
30’ by 30’ = 4 Semi-Dwarf Apple Trees
30’ by 30’ = 9 Dwarf Apple Trees
Fruit Tree

Fruiting cultivar
gala, honeycrisp, fuji, early elberta, Italian

Rootstock
Size of tree
Disease resistance
Grafting Classes
Sponsored by USU Extension

Come learn the basics of fruit tree grafting in this hands-on workshop! Grafting is the age-old practice of joining plants to specific root systems to get the desirable benefits of both parts. In addition to learning the science and techniques of grafting, participants will graft two apple trees on semi-dwarf rootstock that they will take home with them at the end of the class. Participants can select from over 36 heirloom and modern apple varieties supplied. To register for one of the grafting classes, go to the website listed below the class you are interested in attending. Additional rootstocks & scion wood may be available to purchase at the end of the class for an additional $5 fee.

Thursday, April 18
6 - 8 pm
Ogden Botanical Gardens
Ogden, UT
To register, go to Eventbrite.com

Wednesday, April 24
6 – 8 pm
Jordan Valley Water Conservation Garden
West Jordan, UT
To register, go to Eventbrite.com

Thursday, April 25
6 - 8 pm
Anderson Seed
Logan, UT
To register, contact USU Extension Cache County office - 435-752-6253

Saturday, April 20
11 am - 1 pm
USU Extension Davis County - Kaysville, UT
To register, go to Eventbrite.com

Monday, April 22
6 – 8 pm
Thanksgiving Point
Lehi, UT
To register, go to Eventbrite.com

Saturday, April 27
10 am - noon
Freckle Farm Nursery
Logan, UT
To register, go to frecklefarmnrc.com

For more information call the USU Extension office in Box Elder County at 435-695-2541 or email Mike Pace at mike.pace@usu.edu
Thursday, April 18
6 - 8 pm
Ogden Botanical Gardens
Ogden, UT
To register, go to Eventbrite.com

Saturday, April 20
11 am - 1 pm
USU Extension Davis County - Kaysville, UT
To register, go to Eventbrite.com

Monday, April 22
6 – 8 pm
Thanksgiving Point Lehi, UT
To register, go to Eventbrite.com

Wednesday, April 24
6 – 8 pm
Jordan Valley Water Conservation Garden
West Jordan, UT
To register, go to Eventbrite.com

Thursday, April 25
6 - 8 pm
Anderson Seed Logan, UT
To register, contact USU Extension Cache County office - 435-752-6263

Saturday, April 27
10 am - noon
Freckle Farm Nursery Logan, UT
To register, go to frecklefarminc.com
<table>
<thead>
<tr>
<th>Apple</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Empire</strong></td>
<td>Sweet and juicy, sprightly flavor, a cross of McIntosh and Red Delicious. McIntosh-type apple for hot summer climates. Heavy bearing tree. Early fall harvest. Good pollenizer for Mutsu, Gravenstein, Winesap, Jonagold. 800 hours. Self fruitful.</td>
</tr>
<tr>
<td><strong>Fuji</strong></td>
<td>Recent introduction from Japan that quickly became California’s favorite apple. Sweet, very crisp and flavorful, excellent keeper. Dull reddish-orange skin, sometimes russeted. Ripe mid-September. Excellent pollenizer for other apple varieties. Chilling requirement apparently less than 600 hours. Self fruitful.</td>
</tr>
<tr>
<td><strong>Gala (Original Gala)</strong></td>
<td>Wonderful dessert apple from New Zealand. Crisp, nice blend of sweetness and tartness, rich flavor. Skin reddish-orange over yellow. Early harvest, 2-3 weeks before Red Delicious. Good pollenizer for other varieties. 500 to 600 hours. Self fruitful.</td>
</tr>
<tr>
<td><strong>Garden Delicious genetic dwarf</strong></td>
<td>Sweet, crisp, superb flavor, even in hot climates. Greenish-yellow with red blush to full red. Dessert/cook, good keeper. September. 8-10 ft. tree, smaller with pruning. 600 hours. Self-fruitful. (Zaiger)</td>
</tr>
<tr>
<td><strong>Golden Delicious</strong></td>
<td>Long-time favorite for its sweetness and flavor. Reliable producer, adapted to many climates. Pollenizer for Red Delicious. Mid-season harvest (September in Central Calif.).</td>
</tr>
</tbody>
</table>
Apple

MM 111 root

Predominant orange-red blush
Crisp, juicy flesh with tangy
Requires a long growing
This pollinator.
Rootstocks

- Apple
  - Standard - MM111, M106, Seedling,
  - Semi dwarf - M7, EMLA 7, M26, M9, Bud 9, G11, G30
  - Dwarf - EMLA 27, M27, P22, G65, Bud 146 & 491, P16, P2, G16
Other Fruit Rootstocks

- **Pear Rootstocks**
  - Seedling
  - OHxF 97
  - OHxF 87
  - OHxF 333

- **Cherry Rootstocks**
  - Mazzard
  - Mahaleb
  - Gisela 6
  - Gisela 5
Purchasing Trees

- Purchase trees from a reputable nursery
- Get trees when you are ready to plant
- See the trees before you purchase them
- Younger trees are easier to grow and usually cost less
Peach Variety Recommendations

Zone 4 Peach Variety Recommendations

Reliance, Flamin’ Fury PF-24C, Contender, Polly, Intrepid,
Sweet Cherry Variety Recommendations

Chelan, Black Tartarian, Royal Ann, Bing, Stella, Rainier, Van, Lapins, Sweetheart

Tart Cherry

Montmorency
European Plum Varieties

Green Gage, Early Italian, Italian, Stanley, Damson, Seneca
Japanese Plum Varieties

Shiro, Santa Rosa, Satsuma, Duarte, Elephant Heart,
Plumcot Varieties

Flavor Queen,
Dapple Dandy,
Flavor King,
Flavor Supreme,
Flavor Grenade,
Apricot Variety Recommendations

Tomcot, Goldrich, Goldcot, Rival, Harglow, Perfection, Chinese (Mormon), Moorpark, Tilton, Harcot,
Pear Variety Recommendations

Barlett, Bosc, Seckel, Anjou, Sensation, Comice, Concorde
Variety Recommendations

Lodi, Yellow Transparent, Ginger Gold, Zestar, Sansa, Jonamac, Gala, Cortland, Sweet Sixteen, Honeycrisp, Cameo, Jonagold, Jonathon, Fuji – September Wonder, Cripen/Mutsu, McIntosh, Northern Spy, Rome Beauty, Braeburn, Fuji, Granny Smith
Apple Production and Variety Recommendations for the Utah Home Garden

Taun Beddes, USU Extension Cache County Horticulture Agent
Mike Pace, USU Extension Box Elder County Agriculture Agent
Brent Black, USU Extension Fruit Crop Specialist
Mark Ashcroft, UDAF Compliance Officer for Cache County

Summary

This bulletin presents appropriate information pertaining to growing apple trees in the home orchard. Success depends on several key factors. These include:

- Ensuring soil is amenable to apple production and selecting an appropriate site
- Choosing appropriate varieties for the local climate that are additionally compatible for cross harvesting techniques; and pest and disease management.

Planning and Preparation

Site and Soil Requirements
Sunlight is one of the keys to maximizing fruit production. If possible, choose an area with full sunlight most or all of the day. Early morning sun is particularly
Utah State University Botanical Center – USU BC
# Heirloom Apple Varieties

<table>
<thead>
<tr>
<th>Heirloom Apple Varieties</th>
<th>Heirloom Apple Varieties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arkansas Black</td>
<td>Jonathon</td>
</tr>
<tr>
<td>Ashmead Kernel</td>
<td>McIntosh</td>
</tr>
<tr>
<td>Baldwin</td>
<td>Melrose</td>
</tr>
<tr>
<td>Calvelle Blanc D Hiver</td>
<td>Mutsu/Crispen</td>
</tr>
<tr>
<td>Cortland</td>
<td>Northern Spy</td>
</tr>
<tr>
<td>Cox Orange Pippen</td>
<td>NW Greening</td>
</tr>
<tr>
<td>Golden Russett</td>
<td>Pink Pearl</td>
</tr>
<tr>
<td>Granny Smith</td>
<td>Smoke House</td>
</tr>
<tr>
<td>Gravenstein</td>
<td>Spitzenburg</td>
</tr>
<tr>
<td>Grimes Golden</td>
<td>Wealthy</td>
</tr>
<tr>
<td>Idared</td>
<td>Wolf River</td>
</tr>
</tbody>
</table>
## Modern Apple Varieties

<table>
<thead>
<tr>
<th>Variety</th>
<th>Variety</th>
<th>Variety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akane</td>
<td>Gibson Golden</td>
<td>Northpole</td>
</tr>
<tr>
<td>Blondee</td>
<td>Ginger Gold</td>
<td>Pink Lady</td>
</tr>
<tr>
<td>Braeburn</td>
<td>Golden Sentinel</td>
<td>Red Jonaprice</td>
</tr>
<tr>
<td>Cameo</td>
<td>Honeycrisp</td>
<td>Ruby Jon</td>
</tr>
<tr>
<td>Crimson Crisp</td>
<td>Jonagold</td>
<td>Sansa</td>
</tr>
<tr>
<td>Empire Royal</td>
<td>KinderKrisp</td>
<td>Scarlet Sentinel</td>
</tr>
<tr>
<td>Fuji, September Wonder</td>
<td>Macoun</td>
<td>Sweet 16</td>
</tr>
<tr>
<td>Gala - Gale,</td>
<td></td>
<td>Zestar</td>
</tr>
</tbody>
</table>
## Peach Varieties

<table>
<thead>
<tr>
<th>Variety</th>
<th>Variety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angelus</td>
<td>O'Henry</td>
</tr>
<tr>
<td>Artic Gem</td>
<td>PF 1 Flaming Fury</td>
</tr>
<tr>
<td>Blushingstar</td>
<td>PF 24-007</td>
</tr>
<tr>
<td>Canadian Harmony</td>
<td>PF Lucky 13</td>
</tr>
<tr>
<td>Contender</td>
<td>Redstar</td>
</tr>
<tr>
<td>Cresthaven</td>
<td>Regina</td>
</tr>
<tr>
<td>Early Elberta</td>
<td>Risingstar</td>
</tr>
<tr>
<td>Early Redhaven</td>
<td>Saturn</td>
</tr>
<tr>
<td>Loring</td>
<td>Suncrest</td>
</tr>
</tbody>
</table>
## Aprium, Plumcot & Plum Varieties

<table>
<thead>
<tr>
<th>20th Century</th>
<th>Flavor Queen</th>
<th>Duarte</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bartlett</td>
<td>Flavor Supreme</td>
<td>Elephant Heart</td>
</tr>
<tr>
<td>Moorpark</td>
<td>Dapple Dandy</td>
<td>Santa Rosa</td>
</tr>
<tr>
<td>Flavor Delight</td>
<td>Flavor King</td>
<td>Satsuma</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stanley</td>
</tr>
</tbody>
</table>
Planting

- Hole should be 2 to 3 times the diameter of the root ball
- Planting Depth
- Southwest winter injury
Planting

- Hole should be 2 to 3 times the diameter of the root ball
- Planting Depth
- Water them in
- Deer and rabbits
- Southwest winter injury
## Fruit Tree Space Requirements

<table>
<thead>
<tr>
<th>Fruit</th>
<th>Space Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dwarf Apple</td>
<td>6 - 10’</td>
</tr>
<tr>
<td>Semi-Dwarf Apple</td>
<td>12 - 15’</td>
</tr>
<tr>
<td>Standard Apple</td>
<td>30 - 40’</td>
</tr>
<tr>
<td>Pear</td>
<td>12 – 18’</td>
</tr>
<tr>
<td>Apricot</td>
<td>25 - 30’</td>
</tr>
<tr>
<td>Peach</td>
<td>12 – 16’</td>
</tr>
<tr>
<td>Plum</td>
<td>12 - 18’</td>
</tr>
</tbody>
</table>
Fertilizing Fruit Trees

- Apply in the late winter/early spring
- Apply a granular product around dripline of the tree
- Apply 1 ounce of actual N per year of tree age
- Do not exceed 8 ounces of actual N per year per tree

### Actual Nitrogen

<table>
<thead>
<tr>
<th>Actual Nitrogen</th>
<th>34-0-0</th>
<th>21-0-0</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 ounces</td>
<td>18 ounces</td>
<td>30 ounces</td>
</tr>
</tbody>
</table>

6 year old tree
Irrigation

- Twice a month deep irrigation or based on soil type (established trees)
- Maybe 7 to 10 days on young trees
- Apply the water in the dripline of the tree
- Deep irrigation 18” to 24”
- Watering near the trunk of the tree creates crown rot
Training and pruning the tree
6-7 year old tree after pruning
**Apply prior to bud break in the spring but after pruning**

**Dormant Oil**

---

<table>
<thead>
<tr>
<th>Stage</th>
<th>Apples</th>
<th>Silver Tip</th>
<th>Green Tip</th>
<th>½ inch green</th>
<th>Tight Cluster</th>
<th>First Pink</th>
<th>Full Pink</th>
<th>First Bloom</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% kill</td>
<td>15</td>
<td>18</td>
<td>23</td>
<td>27</td>
<td>28</td>
<td>28</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>90% kill</td>
<td>2</td>
<td>10</td>
<td>15</td>
<td>21</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Frost Protection

Cold plateau

Orchard

Cold air drainage

Relatively warm air

Cold air "ponding" above tree line

Cold air

25°

30°

35°

40°

Utah State University Extension
Willard, UT
<table>
<thead>
<tr>
<th></th>
<th>10% Kill</th>
<th>90% Kill</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Swollen Bud (First Swell)</strong></td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td><strong>Calyx Green</strong></td>
<td>21</td>
<td>5</td>
</tr>
<tr>
<td><strong>1/4” green (Calyx Red)</strong></td>
<td>23</td>
<td>9</td>
</tr>
</tbody>
</table>

30 minutes exposure time
50% bloom = full crop of cherries
10-15% survival apples, peaches & pears

<table>
<thead>
<tr>
<th>10% kill</th>
<th>90% kill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pink (First Pink)</td>
<td>First Bloom</td>
</tr>
<tr>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>15</td>
<td>21</td>
</tr>
</tbody>
</table>

30 minutes exposure time

<table>
<thead>
<tr>
<th>10% kill</th>
<th>90% kill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Bloom (Petal Fall)</td>
<td>Shuck Split</td>
</tr>
<tr>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>
Frost Protection

- Cover with blankets, plastic or tarp
- Irrigation basin with water in it
- Christmas lights
- Flood light
- Charcoal briquettes
Why Thin Your Fruit Crop?
We thin to get …

- Larger fruit
- Better fruit color
- Provides annual harvest rather than biannual
Thin fruit when it is pea to dime size

One fruit every 6 to 8 inches

Leave the king bloom/fruit (A/P)

Apples, pears, peaches, nectarine should be thinned
Fruit Bud Formation

- Apple early June to early July
- Pear late June to early July
- Peach late July
- Apricot early August
- Cherry late June to July
- Plums late July to August
No fruit, very little fruit, fruit every other year problem

- Trees too young
- Pollination problem
- Pollen sterile tree
- No bees
- Cold weather
- Frost
- Poor thinning or no thinning the previous year
- Applied insecticide too early & too heavy
Fruit tree bearing age

- Standard tree
  5-7 years
- Semi dwarf
  3-5 years
- Dwarf
  2-3 years
Know Your Insects

- Identification
  - Peach Twig Borer and Greater Peach Tree Borer - peaches
  - Codling Moth – wormy apples and pears
  - Western Cherry Fruit Fly – tart and sweet cherries
  - Spidermites, scale, aphids
How do I know when to spray?
Preventing Winter Injury

apply white tree wrap to young trees now to prevent sunscald

Integrated Pest Management (IPM):

"a comprehensive approach to pest control that uses a combined means to reduce the status of pests to tolerable levels while maintaining health safety, economic consideration and the environment."

Subscribe to IPM Pest Advisories HERE
Plant pest advisories provide information on current pests in landscapes, fruits, and vegetables, and how and when to manage them. They are delivered periodically through the growing season to your email inbox as links to an online newsletter.

Access all past advisories (and more) from the links below.

**Ornamental Horticulture IPM**

- Landscape IPM Advisory

**Tree Fruit IPM**

- Tree Fruit IPM Advisory
- Plum Curculio Quarantine
- Insect Pest Biofixes

**Small Fruit and Vegetable IPM**

- Small Fruit and Vegetable IPM Advisory

**Turf IPM**

- Turf IPM Advisory
Please check this table at each advisory as the information may change as the dates get closer. Many more locations can be viewed on the Utah Climate Center TRAPs website (select location; select codling moth).

**Codling Moth, First and Second Generations**

Once the 2nd generation starts, fruit should be protected throughout the season until harvest or September 15, whichever is earliest. Continue to be mindful of the “Period of Greatest Egg Hatch” and make sure you don’t skip a spray during that time.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Box Elder</td>
<td>Perry</td>
<td>passed</td>
<td>July 6</td>
<td>July 17 - Aug 1</td>
<td>not yet known</td>
</tr>
<tr>
<td></td>
<td>Tremonton</td>
<td>passed</td>
<td>July 10</td>
<td>July 19 - Aug 1</td>
<td>not yet known</td>
</tr>
<tr>
<td>Cache</td>
<td>Logan Airport</td>
<td>July 11</td>
<td>July 20</td>
<td>July 29 - unknown</td>
<td>not yet known</td>
</tr>
<tr>
<td></td>
<td>River Heights</td>
<td>July 6</td>
<td>July 15</td>
<td>July 25 - unknown</td>
<td>not yet known</td>
</tr>
<tr>
<td>Carbon</td>
<td>Price Airport</td>
<td>passed</td>
<td>July 10</td>
<td>July 20 - Aug 3</td>
<td>not yet known</td>
</tr>
<tr>
<td>Davis</td>
<td>Kaysville</td>
<td>passed</td>
<td>July 6</td>
<td>July 15 - July 28</td>
<td>not yet known</td>
</tr>
<tr>
<td></td>
<td>Farmington</td>
<td>passed</td>
<td>July 7 - July 20</td>
<td>August 3</td>
<td></td>
</tr>
<tr>
<td>Grand</td>
<td>Moab</td>
<td>passed</td>
<td>passed</td>
<td>June 27 - July 9</td>
<td>July 22</td>
</tr>
<tr>
<td>Iron</td>
<td>Cedar City Airport</td>
<td>passed</td>
<td>July 10</td>
<td>July 20 - Aug 3</td>
<td>not yet known</td>
</tr>
<tr>
<td>Juab</td>
<td>Nephi</td>
<td>July 4</td>
<td>July 13</td>
<td>July 22 - Aug 4</td>
<td>not yet known</td>
</tr>
<tr>
<td>Millard</td>
<td>Delta</td>
<td>passed</td>
<td>July 3</td>
<td>July 12 - July 27</td>
<td>not yet known</td>
</tr>
<tr>
<td>Salt Lake</td>
<td>Benches/Cooler sites</td>
<td>passed</td>
<td>July 4</td>
<td>July 13 - July 24</td>
<td>not yet known</td>
</tr>
<tr>
<td></td>
<td>Most areas</td>
<td>passed</td>
<td>passed</td>
<td>July 5 - July 17</td>
<td>July 30</td>
</tr>
<tr>
<td>Sanpete</td>
<td>Ephraim</td>
<td>July 10</td>
<td>July 22</td>
<td>Aug 3 - unknown</td>
<td>not yet known</td>
</tr>
<tr>
<td>Sevier</td>
<td>Monroe</td>
<td>passed</td>
<td>July 12</td>
<td>July 12 - July 28</td>
<td>not yet known</td>
</tr>
<tr>
<td></td>
<td>Erda Airport</td>
<td>July 2</td>
<td>July 11</td>
<td>July 19 - Aug 1</td>
<td>not yet known</td>
</tr>
<tr>
<td></td>
<td>Grantsville</td>
<td>July 5</td>
<td>July 13</td>
<td>July 13 - July 26</td>
<td>not yet known</td>
</tr>
<tr>
<td>Tooele</td>
<td>Vernal Airport</td>
<td>July 2</td>
<td>July 12</td>
<td>July 23 - unknown</td>
<td>not yet known</td>
</tr>
<tr>
<td>Uintah</td>
<td>Vernal Airport</td>
<td>July 2</td>
<td>July 12</td>
<td>July 23 - unknown</td>
<td>not yet known</td>
</tr>
</tbody>
</table>
Fruit Tree Insect Control

- Doing something is better than doing nothing.
- Work on the first generation.
Fruit Tree Insect Control

- **Know when to spray** (Calendar Date).
  - Look at the website or call or Extension office.

- **Know how often to spray** based on the product label.
Reduced Risk/Organic Fruit Tree Insect Control Options

- Apple bags, lunch bags, sandwich bags
- Virosoft, Cyd-X, codling moth virus – apples & pears
- Trunk banding – codling moth and earwigs
- Success, Entrust – spinosad
- Horticulture oil
Reduced Risk/Organic Fruit Tree Insect Control Options

- Apple bags, lunch bags, sandwich bags
- Virosoft, Cyd-X, codling moth virus – apples & pears
- Trunk banding – codling moth & earwigs
- Success, Entrust – spinosad
- Horticulture oil
Uniform cover spray on each fruit is critical.

Fruit need to be properly thinned in order to obtain uniform coverage.
Fruit Tree Diseases

- Coryneum Blight/Shothole – apricots, peaches, nectarines, cherries
- Fireblight – apples and pears
- Powdery mildew
Do You Know?

- Greater peachtree borer is an important pest of peach, nectarine, apricot, cherry, and plum.
- Adults are clearwing moths and larvae are caterpillars that burrow and feed in the cambium beneath the bark near or just below the soil line.
- Severe larval feeding can girdle and kill trees.
- Malting disruption is an effective control and has been proven in Utah peach orchards as small as 1 acre in size.
- Treatment of lower tree trunks before egg hatch is also effective in preventing injury.

![Adult male of Codling Moth](image)

**Codling Moth (Cydia pomonella)**

Diane Aston, Entomologist • Marion Murray, IPM Project Leader • Michael Reding, For.

---

Do You Know?

- Aphids are common, secondary pests of apples, but infestations resulting in economic loss are uncommon, except for woolly apple aphid.
- Aphids overwinter as eggs on tree limbs, or as nymphs on roots and/or limbs.
- Application of dormant oil plus an insecticide at delayed dormant stage (half-inch-green) may provide season-long control of green and rosy apple aphids.
- The best timing for woolly apple aphid control is peral-fall with a systemic insecticide, or during the summer with an effective contact insecticide.
- Established trees can generally tolerate moderate to heavy infestations without loss of production or vigor; control of aphids on young trees is more critical.

![Rosy apple aphids](image)

**Peach Twig Borer (Anarsia lineatella)**

Published by Utah State University Extension and Utah Plant Pest Diagnostic Laboratory

ENT-38-07 April 2007

---

**Greater Peachtree Borer (Synanthedon exitiosa)**

Diane Aston, Entomologist • Marion Murray, IPM Project Leader

---

**Apple Aphids**

Diane Aston, Entomologist • Michael Reding, Entomologist • Marion Murray, IPM Project Leader

---

**Fig. 1. Adult male (J)**

**Fig. 2. Peachtree borer larva in peach, nectarine.**

**Fig. 2. Rosy apple aphids.**

Roll and curl, protecting the aphids inside from natural enemies, weather, and pesticides (Fig. 4). Neither species typically harms established trees, but high populations can stunt young trees. The woolly apple aphid differs from the other two, in that it feeds in both the tree canopy and below ground on the roots. Canopy feeding is primarily on the succulent growth associated with stems, pruning wounds, root suckers, and leaf axils. Damage from woolly apple aphids is caused by aphids forming galls on roots (Fig. 11) and twigs (Fig. 12). In addition, all three aphids excrete a clear, sticky, sweet substance called honeydew. Economic damage may occur when aphids build up to levels where honeydew drips onto the fruit. The honeydew provides a site for the growth of the fungus that causes sooty mold. Aphids can...
**Features**

**Plant Bulbs Now for Spring Color Explosion**
Spring-blooming bulbs add beauty to the landscape. Now is a good time to plant them, and many local retailers offer a wider variety. Consider these popular selections.

**Six Tips for Putting the Yard to Bed**
It's time to put your lawn and garden to bed for the year. By investing time before winter takes over, you can ensure healthier and happier plants next spring. Consider these tips.

**Plan Your Event at the USU Gardens**
Weddings, family gatherings, and other events will have extra beauty when held at various locations across the USU Gardens!

**Events**

**Annual Flower Bed Design**
Ogden Botanical Gardens, 1750 Monroe Blvd, Ogden, UT 84401
4/9/2016 | 9am

**Grafting Fruit Trees**
Ogden Botanical Gardens, 1750 Monroe Blvd, Ogden, UT 84401
4/14/2016 | 11am

See All Events more events >>
Explore the Garden Family Night: Plan Your Organic Garden
A family that gardens together, eats healthy together. Get the whole family involved in planning the garden this year.

Plant Bulbs Now for Spring Color Explosion
Spring-blooming bulbs add beauty to the landscape. Now is a good time to plant them, and many local retailers offer a wider variety. Consider these popular selections.

Six Tips for Putting the Yard to Bed
It's time to put your lawn and garden to bed for the year. By investing time before winter takes
Website Resources

http://utahpests.usu.edu/ipm/
http://climate.usurf.usu.edu/
http://usubotanicalcenter.org/
http://ogdenbotanicalgardens.org/
EXTENSION
Utah State University

435-695-2541
mike.pace@usu.edu
http://extension.usu.edu/boxelder/