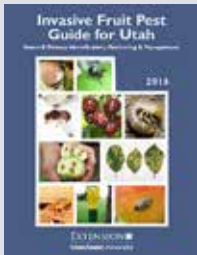


## News/What to Watch For:



***Invasive Fruit Pest Guide for Utah*** was recently published, and includes detailed management recommendations to help growers be prepared, in case one of these pests becomes established in Utah. The guide includes the “big two” – spotted wing drosophila and brown marmorated stink bug – plus velvet longhorned beetle, plum pox virus, and more.

Access a free pdf of the publication by [clicking here](#), or look for it on the [USU Extension shopping cart](#) in the next week.

## JUST THE BASICS

### APPLE & PEAR

- *Fire blight strikes* should be pruned out.
- *Codling moth* treatment should continue at intervals, with a break between generations 1 and 2 (see pg 5).
- *San Jose scale* nymphs will be hatching soon. See below for best times to treat the crawlers.

### PEACH/NECTARINE, APRICOT, CHERRY

- *Peach twig borer* first treatment time is upon us (pg 6).
- Continue *cherry fruit fly* protection to harvest.
- Not time yet for greater peachtree borer.
- Consider foliar iron application if iron chlorosis is becoming severe.

## Backyard Grower Information

### APPLE, PEAR

#### Codling Moth

**Hosts:** apple, pear

- **protect fruit during rapid egg hatch; see pg 5**

Most sites are currently in the “period of greatest egg hatch,” where 75% of all eggs for the first generation are hatching. Time your last spray of the first generation to protect fruit up to the end of egg hatch as shown on the table.

Your next application can occur at the date for the start of second generation egg hatch, or if you can tolerate higher injury or have a low population, apply your next spray at the start of “second generation peak egg hatch”.

#### San Jose Scale

**Hosts:** apple, pear; most other fruits under high infestation

- **updated treatment dates shown at right**

when scale crawlers hatch, they will move onto fruit



- Cache, Carbon, northern Box Elder Counties, and high elevation areas: June 24 - 29
- Warmer Wasatch Front locations: June 15 - 21
- Cooler Wasatch Front locations, and Iron County: June 21 - June 26

(If your area is not listed and you would like to know, please contact me at [marion.murray@usu.edu](mailto:marion.murray@usu.edu).)

## Backyard Grower Information, continued

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

#### Peach Twig Borer

**Hosts:** peach/nectarine, apricot

- *treatment dates for most locations are listed on page 6*

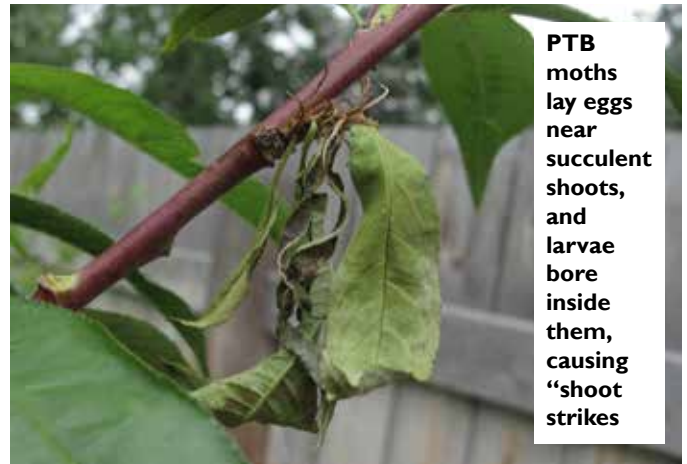
The first peach twig borer sprays should be on this week in the Wasatch Front area, and in later weeks in cooler areas. If you have apples and are treating for codling moth, you can use the same material for peach twig borer.

Generally for backyard settings, one application per generation is sufficient.

#### Western Cherry Fruit Fly

**Hosts:** cherry

Continue protecting cherries until harvest. Be mindful of the product you are using. The label will provide the length of time needed to wait between the last spray and safe consumption. See the recommendations table on the last page for the days to wait.



**PTB** moths lay eggs near succulent shoots, and larvae bore inside them, causing "shoot strikes"

## Commercial Grower Information

### APPLE & PEAR

#### White Apple Leafhopper

**Hosts:** apple, cherry



**white apple leafhopper nymphs and adults are found on the undersides of leaves**

Leafhopper nymphs were observed several weeks ago, and adults are active now. They are a minor pest of apples and rarely cause economic damage. They cause stippling of leaves but this does not harm the tree. Treatment threshold for leafhopper ranges (according to various sources) from 3 insects per terminal to 6 insects per terminal. Treatment is usually warranted when the pest has been a nuisance at apple-picking time.

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

#### Fire Blight

**Hosts:** apple, pear

Continue to prune out infections. Wipe pruners with disinfecting wipes between cuts. If moisture is predicted after pruning, remove the debris rather than leaving it in the orchard. If conditions are hot and dry, it is OK to leave the debris on the ground.

#### San Jose Scale

**Hosts:** apple, pear

Updated spray timings to treat crawlers:

- Southern Utah County locations: June 15 - 21
- Box Elder County: June 17 - 23

Options for San Jose scale can be found by [clicking here](#).

### STONE FRUITS

#### Peach Twig Borer

**Hosts:** peach/nectarine, apricot

See updated spray dates on page 6.

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

## Commercial Grower Information

### Obliquebanded Leafroller

**Hosts:** all fruit trees; can be a problem in tart cherry production

The Utah IPM Program has leafroller monitoring traps in several orchards across northern Utah. This week was the first trap catch in the obliquebanded leafroller traps, setting a biofix of June 6 for most Utah County locations.

Obliquebanded leafroller overwinters as larvae, and moths of the first summer generation began flying toward the end of last week in most northern Utah orchards. Larvae emerge in late June and feed for four to six weeks. A second summer generation will emerge in August.

The best way to monitor for this pest is to look for larvae and for rolled leaves webbed together. They feed mostly on the terminals shoots, and feed on fruit as the larvae get bigger. Open or separate the leaves and look for the shiny green larva with a brown head.

Esteem and Rimon are insect growth regulators that, if used, should be applied near the start of egg laying to kill existing eggs, and eggs laid later. The next timing option is at 350 DD after biofix, just before larvae begin to hatch. At this timing, Intrepid will kill existing egg masses, as well as any larvae that consume the chemical. Intrepid can also be used at the next timing, 400-450 DD after biofix, along with a host of other products, including **Delegate, Altacor, pyrethroids, Success/Entrust, Voliam Xpress, or Imidan.** (Imidan is least effective.)

If you are growing fruit organically, use **Entrust** at 400-450 DD, or use Deliver (Bt) at the 450 DD timing. Deliver is applied later because of the short residual of this product. It should be applied with good coverage (it must be consumed).

Products that have 14 or more days of residual (Delegate, Altacor, pyrethroids, etc.) may require 1 additional application, while products like spinosad or Bt may require 2 or 3.



larvae of obliquebanded leafroller feed on leaves and fruit; they rarely cause economic damage but in the past, the larvae have contaminated tart cherry bins

More information on options for obliquebanded leafroller can be found by [clicking here](#).

#### Date to Treat Based on Material Used (Commercial Growers in Southern Utah County Only)

Product and Timing	Event	Genola, Payson, Santaquin, Lincoln Point	West Mnt Center
Esteem, Rimon (100 DD)	pre-egg laying period	June 11	June 13
Intrepid (350 DD)	peak egg-laying period	June 21	June 23
Delegate, Altacor, Intrepid, pyrethroids, Success/Entrust, Voliam Xpress (400-450 DD)	egg-hatch begins	June 24	June 25
Bt (Deliver) (450 DD)	small larvae	June 25	June 27

## Small Fruits (commercial and backyard production)

### Raspberry Horntail

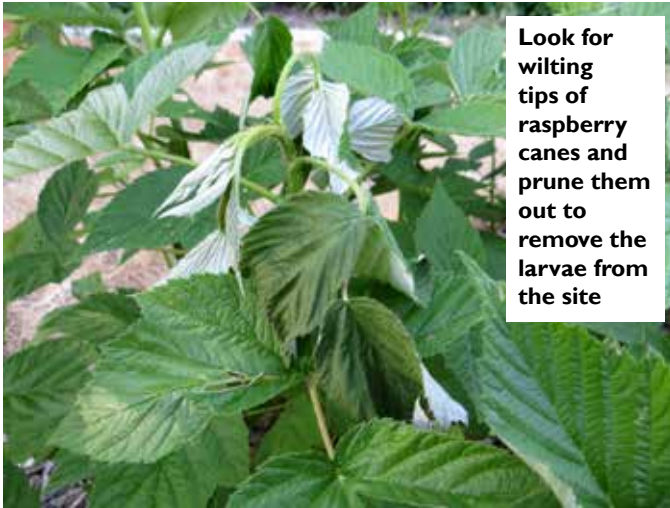
**Hosts:** raspberry

Raspberries are in various stages of development in northern Utah; some varieties blooming, some still reaching maturity. The raspberry horntail, a particularly troubling pest of many growers, has been laying eggs since earlier this spring, and the larvae are now feeding inside the tops of canes.

The adult is a type of wasp that is rarely seen. The male is black, and the female is black with yellow markings. Adults emerge from raspberry canes in early spring and lay eggs on canes by inserting eggs just under the epidermis. Larvae then feed inside the tops of the cane.

Wilting of the tips may not be evident until extensive feeding has already occurred. This wilting may recover at night, but

## Small Fruits (commercial and backyard production)



Look for wilting tips of raspberry canes and prune them out to remove the larvae from the site



raspberry horntail larvae are small and white; slice the top of the can lengthwise to find them

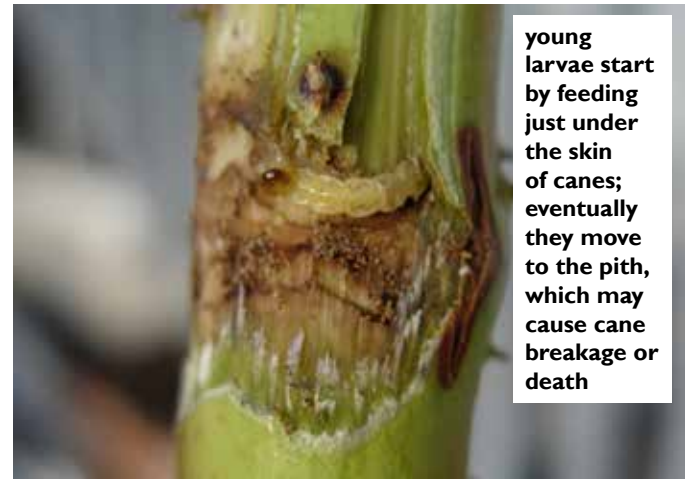
later in the season, the top terminal usually dies back. In late summer, the larvae move down the cane, and remain in the pith for the winter.

Raspberry and blackberry are both susceptible, but in USU surveys of fields in Utah, borers have been mostly found in raspberries. Fields can tolerate low populations, however if left untreated, populations can build and cause quite a bit of damage and frustration.

Because the adult lays her eggs under the epidermis, this insect is difficult to control with insecticide. Monitor plants throughout the season for wilting, and prune and destroy the infested plant material. When pruning, be sure that you get the white larva inside the stem. It may be farther down the stem than you think. To get a feel for where the larvae are feeding, slice a few cut stems vertically to locate the larva. Where there is no borer, the pith will be creamy-white. A pith with loose brown material will indicate borer activity.

### Rose Stem Girdler

**Hosts:** raspberry, blackberry, gooseberry



young larvae start by feeding just under the skin of canes; eventually they move to the pith, which may cause cane breakage or death

Another serious pest of raspberries is the rose stem girdler. The adult is a shiny, bronze colored beetle. Adults are pupating now inside canes, and will be emerging in the next week or so to lay eggs.



Females lay eggs near the base of the canes, and the larvae hatch and tunnel into the cane tissue. Canes may have swellings at the feeding sites, and infested canes may break at weak areas later in the season.

The best treatment option is to remove and destroy infested canes late in the season and over the winter. There are a few insecticides that can be used to kill the eggs and newly hatched larvae, but use caution when spraying flowering plants: treat at dawn or dusk only to avoid harming pollinators, or ideally, do not spray plants in bloom.

**Treatment:** Malathion\*, pyrethrin (Pyrellin EC\*, Bonide Liquid Pyrethrin Spray\*), Diazinon. Treat every 7 days starting in mid June, and continue for the next 3 weeks.

\*also for homeowner use

## 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, First and Second Generations

The “**Period of Greatest Egg Hatch**” is the time period in which 75% of all eggs of this generation will hatch. Be sure that fruit is protected during this period. Time your last spray for 1st generation to last to the end of egg hatch. Apply your next spray at the beginning of 2nd generation “**Start**”, or if you can tolerate higher injury or have a low population, apply at start of “**Greatest Egg Hatch**.”

County	Location	Period of Greatest Egg Hatch	1st Gen. End of Egg Hatch	2nd Gen. Start Sprays	2nd Gen. Period of Greatest Egg Hatch
<b>Box Elder</b>	Perry	June 2 - June 16	July 2	July 10	not yet known
	Tremonton	June 5 - June 19	July 3	July 12	not yet known
<b>Cache</b>	Logan Airport	June 9 - June 28	July 11	not yet known	not yet known
	River Heights	June 6 - June 24	July 8	not yet known	not yet known
<b>Carbon</b>	Price Airport	June 6 - June 22	July 5	not yet known	not yet known
<b>Davis</b>	Kaysville	June 2 - June 16	June 29	July 8	not yet known
	Farmington	May 26 - June 9	June 23	July 3	July 12 - unknown
<b>Grand</b>	Moab	passed	June 12	June 21	July 1 - July 11
<b>Iron</b>	Cedar City Airport	June 4 - June 21	July 5	not yet known	not yet known
<b>Juab</b>	Nephi	June 8 - June 24	July 7	not yet known	not yet known
<b>Millard</b>	Delta	May 30 - June 13	June 28	July 8	not yet known
<b>Salt Lake</b>	Benches/Cooler sites	June 1 - June 15	June 26	July 12	not yet known
	Most areas	May 23 - June 9	June 23	July 2	July 12 - unknown
<b>Sanpete</b>	Ephraim	June 9 - June 30	not yet known	not yet known	not yet known
<b>Sevier</b>	Monroe	May 23 - June 10	June 27	July 8	not yet known
<b>Tooele</b>	Erda Airport	June 5 - June 20	July 2	July 11	not yet known
	Grantsville	May 31 - June 14	June 27	July 6	not yet known
<b>Uintah</b>	Vernal Airport	June 6 - June 23	July 7	not yet known	not yet known
<b>Utah</b>	Alpine/Highland	June 7 - June 23	July 7	not yet known	not yet known
	American Fork	June 3 - June 18	July 1	July 9	not yet known
	Genola	June 3 - June 17	July 1	July 10	not yet known
	Lincoln Point	June 4 - June 19	July 2	July 11	not yet known
	Orem/Lindon	June 2 - June 16	June 28	July 7	not yet known
	Payson	June 1 - June 15	June 29	July 8	not yet known
	Provo Airport	June 3 - June 17	June 29	July 8	not yet known
	Provo Canyon	June 5 - June 20	July 2	July 10	not yet known
	Santaquin	June 5 - June 21	July 4	July 12	not yet known
	Tickville (Oak Springs)	June 12 - June 27	July 9	not yet known	not yet known
	West Mountain	June 1 - June 16	June 29	July 8	not yet known
<b>Weber</b>	Ogden Airport	June 1 - June 14	June 27	July 6	not yet known
	Pleasant View	May 30 - June 12	June 26	July 5	not yet known
<b>Wasatch</b>	Heber City	June 17 - July 3		not yet known	not yet known
<b>Washington</b>	New Harmony	June 5 - June 21	July 4	not yet known	not yet known
<b>Wayne</b>	Capitol Reef	passed	June 19	June 27	July 6 - unknown
	Torrey	May 30 - June 12	June 25	July 4	not yet known

## Spray Timing - Peach Twig Borer

### Peach Twig Borer, First and Second Generations

If you had moderate to severe PTB damage last year, use the earlier spray date; if you had very little PTB damage last year, use the later date to start sprays. In general most areas need just one application at the beginning of each generation.

County	Location	Start Date (lots of injury last year)	Start Date (little injury last yr)	1st Gen. Egg Hatch Ends	Start Dates 2nd Gen.
<b>Box Elder</b>	Perry	June 9	June 11	July 6	not yet known
	Tremonton	June 17	June 20	July 10	not yet known
<b>Cache</b>	Logan Airport	June 24	June 27	not yet known	not yet known
	River Heights	June 22	June 25	not yet known	not yet known
<b>Carbon</b>	Price Airport	June 22	June 25	not yet known	not yet known
<b>Davis</b>	Kaysville	June 8	June 10	July 2	not yet known
	Farmington	passed	passed	June 26	not yet known
<b>Grand</b>	Moab	passed	passed	June 17	July 2 - July 6
<b>Iron</b>	Cedar City Airport	June 15	June 19	July 10	not yet known
<b>Salt Lake</b>	Benches/Cooler sites	June 8	June 10	June 30	not yet known
	Most areas	passed	passed	June 24	July 9 - July 12
<b>Sanpete</b>	Ephraim	June 22	June 26	not yet known	not yet known
<b>Sevier</b>	Monroe	passed	passed	July 1	not yet known
<b>Tooele</b>	Erda Airport	June 13	June 17	July 6	not yet known
	Grantsville	June 8	June 10	July 1	not yet known
<b>Uintah</b>	Vernal Airport	June 22	June 26	not yet known	not yet known
<b>Utah</b>	Alpine/Highland	not yet known	not yet known	not yet known	not yet known
	American Fork	June 9	June 13	July 4	not yet known
	Genola (CHF)	June 9	June 11	July 4	not yet known
	Lincoln Point	June 10	June 14	July 5	not yet known
	Orem (Lindon)	June 8	June 10	July 1	not yet known
	Payson	June 9	June 11	July 2	not yet known
	Provo Airport	June 9	June 12	July 2	not yet known
	Provo Canyon	June 9	June 14	July 3	not yet known
	Santaquin	June 14	June 18	July 8	not yet known
	Tickville (Oak Springs)	June 21	June 24	not yet known	not yet known
West Mountain	June 8	June 11	July 2	not yet known	
<b>Washington</b>	New Harmony	June 8	June 11	July 3	not yet known
<b>Weber</b>	Ogden Airport	June 8	June 11	July 2	not yet known
	Pleasant View	passed	June 8	June 29	not yet known
<b>Wasatch</b>	Heber City	June 27	June 30	not yet known	not yet known
<b>Wayne</b>	Capitol Reef	passed	passed	June 21	July 7 - July 10
	Torrey	passed	June 9	June 29	not yet known

## 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:</b> every 7 days <b>codling moth virus</b> can only be purchased online; store in fridge or freezer
San Jose scale	apple	<i>Soft/organic</i> hort. oil (1%) insecticidal soap neem oil	many options Safer's EcoSmart, others Concern, Garden Safe, others	two applications during crawler stage, spaced 5-7 days apart, should be enough
Aphids	all	<i>Conventional</i> acetamiprid  <i>Soft/organic</i> oil (1%) insecticidal soap	Ortho Flower, Fruit, and Veg.  Many products, EcoSmart Safer's, Bayer Natria, Bonide	<b>oil:</b> allow 4 hours-time for application to dry before temps reach 85 or above. <b>oil and soap:</b> spray needs to cover aphids to be effective
Coryneum blight	peach, apricot	<i>Conventional</i> captan myclobutanil	Captan Spectracide Immunox	<b>captan, Immunox:</b> use as a preventive before a rain
Peach twig borer	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	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
Western cherry fruit fly	sweet and tart cherry	<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	<b>acetamiprid:</b> Only the concentrate container includes cherry on the label; apply every 14 days; wait 7 days to harvest <b>carbaryl:</b> every 14 days; wait 3 days <b>malathion:</b> every 7 days; wait 3 days <b>gamma-cyhalothrin:</b> every 14 days; wait 14 days to harvest <b>spinosad:</b> every 7 days; wait 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

is published weekly by Utah State University Extension

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