



News/What to Watch For:

After apple bloom, watch newly expanding foliage for powdery mildew to see if prior fungicide application worked. If not, a petal-fall application may be needed.

Do not forget to thin apples and peaches. Information on timing will be in next advisory.

Codling Moth Spray Dates and Residential Products, pgs 6-7.

JUST THE BASICS: Current Treatments

APPLE & PEAR

- Commercial growers in most locations need to hang *codling moth* mating disruption dispensers, if using.
- Continue to watch the TRAPs website for *fire blight* risk. Apply antibiotic only when: blight has been a problem in your trees; risk is HIGH or EXTREME; and there is 2+ hours of moisture from rain, irrigation, or dew.

PEACH/NECTARINE, APRICOT

- If *coryneum blight* has been a problem in your trees, an fungicide application at petal fall may be required.

Insect and Disease Information

: information for residential settings

: information for commercial orchards

APPLE & PEAR

Codling Moth

Hosts: apple, pear

We have had reports of codling moth emergence (biofix) in some areas. We are able to use that date of emergence to predict when to start treating for this “worm in the apple” pest. The starting treatment date is equivalent to the start of egg hatch.

See the table on page 6. If your location is not included, that is because we have not yet recorded a biofix date for that area. Keep in mind that the dates shown on the table will change, and will be updated in the next advisory.

Commercial growers can find materials for treating codling moth by [clicking here](#).

Backyard growers can find options on page 7.

Campylomma Bug

Hosts: apple

Campylomma is an insect whose nymphs feed in the flowers, causing small corky bumps on fruit. The flesh is not affected, but the blemish on the skin can reduce marketability, and golden varieties are more affected. They can be monitored by shaking a branch over a cloth tray to look for dislodged nymphs (“beating tray sampling”), or shaking flower clusters into a paper cup.



The threshold for treatment of golden varieties is 2 nymphs per 10 beat-samples, and on red varieties, 17.5 nymphs per 10 beat samples. They resemble aphids, but move very quickly. After fruitlets begin maturing, feeding ends. Adult campylomma bugs are beneficial predators.

Insect and Disease Information, continued from previous page

Fire Blight

Hosts: apple, pear



the greatest risk of infection by fire blight is when "late" blossoms are still present later in the spring, when the weather is warmer

Currently, the risk of infection is LOW for all areas of northern Utah (even with the rain), and will continue that way for the next 5 to 6 days. Temperatures are predicted to start increasing starting on May 1. If any apples or pears still have any flowers at that time, it will be important to watch the fire blight model for HIGH or EXTREME levels of risk.

If the risk level for infection increases while trees are still in bloom, you have a 24-hour window in which to apply an antibiotic. Most areas (except much of Utah County, which has resistance) can use the antibiotic, streptomycin, while areas that have resistance should use oxytetracycline.

If you do not plan to spray, be sure to watch foliage starting at 2 weeks after full bloom for fire blight infections. If infections are spotted and removed early, this will help to stop spread.

Susceptible apple varieties include Fuji, Gala, Gingergold, Ginger Gold, Honey Gold, Granny Smith, Idared, Jonathan, Jonagold, Lodi, and Mutsu.

Susceptible pear varieties include most varieties of Asian pears plus, Bartlett, Bosc, Clapp's Favorite, and D'Anjou

PEACH/NECTARINE, APRICOT, CHERRY

Green Peach Aphid

Hosts: peach/nectarine

Green peach aphid colonies will continue to increase after bloom. To determine whether a treatment is needed, examine trees for the presence of colonies from now to the shuck split stage. Count the number of colonies on ten trees and use a treatment threshold of 2 colonies/tree at petal fall for peach, and 1 colony/tree for nectarine. See USU Extension video on [How to Monitor for Fruit Pests Using a Beating Tray](#).

Aphids, continued

Green peach aphids are generally only a problem when their populations become exceedingly high. Moderate populations are managed by our native natural enemies, including lacewing larvae, lady beetles, syrphid fly larvae, and parasitic wasps.

High green peach aphid populations might warrant a spray before leaves become curled upon themselves (contorted leaves shield aphids that are feeding within). Alternatively, growers applying the shuck-split spray can mix insecticides that suppress aphids as well.

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

Backyard growers can use horticultural oil (1%) or insecticidal soap (both are readily available in garden supply stores).

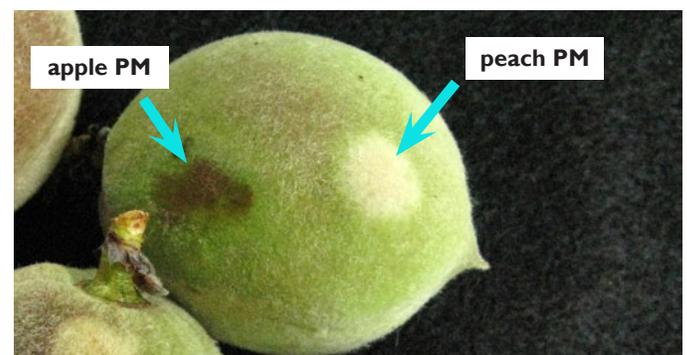
Lygus Bug/Stink Bug

Hosts: peach

A few lygus bugs were seen in Box Elder and Utah county orchards in mid-April. If these or stink bugs have been a perennial problem in your orchard, a petal fall spray may be warranted (Avaunt is one option). Beating tray samples are a good means of monitoring these insects.

Powdery Mildew on Peach Fruit

Hosts: peach



There are two powdery mildew (PM) fungi that affect peach. One is specific to peach (*Sphaerotheca pannosa*), affecting the foliage and fruit, and the other is apple powdery mildew (*Podosphaera leucotricha*), only affecting the fruit.

Peach PM overwinters on roses and sometimes on peach buds. In spring, when nights are cool and moist, and days are warm, spores infect foliage (rarely) and peach fruitlets. On fruit, new lesions look like white spots. Infections on fruit can continue all spring until the pit hardening stage. (The only way to tell pit-hardening is to slice peaches.) Infections on leaves are typically only seen later in the season.

Mildew is continued on next page

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[Peach Powdery Mildew, continued](#)

Apple PM on peach is referred to as “rusty spot.” The fungus overwinters on apples only, and fruit of peach trees grown near apple trees with PM may be affected. On peach fruit, new lesions look whitish at first, and within a few days, the skin under the infection takes on a rusty-orange streaking.

Infections of either disease won't be noticeable on fruit until 2 to 4 weeks after shuck fall. At that time, monitor 25 fruits on several trees for the presence of round, whitish, powdery spots on the fruit surface. A total of 10 to 20 fruit infections and greater than 20 fruit infections per tree represents moderate and high risk, respectively.

Susceptible varieties include Redskin and Rio Oso Gem, Elegant Lady, Fairtime, Fay Elberta, and Summerset,

PM can be prevented with a shuck-split or shuck-fall fungicide application. Find options for commercial growers by [clicking here](#).

In residential settings, chlorothalonil can be used (and will also help with coryneum) between petal fall and shuck split. If a fungicide is needed after shuck split, use sulfur.

Continue fungicide sprays on susceptible varieties at 10 to 14-day intervals until the pit hardening stage is reached.

Coryneum Blight



Hosts: peach/nectarine, apricot, cherry

If coryneum blight is a problem for you, one of the most important times to apply a fungicide is at or right after the shuck split stage. Most peach orchards in northern Utah are at petal fall or approaching shuck-split.

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



peach shuck split stage



peach fruit can get infections all season long.

[Coryneum Blight, continued](#)

having now is not conducive to infections, but any moisture conditions that occur after May 1 (when the weather warms) will be optimal.

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

Homeowners can use chlorothalonil (do not use after shuck split) and can also prune out any infected twigs. In addition, do not let sprinklers spray water onto leaves or branches.

Peach Leaf Curl



Hosts: peach/nectarine



Peach leaf curl is a fungal-caused, sporadic disease that we typically only see in backyard trees or smaller orchards. In the past, there have been reports from Box Elder, Davis, and Weber counties.

The optimal conditions for infection are at least 12 hours of rain at temperatures below 61°F. If temperatures rise above 79°F, new infections of leaves do not occur.

Peach leaf curl affects leaves as they are expanding, leading to puckering, distortion, and discoloration of the foliage. The affected area is pink at first, and then turns yellow-green, and then brown. Leaves will eventually drop. The first symptoms will not show up until 2 weeks after infection. If temperatures remain cool, the fungus will grow quickly on the leaves. Hot weather will stop spread.

Unfortunately, there is nothing to do at this time of year to prevent or cure an infection, should it become apparent. Affected leaves can be removed from the area to reduce the presence of the fungus.

The optimal time to treat for peach leaf curl is a single application of a fixed copper at leaf fall. This application should cover the entire tree, as the fungus survives as spores on the tree bark.

Insect and Disease Information, continued from previous page



Brown Rot

Hosts: peach/nectarine, apricot, cherry



Brown rot is a fungal disease of cherry and peach, caused by either *Monilinia laxa* or *M. fructicola*. Last summer, there were a few reports of this disease affecting late-maturing peaches as a result of the monsoonal rains.

Typically, this disease is rare in Utah because our hot and dry climate conditions are not conducive to growth of the fungus nor formation of disease. It needs during prolonged cool, moist weather in spring followed by rainy conditions over the summer to spread and be a problem.

Brown rot can infect flowers and fruit. When flowers are infected, they may wilt and turn brown. The fungus may then move into and kill small twigs. The leaves will remain attached to twigs killed by brown rot. A spot of gum may be associated with the dying flowers.

When fruit is infected (closer to harvest), large, brown, rotted areas become visible. Sometimes the fungus produces grayish, powdery tufts of spores on the fruit. Eventually, the fruit shrivels into a "mummy."

If you see symptoms of blossom blight associated with gumming on peach or cherry, please email images to Claudia Nischwitz, at claudia.nischwitz@usu.edu. Claudia is conducting a survey of orchards for the brown rot fungi.

Gummosis

Hosts: all stone fruits

We have had a few inquiries about apricot, peach/nectarine, or cherry trees oozing. Spring is the time of year when these trees start to show these symptoms.

Gummosis, continued

Some causes of oozing include the following



Gummy ooze that is dark in color and concentrated in an oval area on the bark or branch crotches indicates a **canker disease**. Whether caused by a fungus (*Cytospora*) or bacteria (Bacterial canker), the symptoms and treatment are the same. The pathogen kills the bark and phloem, and the tree oozes at the infection site. Prune out the affected limbs in dry weather and sterilize tools with Lysol wipes between cuts.



Healthy trees being attacked by **borers**, such as shothole borer, will exude a gummy sap to flush out the larvae in the tree. This type of ooze is spotty in the affected area, the ooze color is clear to amber, and may be mixed with frass (excrement). See the borer section on page 5.



Wounds (frost crack, bark injury, etc.) may exude gum in spring. Gummosis not caused by a pathogen will run somewhat clear in color (but will dry to amber).

Insect and Disease Information, continued from previous page

ALL FRUITS

Fruitworm/Cankerworm



Hosts: all



Fruitworms and cankerworm caterpillars can feed on leaves as well as young fruit. They each have just one generation, and are only around for about 6 weeks, starting at leaf emergence. Commercial growers sometimes see these pests, typically where abandoned or unmanaged trees are nearby. Although the caterpillars primarily feed on foliage, it is the fruit feeding that is of most concern, rendering it unmarketable.

There are several species of fruitworms in Utah, and the most common is the speckled green fruitworm. Adult moths are starting to emerge now to lay eggs on foliage, twigs, and fruit. A single female can lay up to 300 eggs in one large cluster. The eggs begin hatching during apple bloom or cherry petal fall.

Cankerworms are more of a forest/landscape pest, but have been found in orchards before. They feed on a wide variety of plants and fruits. They overwinter as eggs, and are hatching now. The coloring of cankerworm larvae is similar to fruitworm, but they move differently: like an inchworm.

Treatments used for other lepidopteran pests (codling moth, peach twig borer, etc.) will also take care of fruitworms and cankerworms. Options such as Bt (Foray, Dipel, Thuricide,

Fruitworm/Cankerworm, continued

etc.) or spinosad (Entrust, Success, Monterey, Green Light) could be used on a small "hotspot" if damage is seen.

Flatheaded and Shothole Borers



Hosts: all



Both flatheaded and shothole borer adult beetles will be emerging soon, and will lay eggs on host trees. Larvae feed under the bark, causing dieback. Young trees and trees under drought or other stress are attacked most successfully. If trees are healthy and established, borers are not a concern.

Each species can be identified by its exit hole from the tree. Exit holes of flatheaded borers are flattened and oval shaped while exit holes of shothole boers are small round circles.

Management of borers requires a multi-pronged approach:

- remove dead or dying trees
- store cherry, apple, and poplar woodpiles outside the orchard
- keep trees healthy with optimal watering and fertilization
- apply an insecticide on trunks and limbs only on at-risk trees

	Egg-laying Period	Insecticide Options
Shothole	early May - late June	<i>Commercial:</i> Asana (21 d), Avaunt, Assail, Actara (14 d)
Flatheaded	mid May - early July	<i>Residential:</i> carbaryl, permethrin (not on apple)

Spray Timing Information - Codling Moth

Please check this table at each advisory as the information may change as the dates get closer. The forecasts use the average temperature for each site. Fruit should remain protected through each generation according to interval provided on your pesticide label. Many more locations can be viewed on the [Utah Climate Center TRAPs website](#) (select location; select codling moth).

Codling Moth, First Generation

Where known, starting dates for treating the first generation of codling moth are noted below.

In the table, 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 (the number of times depends on prior infestation), spaced 7-21 days apart (depending on material) to protect fruit up to the end of the first generation egg hatch.

County	Location	Option A	Option B	
		Apply first spray	Apply oil	Apply first insecticide
Box Elder	Perry	not yet known	not yet known	not yet known
	Tremonton	not yet known	not yet known	not yet known
Cache	River Heights	not yet known	not yet known	not yet known
	Smithfield	not yet known	not yet known	not yet known
Carbon	Price	not yet known	not yet known	not yet known
Davis	Kaysville	May 19	May 17	May 29
Grand	Castle Valley, Moab	May 7	May 5	May 16
Juab	Tintic	not yet known	not yet known	not yet known
Salt Lake	Benches/Cooler sites	not yet known	not yet known	not yet known
	Most areas	May 19	May 17	May 29
Sevier	Monroe	not yet known	not yet known	not yet known
Tooele	Erda	May 24	May 22	June 3
	Grantsville	May 21	May 18	June 1
Uintah	Vernal Airport	not yet known	not yet known	not yet known
Utah	Alpine	not yet known	not yet known	not yet known
	American Fork	not yet known	not yet known	not yet known
	Genola	May 27	May 24	not yet known
	Lincoln Point	not yet known	not yet known	not yet known
	Orem (Lindon)	May 17	May 14	May 26
	Payson	May 21	May 19	June 1
	Provo Airport	May 16	May 13	May 26
	Provo Canyon	not yet known	not yet known	not yet known
	Santaquin	not yet known	not yet known	not yet known
West Mountain	not yet known	not yet known	not yet known	
Weber	Ogden Airport	May 21	May 19	June 2
Wasatch	Heber City	not yet known	not yet known	not yet known
Washington	New Harmony	May 17	May 14	May 28
Wayne	Torrey	May 14	May 12	May 25

Spray Materials - Residential Applicators

Note that these treatments are only recommended if you know you have the particular pest in your trees. We recommend learning about specific pests, and scouting your trees at least once/week.

Target Pest	Host	Chemical	Example Brands	Comments
Codling moth	apple, pear	<p><i>Conventional</i> carbaryl acetamiprid malathion gamma-cyhalothrin</p> <p><i>Soft/organic</i> oil (1%) spinosad</p> <p>codling moth virus</p>	<p>Sevin, Bonide Fruit Tree Spray, etc. Ortho Max Flower, Fruit, and Veg., Malathion Spectracide Triazicide</p> <p>Many products, EcoSmart Green Light, Gardens Alive Bull's Eye, Monterey Cyd-X</p>	<p>acetamiprid: every 14 days carbaryl: every 14 - 21 days malathion: every 7 days gamma-cyhalothrin: every 14 days bifenthrin: every 14 days hort. oil: lasts 5-7 days for killing eggs; use at beginning of each generation; apply at 1% rate only when temperatures are below 80 F; follow up with a different product spinosad: every 7 days codling moth virus can only be purchased online</p>
Powdery mildew	apple	<p><i>Conventional</i> bayleton propiconazole</p> <p><i>Soft/organic</i> lime sulfur neem oil potassium bicarbonate</p>	<p>Lilly Miller Ferti-Lome</p> <p>Bonide Garden Safe Kaligreen</p>	<p>do not apply lime sulfur when temperature is over 75 degrees F;</p> <p>do not mix sulfur with oil or apply after or before oil</p>
Fire blight	apple, pear	<p>streptomycin oxytetracycline</p>	<p>Ferti-Lome Mycoshield</p>	<p>Do not use antibiotic unless necessary; apply streptomycin within 24 h of a wetting event only if fire blight was present last year; oxytetracycline within 12 hr.</p>
Aphids	all	<p><i>Soft/organic</i> oil (1%) spinosad</p>	<p>Many products, EcoSmart Safer's, Bayer Natria, Bonide</p>	<p>Allow 4 hours-time for application to dry before temps reach 85 or above.</p>
Coryneum blight	peach, apricot	<p>chlorothalonil captan</p>	<p>Fung-onil, Ortho Max Disease Control Captan</p>	<p>Apply once at shuck split stage Do not use chlorothalonil after shuck split. use as a preventive before a rain</p>

Precautionary Statement: Utah State University Extension and its employees are not responsible for the use, misuse, or damage caused by application or misapplication of products or information mentioned in this document. All pesticides are labeled with ingredients, instructions, and risks. The pesticide applicator is legally responsible for proper use. USU makes no endorsement of the products listed herein.

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