

April 27, 2011

In this Issue:

- [Bud Stages](#)
- [Insect/Disease Activity](#)
 - [Peach Twig Borer](#)
 - [Cat-facing Insects](#)
 - [Thrips on Nectarine](#)
 - [Apple Powdery Mildew](#)
- [Upcoming Monitoring/Insect Activity](#)
- [Production Information](#)
 - [Frost Damage to Fruit Buds](#)
 - [Pollination Requirements of Fruit Trees](#)
- [Bud Stage Images](#)
- [Spray Materials - Commercial](#)
- [Spray Materials - Residential](#)

What to Look for/Do Now:

- Continue scouting for aphids, including green peach aphids, rosy apple aphids, and black cherry aphids to see if your dormant sprays were successful. The early-hatching aphids we have been seeing on backyard apricots, plums, and cherries are currently being identified.
- If you are using them, hang codling moth traps by early next week at the latest. We may start catching moths the week of May 9, with start of sprays to be announced thereafter.
- Look at new peach and apricot leaves for small purple lesions; these are coryneum lesions. Spray timing is at shuck split.

Bud Stages

Box Elder County

Apples: half-inch green - tight cluster
Apricots: bloom - petal fall
Cherries (sweet): first bloom
Peaches: first bloom
Pears: green cluster

Cache County

Apples: green tip - half-inch green
Cherries: swollen bud - bud burst
Peaches: 1/4" green
Pears: bud burst - green cluster

Davis County, Salt Lake County, Weber County

Apples: tight cluster - pink
Apricots: petal fall
Cherries (tart): bud burst
Peaches: bloom
Pears: green cluster

Utah County

Apples: tight cluster - pink
Apricots: petal fall
Cherries (tart): bud burst

Insect and Disease Activity

In terms of pest and disease management, for the most part things are quiet now, especially if you have applied your delayed dormant oil sprays. The next major upcoming "pest" will be fire blight (during apple/pear bloom). Below are some additional pests to consider.

Peach Twig Borer

While trees are in bloom, and before shoots have started to elongate, peach twig borer larvae are exposed, feeding on leaf tissue. At that time, they can be targeted with a spray of *Bacillus thuringiensis* (Bt), as mentioned in the April 13 advisory. Bt is a bacterium that must be consumed by the insect to be effective. It paralyzes the digestive system, so the insect basically starves. The residual product lasts about 3-5 days on the leaf surface. A Bt treatment is just one step in reducing peach twig borer populations.

Bt products can be stored for 2-3 years in a cool, dry location. Liquid formulations will not last quite as long. Once the concentrate is mixed with water, it should be used within 12 hours.

Cherries (sweet): first bloom
Peaches: bloom
Pears: green cluster - white bud

Cat-facing Insects on Peach, Apple

lygus bug

severe cat-facing damage on peach

Lygus bugs, stink bugs, and leaf-footed plant bugs can be a problem in some commercial orchards on peaches and apples. Their feeding can cause punctures or deep dimples to form as the fruit develops, leaving large deformities. In Utah, lygus bugs seem to be the primary pest early in spring, feeding on flower buds and clusters, while stink bugs move into the orchard later in spring, feeding on developing fruit. Cat-facing insects overwinter as adults in alfalfa fields, orchard floor debris or even tree bark. Lygus bugs start becoming active at low temperatures (40-50 degrees F). Orchards with a high density of weed hosts or adjacent to alfalfa fields are more prone to damage.

They all use piercing/sucking mouthparts to feed on sap from plant parts, and can cause localized oozing of sap. As they feed, they inject a toxin that kills surrounding cells. Determining whether to treat will depend on material cost per acre versus possible losses per acre.

Thrips on Nectarine

Thrips are tiny insects that feed on a variety of fruits and vegetables, but can cause severe damage to nectarine fruit. Adults move into orchards during bloom and feed and lay eggs inside the flower. This feeding results in scarred, russeted fruit that oozes clear sap during maturity. Thrips can be monitored by collecting at least 10 blossoms per tree and examining the inside of the flowers with a hand lens. If any thrips are found, a treatment of spinosad at dawn or dusk at bloom or petal fall is warranted. Spinosad is harmful to bees when wet, but after 3-4 hours drying time, is safe.

Apple Powdery Mildew

new powdery mildew infection on right apple shoot

As noted in the last advisory, apple powdery mildew overwinters on twigs, and as a result can form new infections early in the season. Depending on weather conditions, it can become active at about the tight cluster stage. Treatment timing for powdery mildew is at the pink stage, or when the flower cluster has separated (before blooms open), at the open cluster stage. If you have had powdery mildew in the past, consider treating at this timing (Flint, Sovran for commercial growers; sulfur for residential growers). A second application should be made at petal fall (Rally, Topguard, Procure, Vintage for commercial growers; sulfur for residential growers).

Upcoming Insect and Disease Monitoring

| | |
|--------------------------|---|
| Pear psylla | Adults active just before bud swell; egg-laying from bud swell to green cluster |
| Rosy apple aphid | First egg hatch around first pink |
| Codling moth | Hang traps at first pink - first bloom |
| European red mite (rare) | First egg hatch around apple full bloom |

| | |
|------------------------|--------------------------------------|
| Campylomma bug | Egg hatch begins at apple first pink |
| White apple leafhopper | Egg hatch begins at apple first pink |

Production Information

Frost Damage

As the buds develop on fruit trees, they become more susceptible to injury by cold temperatures. Around 5:30 am this morning, most locations reached their coldest temperatures. The weather stations that the Utah Climate Center manages in fruit growing regions in northern Utah showed low temperatures in the coldest areas ranging from 19 (Tintic) to 27 (Alpine, Santaquin). Most other areas did not dip below 28. These temperatures may have resulted in about a 10% loss of flowers or buds, depending on the tree and what stage it is in. Keep in mind that even a 50% loss is not disastrous since a 25% fruit set can be adequate on most trees.

Sometimes a freeze will damage only a part of the flower or leaves, and the developing tissue become deformed. Buds occurring lower in the tree canopy are more susceptible to damage or death than those higher up.

After a freeze, wait until the temperatures have warmed significantly before trying to determine if buds have been damaged. Dead tissue will turn black or brown. Split the flower or bud down the middle and look for brown or black plant tissue within the floral cup. Healthy tissue is greenish or creamy yellow in color.

Damage to apple (top left), sweet cherry (top right), apricot (bottom left), and peach (bottom right)
 Images courtesy of H. Larsen, Colorado State University

[This publication](#) shows the critical temperatures for fruit trees at various bud stages, developed by Washington State University. According to the bud stages currently happening in northern Utah, the following are temperatures at which 10% of buds, or 90% of buds are killed after one-half hour of exposure:

| Crop | Stage of Development | 10% Kill | 90% Kill |
|---------|----------------------|----------|----------|
| Apple | half-inch green | 23 | 15 |
| | tigh cluster | 27 | 21 |
| | first pink | 28 | 24 |
| Apricot | full bloom | 27 | 22 |
| | petal fall | 27 | 24 |
| Peach | first bloom | 26 | 21 |
| | full bloom | 27 | 24 |
| Pear | green cluster | 24 | 15 |
| | white bud | 25 | 19 |
| | tight cluster | 26 | 17 |

| | | | |
|--------------|---------------|----|----|
| Sweet Cherry | white bud | 27 | 24 |
| | first bloom | 28 | 25 |
| Tart Cherry | bud burst | 26 | 22 |
| | tight cluster | 26 | 24 |

Pollination Requirements of Fruit Trees

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Pollination (transfer of pollen from anther to stigma) is an important factor when selecting and planting tree fruits. Trees may be self-pollinators, or may require cross pollination. Self-pollinating trees are also known as self-fruitful or self-fertile, and can be pollinated from their own flowers, or from flowers of the same variety.

Trees that require cross-pollination are known as self-unfruitful, and cannot produce fruit from their own pollen. These types of fruit trees require a different variety of the same species for the transfer of pollen. Fruit trees which require two different varieties for pollination should be planted within 50 to 100 feet of one another to insure good fruit set.

Apples – Apples are regarded as self-unfruitful, although a small crop can form on an isolated tree. For maximum production, plant at least two different varieties with overlapping bloom periods to insure cross-pollination and fruit set. Apple cultivars can be classified as early, mid, and late season blooming. The bloom periods of early and mid-season bloomers overlap, permitting adequate cross-pollination and fruit set. Good pollination can also be expected with mid and late blooming varieties. However, the bloom periods of early and late blooming varieties may not overlap, resulting in poor pollination. Most flowering crabapples will pollinate nearby apple trees if they bloom at the same time.

Apricots – Some varieties require pollination, and some are self-fruitful. For self-unfruitful varieties, such as ‘Goldrich’, ‘Rival’, and ‘Perfection’, plant more than one variety. Self-fruitful varieties, including ‘Moorpark’, Chinese, and ‘Tilton’, can also be used as pollinator plants.

Cherries, Tart – Tart cherries are self-fruitful.

Cherries, Sweet – Most sweet cherries are self-unfruitful. ‘Ranier’, ‘Utah Giant’, ‘Stella’ and ‘Van’ are good choices for Utah and can pollinate each other. ‘Lapins’ is another good choice and is self-fruitful.

Peaches – Most peach varieties are self-fruitful. Some cold hardy choices for Utah include ‘Redhaven’, ‘Canadian Harmony’, ‘Reliance’, ‘Polly’, and ‘Ranger’. ‘J.H. Hale’ is another choice, but requires another peach for pollination.

Pears – Most European pears are self-unfruitful. Although some pollination can occur with one tree, it is best to plant at least 2 different varieties for maximum fruit production.

Plums – European plums are partially to entirely self-fruitful. Hybrid plum varieties (crosses between American and Japanese plums) are self-unfruitful. Plant 2 or more hybrid plum varieties to insure cross-pollination and fruit set. European plums will not pollinate hybrid plums and vice versa.

Bud Stage Images

Apple

half-inch green tight cluster pink

Cherry

bud burst first white first bloom

Peach

quarter-inch green first bloom bloom

Pear

bud burst green cluster white bud

Apricot

bloom petal fall

Spray Materials - Commercial Applicators

| Target Pest | Host | Chemical | Example Brands | Amount per acre | REI | MOA | Comments |
|----------------|----------------------------------|-------------------------|----------------|-----------------|------|----------|--|
| Thrips | light-skinned apples, nectarines | spinosad | Success | 4-8 oz | 4 h | 5 | Success: apply during bloom; safe on pollinators |
| Lygus bug | apple, peach | flonicamid | Beleaf | 2-2.8 oz | 12 h | 9 | apply before or after bloom |
| | | lambda-cyhalothrin | Warrior | 2.5-5 oz | 24 h | 3 | |
| Powdery mildew | apple | potassium bicarbonate | Kaligreen | 2.5-3 lb | 4 h | -- | apply starting at open cluster stage |
| | | myclobutanol | Rally | 5 oz | 24 h | 3 | |
| | | trifloxystrobin | Flint | 2-2.5 oz | 12 h | 11 | |
| | | triflumizole | Procure | 8-16 oz | 12 h | 3 | |
| | | fenarimol | Rubigan | 12 oz | 12 h | 3 | |
| | | boscalid/pyraclostrobin | Pristine | 14.5-18 oz | 12 h | 7+ 11 | |

| | | | | | | | |
|-------------|-------------|-----------------|------------|-------------|------|----|--|
| | | dresoxim-methyl | Sovran | 4-6.4 oz | 12 h | 11 | |
| Fire blight | apple, pear | streptomycin | Agri-mycin | check label | | | apply within 24 h of a wetting event only if fire blight was present last year |
| | | oxytetracycline | Mycoshield | check label | | | |

Spray Materials - Residential Applicators

Note that these treatments are only recommended if you know you have the particular pest in your trees, or had a problem last year.

| Target Pest | Host | Chemical | Example Brands | Comments |
|------------------|---------------------------|------------------------|------------------------------------|--|
| Thrips | nectarine | spinosad | Bonide, Ferti-lome, Green Light | may require 2 applications 7 days apart; apply starting at pre-bloom, and one application at bloom |
| Peach twig borer | peach, nectarine, apricot | bacillus thuringiensis | variety | may require 2 applications 7 days apart; apply starting at pre-bloom, and one application at bloom |
| Powdery mildew | apple | bayleton | Bonide | do not apply lime sulfur when temperature is over 75 degrees F |
| | | lime sulfur | Lilly Miller | |
| | | propiconazole | Ferti-Lome | |
| | | neem oil | Garden Safe | |
| | | potassium bicarbonate | Kaligreen | |
| Fire blight | apple, pear | biological | Blightban, Bloomtime | <ul style="list-style-type: none"> Biologicals should be applied at 15-20% bloom and again at full bloom |
| | | streptomycin | Ferti-Lome | <ul style="list-style-type: none"> Do not use antibiotic unless necessary; apply within 24 h of a wetting event only if fire blight was present last year |
| | | oxytetracycline | oxytetracycline | |

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