Tree Fruit IPM Advisory

Weekly Orchard Pest Update, Utah State University Extension, **June 18, 2008**

News/What to Watch For:

Monitor cherry fruits for salmon-blush color to start fruit fly control; San Jose scale: use a hand lens or double-sided sticky tape wrapped around a scale-infested branch to determine crawler activity
New 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

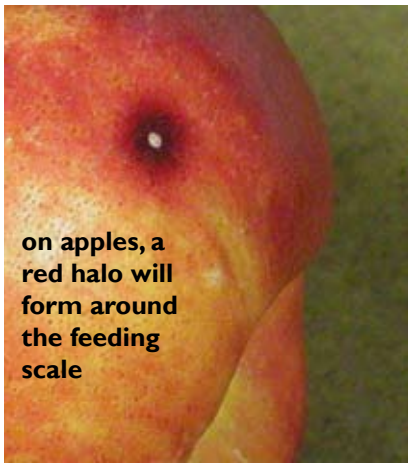
Codling Moth

The total degree day accumulation for this week was almost double the amount accumulated last week for most areas. So as you would expect, codling moth trap catch numbers in non-mating disrupted sites jumped this week. Sites that had 0-12 moths last week had 37-60 moths this week.

For the most part, fruit will need to be protected until harvest, but since we can predict when the first generation ends and when the second one begins, there may be a short respite from spraying. For now, the predicted end of the first generation is shown on page 4.

San Jose Scale

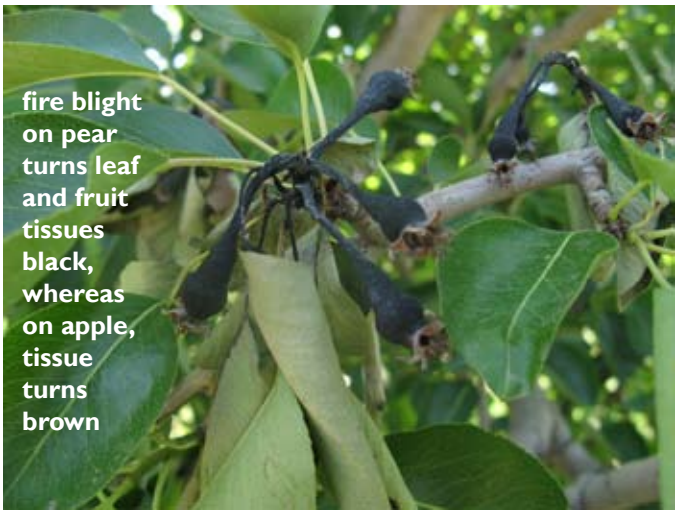
This scale insect attacks a wide variety of hardwood trees, including all fruit trees, but in Utah, is most common on apple. It can be found feeding on twigs, scaffold branches, and fruit. They are often difficult to see with the naked eye; a 10-20x hand lens helps.



on apples, a red halo will form around the feeding scale

Delayed dormant sprays help to knock down this pest, but treatment of first generation crawlers at 600-700 degree days after codling moth biofix (which is often the same as SJS) is the best option for larger infestations. Use the hand lens or double-sided tape to watch for crawlers to be sure.

Fire Blight



fire blight on pear turns leaf and fruit tissues black, whereas on apple, tissue turns brown

Continue to watch trees for symptoms of fire blight (wilting terminals, browning along leaf veins, dead fruit clusters). When damage is spotted, prune it out 18" below the diseased tissue to prevent further spread over the course of the summer. New infections can occur to foliage only when tissue has been newly damaged (by hail or another event) and when rains or irrigation carry bacteria to susceptible tissue.

PEACH, NECTARINE, APRICOT, PLUM

Peach Twig Borer

Growers along the Wasatch Front should start their sprays for the end of this week to the middle of next week depending on location and extent of damage last year. Note that a spray date has recently been added for Tooele County and for Alpine, in Utah County.

Insect and Disease Activity, continued

Greater Peachtree Borer

A single peachtree borer moth was caught in an orchard in Utah County. This is the only moth that has been caught so far out of about 20 traps. Although this pest does cause localized damage, past trapping data has shown that its population size is not as large as other clearwing borers such as the lilac/ash borer. The best way for one to determine treatment timing for this pest is to hang traps in your local area. Traps and lures can be purchased at Great Lakes IPM (www.greatlakesipm.com/). If not this year, consider hanging a trap next year (starting in late May) to help you to know if this pest is present. (We would also be interested in your results.)

For growers located along the Wasatch Front that are sure that they have had damage from peachtree borer, start treatment now on peaches, nectarines, and apricots. (Growers in southern Utah should have already started treatment.) Adults lay eggs on the lower 12" of the tree trunk or on nearby soil. Sprays should target this area only. Although cherry is listed as a host, this pest is not known to attack cherries in Utah. Plums are rarely attacked.

As an alternative to spraying, growers with at least one acre of peaches can successfully control peachtree borer with mating disruption. This technology prevents males from finding females. When no mating occurs, no eggs are laid. The dispensers can be purchased from Great Lakes IPM, as well.

For more information, see the USU greater peachtree borer fact sheet.

CHERRY

Western Cherry Fruit Fly

As mentioned in earlier advisories, treatment for western cherry fruit fly should begin when the fruit has developed a salmon blush color. Although the flies have been active for a few weeks in the Wasatch Front area, they have not been able to lay eggs because fruit had not started to ripen.

cherry trees in all locations except Cache and Carbon counties are starting to show ripening fruit that is susceptible to fruit fly egg-laying

Look at your cherry trees now for the signs of fruit ripening. Fruit has started to turn in several Wasatch Front locations where fruit is exposed to sun. Trees under stress will also often have fruit that ripens more quickly than others so pay close attention to these special situations and time insecticide sprays accordingly.

Western cherry fruit fly lays its eggs by piercing the skin of the fruit. The larva is a maggot, and it feeds within the fruit for 2-3 weeks, and then drops to the ground to pupate. Although there is one generation, adults emerge from the soil from late May to early fall, so cherry fruit must be protected until harvest.

Another control option for homeowners is to lay landscape fabric (make sure water can penetrate the fabric) under cherry trees so that larvae cannot burrow into the soil to pupate.

For more information, see the USU western cherry fruit fly fact sheet.

Fruitworm Damage on Fruit

We mentioned fruitworm damage last week, and here is some more evidence of feeding, this time on cherry:

possible fruitworm feeding on cherry

Degree Day Accumulations and Insect Development

Upcoming Monitoring/Insect Activity

By Insect (in alphabetical order)	
Black cherry aphid (BCA)	Watch terminals for leaf-curling and feeding
Cherry powdery mildew (CPM)	Look for small white lesions on new foliage near the base and interior of the tree
Codling moth (CM)	Egg-hatch begins at 220 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)	Crawlers active at 400-500 DD after CM biofix; optimal treatment is at 600-700 DD
Spider mite (SM)	Look for damage on leaves closest to ground
Western cherry fruit fly	Watch fruit maturity

By Host (see abbrev. at left)	
Apple	RAA, WALH, PM, SJS, SM
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, June 18

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	562	434	37	82	185	0	34	1137
Cache	North Logan	459	281	4	54	---	---	---	963
	Providence	454	299	6	59	---	---	---	903
	Smithfield	442	275	4	53	---	---	---	914
Carbon	Price	562	348	15	69	---	---	---	1118
Davis	Kaysville	540	339	12	67	157	0	26	1114
Grand	Castle Valley	1035	643	80	98	570	83	100	1786
Salt Lake	SLC	663	498	54	90	229	1	52	1296
	West Valley City	696	520	58	91	263	2	64	1337
Tooele	Erda	823	517	57	90	---	---	---	1489
	Grantsville	830	---	---	---	---	---	---	1491
	Tooele	725	478	49	88	291	4	73	1375
Utah	Alpine	600	381	25	73	53	0	3	1160
	Genola	640	462	45	85	198	1	49	1222
	Lincoln Point	548	375	23	72	151	0	23	1079
	Orem	598	487	51	89	212	0	45	1164
	Payson	632	458	45	85	236	1	55	1187
	Provo	638	449	43	84	194	0	38	1215
	Santaquin	577	430	37	81	194	0	38	1124
	West Mountain	615	445	41	81	191	0	38	1159
Weber	Pleasant View	659	517	58	91	239	1	57	1265

"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 calculated 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 11 - June 26	July 12
Cache	North Logan	June 12	June 19 - July 6	July 23
	Providence	June 10	June 18 - July 6	July 24
	Smithfield	June 13	June 21 - July 7	July 24
Carbon	Price	June 10	June 16 - July 1	July 17
Davis	Kaysville	June 8	June 16 - June 29	July 18
Grand	Castle Valley	May 22	June 1 - June 12	July 2
Salt Lake	SLC	May 28	June 8 - June 23	July 7
	West Valley City	May 27	June 7 - June 23	July 8
Tooele	Erda	May 25	June 7 - June 22	July 6
	Tooele	May 25	June 5 - June 23	July 9
Utah	Alpine	June 7	June 14 - June 30	July 16
	Genola	May 27	June 9 - June 25	July 11
	Lincoln Point	May 31	June 12 - June 27	July 12
	Orem	May 27	June 9 - June 24	July 9
	Payson	May 31	June 10 - June 26	July 13
	Provo	May 29	June 10 - June 27	July 15
	Santaquin	May 30	June 12 - June 27	July 13
	West Mountain	May 27	June 10 - June 25	July 11
Weber	Pleasant View	May 27	June 7 - June 23	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 23	June 26	July 14
Davis	Kaysville	June 24	June 27	July 13
Grand	Castle Valley	June 3	June 5	June 26
Salt Lake	Salt Lake City	June 20	June 23	July 9
	West Valley City	June 19	June 21	July 9
Tooele	Tooele (May 27)	June 15	June 18	July 15
Utah	Alpine (June 15)	June 30	July 3	July 19
	Genola	June 21	June 24	July 12
	Lincoln Point	June 21	June 24	July 12
	Orem	June 21	June 23	July 11
	Payson	June 21	June 23	July 13
	Provo	June 23	June 26	July 17
	Santaquin	June 20	June 23	July 13
	West Mountain	June 22	June 24	July 12
Weber	Pleasant View	June 20	June 22	July 11

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 ---	• 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 trifloxystropin 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 spirodiclofen	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	chlorpyrifos esfenvalerate permethrin	Lorsban Asana Pounce	see label see label 4-8 oz	4 d 12 h 12 h	use once/year on trunk only
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	Comments
Aphids	apple, pear (rare), peach, plum, cherry	azadiractin hort. oil imidacloprid insecticidal soap malathion	Azatin variety Bayer Advanced Safer, M-Pede Malathion	
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	• Rotate among chemical classes to prevent resistance. • Most are applied every 7 days, but read the label. • See spray timing on page 4.
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.
San Jose scale	apple, others	carbaryl esfenvalerate hort. oil malathion neem oil	Sevin Ortho Bug-B-Gone variety Malathion Concern	treat crawlers once approximately 600-700 degree days after codling moth biofix; check branches where adults occur with 10-20x hand lens for crawler activity
Woolly apple aphid	apple	carbaryl hort. oil malathion	Sevin variety Malathion	
Western cherry fruit fly	cherry	carbaryl esfenvalerate malathion pyrethrin spinosad	Sevin Ortho Bug-B-Gone Malathion Concern Multi-Purpose Ferti-Lome, GF-120, etc.	
Greater peachtree borer	peach, nectarine, apricot	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	• Rotate among chemical classes. • See spray timing on page 4.
Coryneum blight	peach, nectarine, apricot	captan chlorothalonil ziram	Captan Daconil Ziram	

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