

## News/What to Watch For:

After tart cherry harvest, do not let cherry powdery mildew spread. Apply a spray of 1 to 1.5% oil in mid to late August to reduce powdery mildew spores.

Infections of apple powdery mildew on peach (“rusty spot”) end when the pit hardens (about now). Infections by the fungus that causes peach powdery mildew (causing white powdery substance on fruit) could continue beyond pit hardening.

Updated Codling Moth and Peach Twig Borer dates and recommended products, pages 5-6.

## JUST THE BASICS: Current Treatments

### APPLE & PEAR

- Rapid egg hatch of *codling moth* is coming up and may require an extra treatment.
- Treat 2nd generation *San Jose scale*, where present.

### PEACH/NECTARINE, APRICOT

- Time to apply spray for *peach twig borer* second generation in most areas.

### CHERRY

- After harvest, apply a “cleanup” spray on cherries to reduce populations of *western cherry fruit fly*.

### WALNUT

- Continue protecting walnuts from *walnut husk fly*.

## Insect and Disease Information

 : information for residential settings

 : information for commercial orchards

### APPLE & PEAR

#### Codling Moth



Hosts: apple

Except for the cooler areas of northern Utah, all other areas are approaching the period of rapid egg hatch, so maintain protection of fruit. The period of rapid egg hatch is about a 10-day time span where 50% of all eggs of the 2nd generation will be hatching. It would be best to time an application that will protect fruit during this period.

There will be a full third generation this year, with no real “down time” between the second and third. So basically, in those areas that have high pest pressure, you will want to keep fruit protected from now through the middle of September.

This week, we sampled fruits from a several orchards and are finding several fruit infestations, either in the form of a sting



or a successful entry. A sting is a type of injury that occurs when newly hatched larvae start feeding on the fruit and are then either killed, or move to another location. The slightest feeding leaves small scars that look like small brown dots. As

*Codling moth* is continued on next page

## Insect and Disease Information, continued from previous page

### Codling moth continued

the apple skin expands, the small wound splits and re-heals. Entries are when the codling moth larva feeds on the apple seeds and fully develops inside the apple.

If you are seeing higher than usual damage, feel free to contact me to discuss the insecticide you used, and when it was applied. Keep in mind that when fruit is expanding rapidly (from mid June through late July), it is a little harder to keep fruit fully protected, and hotter weather means that insect activity increases.

### Fire Blight Rootstock Infection



Hosts: apple



Compared to past years, we have seen very little fire blight damage to trees as a result of blossom infections. We have seen a few cases, however, of rootstock infections, where the entire tree wilts suddenly and dies.

Fire blight cankers at the collar or rootstock occur in susceptible rootstocks such as M.9 and M.26. Bacteria can enter the rootstock either through infections of water sprouts or burr knots, washing bacteria from infected twigs down the trunk, or via internal translocation of the fire blight bacteria from the infected cultivar scion above ground to the rootstock (with no aboveground discoloration of the tissue).

The bark of infected rootstocks may appear water-soaked and a darker purplish to black color. It may be cracking or sunken, and in cool spring weather, have bacterial ooze. By removing the outer bark, you will be able to see a red-brown to black streaking in the wood just under the bark and below the graft.

### Fire blight, continued

As this rootstock canker girdles the tree, the upper portion of the tree shows symptoms of general decline (poor foliage color; weak growth, wilting) by mid to late season. Younger trees are most susceptible to being killed.

If you suspect this type of infection, scrape off some bark below the graft to check for discoloration of the wood underneath. Remove the tree promptly. Fire blight resistant rootstocks include Geneva, M. 4, MM.111, and M.7a.

### Woolly Apple Aphid



Hosts: peach/nectarine, apricot



woolly apple aphids feed on twigs and bark wounds



the aphids' cottony coating protects them from predators and insecticides

Woolly apple aphid populations are rapidly increasing in the hot weather we have been having. These aphids in the tree are very visible, but they are also found below ground. They feed on tree roots, causing galls that may weaken trees. They are most common in trees that are not regularly sprayed.

If woolies have increased to the point of covering more than 10-20% of the tree, they should be treated. It is important to spray to drip to fully penetrate the waxy, woolly colonies.

Backyard growers can use insecticidal soap+1% oil, aimed directly at the colonies.

Options for commercial growers: [click here](#).

## Insect and Disease Information, continued from previous page

### San Jose Scale



Hosts: apple (primarily)



San Jose scale nymphs on fruit look like small pimples with a purple halo

San Jose scale will have a second emergence of crawlers, coming up soon in many areas. This pest is usually treated with a combination of a dormant oil spray and a first generation spray. But if you are seeing signs of scale on apple fruit, consider treating for second generation crawlers.

One treatment is all that is necessary. Backyard growers can use 1% horticultural oil (apply in evening or early morning to avoid 85°F+ temps). Commercial growers can use Esteem.

Box Elder (Perry): July 28 - 30  
 Cache (River Heights): August 7 - 10  
 Davis (Kaysville): July 24 - 26  
 Iron (Cedar City Airport): August 4 - 7  
 Salt Lake (Taylorsville): July 21 - 23  
 Tooele (Grantsville): July 21 - 23  
 Utah (Provo): July 26 - 29  
 Uintah (Vernal): August 1 - 4  
 Wasatch (Heber City): August 17 - 20  
 Washington (New Harmony): July 21 - 25

## PEACH/NECTARINE, APRICOT, CHERRY

### Peach Twig Borer



Hosts: peach/nectarine, apricot

In the warmer areas of northern Utah, the spray timing for the second generation egg hatch is occurring now. Cooler areas (Cache, northern Box Elder counties, etc.) won't need to start until late July to early August.

Now is a good time to assess the damage in your peach trees. Larvae of the first generation feed in succulent shoot tips, so look for shoots where the top 2-3 leaves are wilted or dried up (called "shoot strikes"). Only the very top inch of growth

### Peach twig borer, continued



shoot strike showing wilted leaves and the larva's exit hole

or less, will be damaged, so finding the strikes takes a keen eye. Looking for the damage will help to determine whether or not a treatment is necessary for the second generation. Two shoot strikes per tree is the threshold limit and warrants an application.

Peach twig borer is a sporadic pest and usually not a problem on late season peaches. But early peaches and apricots can be infested with "worms" in areas of high population. However, if you are **not** seeing any injury on your peaches, you may be able to avoid late season sprays. In our monitoring traps in Box Elder and Utah counties, we have caught an average number of moths in most of the traps for the last several weeks.

### Western Cherry Fruit Fly



Hosts: cherry



Tart cherry harvest is well underway, and will continue for another few weeks. If sprays need to be applied during harvest, consider spinosad (or GF-120) or carbaryl (Sevin) where the pre-harvest interval is short (0 days or 3 days).

After harvest is finished, there are usually some fruit left on the tree. When the leftover fruit is unsprayed, it serves as a breeding ground for cherry fruit fly. Egg-laying by adult

*Western cherry fruit fly* is continued on next page

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### Western cherry fruit fly, continued

females actually increases later in the season, even into early October. Research has shown that this late-season infested fruit is a greater source of cherry fruit flies for the following season than from outside the orchard. Therefore, a clean up spray a week or so after harvest can significantly reduce the population.

Commercial growers could use dimethoate, Admire Pro, Delegate, or Altacor ([click here for more info](#)).

Homeowners should remove and destroy all fallen fruit (including sweet cherries), and if possible, pick your cherry trees clean.

### Root Weevil

**Hosts:** peach/nectarine, apricot

**root weevil adults feed on the edges of leaves, causing half-circle notches**



Notched half-circles on leaf edges is a classic sign of feeding by adult root weevils. In Utah, the most common species is the strawberry root weevil (*Otiorhynchus ovatus*). Prolonged drought conditions may contribute to their population increase.



The primary concern is root feeding by larvae in young orchards. Heavy root weevil feeding can stunt young trees. Where trees are being planted in sites of known weevil activity, control may be warranted using a soil drench of an insecticide or predatory nematodes in spring.

### Nectarine - Deformed Fruit

**Hosts:** nectarine

Random, lumpy scarring or gummosis on the surface of nectarines is caused by western flower thrips. Thrips are minute insects that require a hand lens to see. Adults emerge in spring and lay eggs on and near developing buds and flowers.

### Nectarine, continued

**thrips feeding from petal fall to shuck split kills cells of the young fruit; scar tissue forms as the fruit expands**



The feeding by larvae from petal fall through shuck split is what causes the above damage. The thrips feed by scraping the plant cells and consuming the contents. As the nectarine develops, the skin splits and heals at the feeding sites. Sometimes gumming can be seen at the scarred sites during rapid expansion of the skin.

Treatments targeting thrips must be applied at petal fall. Spinosad (Success, Entrust) is an excellent option.

### Coryneum Blight

**Hosts:** peach/nectarine, apricot



Coryneum blight infections are visible on peach and apricot fruit, and most likely occurred during rain events in mid June. In the warm summer temperatures, the pathogen that causes coryneum needs just 6 hours of rain. Therefore, if rain is in the forecast, it is best to apply a fungicide beforehand.

Backyard growers can use Captan or Spectracide Immunox.

Commercial growers can use options [found here](#). (Scroll down to "Shothole".)

## 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, Second and Third Generations

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 second generation egg hatch. Time the last treatment to be 10-25 days (depending on the material) before the "End" date.

In general, starting with the 2nd generation, the fruit should be protected continuously until September 15, or just before harvest (whichever is earliest). Because of the hotter temperatures occurring during 2nd and 3rd generations, there is a very short "break" (about 3 days), and egg hatch occurs almost nonstop. In sites with lower populations or very little outside pressure, just apply a treatment during the period of greatest egg hatch.

County	Location	Start Spray, 2nd Gen.	Period of Greatest Egg Hatch	End 2nd Gen. Egg Hatch	Start Spray, 3rd Gen.
<b>Box Elder</b>	Perry	passed	July 21 - August 2	August 19	---
	Tremonton	passed	July 24 - August 3	August 21	---
<b>Cache</b>	River Heights	July 19	July 31 - August 12	---	---
	Richmond	July 23	August 5 - 17	---	---
<b>Carbon</b>	Price	passed	July 21 - August 2	August 20	---
<b>Davis</b>	Kaysville	passed	July 19 - July 29	August 12	August 15
<b>Grand</b>	Castle Valley	passed	passed	July 28	July 30
<b>Juab</b>	Tintic	July 18	July 30 - August 13	---	---
<b>Salt Lake</b>	North Holladay	passed	July 13 - July 23	August 4	August 6
	Taylorville	passed	July 15 - July 25	August 7	August 10
<b>Sevier</b>	Monroe	passed	July 18 - July 31	August 18	August 22
<b>Tooele</b>	Erda	passed	July 20 - July 30	August 12	August 15
	Grantsville	passed	July 15 - July 25	August 7	August 10
<b>Uintah</b>	Vernal Airport	passed	July 24 - August 6	---	---
<b>Utah</b>	Alpine	July 17	July 29 - August 11	---	---
	American Fork	passed	July 21 - August 2	August 16	August 19
	Genola	passed	July 18 - July 29	August 12	August 15
	Lincoln Point	passed	July 21 - August 1	August 15	August 18
	Orem (Lindon)	passed	July 21 - August 1	August 15	August 18
	Payson	passed	July 21 - August 1	August 15	August 18
	Provo Airport	passed	July 19 - July 30	August 13	August 16
	Provo Canyon	passed	July 26 - August 6	August 24	---
	Santaquin	passed	July 21 - August 1	August 16	August 19
	Tickville	passed	July 21 - August 5	August 23	---
	West Mountain	passed	July 24 - August 4	August 19	August 22
<b>Weber</b>	Ogden Airport	passed	July 17 - July 27	August 9	August 12
	Pleasant View	passed	July 15 - July 25	August 8	August 11
<b>Wasatch</b>	Heber City	July 27	August 9 -	---	---
<b>Washington</b>	New Harmony	passed	July 14 - July 25	August 10	August 13
<b>Wayne</b>	Torrey	passed	July 11 - July 22	August 6	August 9

## Spray Timing - Peach Twig Borer

### Peach Twig Borer, Second and Third Generations

The table below shows a range of dates for “apply spray” for each generation. Choose the earlier date if you have high pest pressure in your area (lots of damage last year), and choose the later date if you have low pest pressure (very little damage).

In general, one to two sprays per generation should suffice.

County	Location	Apply Spray, 2nd Gen.	Keep Fruit Protected Up To:	Apply Spray, 3rd Gen.
<b>Box Elder</b>	Perry	July 21 - 25	August 21	---
	Tremonton	July 27 - July 31	---	---
<b>Cache</b>	All Locations	August 1 - 6	---	---
<b>Carbon</b>	Price	July 26 - 30	---	---
<b>Davis</b>	Kaysville	July 20 - 24	August 15	---
<b>Grand</b>	Castle Valley	passed	July 26	August 4 - 7
<b>Iron</b>	Cedar City	July 29 - August 2	---	---
<b>Juab</b>	Tintic	July 29 - Aug 3	---	---
<b>Salt Lake</b>	North Holladay	July 14 - July 18	August 6	August 14 - 18
	Taylorsville	July 14 - July 17	August 7	August 16 - 20
<b>Sevier</b>	Monroe	July 19 - 23	August 21	---
<b>Tooele</b>	Erda	July 16 - 20	August 10	August 20 - 24
	Grantsville	July 14 - 18	August 7	August 16 - 20
<b>Utah</b>	Alpine	August 2 - 6	---	---
	American Fork	July 19 - 23	August 15	---
	Genola	July 16 - 19	August 11	---
	Lincoln Point	July 16 - 20	August 12	---
	Orem (Lindon)	July 22 - 25	August 17	---
	Payson	July 18 - 21	August 13	---
	Provo Airport	July 17 - 21	August 12	---
	Provo Canyon	July 22 - 26	August 18	---
	Santaquin	July 20 - 24	August 16	---
	Tickville	July 25 - 31	---	---
West Mountain	July 21 - 25	August 17	---	
<b>Weber</b>	Pleasant View	July 15 - 18	August 8	August 17 - 21
<b>Wayne</b>	Torrey	passed	August 7	August 17 - 20

## 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	<i>Conventional</i> acetamiprid carbaryl gamma-cyhalothrin malathion  <i>Soft/organic</i> oil (1%) spinosad  codling moth virus	Ortho Fruit and Veg. Sevin, Bonide Fruit Tree Spray, etc. Spectracide Triazicide Malathion  Many products, EcoSmart Green Light, Gardens Alive Bull's Eye, Monterey Cyd-X	<b>acetamiprid:</b> every 14 days <b>carbaryl:</b> every 14 - 21 days <b>gamma-cyhalothrin:</b> every 14 days <b>malathion:</b> every 7 days <b>hort. oil:</b> lasts 5-7 days for killing eggs; use at beginning of each generation; apply only when temperatures are below 80 F; follow up with a different product <b>spinosad:</b> every 7 days <b>codling moth virus</b> can only be purchased online
San Jose scale	apple	<i>Conventional</i> acetamiprid carbaryl gamma-cyhalothrin malathion  <i>Soft/organic</i> oil (1%) insecticidal soap	Ortho Fruit and Veg. Sevin, Bonide Fruit Tree Spray, etc. Spectracide Triazicide Malathion  Many products Safer's, Bayer Natria	<b>only treat when crawlers are active.</b>  <b>oil and soap:</b> allow 4 hours-time for application to dry before temps reach 85 or above.
Spider mites	all	<i>Soft/organic</i> oil (1%) insecticidal soap	Many products, EcoSmart Safer's, Bayer Natria, Bonide	<b>oil and soap:</b> allow 4 hours-time for application to dry before temps reach 85 or above.
Coryneum blight	peach, apricot	<i>Conventional</i> myclobutanil captan	Spectracide Immunox Captan	Use as a preventive before a rain.
Peach twig borer	peach, nectarine	<i>Conventional</i> acetamiprid carbaryl malathion permethrin  <i>Soft/organic</i> spinosad kaolin clay	Ortho Flower, Fruit & Veg Sevin, Bonide Fruit Tree Spray, etc. Malathion Hi-Yield Indoor/Outdoor Broad Use; Lilly Miller Multi-Purpose Insect Spray  see 'codling moth' above Surround	see comments under Codling Moth  <b>permethrin:</b> every 14 days; this ingredient is becoming less available in stores and may cause spider mite outbreaks  <b>Surround:</b> every 3-5 days; works to repel, not kill insects; only moderate control; must purchase online
Walnut husk fly,  Western cherry fruit fly	walnut peach apricot  cherry	<i>Conventional</i> acetamiprid carbaryl malathion  <i>Soft/organic</i> pyrethrin spinosad	Ortho Fruit & Veg. Sevin Malathion  Concern Multi-Purpose see above	start applications when fruit in sunniest locations develops a salmon blush  <b>spinosad:</b> every 7 days

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### Tree Fruit IPM Advisory

is published weekly by Utah State University Extension

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