

News/What to Watch For:

Monitor for leafhopper nymphs; examine cherry leaves for powdery mildew; watch apple fruit clusters for signs of fire blight infections; look at cherry fruits for salmon-blush color to start fruit fly control
New spray timing dates for codling moth and peach twig borer, page 4
Spray information, pages 5-6

Insect and Disease Activity/Info

Specific spray information found on last two pages.

APPLE AND PEAR

Codling Moth

A bit of good news: the number of moths being caught in traps has gone down a bit due to the ongoing cooler weather. This does not mean that moths are dying, but it may mean that because they are not flying, they are running out of time for mating. If they don't mate within 3 days, the chance of a female producing viable eggs is significantly reduced. We will keep an eye on fruit damage as the season progresses.

The period of "maximum egg hatch" is between 340 and 640 degree days, and parts of Salt Lake, Tooele, and Utah counties are approaching this time period. Make sure that the fruit is protected during this time frame. Keep in mind that one inch of rainfall soon after a spray will reduce the residual period by approximately half.

White Apple Leafhopper

A bit of damage (stippling on leaves) was seen on apple leaves in Box Elder County, where a variety of young life stages was found. There are two generations of leafhopper per year. Although the first generation is fairly small, the large density of the second generation in late summer can catch a grower off guard. So if you had significant damage last year, start control treatments now. Keep in mind that apple trees can tolerate a large population (more than 6 nymphs/leaf) before any damage occurs to fruit. This insect can be an annoyance, however, when harvesting.

Look for leafhoppers by examining leaves for typical damage (shown above) and turning them over to see nymphs. (Nymphs will remain on leaves while adults will fly away when disturbed.)



Fire Blight

Continue to watch fruit clusters on your trees for symptoms (wilting, browning) or signs (oozing of yellow-orange colored bacterial) and when visible, prune these out immediately 18" below the symptoms. If you need to make more than one pruning cut, spray your tool with Lysol or dip into a 10% bleach solution for at least 30 seconds. (Wash pruner and lubricate afterward to prevent corrosion.)

PEACH, NECTARINE, APRICOT, PLUM

Peach Twig Borer

Biofix (first flight) has been set for a few additional areas of northern Utah:

Genola: June 1
Kaysville: June 2
Perry: June 1
Pleasant Grove: June 2
Santaquin: June 1

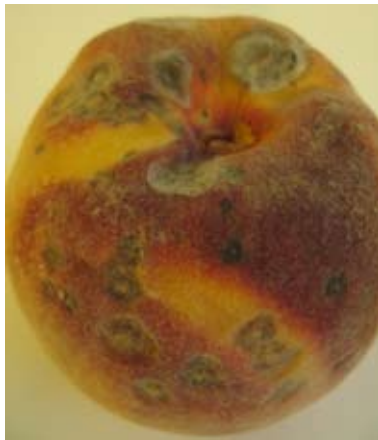
Insect and Disease Activity, continued

First sprays are recommended at 300-400 degree days after first flight. We recommend the earlier timing if you know you have a large population, or had moderate to significant damage last year, and the later timing (starting at 360 DD) if you had very little damage last year.

Coryneum Blight

If you are seeing small, round holes in your stone fruit trees, that is most likely shothole, or coryneum blight. These secondary leaf infections are most common on peach and cherry, but with this spring's wet weather, we may see some on apricot, too. Infections can occur throughout the growing season given the optimal conditions: 6 or fewer hours of moisture at 77°F or warmer.

Fruit (especially apricot and peach (shown at right), and sometimes cherry, shown below) become infected later in the season, so preventative sprays in wet weather are important.



CHERRY

Western Cherry Fruit Fly

The cool weather has kept cherry fruit (where it survived the frost) from ripening, but growers in Salt Lake, Tooele, and parts of Utah counties should keep an eye on fruit ripening and plan treatment at the first sign of the salmon-blush coloring of fruit. Although 3% of flies will have emerged at 1060 degree days (base 41), they are not be able to lay eggs on green fruit.

Degree Day Accumulations and Insect Development

Upcoming Monitoring/Insect Activity

By Insect (in order of appearance)	
Cherry powdery mildew (CPM)	Look for small white lesions on new foliage near the base and interior of the tree
Apple powdery mildew (PM)	Look for small white lesions on new foliage
Green peach aphid (GPA)	Look for colonies on peach and nectarine
Black cherry aphid (BCA)	Watch terminals for leaf-curling and feeding
White apple leafhopper (WALH)	Look for nymph activity
Codling moth (CM)	Egg-hatch begins at 220 DD (after biofix)
Peach twig borer (PTB)	Egg-hatch begins at 300 DD after biofix; look for "shoot strikes"
Western cherry fruit fly	Watch fruit maturity

By Host (see abbrev. at left)	
Apple	RAA, WALH, PM
Cherry	BCA, BCM
Peach	GPA, PTB
Pear	

Degree Day (DD) Accumulations and Insect Phenology

([click here](#) for more information on degree days)

March 1 - Tuesday, June 3

County	Location	Base 50	Codling Moth			Peach Twig Borer			Western Cherry Fruit Fly (base 41)
			DD (post biofix)	% Egg Hatch	% Moth Flight	DD (post biofix)	% Egg Hatch	% Moth Flight	
Box Elder	Perry	401	272	4	54	24	0	1	860
Cache	North Logan	338	160	0	29	--	--	--	737
	Providence	309	142	0	24	--	--	--	659
	Smithfield	333	178	0	35	--	--	--	714
Carbon	Price	381	167	0	30	--	--	--	822
Davis	Kaysville	393	191	0	40	9	0	1	858
Grand	Castle Valley	783	392	30	77	319	8	81	1407
Salt Lake	SLC	462	297	6	59	--	--	--	974
	West Valley City	489	313	7	60	--	--	--	1012
Tooele	Erda	619	314	7	60	--	--	--	1164
	Grantsville	631	---	--	--	--	--	--	1170
	Tooele	575	328	9	63	--	--	--	1107
Utah	Alpine	387	169	0	33	--	--	--	822
	Genola	468	289	4	57	25	0	1	938
	Lincoln Point	397	223	1	45	--	--	--	823
	Orem	411	299	6	59	--	--	--	858
	Payson	421	246	2	50	--	--	--	861
	Provo	468	279	4	54	--	--	--	940
	Santaquin	406	259	3	52	23	0	1	842
West Mountain	483	313	7	60	--	--	--	943	
Weber	Pleasant View	428	285	4	54	8	0	1	908

"Base 41" and "base 50" refer to the lower temperature threshold at which certain insects develop. For example, no codling moth development occurs below 50 degrees, so this is the number used to calculate degree days associated with this insect.

Spray Timing

Please check this chart each week for updated dates. These dates are forecasted using the average temperature for each site.

Codling Moth, First Generation (begin spray at 220 DD, end at 1020 DD)

County	Location	Begin Spray (1st Generation)	Dates of Max. Egg Hatch (340-640 DD)	End Spray (1st Generation)
Box Elder	Perry	May 29	June 7-June 23	July 9
Cache	North Logan	June 8	June 17-July 3	July 21
	Providence	June 7	June 16-July 4	July 22
	Smithfield	June 8	June 17-July 4	July 22
Carbon	Price	June 6	June 14-June 29	July 15
Davis	Kaysville	June 4	June 11-June 26	July 11
Grand	Castle Valley	May 22	May 31-June 16	June 30
Salt Lake	SLC	May 28	June 5-June 20	July 5
	West Valley City	May 27	June 4-June 19	July 6
Tooele	Erda	May 25	June 5-June 19	July 4
	Tooele	May 25	June 5-June 22	July 9
Utah	Alpine	June 7	June 14-June 30	July 16
	Genola	May 27	June 4-June 20	July 7
	Lincoln Point	May 31	June 8-June 20	July 10
	Orem	May 27	June 4-June 20	July 6
	Payson	May 31	June 9-June 26	July 12
	Provo	May 29	June 7-June 26	July 14
	Santaquin	May 30	June 9-June 25	June 12
	West Mountain	May 27	June 5-June 21	July 7
Weber	Pleasant View	May 27	June 6-June 22	July 9

Peach Twig Borer (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. These two dates correspond to 300 and 360 degree days after biofix, or 5% and 16% egg hatch. Ending spray date corresponds to 800 DD.)

County	Location	Start sprays (large population)	Start sprays (small population)	End Sprays (1st summer generation)
Box Elder	Perry	June 19	June 21	July 11
Davis	Kaysville	June 20	June 23	July 10
Grand	Castle Valley	June 3	June 5	June 25
Utah	Genola	June 19	June 21	July 10
	Santaquin	June 20	June 23	July 13
Weber	Pleasant View	June 20	June 22	July 11

Spray Materials - Commercial Applicators

Target Pest	Host	Chemical	Example Brands	Amount per acre	REI	Comments
Codling moth	apple, pear	acetamiprid deltamethrin methoxyfenozide phosmet spinetoram thiacloprid codling moth virus	Assail Battalion Intrepid Imidan Delegate Calypso Virosoft, etc	3.4 oz 7-14 oz 16 oz 5.33 lbs 6-7 oz 4-8 oz ---	12 h 12 h 4 h 5 d 4 h 12 h ---	<ul style="list-style-type: none"> • see table on page 4 for timing • ensure good coverage for effective control • virus must be applied every 7 days
Powdery mildew	apple	potassium bicarbonate myclobutanil trifloxystrobin triflumizole fenarimol boscalid/pyraclostrobin	Kaligreen Rally Flint Procure Rubigan Pristine	2.5-3 lb 5 oz 2-2.5 oz 8-16 oz 12 oz 14.5-18 oz	4 h 24 h 12 h 12 h 12 h 12 h	
Apple aphids	apple, pear (rare)	imidacloprid acetamiprid	Provado Assail	4-8 oz 1.7 oz	12 h 12 h	
Spider mites	apple, peach	abamectin bifenazate difocol fenpyroximate spiroadiclofen	Agrimek Acramite Kelthane Fujimite Envidor	10-20 oz .75-1 lb 4 lb 32 oz 16-18 oz	12 h 12 h 4 h	
White apple leafhopper	apple	formetanate hydrochloride imidacloprid indoxacarb	Carzol Provado Avaunt	1 lb 4-8 oz 6 oz	5 d 12 h 12 h	leafhopper develops resistance quickly so rotate among classes. Sevin, when used for thinning, also provides control.
Western cherry fruit fly	cherry	carbaryl malathion imidacloprid spinosad spinosad	Sevin Malathion Provado Success, Entrust GF-120	1 pint 12 oz 2 oz see label see label	12 h 12 h 12 h 4 h 4 h	
Green peach aphid	peach	imidacloprid	Provado	2 oz	12 h	
Peach twig borer	peach, nectarine, apricot	Bt methoxyfenozide phosmet spinosad spinetoram tebufenozide	Dipel Intrepid Imidan Entrust Delegate Confirm	see label 2 pints 4 lbs 4-8 oz 4.5-7 oz 16-30 oz	4 h 4 h 5 d 4 h 4 h 4 h	
Coryneum blight	peach, nectarine, apricot, cherry	azoxystrobin captan ziram pyraclostrobin, boscalid	Abound Captan Ziram Pristine	2.75-3.75 oz 1.5 lbs 2.6-3.6 oz	 	rotate among classes to prevent resistance

Spray Materials - Residential Applicators

Note that these treatments are only recommended if you know you have the particular pest in your trees.

Target Pest	Host	Chemical	Example Brands	Comments
Codling moth	apple, pear	azadirachtin carbaryl esfenvalerate malathion permethrin pyrethrin spinosad	Azatin Sevin, Bonide Fruit Tree Spray Ortho Bug-B-Gone Malathion Bayer Advanced Dust Concern Multi-Purpose Green Light	<ul style="list-style-type: none"> • Rotate among chemical classes to prevent resistance. • Most are applied every 7 days, but read the label. • See spray timing on page 4.
Aphids	apple, pear (rare). peach	azadiractin hort. oil imidacloprid insecticidal soap malathion	Azatin many Bayer Advanced Safer, M-Pede Malathion	
White apple leaf-hopper	apple	carbaryl esfenvalerate horticultural oil imidacloprid insecticidal soap kaolin clay malathion	Sevin Ortho Bug-B-Gone variety Bayer Advanced variety Surround Malathion	<ul style="list-style-type: none"> • Usually only one application is necessary. • Imidacloprid should be applied as a soil drench. • Kaolin clay is OMRI certified organic.
Powdery mildew	apple	bayleton lime sulfur propiconazole neem oil potassium bicarbonate	Bonide Lilly Miller Ferti-Lome Garden Safe Kaligreen	Do not apply lime sulfur when temperature is over 75 degrees F.
Western cherry fruit fly	cherry	carbaryl esfenvalerate malathion pyrethrin spinosad	Sevin Ortho Bug-B-Gone Malathion Concern Multi-Purpose Ferti-Lome, Green Light, Natural Guard, GF-120	
Peach twig borer	peach, nectarine	Bt carbaryl esfenvalerate malathion pyrethrin pyrethrum spinosad	Dipel Sevin Ortho Bug-B-Gone Malathion variety Pyganic Entrust	<ul style="list-style-type: none"> • Rotate among chemical classes. • See spray timing on page 4.
Coryneum blight	peach, nectarine, apricot	captan chlorothalonil ziram	Captan Daconil Ziram	

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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