UtahState UNIVERSITY extension

Tree Fruit IPM Advisory

UTAH PESTS

Weekly Orchard Pest Update, Utah State University Extension, **July 23, 2008**

News/What to Watch For:

Examine trees for off-color foliage, wilting, leaf drop (these could be caused by a variety of factors: nutrition, root rot, prionus root borer, over- or under-irrigation); plan to collect leaf samples early Aug. for foliar nutrition analysis if necessary
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

Second generation codling moth egg hatch has started in most areas (except Cache County). As we noted with the first generation, be mindful of the time period of maximum egg hatch. For the second generation, this is between 1380 and 1780 degree days. Make sure that the material you are using for control has active (rather than waning) residue on the fruit during this time period. For most areas of northern Utah, this is the period from now until approximately August 7. (For Cache and Price counties, approximately August 5 - 25.)

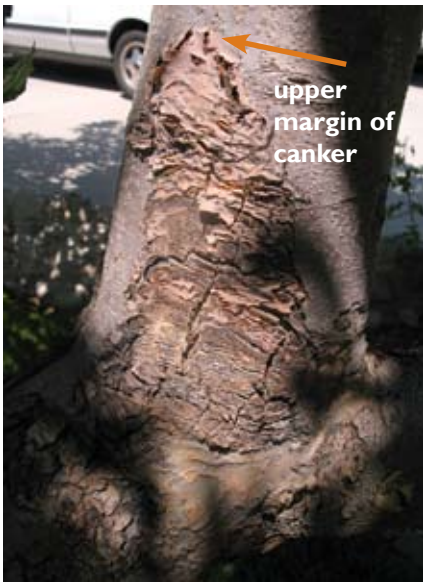
Pear Psylla


late season damage caused by pear psylla feeding

If you had not noticed feeding by pear psylla this spring, damage is evident now. They are active from spring to fall, and if left unchecked, can build to damaging levels. Not only do they excrete honeydew, but their feeding kills the plant tissue. At this point in the growing season, adults, eggs, newly-hatched nymphs and old nymphs can be found. The best timing for treatment is in spring, but if necessary, summer oil can be applied (when temperatures are below 85-90 F). Commercial growers can use Assail, Centaur, Clutch or Provado.

Anthracnose Canker on Apple

Anthracnose canker (caused by *Pezicula malicorticis*) was identified by Plant Disease Diagnostician Erin Frank on an apple tree in Orem. Sunken, necrotic cankers (dead tissue) can form on twigs, limbs, and major scaffolds. They are often associated with a pruning cut, but infections are known to occur through healthy lenticels.




border of healthy tissue and dead tissue at canker margin

New infections usually occur in autumn, and the fungus grows in the inner bark and cambium through the following spring and then ceases development by July. The tree is able to "wall off"

continued on next page

Insect and Disease Activity, continued

the canker, separating the healthy from the diseased tissue by a small crack (shown). This type of development is called an annual canker. When the canker encircles an entire limb, that limb can be killed.

Spores form on the canker in late summer, and cause new infections, either through wounds or through lenticels. To prevent new cankers from forming, prune out all existing cankers where possible. In addition, apply one to three fungicide applications starting in early autumn to trunk and limbs. Materials include captan, ziram, mancozeb, bordeaux mixture (after harvest), or fixed copper.

STONE FRUITS

Apricots

Apricot harvest is under way; examine fruit carefully to assess your overall pest management program for the season:

UC IPM Project

Shallow, irregular injury on the fruit could be caused by late-season earwig feeding.

Oregon State University Extension

Small, round scabby or sunken lesions on fruit is coryneum blight, or shot hole. Treat in fall at 50% leaf drop.

Holes in the fruit with frass indicate feeding by peach twig borer larvae. (Shown on peach.)

Western Cherry Fruit Fly

The sweet cherry harvest was almost nil this season, while a low to moderate tart cherry harvest is beginning soon, or has begun. If a "last minute" treatment for cherry fruit fly is necessary, there are a few products to use: GF-120 (PHI: 4 hours), Sevin (3 days), and malathion (1-3 days). Note that the other brands of spinosad (Success, Entrust) have a 7-day pre-harvest interval.

WALNUTS

Walnut Husk Fly

Ontario MAFRA

Millicent Lewis, Orem, UT

The adult walnut husk fly is larger than the cherry fruit fly, but has a similar, though distinct, wing pattern. It is attracted to the same type of trap as the cherry fruit fly (yellow sticky with ammonium carbonate bait), but emerges about a month later. It was trapped in Orem last week.

Black, Japanese, and English walnuts are all hosts for the husk fly. Although the maggots do not damage the nut meat directly, their feeding on the husk causes indirect damage by making hull removal difficult, and causing black staining of the nutshell.

Walnut husk flies overwinter as pupae in the soil and emerge as adults in early to mid-July, and continue through September. After mating, the female lays eggs just below the surface of the husk. Maggots feed on the husk for 3 to 5 weeks and then drop to the soil to pupate. There is a single generation per year.

Since husk flies do not lay eggs on walnuts with split husks, research has shown that an application of ethephon, which hastens nut maturity and nut split, can decrease late season damage.

Like cherry fruit fly, populations of walnut husk fly can be reduced by placing landscape fabric under the tree canopy in late summer to prevent larvae from entering the soil. Also, remove all nuts that fall to the ground.

To make husk removal easier, store infested nuts in a damp burlap bag for 2-3 days.

See insecticide recommendations for products that target adults and begin treatment now where necessary.

Degree Day Accumulations and Insect Development

Upcoming Monitoring/Insect Activity

By Insect (in alphabetical order)	
Codling moth (CM)	2nd gen. egg-hatch begins at 1100 DD (after biofix)
Fire blight (FB)	Prune out strikes in July 18-24" down
Obliquebanded leafroller (OBLR)	2nd gen. flight begins at approx. 1500 DD (base 50)
Peach twig borer (PTB)	2nd gen. egg-hatch begins at 1200 DD after biofix
Spider mite (SM)	Look for damage on leaves closest to ground first
White apple leafhopper (WALH)	Look for nymph and adult activity; look for stippling on leaves

By Host (see abbrev. at left)	
Apple	CM, FB, OBLR, SM, WALH
Cherry	OBLR
Peach	PTB, SM
Pear	FB

Degree Day (DD) Accumulations and Insect Phenology

(click here for more information on degree days)

March 1 - Tuesday, July 22

			Codling Moth - 1st/2nd Gen.			Peach Twig Borer - 1st/2nd gen.		
County	**Location**	***GDD50**	**DD (post biofix)**	**% Egg Hatch**	**% Moth Flight**	**DD (post biofix)**	**% Egg Hatch**	**% Moth Flight**
Box Elder	Perry	1459	1330	12	48	1081	1	19
Cache	North Logan	1157	979	99 (1st)	4	663	95 (1st)	100
	Providence	1183	1016	100 (1st)	6	724	98 (1st)	100
	Smithfield	1219	1064	0	9	708	97 (1st)	100
Carbon	Price	1400	1186	3	23	900	0	2
Davis	Kaysville	1417	1215	3	27	1033	0	11
Grand	Castle Valley	2074	1682	66	91	1610	82	99
Salt Lake	SLC	1614	1448	28	68	1180	4	41
	West Valley City	1650	1474	31	70	1218	5	48
Tooele	Erda	1770	1465	30	69	---	---	---
	Grantsville	1616	---	---	---	---	---	---
	Tooele	1677	1430	25	64	1243	8	56
Utah	Alpine	1305	1086	0	11	817	0	0
	Genola	1445	1267	7	37	1003	0	8
	Lincoln Point	1330	1157	2	20	934	0	3
	Orem	1422	1310	10	44	1036	0	11
	Payson	1497	1322	11	46	1100	1	23
	Provo	1486	1297	10	43	1042	0	13
	Santaquin	1409	1262	7	36	1025	0	10
	West Mountain	1399	1229	4	31	975	0	5
Weber	Pleasant View	1550	1407	21	60	1130	0	11

*GDD50 (growing degree days base 50) are degree days since March 1, calculated using 50 F as the lower threshold value. This number is used for insects that develop at temperatures above 50 F only.

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 24
	Smithfield	July 24	July 26
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 23
	Genola	July 10	July 16
	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 (Ending protection (egg hatch) date corresponds to 800 DD. For 2nd generation, 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 1200 and 1360 degree days after biofix, or 5% and 28% egg hatch.

County	Location	End Protection (1st gen.)	Start Protection (large pop.-2nd gen.)	Start Protection (small pop.-2nd gen.)
Box Elder	Perry	July 11	July 26	August 3
Cache	All locations	July 27	August 13	August 21
Carbon	Price	July 20	August 3	August 10
Davis	Kaysville	July 11	July 28	August 4
Grand	Castle Valley	June 25	July 9	July 15
Salt Lake	Salt Lake City	July 9	July 22	July 28
	West Valley City	July 8	July 21	July 27
Tooele	Tooele	July 8	July 20	July 26
Utah	Alpine	July 20	August 6	August 13
	Genola	July 13	July 29	August 5
	Lincoln Point	July 13	July 31	August 7
	Orem	July 12	July 28	August 4
	Payson	July 10	July 26	August 2
	Provo	July 14	July 29	August 5
	Santaquin	July 13	July 29	August 5
	West Mountain	July 13	July 29	August 4
Weber	Pleasant View	July 10	July 25	July 31

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	
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 endosulfan esfenvalerate	Lorsban 4EC Thionex Asana	see label see label see label	4 d 24 h 12 h	use Lorsban only once/year; keep trees protected until mid-Sept.
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	
Walnut husk fly	walnuts	cyfluthrin phosmet spinosad spinetoram permethrin	Baythroid Imidan GF-120 Delegate Ambush	2.4-2.8 oz 4.33-8.5 lb. 20 oz 3-7 oz 16-24 oz	12 h 5 d 4 h 4 h 12 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	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	Most are applied every 7 days, but read the label. Continue through harvest or until Sept. 15.	• 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
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.	• Rotate among chemical classes. • to reduce number of sprays, time them so that none are applied in between generations
Walnut husk fly	walnuts	spinosad esfenvalerate malathion permethrin	GF-120, Gardens Alive Bullseye Ortho Bug-B-Gone malathion Bayer Advanced Dust	Most are every 7 days. Continue until harvest.	

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