

## News/What to Watch For:

After tart cherry harvest, apply a spray of 1 to 1.5% oil in mid to late August to reduce powdery mildew spores and spider mite populations.

Now is a good time to collect foliage for nutrient analysis by the USU Analytical Lab ([www.usual.usu.edu](http://www.usual.usu.edu)).

Watch apple and pear fruit for small white “pimples” with a purple halo; this is San Jose scale.

Updated Codling Moth and Peach Twig Borer dates, and Residential Products, pages 5-7.

## JUST THE BASICS

### APPLE & PEAR

- Continue protecting fruit from *codling moth*.

### PEACH/NECTARINE, APRICOT, CHERRY

- Continue to protect lower trunks of plum, peach/nectarine against *greater peachtree borer*.

### WALNUT

- *Walnut husk fly* peak emergence will occur in early to mid-August. Keep nuts protected until a month before harvest.

## Backyard Grower Information

### APPLE, PEAR

#### Codling Moth

Hosts: apple, pear

- **Continue to protect fruit until harvest or September 15, whichever is earliest.**

#### Spider Mites

Hosts: all fruit trees

Although spider mites affect all fruit trees, we have recently had many reports of infestations on apple and pear. Spider mites are tiny organisms that require a hand lens to see. They primarily occur on the undersides of leaves, but in high populations, can move to the tops of leaves. There is often webbing visible in high populations.

A 0.5-1% application of horticultural oil is very effective on mites, especially when populations are low, and when the spray coverage is good enough to cover the undersides of the leaves.



**Two-spotted spider mite is the most common species of mites on fruit trees in Utah. The two spots on either side of the body are waste material from feeding activity.**

**A 10x (or greater) magnifying lens is necessary to see the spider mites (look on the undersides of the leaves).**

## Backyard Grower Information, continued



**A heavy and prolonged infestation on apples can cause bronzing of the foliage**



**Webbing that is visible on the leaf surface indicates a high population of spider mites.**



**Spider mites affect pear differently. The foliage develops blotchy black lesions.**



**Spider mite feeding on pear can cause the new foliage to emerge deformed and with black lesions.**

### PEACH/NECTARINE, APRICOT, PLUM, CHERRY

#### Peach Twig Borer

**Hosts:** peach/nectarine, apricot

If you have had wormy peach fruit in the past, be sure to keep the fruit protected from the peach twig borer larvae as the fruit softens.



When harvest time approaches, pick a material that has a short "time to harvest" interval. Ortho Fruit, Flower and Vegetable can be applied up to 7 days before harvest, or spinosad products (Monterey, Bonide, etc.) can be applied up to 1 day before harvest.

#### Greater Peachtree Borer

**Hosts:** peach/nectarine, plum

Continue to protect the lower 12-18 inches of the trunks of your susceptible trees through September. Make sure the spray covers the entire surface area, particularly close to ground level, and any exposed roots.

#### Walnut Husk Fly

**Hosts:** walnut, apricot, peach



Peak fly emergence of walnut husk fly will occur in early to mid-August, so this is a good time to apply an application on walnuts. Note that populations of walnut husk fly can be reduced by removing all nuts that fall to the ground.

Alternatively, avoid spraying and remove husks of infested nuts by storing them in a damp burlap bag for 2 to 3 days.

## Commercial Grower Information

### APPLE & PEAR

#### White Apple Leafhopper

**Hosts:** apple, cherry

Nymphs are active now. If leafhopper has been a nuisance at harvest in the past, now is the time to treat.



Options for leafhopper can be found by [clicking here](#).

#### Codling Moth

**Hosts:** apple, pear

The period of peak egg hatch for 2nd generation will be ending soon, but at this time of year, the 2nd and 3rd generations blend together. So it is best to continue to protect fruit from larval entries continuously from now until harvest, or September 15, whichever is earliest.

But do pay attention to the date at which the 3rd generation starts to know when to rotate your insecticide.

Codling moth options can be found by [clicking here](#).

#### Bitter Pit of Apple

**Hosts:** apple, pear



Lack of calcium in apple fruits can result in a physiological disorder known as bitter pit. The fruit has sunken, brown lesions on the skin and flesh, located mainly on the calyx end. Lesions become worse after storage, turning dark brown to black.

Bitter pit usually occurs on trees with low fruit set, excessive vigor, irregular soil moisture, or on certain varieties. Honeycrisp, Granny Smith, Golden Delicious, Mutsu, Gravenstein, Yellow Newtown, and Jonathan are among the more susceptible varieties, although almost any young, extremely vigorous tree may exhibit symptoms.

Calcium sprays (calcium nitrate, STOP-IT, Nutri-Cal, Miracal, etc.) have been shown to reduce bitter pit symptoms. One to two sprays applied to expanding fruit before harvest (target the fruit, not the foliage) can help prevent symptoms. Do not spray at temps above 80-85°F.

NOTE: Avoid spraying Crispin and Golden Delicious with calcium nitrate, since fruit damage may result.

After harvest, a 4% calcium chloride dip is also effective. Store fruit immediately and wash before eating. (Note that calcium chloride is corrosive to metal.)

For the best bitter pit prevention, an integrated approach of the following cultural practices is important:

- avoid wide fluctuations in soil moisture
- do not over-fertilize to avoid vigorous growth and oversized fruit
- do not over-prune
- try to prevent biennial bearing through proper thinning and pollination practices
- harvest at optimal timing because late harvested fruit is more prone to bitter bit

### STONE FRUITS

#### Peach Twig Borer

**Hosts:** peach/nectarine, apricot

Most commercial orchards are in the midst of 2nd generation egg hatch. As fruit softens, twig borer larvae will tunnel inside to feed. Early peaches can be attacked in areas of high population.

Our monitoring traps in Box Elder and Utah counties have had typical moth captures as compared to past years. It is important to base a decision of a second cover for 2nd generation on your own trapping and past fruit infestation.

If harvest has begun, select a material that has a shorter pre-harvest interval, such as Assail, Intrepid (7-day PHI), or Entrust (1 day PHI).

Options for peach twig borer can be found by [clicking here](#).



## Commercial Grower Information, continued

### Earwigs

**Hosts:** peach/nectarine, apricot



earwigs make deep feeding pits in fruit, and leave behind black dots of excrement

Earwigs are a perennial problem of peaches throughout northern Utah. The orchard environment is conducive to earwigs: irrigated ground, plenty of food, and humid cover.

Once fruit softens, earwigs chew deep pits into the fruit flesh. They can also enter fruits through existing openings or cracks. Their feeding introduces bacteria and decay fungi that can render the fruit inedible. Earwig damage is easy to diagnose because they leave behind black dots of excrement on the fruit surface.

Controlling adults can be difficult due to their limited exposure to contact insecticides. Carbaryl or spinosad have both shown good control for earwigs, and have short PHI's. Either product should be applied just before the peach fruits start to soften.

Options for earwigs can be found by [clicking here](#).

### Tart Cherry Post-Harvest

**Hosts:** peach/nectarine, plum

After tart cherry harvest, apply a spray of 1 to 1.5% oil (200 gal/acre) in mid to late August to reduce powdery mildew overwintering spores and spider mite populations.

In addition, fruit that remains in the orchard after harvest represents a source for infestation of cherry fruit fly the following season. Imidacloprid (Admire Pro, or generics) or Dimethoate applied within seven days after harvest has the potential to reduce fly populations for the following year, especially in orchards with high post-harvest catches.

### Phytophthora Crown and Collar Rot

**Hosts:** all fruit trees, particularly apple and cherry



Large trees that die suddenly during periods of high heat and drought may have been living with phytophthora infections much of the season.

Crown rot is a disease that girdles the tree at the crown level by killing the cambium, preventing the flow of water and nutrients. An infected tree exposed to the stress of heat, drought, and bearing fruit can result in a quick death.



This disease can be diagnosed by scraping the outer bark away from the base of the tree to look for the cinnamon colored, diseased cambium.

Phytophthora is present in almost all soils, but infection only occurs with the combination of saturated soils (for at least 6 hours) and a susceptible host. Trees planted too deeply in clay soils are at greatest risk. The pathogen can also spread from tree to tree via root contact.

To prevent infection, avoid planting trees in low spots or in poorly drained soils. Plant new trees slightly high so that they do not settle lower than the normal soil grade, and prevent water from puddling around the root collar.

Trees that are growing next to phytophthora-killed trees and that are not yet showing any symptoms should be given a foliar treatment with phosphorus acid (Agri-Fos, Fosphite, others), which will help the tree(s) develop tolerance to infection.

## Spray Timing Information - Codling Moth

Please check this table at each advisory as the information may change as the dates get closer. Many more locations can be viewed on the [Utah Climate Center TRAPs website](#) (select location; select codling moth).

### Codling Moth, Second and Third Generations

Fruit should be protected until harvest or September 15, whichever is earliest. Continue to be mindful of the “Period of Greatest Egg Hatch” and make sure you don’t skip a spray during that time.

County	Location	2nd Gen. Period of Greatest Egg Hatch	2nd. Gen. Keep Fruit Protected to:	Start of 3rd Gen. Egg Hatch
<b>Box Elder</b>	Perry	passed	August 14	August 17
	Tremonton	July 20 - Aug 2	August 17	August 20
<b>Cache</b>	Logan Airport	Aug 2 - Aug 16	August 31	September 3
	River Heights	July 26 - Aug 8	August 25	August 29
<b>Carbon</b>	Price Airport	July 21 - Aug 4	August 21	August 25
<b>Davis</b>	Kaysville	passed	August 11	August 14
	Farmington	passed	August 1	August 4
<b>Grand</b>	Moab	passed	passed	passed
<b>Iron</b>	Cedar City Airport	July 20 - Aug 3	August 20	August 24
<b>Juab</b>	Nephi	July 23 - Aug 5	August 21	August 25
<b>Millard</b>	Delta	passed	August 9	August 12
<b>Salt Lake</b>	Benches/Cooler sites	passed	August 7	August 10
	Most areas	passed	passed	July 31
<b>Sanpete</b>	Ephraim	Aug 1 - Aug 15	September 2	September 5
<b>Sevier</b>	Monroe	passed	August 11	August 14
<b>Tooele</b>	Erda Airport	July 20 - Aug 1	August 15	August 18
	Grantsville	passed	August 9	August 12
<b>Uintah</b>	Vernal Airport	July 22 - Aug 5	August 24	August 28
<b>Utah</b>	Alpine/Highland	July 26 - Aug 8	August 27	August 31
	American Fork	July 19 - Aug 1	August 16	August 19
	Genola	passed	August 12	August 15
	Lincoln Point	July 19 - Aug 1	August 16	August 19
	Orem/Lindon	passed	August 12	August 15
	Payson	passed	August 14	August 17
	Provo Airport	July 21 - Aug 4	August 21	August 25
	Provo Canyon	July 20 - Aug 2	August 17	August 20
	Santaquin	July 19 - Aug 1	August 16	August 19
	Tickville (Oak Springs)	July 29 - August 10	August 29	September 2
	West Mountain	passed	August 14	August 17
<b>Weber</b>	Ogden Airport	passed	August 9	August 12
	Pleasant View	passed	August 6	August 9
<b>Wasatch</b>	Heber City	Aug 7 - Aug 22	September 8	none
<b>Washington</b>	New Harmony	passed	August 16	August 20
<b>Wayne</b>	Capitol Reef	passed	July 30	August 2
	Torrey	passed	August 7	August 11

## Spray Timing - Peach Twig Borer

### Peach Twig Borer, Second and Third Generations

For the start of 2nd generation, use the earlier date to apply the spray if you had damage last year, and use the later date if you had very little PTB damage last year. In general most areas need just one application at the beginning of each generation. Fruit is more susceptible to attack as it softens, so in high risk areas, an application 2 weeks before harvest may be necessary.

County	Location	Start Dates 2nd Gen.	2nd Gen. Keep Fruit Protected Up To:	Start Dates 3rd Gen.
<b>Box Elder</b>	Perry	passed	August 14	Aug 23 - 29
	Tremonton	July 30 - Aug 1	August 21	Aug 31 - Sept 3
<b>Cache</b>	Logan Airport	Aug 5 - 9	September 5	none
	River Heights	Aug 1 - 5	August 30	none
<b>Carbon</b>	Price Airport	July 27 - July 31	August 28	none
<b>Davis</b>	Kaysville	passed	August 11	Aug 21 - 25
	Farmington	passed	August 1	Aug 10 - 14
<b>Grand</b>	Moab	passed	July 24	Aug 1 - 5
<b>Iron</b>	Cedar City Airport	passed	August 22	Aug 30 - Sept 2
<b>Salt Lake</b>	Benches/Cooler sites	passed	August 7	Aug 16 - 20
	Most areas	passed	July 29	Aug 6 - 10
<b>Sanpete</b>	Ephraim	Aug 1 - 6	not yet known	none
<b>Sevier</b>	Monroe	passed	August 12	Aug 24 - 29
<b>Tooele</b>	Erda Airport	passed	August 16	Aug 26 - 31
	Grantsville	passed	August 10	Aug 20 - 24
<b>Uintah</b>	Vernal Airport	July 28 - Aug 1	August 31	none
<b>Utah</b>	Alpine/Highland	July 29 - Aug 1	August 29	none
	American Fork	passed	August 15	Aug 25 - 30
	Genola (CHF)	passed	August 12	Aug 22 - 25
	Lincoln Point	passed	August 15	Aug 25 - 30
	Orem (Lindon)	passed	August 12	Aug 21 - 25
	Payson	passed	August 14	Aug 24 - 29
	Provo Airport	passed	August 13	Aug 23 - 28
	Provo Canyon	passed	August 15	Aug 25 - 30
	Santaquin	passed	August 16	Aug 26 - 31
	Tickville (Oak Springs)	July 30 - Aug 3	August 30	none
	West Mountain	passed	August 14	Aug 24 - 29
<b>Washington</b>	New Harmony	passed	August 12	Aug 23 - 28
<b>Weber</b>	Ogden Airport	passed	August 10	Aug 19 - 24
	Pleasant View	passed	August 6	Aug 15 - 19
<b>Wasatch</b>	Heber City	Aug 9 - 14	September 7	none
<b>Wayne</b>	Capitol Reef	passed	July 30	Aug 8 - 12
	Torrey	passed	August 8	Aug 19 - 24

## 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> carbaryl acetamiprid malathion gamma-cyhalothrin  <i>Soft/organic</i> spinosad  codling moth virus	Sevin, Bonide Fruit Tree Spray, etc. Ortho Flower, Fruit, and Veg. Malathion Spectracide Triazicide  Green Light, Gardens Alive Bull's Eye, Monterey Cyd-X	<b>acetamiprid:</b> every 14 days <b>carbaryl:</b> every 14 - 21 days <b>malathion:</b> every 7 days <b>gamma-cyhalothrin:</b> every 14 days <b>spinosad (organic):</b> every 7 days <b>codling moth virus</b> can only be purchased online; store in fridge or freezer
Coryneum blight	peach, apricot	<i>Conventional</i> captan myclobutanil	Captan Spectracide Immunox	<b>captan, Immunox:</b> use as a preventive before a rain
Greater peachtree borer	peach, plum	<i>Conventional</i> carbaryl gamma-cyhalothrin permethrin  <i>Soft/organic</i> spinosad	Sevin Spectracide Triazicide Bonide Borer-Miner Killer, Enforcer Outdoor Insect Killer, Hi-Yield Broad Use Including Gardens; Lilly Miller Multi-Purpose Insect Spray  Green Light, Gardens Alive Bull's Eye, Monterey	<b>carbaryl:</b> every 14 - 21 days <b>gamma-cyhalothrin:</b> every 14 days <b>permethrin:</b> works best; once/month <b>spinosad (organic):</b> every 7-10 days
Peach twig borer and Walnut husk fly	peach, apricot	<i>Conventional</i> carbaryl acetamiprid malathion gamma-cyhalothrin  <i>Soft/organic</i> spinosad	Sevin, Bonide Fruit Tree Spray, etc. Ortho Flower, Fruit, and Veg. Malathion Spectracide Triazicide  Green Light, Gardens Alive Bull's Eye, Monterey	For PTB, one to 2 applications per generation, depending on prior injury level  <b>acetamiprid:</b> only the concentrate container includes peach on the label; every 14 days <b>carbaryl:</b> every 14 - 21 days <b>malathion:</b> every 7 days <b>gamma-cyhalothrin:</b> every 14 days <b>spinosad:</b> every 7 days

**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.

### Tree Fruit IPM Advisory

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Editor: Marion Murray, [marion.murray@usu.edu](mailto:marion.murray@usu.edu)

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