

News/What to Watch For:

Look for powdery mildew on apple, peach, and cherry and prune out or treat; flatheaded appletree borers emerging now; continue to monitor for spider mite population increase
Spray timing dates for codling moth and peach twig borer, page 4
Spray information, pages 5-6

Insect and Disease Activity/Info

APPLE AND PEAR

Codling Moth

Spray dates have been updated on page 4, with the start of the second generation egg hatch included. Time your last spray of the first generation so that it is 1-2 weeks before the "end of the egg hatch" date shown in the table. Your next spray then will not need to be applied until the start of 2nd generation egg hatch, as noted.

Codling moths in most areas except Cache and Carbon counties have begun their second generation flight. Trap catches continue to be high in all non-mating disrupted orchards, suggesting an overlap of flight between generations.

Flatheaded Appletree Borer



Joseph Berger, Bugwood.org

Adults of the flatheaded appletree borer are emerging now from within tree trunks of apple and pear (rare), as well as a variety of deciduous trees and shrubs. They will continue to emerge and lay eggs on new hosts until early September. Healthy trees are more resistant because they have the ability to produce a localized, heavy sap flow that can kill the newly hatched larvae.

Newly planted trees, trees under stress, or trees with wounds from disease or other causes are susceptible to suc-



cessful attacks. The larvae feed on and form random tunnels in the cambium and phloem (not the wood) leaving behind sawdust-like frass. For pupation (in early spring), the larvae then bore into the xylem until emergence in early summer. There is one generation per year.

On larger trees, damage includes dieback back of large limbs, and loose bark at feeding sites. Younger trees can be killed.

Look for adults on the sunny side of trees during the day. Exit holes will be oval in shape. If necessary, treat up to three times: now, mid-July and early August.

Woolly Apple Aphid

Woolly apple aphid colonies continue to grow in apple tree canopies. Pay close attention to bark crevices, pruning scars, etc., where overwintering aphids have been multiplying. They typically overwinter in the roots, migrating first to suckers and then the main tree canopy, but a portion of the population remains in the upper tree parts year-round. Aerial populations are also becoming numerous in the outer portion of the tree canopy, and will continue to grow through August. They prefer sprouts and later, new terminal growth.

Insect and Disease Activity, continued



cottonwood seeds stuck to the branches? no, these are woolly apple aphid colonies

No economic threshold has been determined for treatment. Because of their waxy outer covering, they are difficult to control and catching them early is important. Good coverage (to dripping) is necessary to soak through the insects' woolly coverings. A new product by Bayer CropScience called Movento has just been registered in the U.S. and will be available soon in Utah for woolly apple aphid (and many other pests) control. Preliminary studies by USU Extension have shown excellent results.

PEACH, NECTARINE, APRICOT, PLUM

Peach Twig Borer

The first generation is winding down although eggs are still hatching in many areas. As with codling moth, time your last spray for 1-3 weeks before the "ending spray date" (depending on your product) shown on page 4 so that your next spray will not need to be applied until the "starting spray date" for the second generation.

Cytospora Canker

Cytospora is a fungus that attacks a variety of plants, and can be especially troublesome on peach. Cankers can be



found in almost all peach orchards in Utah. Trees with cankers are starting to show symptoms now through limb dieback. Branches will leaf out and appear healthy in spring only to wither and die when the weather turns hot. Affected branches will have an area of sunken or cracked bark, often with copious amounts of gumming.

New cytospora infections occur in mild, moist conditions. Although spores of the fungus are ubiquitous, they are opportunistic, meaning they can only invade plant tissue through open wounds. Usually these are caused by winter injury, but pruning cuts, sun scald, or mechanical or insect damage can also serve as infection sites.

The only way to treat infections is by pruning out all signs of the canker. Fungicides will not kill an existing canker. Keep trees vigorous and prevent wounding.

ALL FRUITS

Powdery Mildew



Where untreated, powdery mildew is continuing to spread and causing new infections, especially where shoots are actively growing. This disease does not need moist conditions to thrive, and does quite well in Utah's dry climate. There are several different species that occur in our orchards. Apple powdery mildew (*Podosphaera leucotricha*) overwinters on apple twigs and can also be found on peach. Cherry powdery mildew (*Podosphaera clandestina*) overwinters in infected leaves, and can only be found on cherry.

In general on mature trees, if fewer than 2-5 terminals are infected, control is not warranted. Otherwise, a fungicide should be applied regularly until new growth ceases. Note that fungicides will not eliminate the symptoms of mildew, just prevent new infections.

Degree Day Accumulations and Insect Development

Upcoming Monitoring/Insect Activity

By Insect (in alphabetical order)	
Cherry powdery mildew (CPM)	Look for small white lesions on new foliage near the base and interior of the tree
Codling moth (CM)	2nd gen. egg-hatch begins at 1100 DD (after biofix)
Green peach aphid (GPA)	Look for colonies on peach, nectarine, plum and for curled leaves
Peach twig borer (PTB)	Egg-hatch begins at 300 DD after biofix
San Jose Scale (SJS)	Watch for crawler activity with double-sided sticky tape (peak activity at 600-700 DD after codling moth biofix)
Spider mite (SM)	Look for damage on leaves closest to ground
Western tentiform leafminer (WTLM)	Second generation flight occurring now

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

Degree Day (DD) Accumulations and Insect Phenology

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

March 1 - Tuesday, July 1

County	Location	Base 50	Codling Moth			Peach Twig Borer		
			DD (post biofix)	% Egg Hatch	% Moth Flight	DD (post biofix)	% Egg Hatch	% Moth Flight
Box Elder	Perry	915	787	94	100	538	75	100
Cache	North Logan	738	560	66	94	244	1	57
	Providence	691	524	58	91	236	1	57
	Smithfield	747	592	73	96	232	1	57
Carbon	Price	861	647	81	98	361	16	89
Davis	Kaysville	884	682	85	99	501	63	99
Grand	Castle Valley	1434	1042	0	7 (2nd)	970	0	5
Salt Lake	SLC	1010	845	97	100	577	84	100
	West Valley City	1060	884	98	1 (2nd)	627	92	100
Tooele	Erda	1172	867	97	1 (2nd)	---	---	---
	Grantsville	1212	---	---	---	---	---	---
	Tooele	1060	812	95	100	625	91	100
Utah	Alpine	834	615	76	97	345	12	86
	Genola	956	778	94	100	514	65	99
	Lincoln Point	862	689	86	99	466	50	98
	Orem	896	784	94	100	510	65	99
	Payson	981	806	95	100	584	84	100
	Provo	971	783	94	100	528	71	99
	Santaquin	897	750	92	100	513	65	99
	West Mountain	916	746	91	100	493	63	99
Weber	Pleasant View	1003	861	97	1 (2nd)	582	84	100

“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 (end first generation at 1020 DD; begin 2nd at 1100)

County	Location	End Protection (1st Generation)	Begin Protection (2nd Generation)
Box Elder	Perry	July 10	July 14
Cache	North Logan	July 22	July 27
	Providence	July 21	July 26
	Smithfield	July 24	July 28
Carbon	Price	July 16	July 20
Davis	Kaysville	July 13	July 16
Grand	Castle Valley	July 2	July 4
Salt Lake	SLC	July 7	July 11
	West Valley City	July 6	July 9
Tooele	Erda	July 6	July 10
	Tooele	July 9	July 13
Utah	Alpine	July 17	July 21
	Genola	July 10	July 14
	Lincoln Point	July 13	July 17
	Orem	July 10	July 14
	Payson	July 10	July 14
	Provo	July 18	July 22
	Santaquin	July 12	July 16
	West Mountain	July 12	July 15
Weber	Pleasant View	July 7	July 11

Peach Twig Borer (For second generation peach twig borer control, use the earlier spray date for heavy populations and the later spray date for low populations. These two dates correspond to 1200 and 1360 degree days after biofix, or 5% and 16% egg hatch. Ending spray for first generation date corresponds to 800 DD.)

County	Location	Start sprays (large pop.)	Start sprays (small pop.)	End Sprays (1st gen.)	Start sprays (large-2nd gen.)	Start sprays (small-2nd gen.)
Box Elder	Perry	June 23	June 26	July 11	July 27	August 3
Cache	All locations	July 5	July 8	July 27	August 15	August 23
Carbon	Price	June 29	July 1	July 20	August 5	August 12
Davis	Kaysville	June 24	June 27	July 11	July 25	July 31
Grand	Castle Valley	June 3	June 5	June 25	July 9	July 15
Salt Lake	Salt Lake City	June 20	June 23	July 9	July 23	July 29
	West Valley City	June 19	June 21	July 8	July 23	July 28
Tooele	Tooele	June 15	June 18	July 8	July 24	July 30
Utah	Alpine	June 30	July 3	July 20	August 5	August 12
	Genola	June 21	June 24	July 13	July 28	August 3
	Lincoln Point	June 21	June 24	July 13	July 28	August 4
	Orem	June 21	June 23	July 12	July 28	August 3
	Payson	June 21	June 23	July 10	July 26	August 2
	Provo	June 23	June 26	July 14	August 1	August 8
	Santaquin	June 20	June 23	July 13	July 29	August 5
	West Mountain	June 22	June 24	July 13	July 29	August 4
Weber	Pleasant View	June 20	June 22	July 10	July 26	August 1

Spray Materials - Commercial Applicators

Target Pest	Host	Chemical	Example Brands	Amount per acre	REI	Comments
Apple aphids	apple, peach, cherry	imidacloprid acetamiprid	Provado Assail	4-8 oz 1.7 oz	12 h 12 h	
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	
San Jose scale	apple, others	acetamiprid pyrproxyfen	Assail Esteem	3.4 oz 4-5 oz	12 h 12 h	treat crawlers at 600-700 dd after codling moth biofix
Spider mites	apple, peach	abamectin bifenazate difocol fenpyroximate spiroticlofen	Agrimek Acramite Kelthane Fujimite Envidor	10-20 oz .75-1 lb 4 lb 32 oz 16-18 oz	12 h 12 h 4 h	
Woolly apple aphid	apple	endosulfan diazinon	Thionex Diazinon	3-4 lbs 4 lbs	24 h 4 d	
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	GF-120, when applied every 7 days, can provide 100% control.
Greater peachtree borer	peach, nectarine, apricot					
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	

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	How Often	Comments
Aphids	apple, pear, peach, plum, cherry	azadiractin hort. oil imidacloprid insecticidal soap malathion	Azatin variety Bayer Advanced Safer, M-Pede Malathion	once as necessary	
Codling moth	apple, pear	azadiractin 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	Most are applied every 7 days, but read the label. Continue through harvest or until Sept. 15.	<ul style="list-style-type: none"> • Rotate among chemical classes to prevent resistance. • to reduce number of sprays, time them so that none are applied in between generations
Flat-headed appletree borer	apple	carbaryl esfenvalerate imidacloprid permethrin	Sevin Ortho Bug-B-Gone Bayer Advanced Spectracide	1 to 3 applications 2 weeks apart, depending on severity	imidacloprid is applied as soil drench; others to trunk and scaffolding
Powdery mildew	apple	bayleton propiconazole neem oil potassium bicarbonate	Bonide Ferti-Lome Garden Safe Kaligreen	repeat every 7-10 days as necessary until new growth stops	
Spider mites	most trees	hard spray of water fenbutatin-oxide horticultural oil insecticidal soap	Vendex variety variety	repeat only as necessary	
Woolly apple aphid	apple	carbaryl hort. oil malathion	Sevin variety Malathion		
Western cherry fruit fly	cherry	carbaryl esfenvalerate malathion pyrethrin spinosad spinodad	Sevin Ortho Bug-B-Gone Malathion Concern Multi-Purpose Ferti-Lome, Green Light, etc. GF-120	Most are every 7 days. Continue until harvest.	
Greater peachtree borer	peach, nectarine	esfenvalerate	Ortho Bug-b-Gone		treat lower trunk only until mid-Sept.
Peach twig borer	peach, nectarine	Bt carbaryl esfenvalerate malathion pyrethrin pyrethrum spinosad	Dipel Sevin Ortho Bug-B-Gone Malathion variety Pyganic Entrust	Most are every 7 days. Continue until harvest.	<ul style="list-style-type: none"> • Rotate among chemical classes. • to reduce number of sprays, time them so that none are applied in between generations

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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