

# Fire Blight, Apple Powdery Mildew, Southern Utah Codling Moth

April 29, 2021



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## APPLE, PEAR[ps2id id='apple-anchor' target='"/]

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### Fire Blight

*risk is high; infections may happen on blossoms in warm, wet weather*



Fire blight blossom infection wilts the flowers and causes them to turn brown.



Fire blight infections happen through flowers. Bacteria are spread from flower to flower by wind-driven rain, and by pollinating insects.

During apple and pear bloom, fire blight infections are a risk when conditions are warm and wet. For

most areas of Utah, the risk of fire blight is HIGH to EXTREME through May 4. The risk is determined from a formula that is based on temperatures over the past 4 days.

Remember that **open blossoms** are required for infection. In addition, moisture is required, so check your local forecast to see if rain (or heavy morning dew) is predicted. Irrigation can also contribute to spread.

If you have trees or orchards that were affected by fire blight in the past, consider an antibiotic application today or tomorrow, with a re-application on Monday or Tuesday, *if there are flowers and a chance of moisture*.

You can watch fire blight predictions on Utah TRAPs by selecting a location closest to you, and then selecting “fire blight” under the Pest drop down menu.

### Treatment

- For **commercial producers**, most areas (except the southern part of Utah County, which has resistance) can use streptomycin. Where resistance occurs, producers should use oxytetracycline (MycoShield) and/or Kasumin. One application can be a mix of oxytetracycline and streptomycin.
- Most diligent **backyard growers** should *not* need to apply an antibiotic. (Although if necessary, most garden centers carry streptomycin.) Instead, monitor trees closely starting two weeks after full bloom (which is when infections start to become visible). Prune out new infections immediately (on a dry day).

## Codling Moth



Codling moth larvae feed on seeds inside the fruit.

***no action to take now in northern Utah; dates in southern Utah shown below***

To determine the codling moth spray dates, we hang monitoring traps in Utah orchards. Once those traps catch moths, we can then run the calculations to determine the dates. As of now, we have not caught any moths yet in northern Utah. However, warmer weather is coming, and we will provide the information as soon as we know.

For southern Utah locations, the dates to apply your first spray of the season are shown below. Options of spray materials can be found on the codling moth table on this post.

- **Washington County:** May 7-8



- **Zions Canyon area (Springdale):** May 1-3
- **Moab area:** May 19-20
- **Kanab area:** May 24-25

## Apple Powdery Mildew



Powdery mildew shows up on newer foliage first, and can spread all summer long, depending on humidity.

*apply fungicide after bloom*

Apple powdery mildew overwinters on twigs, and as a result, new infections can occur very early in the season. If left untreated, new infections can occur all summer long, just from humidity within the tree canopy.

If your apples have had powdery mildew in the past, look for infections now. If trees are in bloom, and you find powdery mildew, consider a fungicide application after bloom, with a second application about 5 to 14 days later, depending on the product used (see below).

Cortland, Idared, Gingergold, Braeburn, Gala, and Jonagold are all varieties that are more susceptible.

### Treatment

**Commercial growers:** treatment options are shown by clicking [here](#). For each product, there is a range of days after the treatment name that shows how long the protection interval lasts.

**Residential growers** can use:

- Spectracide Immunox: separate applications by at least 14 days and apply as needed
- Sulfur (organic; many brands): apply every 10 days as needed
- Neem oil or 1% horticultural oil (organic; many brands): apply every 3 to 5 days as needed, but **not** when temperatures will reach 85 F within 4 hours of application
- Potassium bicarbonate (organic; Monterey Bi-Carb, Garden-Ville): apply every 7 days as needed

# PEACH/NECTARINE, APRICOT, PLUM[ps2id id='peach-anchor' target='"/]

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## Gummosis



Dark gumming is associated with cytospora canker, especially during spring.

***prune out infected branches***

Gumming on stone fruits (peach, apricot, plum) is very common, and most evident in spring as the sap starts to flow. The oozing of gum is generically referred to as gummosis and it can be clear or dark amber in color. By the end of the summer, it will have become almost rock-hard.

The most common cause of gumming on stone fruits is a disease called cytospora canker. It is caused by a fungus (*Cytospora*) that infects bark through an existing wound such as pruning cuts, sunscald injury, cold injury, hail, deer rubs, etc. The pathogen kills the bark and underlying wood, and the tree oozes gum at the infection site as a defensive measure.



To determine cytospora canker, scrape off the bark under the oozing to look for cinnamon-brown (dead) tissue.

Gumming from cytospora is dark amber in color, and if you scrape the bark off, the dead phloem will

appear cinnamon brown in color. Cytospora canker is very common in Utah's peach and apricot orchards, as well as on backyard trees.

**Prevention is the key to managing Cytospora**

1. In normal pruning operations, make proper cuts (i.e., do not leave stubs or do not make "flat cuts" that remove the branch collar where healing would normally occur) and do not prune in wet weather. Pruning the Orchard
2. Protect the bark during winter from sunscald. Either apply white tree wrap from December to March, or paint the trunk (anytime) with 50/50 latex paint/water;
3. Prune out infected limbs and twigs back to healthy wood, and sterilize tools with 10% bleach or Lysol wipes between cuts. Sometimes it is not possible to remove all infected limbs. In that case, be diligent about tree health, sanitation, and regular pruning practices.
4. Remove severely affected trees from the orchard or backyard.
5. Keep trees healthy with optimal watering, mulching, nutrition, etc.
6. An excellent bulletin on Preventive Control of Cytospora Canker is available from Colorado State University.



Pruning out cytospora is important. But this cut was made through the middle of a canker. You can see the ooze coming through the cut area.



Cutting out the diseased area is not always successful. The healthy bark may be damaged, or you may not get all of the cytospora, as shown here.





This oozing is associated with shothole borer.



The oozing here is not caused by a disease. It is due to bark splitting from excess fruit load the prior year.

### Other Causes of Gumming

- **Thick gumming at the base of the tree** (no higher than 8-12"): *Greater peachtree borer*. Trees can be protected with a properly timed insecticide, typically in late June (we will include dates in a future advisory).
- **Small areas of ooze, throughout the tree:** *Borers*. Flatheaded or shothole borers will only attack weakened trees or wounds such as where sunscald has occurred. Usually there is very little ooze associated with these insects because the trees are already weakened. If the borers attack healthy trees, however, the tree will exude copious sap/ooze to flush out the larvae. This ooze is often clear in color, and limited to beetle entry holes. Management of these pests is difficult, and may include bark sprays of permethrin May through August.
- **Random pattern of gumming:** *Wounds or other cause*. Gummosis not caused by a pathogen will run somewhat clear in color (but will dry to amber). Wounds include frost cracks or sun scald, bark injury, cat scratching, hail, etc. Other causes include planting too deep, excessive irrigation, severe summer pruning, or over-bearing.

If you are not sure that a pathogen is causing the gummosis, scrape the outer bark away. If the inner bark is still cream-colored (healthy), the oozing is caused by a non-living factor, and there is nothing you should do. If the wood is tan to brown, it is dead, and was most likely killed by a pathogen.



It is important to identify the cause of the ooze. Scrape the bark away to find the edge of the diseased area.

## **Coryneum Blight (Shothole)**

*apricot, peach - fungicide application at shuck split stage (see image)*



Coryneum overwinters in infected buds.



Brand new infection on apricot.





Leaf infections drop out, leaving a hole in the leaf.



Shuck split is one of the most important times to apply a fungicide for shot hole.

The main symptom of coryneum blight (shothole) that concerns growers is damage to the fruit skin in the form of purple spotting, scabs, or sunken lesions.

If coryneum blight is a problem on your peach, nectarine, or apricot trees, note that one of the most important times to apply a fungicide is after bloom, at the **shuck split stage** (see image above).

This pathogen is spread primarily by rain, and optimal conditions for infection are when temperatures are from 70 to 80°F.

### Treatment

Commercial growers can find options by clicking [here](#).

Backyard growers can use one of the following:

- Spectracide Immunox
- product containing chlorothalonil (Daconil, for example. Note that chlorothalonil cannot be used after shuck split while fruit is still on the tree.)
- Captan

## Nectarine and Plum Scarring (Western Flower Thrips) [ps2id id='thrips' target='']



When thrips feed inside the flower, the fruitlet is injured. As it grows, the fruit cracks and oozes gumming.

*application of spinosad at late bloom to petal fall in evening*

Thrips are tiny insects whose feeding inside the flower can result in deformed nectarine and plum fruits. Thrips feed on the developing fruit from bloom time to petal fall. As the fruit matures, scars form from the feeding wounds and oozing gum may be associated with the scars.

### **Treatment**

To prevent thrips injury, spray spinosad (many brands; organic) during or right after bloom. Treat at night or early in the morning because spinosad is harmful to bees when the product is wet (the dry product does not affect bees). Just one application with thorough coverage is needed.

## OTHER INFORMATION[ps2id id='bob-anchor' target='']

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### **Blue Orchard Bees for Commercial Pollination**



## Blue Orchard Bee (*Osmia lignaria*): Commercial Pollinator for Orchards

Theresa Pitts-Singer, Research Entomologist

### GENERAL LIFE CYCLE

The blue orchard bee (*Osmia lignaria*) is native to North America and is a highly efficient pollinator of orchards (Bosch and Kemp 2001; Peterson and Artz 2014). These bees reliably visit rosaceous orchard and caneberry flowers, especially in western U. S. growing regions. It is a solitary bee species, meaning that it does not live in a colony like honey bees or bumble bees. Instead, females independently build nests in existing cavities that occur in nature, such as holes in dead or dying trees from which beetles have burrowed out. They also readily nest in artificial holes made specifically for bee nesting, such as tunnels of wooden blocks, hollow reeds, or cardboard tubes; these tubes can be distributed throughout



Blue orchard bee on a flower



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### Why Blue Orchard Bees?



Utah State University Extension

New

Entomologists at the USDA Bee Biology and Systematics Research Lab ("The Bee Lab") in Logan, UT and the Foothill Bee Ranch in California, have prepared a fact sheet and a series of videos on rearing blue orchard bees for pollination.

The fact sheet explains management of blue orchard bees for commercial orchards, including temperature management, stocking density, nesting requirements, and more.

The informative videos range from 3 to 6 minutes each:

- *Why Blue Orchard Bees?* explains the life cycle of the bees, and the advantages of using them for pollination.
- *How to Provide Blue Orchard Bee Nesting Materials* explains the recommended timing for deploying nesting tubes, where to hang them, and how high to hang them in orchard trees.
- *Types of Blue Orchard Bee Nesting Boxes and Common Nesting Materials for Blue Orchard Bees* both show several options for nesting structures and materials, from straws to tubes to wood blocks, for large and small orchard operations.



- *Cleaning Blue Orchard Bee Laminate Nests* provides a step-by-step visual guide to separate diseased cocoons from healthy cocoons, and how to identify other cocoons that might be in the nests.
- *How to Remove Blue Orchard Bee Nesting Materials* shows how to remove paper straws from cardboard tubes or wood blocks, and the best way to open the straws and remove the cocoons.
- *How to Wash Blue Orchard Bee Cocoons* explains how to clean cocoons in bleach water after they have all been removed from their nesting tubes.