Prepping for a Healthy Fruit Harvest

Marion Murray
USU IPM Program
Pest Advisories: pestadvisories.usu.edu

Timely Integrated Pest Management Alerts for Fruits, Vegetables, Landscape Ornamentals, Turf, and Urban Areas

**Fruit**

- **FRUIT IPM ADVISORY • 2018- FRUIT**
  - Backyard: Prepping for a Healthy Fruit Harvest
    - March 12, 2018

- **FRUIT IPM ADVISORY • 2017- FRUIT**
  - Fall Orchard Chores
    - October 12, 2017

**Vegetable**

- **VEGETABLE IPM ADVISORY • 2017- VEG**
  - Post-Harvest Cleanup, Tomato Russet Mites, and Diseases
    - September 26, 2017

- **VEGETABLE IPM ADVISORY • 2017- VEG**
  - Sunburn/Sunscald, Squash Diseases, and Spider Mites
    - August 31, 2017
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- [ ] Vegetable IPM Advisory
- [ ] Fruit IPM Advisory
- [ ] Turf IPM Advisory
- [ ] Utah Post News quarterly newsletter
<table>
<thead>
<tr>
<th>APPLE, PEAR</th>
<th>PEACH, NECTARINE, PLUM, APRICOT</th>
<th>CHERRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>green apple aphid</td>
<td>green peach aphid</td>
<td>black cherry aphid</td>
</tr>
<tr>
<td>rosy apple aphid</td>
<td>leafcurl plum aphid</td>
<td>iron chlorosis</td>
</tr>
<tr>
<td>blister mites</td>
<td>peach twig borer</td>
<td>western cherry fruit fly</td>
</tr>
<tr>
<td>San Jose scale</td>
<td>cytospora canker</td>
<td>bacterial canker</td>
</tr>
<tr>
<td>iron chlorosis</td>
<td>iron chlorosis</td>
<td>powdery mildew</td>
</tr>
<tr>
<td>fire blight</td>
<td>greater peachtree borer</td>
<td>shothole borer</td>
</tr>
<tr>
<td>codling moth</td>
<td>coryneum blight</td>
<td>spider mite</td>
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<tr>
<td>woolly apple aphid</td>
<td>peach powdery mildew</td>
<td>leafhopper</td>
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<tr>
<td>powdery mildew</td>
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<td>coryneum blight</td>
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<td>spider mites</td>
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<td>flatheaded borers</td>
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<tr>
<td>stink bugs</td>
<td></td>
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<tr>
<td>leafhopper</td>
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</tr>
<tr>
<td>leafroller</td>
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</tr>
<tr>
<td>pear slug</td>
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</table>
Dormant - Delayed Dormant

March 2018

<table>
<thead>
<tr>
<th>Sun</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
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April 2018

<table>
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<tr>
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<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
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</tbody>
</table>
Dormant Timing – Buds Tightly Closed

**APPLE, PEAR** – Prune 15-20% last year's growth to let light in
  • also remove dead and diseased branches

**TART CHERRY** – Prune crossing, dead, and over-extended limbs
“Delayed Dormant” Timing – What is This?

Apples: swollen bud - 1/2"

<table>
<thead>
<tr>
<th>Silver Tip</th>
<th>Green Tip</th>
<th>Half-Inch Green</th>
</tr>
</thead>
</table>

Pears: swollen bud – green cluster

| Swollen Bud (Scale Separation) | Bud Burst (Blossom Buds Exposed) | Green Cluster (Tight Cluster) |
Delayed Dormant – What is This?

Peaches and Nectarines: swollen bud – first pink

<table>
<thead>
<tr>
<th>Swollen Bud (First Swell)</th>
<th>Calyx Green</th>
<th>Quarter-Inch Green (Calyx Red)</th>
<th>Pink (First Pink)</th>
</tr>
</thead>
</table>
Delayed Dormant – What is This?

**Cherries**: swollen bud – tight cluster

- Swollen Bud (First Swell)
- Bud Burst (Green Tip)
- Tight Cluster

**Apricot**: swollen bud

- First Swell (Bud Swell)
- Tip Separation (Swollen Bud)
Delayed Dormant – What is This?

Plum: swollen bud – green cluster

Swollen Bud  Bud Burst  Green Cluster
1. PEACH, NECTARINE, APRICOT, PLUM, SWEET CHERRY: prune for light and fruit production
Delayed Dormant Timing – Bud Swell and Beyond

Pruning Stone Fruit Trees

To PREVENT - Cytospora Canker that causes gumming
Prune 4 inches beyond dead tissue
1. PEACH, NECTARINE, APRICOT, PLUM, SWEET CHERRY: prune for light and fruit production

2. ALL FRUIT TREES: Spray application to target certain insects and diseases (if they were present the prior year)
### Delayed Dormant Timing – Targeted Pests

<table>
<thead>
<tr>
<th>Apple, Pear</th>
<th>Peach, Nectarine, Plum, Apricot</th>
<th>Cherry</th>
</tr>
</thead>
<tbody>
<tr>
<td>green apple aphid</td>
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<td></td>
</tr>
<tr>
<td>blister mites</td>
<td>peach twig borer</td>
<td></td>
</tr>
<tr>
<td>San Jose scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fire blight</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Delayed Dormant – Pest Management

ALL FRUITS - Aphids

- Green apple aphid
- Rosy apple aphid
- Green peach aphid
- Black Cherry Aphid
- Mealy plum aphid
Overwinter as eggs
Eggs hatch in spring
Most aphids leave fruit trees by early June for weeds and vegetable hosts for the summer.

Also, they provide food for beneficial insects.

By June, curled leaves will be empty of aphids.
Delayed Dormant – Pest Management

APPLE, PEAR - Blister mites

Tiny eriophyid mites that feed within leaf blisters all season long

Blister mite symptoms on apple early season (top) and late season (bottom)

Blister mite symptoms on pear
Mites overwinter in bud scales and start emerging at bud swell.
Delayed Dormant – Pest Management

APPLE, PEAR - San Jose Scale

Immobile insect that feeds on twigs, limbs, and fruit

Large infestations weaken trees and kill limbs
Delayed Dormant – Pest Management

APPLE, PEAR - San Jose Scale

Overwinter on tree bark

Over 200 crawlers hatch from each female in June
Larvae feed inside ripening fruit
Delayed Dormant – Pest Management

PEACH, NECTARINE, APRICOT - Peach Twig Borer

Overwinters as a larva in protected sites in the tree
Delayed Dormant – Pest Management

ALL FRUIT TREES - Oil Spray

**Horticultural oil:** 2% mixture
- Spray entire tree (full coverage of buds, etc.)
- Only use when temps > 45F
- Do not use not within 24 hr of frost
- Do not use within 24 hr of rain

Paraffinic oil
Mineral oil
Canola oil
Delayed Dormant – Pest Management

APPLE, PEAR - Fire Blight

Caused by a bacterium – *Erwinia amylovora*
Bacteria overwinter in old infections
Bacteria becomes active in early spring
Delayed Dormant – Pest Management

APPLE, PEAR - Copper Spray

Works by preventing fire blight bacteria from multiplying

Thorough coverage of bark and areas of infection

Can be mixed with oil spray
1. PEACH, NECTARINE, APRICOT, PLUM, SWEET CHERRY: prune for light and fruit production

2. ALL FRUIT TREES: Spray application to target some insects and diseases (if they were present the prior year)

3. ALL FRUIT TREES: Soil application of chelated iron to prevent iron chlorosis (at bud swell)
1. PEACH, NECTARINE, APRICOT, PLUM, SWEET CHERRY: prune for light and fruit production

2. ALL FRUIT TREES: Spray application to target some insects and diseases (if they were present the prior year)

3. ALL FRUIT TREES: Soil application of chelated iron to prevent iron chlorosis

4. APPLE and new fruit trees: Apply nitrogen fertilizer
   Yearly or every other year

   Collect soil for nutrient analysis from Utah State University Analytical Lab (usual.usu.edu)
## Summary: Dormant – Delayed Dormant

<table>
<thead>
<tr>
<th>DORMANT</th>
<th>DELAYED DORMANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPLES, Pears - prune</td>
<td>PEACH, NECTARINE, APRICOT, PLUM, SWEET</td>
</tr>
<tr>
<td></td>
<td>CHERRRY: prune</td>
</tr>
<tr>
<td></td>
<td>ALL FRUITS: oil spray (if insects present last year)</td>
</tr>
<tr>
<td></td>
<td>APPLE, PEAR: oil spray plus copper (if fire blight present last year)</td>
</tr>
<tr>
<td></td>
<td>ALL FRUITS:</td>
</tr>
<tr>
<td></td>
<td>Apply chelated iron (if necessary)</td>
</tr>
<tr>
<td></td>
<td>Determine fertilizer needs</td>
</tr>
</tbody>
</table>
1. APPLE, PEAR (some), PEACH, NECTARINE, APRICOT, PLUM: thin fruit

2. Pest management
Spring - Fruit Thinning

APPLE at bloom:
hand-remove all flowers except king bloom

APPLE, PEAR (some) at ½ - 1-inch diameter:
space clusters to 6 inches apart
thin remaining clusters to a single large fruit

PEACH, NECTARINE, APRICOT, PLUM when fruits are ¾ - 1-inch diameter:
space fruit 6-8”
1. **APPLE, PEAR (some), PEACH, NECTARINE, APRICOT, PLUM**: thin fruit

2. **Pest management**
   - **APPLE, PEAR**: powdery mildew, fire blight, codling moth, woolly apple aphid
   - **PEACH, NECTARINE, APRICOT**: peach twig borer, coryneum blight
   - **CHERRY**: western cherry fruit fly
Spring – Pest Management

APPLE: Apple Powdery Mildew

Caused by a fungus: each host tree has its own species

Overwinters in terminal buds and on twigs
Monitor by looking for fuzzy whitish patches.

Fungicides

• Apply at “open cluster” stage
• Repeat every 7 – 14 days two to three times
## Spring – Pest Management

### APPLE, PEAR – Powdery Mildew Products

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Brand</th>
<th>Residual (days)</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>myclobutanil</td>
<td>Spectracide Immunox</td>
<td>14</td>
<td>conventional</td>
<td></td>
</tr>
<tr>
<td>potassium bicarbonate</td>
<td>Monterey Bi-Carb</td>
<td>5-7</td>
<td>organic</td>
<td></td>
</tr>
<tr>
<td>sulfur</td>
<td>many products</td>
<td>7</td>
<td>organic</td>
<td>do not use in temps above 85F</td>
</tr>
<tr>
<td>sulfur + pyrethrin</td>
<td>Bonide Citrus, Fruit and Nut Orchard Spray; Nature’s Care 3-in-1</td>
<td>7</td>
<td>organic</td>
<td>do not use in temps above 85F</td>
</tr>
<tr>
<td>sulfur + insecticidal soap</td>
<td>Safer 3-in-1</td>
<td>7</td>
<td>organic</td>
<td>do not use in temps above 85F</td>
</tr>
<tr>
<td>neem oil</td>
<td>many products</td>
<td>5</td>
<td>organic</td>
<td>do not use in temps above 85F</td>
</tr>
</tbody>
</table>
Highly susceptible varieties:

- Fuji, Gala, Gingergold, Granny Smith, Honeycrisp, Jonathon, Jonagold, Idared
- Asian pears, Bosc, D’Anjou

Primary infections occur through open blossoms
Copper application at delayed dormant timing

Prevent infections with **streptomycin fire blight spray** only during bloom
  • Use only when temperatures over a 4-day period are above 75F AND moisture is present (rain, irrigation water)

AND / OR

Monitor for new infections starting 2 weeks after bloom, and prune them out immediately
Spring – Pest Management

APPLE, PEAR - Fire Blight Management

Cut twig at twice this length

Prune this infection off by cutting into healthy wood 8-12 inches beyond the symptomatic tissue.
Spring – Pest Management

APPLE, PEAR - Codling Moth

Larvae burrow into the fruit to feed on seeds

Can infest 100% of the fruit on a tree
Codling Moth Life Cycle

1. overwintering larvae pupate into moths in spring

2. moths lay eggs on fruit mid spring

3. eggs hatch and bore into fruit

4. mature larvae pupate to adults; begins another generation
Spring – Pest Management

APPLE, PEAR - Codling Moth Management

Thin fruit to one apple/cluster

Clean and mow or remove all unharvested or dropped fruit all season

Remove unmanaged trees
Spring – Pest Management

APPLE, PEAR - Codling Moths: Fruit Bagging

Bag during thinning

Remove any fruit that you don’t bag

Options

- Japanese 2-ply apple bags
- waxed paper or clear plastic sandwich bags
- white or tan paper sacks
- clear poly bags with drawstring closures
- disposable nylon foot socks
Extension hangs monitoring traps to help determine when to make first spray.

First spray of the season is applied by recommended date.

Re-apply for each generation.
PDF document linked within Fruit IPM Pest Advisory message

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**Codling Moth Spray Timing Information, First Generation**

Choose either Option A or B when starting your codling moth sprays.

- **Option A** is what most people will do. Apply insecticide at the recommended date, and repeat.
- **Option B** is an alternative that may help to reduce sprays. Liberally apply horticultural oil (1%) on the first date, and then apply your regular insecticide on the later date. The oil kills eggs that have been laid on fruit up to that point.

Apply treatments, spaced 7-21 days apart (depending on material) to protect fruit up to the end of the first generation egg hatch (dates not yet known). Make sure fruit is protected during the "period of greatest egg hatch."

<table>
<thead>
<tr>
<th>County</th>
<th>Location</th>
<th>Option A Apply first spray</th>
<th>Option B Apply oil</th>
<th>Option B Apply first insecticide</th>
<th>Period of Greatest Egg Hatch</th>
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<tbody>
<tr>
<td>Box Elder</td>
<td>Perry</td>
<td>May 25</td>
<td>May 23</td>
<td>June 5</td>
<td>June 3 - unknown</td>
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<tr>
<td></td>
<td>Tremonton</td>
<td>May 26</td>
<td>May 24</td>
<td>June 5</td>
<td>June 4 - unknown</td>
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<tr>
<td>Cache</td>
<td>Logan Airport</td>
<td>May 29</td>
<td>May 28</td>
<td>June 10</td>
<td>June 9 - unknown</td>
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<td></td>
<td>River Heights</td>
<td>May 26</td>
<td>May 27</td>
<td>June 6</td>
<td>June 6 - unknown</td>
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<tr>
<td>Carbon</td>
<td>Price Airport</td>
<td>May 26</td>
<td>May 25</td>
<td>not yet known</td>
<td>unknown</td>
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<tr>
<td>Davis</td>
<td>Kaysville</td>
<td>May 18</td>
<td>May 15</td>
<td>May 29</td>
<td>May 28 - unknown</td>
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<tr>
<td></td>
<td>Farmington</td>
<td>passed</td>
<td>passed</td>
<td>May 23</td>
<td>May 22 - June 12</td>
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<tr>
<td>Grand</td>
<td>Moab</td>
<td>passed</td>
<td>passed</td>
<td>May 12</td>
<td>May 12 - May 29</td>
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<td>Iron</td>
<td>Cedar City Airport</td>
<td>May 27</td>
<td>May 25</td>
<td>June 6</td>
<td>June 6 - unknown</td>
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<tr>
<td>Juab</td>
<td>Ticic</td>
<td>May 30</td>
<td>May 28</td>
<td>June 11</td>
<td>June 10 - unknown</td>
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</table>
## Spring – Pest Management

### APPLE, PEAR - Codling Moth Conventional Products

<table>
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<tr>
<th>Ingredient</th>
<th>Brand</th>
<th>Residual (days)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>acetamiprid</td>
<td>Ortho Fruit &amp; Veg</td>
<td>14</td>
<td>max 4 applications</td>
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<tr>
<td>gamma-cyhalothrin</td>
<td>Spectracide Triazicide</td>
<td>14-17</td>
<td>wait 21 days to harvest</td>
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<tr>
<td>carbaryl</td>
<td>Sevin</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>permethrin</td>
<td>Bonide Eight</td>
<td>14</td>
<td>pears only</td>
</tr>
<tr>
<td>malathion</td>
<td>Bonide Malathion</td>
<td>5-7</td>
<td>max 2 sprays</td>
</tr>
<tr>
<td>malathion</td>
<td>Hi-Yield 55% Malathion; Ortho Malathion</td>
<td>5-7</td>
<td>pears only; max 2 sprays</td>
</tr>
<tr>
<td>Ingredient</td>
<td>Brand</td>
<td>Residual (days)</td>
<td>Comments</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------------------------------------</td>
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<td>---------------------------------------------------</td>
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<tr>
<td>azadirachtin</td>
<td>Safer BioNeem</td>
<td>7-10</td>
<td></td>
</tr>
<tr>
<td>spinosad</td>
<td>Ferti-lome / Monterey / Natural Guard</td>
<td>7-10</td>
<td></td>
</tr>
<tr>
<td>oil</td>
<td>All Seasons Oil; EcoSmart; neem products; Natria Multi-Insect</td>
<td>3</td>
<td>Use 1% in water; apply at start of each generation</td>
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<tr>
<td>pyrethrin plus soap and neem</td>
<td>Safer End All plus Neem</td>
<td>5-7</td>
<td></td>
</tr>
<tr>
<td>pyrethrin plus neem or canola oil</td>
<td>Ferti-lome Fruit Tree Spray; Monterey Take Down; Nature’s Care Insect Control</td>
<td>3-5</td>
<td></td>
</tr>
<tr>
<td>pyrethrin</td>
<td>Ortho Fruit Spray; Fertilome Fruit Tree Spray; Monterey Bug Buster-O</td>
<td>3-5</td>
<td></td>
</tr>
<tr>
<td>kaolin clay</td>
<td>Surround</td>
<td>7</td>
<td>produces protective barrier</td>
</tr>
</tbody>
</table>
Spring – Pest Management

Pesticide Pre-Mixes (Labeled for Insects and Diseases)

Products containing *non-organic* fungicide + insecticide—**Not Recommended**
- Bonide Fruit Tree Spray: captan plus malathion
- Bonide Fruit Tree and Plant Guard: pyraclostrobin plus lambda-cyhalothrin

Products with organic insect and disease control—**OK**
- Bonide Citrus, Fruit, and Nut: sulfur plus pyrethrin
- Products containing neem oil plus pyrethrin
Feeding causes galls on stems and roots that cause reduced tree vigor or even death of young trees.

Life cycle:

• Overwinter on roots or in the tree.

• Individuals become active in late spring.
Woolly Apple Aphid Damage
Monitor starting in mid May for aphid presence

Insecticides

- insecticidal soap
- 1% oil
- Bonide Malathion

must contact insect
apply to dripping
do not apply when temps > 85F
Delayed dormant oil application

One application of *Bacillus thuringiensis* or spinosad before or after bloom

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Brand</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Bacillus thuringiensis</em></td>
<td>Natural Guard Caterpillar Spray</td>
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<tr>
<td></td>
<td>Bonide Captain Jack’s</td>
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<tr>
<td></td>
<td>Monterey Bt</td>
</tr>
<tr>
<td></td>
<td>others</td>
</tr>
<tr>
<td>spinosad</td>
<td>Ferti-lome Spinosad</td>
</tr>
<tr>
<td></td>
<td>Monterey Spinosad</td>
</tr>
<tr>
<td></td>
<td>Natural Guard Spinosad</td>
</tr>
<tr>
<td></td>
<td>others</td>
</tr>
</tbody>
</table>
Caused by a fungus

Infections occur on new growth in spring

Later, fruit becomes infected
Early infections on peach and apricot
Spring infections later turn scabby.
Summer infections render fruit inedible
Occur during heavy rains close to harvest
Spring – Pest Management

PEACH, NECTARINE, APRICOT, PLUM - Coryneum Blight

Prevent wetting of foliage with irrigation

Fungicide at **shuck split**; repeat all season as necessary (after 4+ hour rainfalls)

**Conventional:**
- **Daconil** (chlorothalonil): don’t use after shuck split
- **Spectracide Immunox** (myclobutanil): can be used all season
- **Captan** (captan): can be used all season (not as effective)

**Organic:**
- Natural Guard Copper Soap
A maggot pest of tart and sweet cherries; one infested cherry can ruin an entire commercial crop

Overwinters as pupa in the soil

Adults begin to emerge in May, and lays up to 200 eggs under the skin of fruit until harvest
Egg-laying begins when fruit turns a salmon blush color.
Add tarp under tree

Remove dropped fruit

Remove all unharvested fruit

Net entire tree
# Spring – Pest Management

## CHERRY – Western Cherry Fruit Fly Pesticide Products

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Residual (days)</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ortho Fruit &amp; Veg (acetamiprid)</td>
<td>14</td>
<td>conventional</td>
<td>max 4 applications</td>
</tr>
<tr>
<td>Hi-Yield 55% Malathion; Ortho Malathion; Bonide Malathion</td>
<td>5-7</td>
<td>conventional</td>
<td>max 2 - 4 sprays</td>
</tr>
<tr>
<td>Spectracide Triazicide (gamma-cyhalothrin)</td>
<td>14-17</td>
<td>conventional</td>
<td>wait 21 days to harvest</td>
</tr>
<tr>
<td>Monterey / Ferti-lome / Natural Guard Spinosad</td>
<td>7</td>
<td>organic</td>
<td></td>
</tr>
<tr>
<td>Sevin (carbaryl)</td>
<td>14</td>
<td>conventional</td>
<td></td>
</tr>
<tr>
<td>(pyrethrin) Ortho Fruit Spray; Fertilome Fruit Tree Spray; Monterey Bug Buster-O</td>
<td>3-5</td>
<td>organic</td>
<td></td>
</tr>
</tbody>
</table>
Spring - Summary

1. APPLE, PEAR (some), PEACH, NECTARINE, APRICOT, PLUM: *thin fruit*

2. **Pest management**
   - APPLE, PEAR: powdery mildew, fire blight, codling moth, woolly apple aphid
   - PEACH, NECTARINE, APRICOT: peach twig borer, coryneum blight
   - CHERRY: western cherry fruit fly
Summer

1. July - Get **foliar nutrition analysis** (if necessary)
   Collect foliage for nutrient analysis from Utah State University Analytical Lab ([usual.usu.edu](usual.usu.edu))

2. **Proper irrigation**
Summer - Irrigation

Especially important during

- fruit maturation
- dry periods in August (flower bud formation)

Reduce amount by late August
Summer

1. July - Get foliar nutrition analysis (if necessary)

2. Proper irrigation

3. Pest management

APPLE, PEAR:
• continue to prune out fire blight infections
• continue sprays to prevent codling moth until Sept 15

CHERRY:
• continue western cherry fruit fly until harvest
• bird control

PEACH, NECTARINE, PLUM:
• greater peachtree borer
Summer – Pest Management

PEACH, NECTARINE, PLUM - Greater Peachtree Borer

A clearwing moth that attacks the trunk at soil level

Threats:
- kills young trees
- pre-disposes older trees to other injuries
Greater Peachtree Borer Life Cycle

1. Overwintering larvae start feeding in spring
2. Larvae pupate to adults starting in mid June
3. Adults lay eggs on bark from July through September
4. Eggs hatch and immediately bore into lower crown and roots
Remove all weeds and mulch from touching the bark.
Summer – Pest Management

PEACH, NECTARINE, PLUM - Greater Peachtree Borer
Organic Control

Expose and kill larvae in gum
Summer – Pest Management

PEACH, NECTARINE, PLUM - Greater Peachtree Borer
Organic Control

Nematodes

*Steinernema carpocapsae*
# Spring – Pest Management

## PEACH – Greater Peachtree Borer Products

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Brand</th>
<th>Residual (days)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>permethrin</td>
<td>Hi-Yield Lawn, Garden, Pet</td>
<td>30</td>
<td>peach only</td>
</tr>
<tr>
<td></td>
<td>Bonide Eight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>esfenvalerate</td>
<td>Monterey Bug Buster II</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>spinosad</td>
<td>Monterey / Ferti-lome / Natural Guard Spinosad products</td>
<td>5-7</td>
<td></td>
</tr>
</tbody>
</table>
Summer - Summary

1. July - Get foliar nutrition analysis (if necessary)

2. Proper irrigation

3. Pest management

APPLE, PEAR:
• continue to prune out fire blight infections
• continue sprays to prevent codling moth until Sept 15

CHERRY:
• continue western cherry fruit fly until harvest
• bird control

PEACH, NECTARINE, PLUM:
• greater peachtree borer – protect lower trunk from late July through September
September 2018

October 2018

November 2018

Fall
Fall

1. **Irrigate** before ground freezes

2. Pest management
   PEACH, NECTARINE, PLUM: coryneum blight
Shuck split fungicide and repeat through summer as necessary

Apply Copper Fungicide in fall at 50% leaf drop

good coverage to protect leaf scars
Fall

1. **Irrigate** before ground freezes

2. Pest management

3. **NEW TREES:**
   - Paint trunks with latex paint
   - OR
   - Apply white tree wrap to trunks from Dec - March
White Tree Wrap

Flatheaded borers
Cytospora canker
Paint Trunks White

- latex paint and water
- 1:1 ratio
Fall - Summary

1. **Irrigate** before ground freezes

2. Pest management

   PEACH, NECTARINE, PLUM: coryneum blight

3. **NEW TREES:**

   Paint trunks with latex paint
   OR
   Apply white tree wrap to trunks from Dec - March
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