UtahState University COOPERATIVE EXTENSION

Tree Fruit IPM Advisory

UTAH PESTS

Weekly Orchard Pest Update, Utah State University Extension, **May 28, 2009**

News/What to Watch For:

Watch for spider mites on lowest leaves of all fruit trees
Watch for powdery mildew lesions on cherry and peach leaves, and on peach fruit
Watch for "cottony" colonies of woolly apple aphid in the next few weeks
"An organic option for codling moth" (see below)
Spray timing (codling moth), page 4
Spray materials, pages 5-6

Insect and Disease Activity/Info

APPLES/PEARS

Codling Moth

Growers should be thinking about applying the first cover spray (at 1% egg hatch) for codling moth. See table on page 4 for your area.

Peak egg hatch

Note that peak egg hatch (for the first generation) will be occurring in a few weeks in all but Cache, Carbon, and Grand (where it is passed) counties. The dates of this period are provided on page 4.

The peak egg hatch period is a short window of time (about 1-2 weeks) where 12-80% of all eggs will be hatching. At the same time, the fruits are expanding, so the surface area of each fruit originally protected from your prior insecticide spray diminishes. So during this rapid egg hatching and fruit expansion, it is important that your fruit is protected with insecticide to prevent larval entry. Keep tabs on when your first treatment was applied and how long it lasts. If it is waning during the period of peak egg hatch, consider applying your second application sooner (by 1-2 days).

Codling moth virus--an alternate option

Growers looking for an organic option, or wanting to reduce the amount of conventional pesticide sprays, should consider codling moth granulosis virus. Used alone, this biocontrol option will not give great control, but it could be used alternatively with oil or with Entrust (spinosad) to remain organic, or with conventional pesticides to reduce chemical sprays.

Codling moth virus can be purchased online as Cyd-X, Virosoft, or Carpovirusine. It is a naturally occurring virus that is very toxic to the larvae. In order to work, the virus must be ingested (like spinosad). Codling moth larvae are on the surface of the fruit for a very short amount of time, so thorough coverage is a must. Also, it breaks down easily and must be reapplied every 5-7 days. Entomologists at Michigan State University (MSU) recommend that the best approach for using the virus is through frequent applications of a low rate.

Growers using conventional insecticides might want to consider replacing one or two sprays with a virus spray. Not only will this reduce pesticide inputs into the environment, but also help to prevent resistance.

MSU provides the following management options:

1. Target the first generation strictly with CM virus. Most fruit that is successfully attacked by larvae falls to the ground early, and is not part of the harvested crop (although larvae that survive to pupation emerge in a later generation).
2. Use a chemical insecticide (oil or Entrust for organic) for your first spray of each generation (at 1% egg hatch) and then switch to the codling moth virus for the second spray, when there are more eggs. Another rotation could follow, or you could apply the virus weekly for the remainder of the generation.

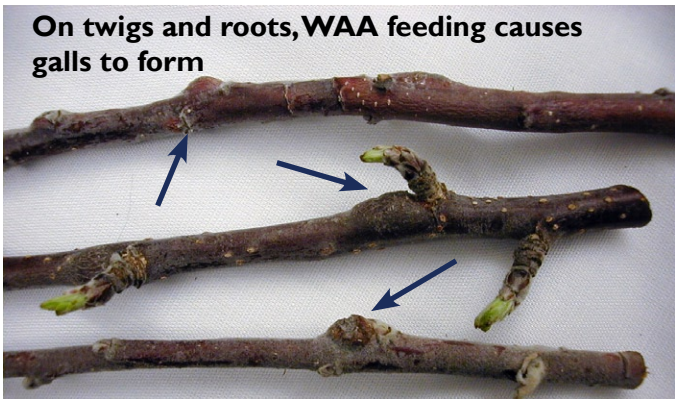
Woolly Apple Aphid

Woolly apple aphids (WAA) have started to slowly make their way up from their overwintering sites on apple roots to the lower canopy. Aphids that overwintered in the canopy are also starting to show some activity (i.e., reproduction). Numbers right now are still very low. They will start to become more noticeable toward the end of June/early July. But when their populations have increased to large colonies, they are more difficult to treat.

Start looking for them now, especially if you have root suckers at the base of the tree. You may find them in curled leaves with the green apple aphid, or on stems. They may also be

continued on next page

Insect and Disease Information, continued from previous page



congregated at the graft junction. In the canopy of the tree, look first around the callus of old pruning scars, which is where they prefer to overwinter. Eventually they will move to more succulent twig tissue.

As the colonies increase, they will form cottony masses where they settle. Large colonies such as these are more difficult to control because the fluffy wax protects them from chemicals and predators (although a tiny wasp is fairly effective on small colonies, leaving behind black "aphid mummies").

A new product on the market, Ultor, has been researched in Utah, Oregon, Washington, and elsewhere, for its efficacy on a variety of insect pests. Utah and WSU found that it has excellent efficacy against woolly apple aphid ONLY if applications are made early in the season. Ultor was found to significantly reduce root as well as aerial populations, whereas no other registered insecticides affect root populations.

In most areas of northern Utah, it is approaching "too late" to use Ultor, as petal fall is an ideal timing. The reason is that this product is a systemic, and so the tree needs time to take up the material through the roots and leaves before it becomes effective. A single application made now, however, could still prove worthwhile.

Other available materials are contact sprays and should be applied when the WAA colonies are visible in the tree, but before they become too large. They should be applied with a high volume to penetrate the waxy coverings. The Malling-Merton (MM.106 and MM.111, for example) are mostly resistant to root feeding, as is the Robusta 5 root stock.

Peach Twig Borer

Some of our traps have caught peach twig borer moths (for a biofix), and we have had reports on other locations:

Castle Valley: May 8	Perry: May 23
Kaysville: May 26	Provo: May 26
Holladay: May 26	West Valley City: May 26

See the table on page 4 for spray timing information. We usually provide two options: an early spray timing date if you know you have a large population or had high damage last year, and a later date for low population sites.

Peach twig borer is the primary pest of peaches. Larvae of this pest prefer to feed on succulent tissue inside twigs. Feeding on fruit is the "second best option" when twigs become hardened off and unpalatable. Therefore, the first generation will bore into succulent terminal twigs (hence, its name) while later generations move on to the ripening fruit. More on pest biology in a later advisory.

Western Cherry Fruit Fly

Cherries are plentiful on sweets and tarts, but they are still small and green. Cherry fruit fly CANNOT penetrate the skin and lay eggs on green fruit. Therefore, materials should be applied only after the first few fruits have developed a salmon blush color over the yellow. More on biology of this pest in the next advisory.

Degree Day Accumulations and Insect Development

Upcoming Monitoring/Insect Activity

Pest	Host(s)	DD/Monitoring Action
Cherry powdery mildew	cherry	Look for small white lesions on new foliage near the base and interior of the tree
White apple leafhopper	apple	Look for nymph and adult activity
Codling moth	apple, pear	Egg-hatch begins at 220 DD (after biofix)
Western cherry fruit fly	cherry	Hang traps at 700-750 DD (base 41); first flies at 900-950
Peach twig borer	peach, nectarine	Hang traps at 300 GDD; first moths at 400-450 after biofix
Flatheaded appletree borer	apple, pear (uncommon)	Adults start laying eggs at 500 GDD
San Jose scale	apple mostly	Crawler emergence at 300-400 DD after biofix Treat at 600-700 DD

Degree Day Accumulations

March 1 - Thursday, May 28

County	Location	GDD 50	Codling Moth			San Jose Scale (base 51)	Western Cherry Fruit Fly (base 41)
			DD (post biofix)	% Moth Flight	% Egg Hatch		
Box Elder	Perry	444	216	45	1	202	889
	Tremonton	405	115	19	0	107	860
Cache	North Logan	296	105	15	0	97	668
	Providence	319	133	21	0	124	697
	Smithfield	276	101	15	0	93	606
Carbon	Price	429	169	32	0	157	864
	Spring Glen	425	88	10	0	81	893
Davis	Kaysville	423	186	35	0	174	868
Grand	Castle Valley	813	519	91	58	459	1393
Salt Lake	Holladay	484	214	44	1	194	944
	West Valley City	482	214	44	1	196	964
Tooele	Erda	444	213	44	1	198	879
	Grantsville	655	343	67	12	308	1168
	Tooele	454	221	45	1	206	935
Uintah	Vernal	434	196	40	0	182	858
Utah	Alpine	429	181	35	0	161	861
	Genola	502	252	53	3	230	961
	Lincoln Point	430	177	34	0	165	866
	Orem	451	257	51	3	239	915
	Payson	467	243	50	2	225	883
	Provo	596	237	49	2	217	1058
	Santaquin	451	237	49	2	221	890
Weber	Pleasant View	416	202	40	0	183	856

"Base 41," "base 50," and "base 51" refer to the lower temperature threshold at which certain insects develop. For example, codling moth does not start developing in spring until temperatures reach 50 degrees or more.

Spray Timing

Please check these chart each week for updated dates. These dates are forecasted using the average temperature for each site. Fruit should remain protected through each generation according to interval provided on pesticide label.

Codling Moth, First Generation

Most residential growers should start sprays at the "traditional start date," unless you choose to use horticultural oil at 200 DD. The period of greatest egg hatch occurs from 340 DD - 640 DD.

		Option A		*Option B*	
County	**Location**	***Apply Oil (200 DD)***	***Apply delayed 1st cover (350 DD)***	**Traditional Start Date (1% egg hatch)**	**Period of greatest egg hatch**
Box Elder	Perry	May 29	June 7	May 29	June 7 - June 25
	Tremonton	June 4	June 14	June 6	June 14 - June 30
Cache	N. Logan	June 6	June 18	June 8	June 17 - July 5
	Providence	June 4	June 16	June 6	June 15 - July 3
	Smithfield	June 6	June 18	June 8	June 17 - June 5
Carbon	Price	June 1	June 16	June 3	June 14 - July 3
	Spring Glen	June 9	June 21	June 11	June 20 - July 9
Davis	Kaysville	May 29	June 8	May 31	June 8 - June 23
Grand	Castle Valley	---	---	May 13	through June 4
Salt Lake	Holladay	---	---	May 29	June 5 - June 20
	West Valley City	---	---	May 29	June 6 - June 22
Tooele	Erda	---	---	May 29	June 6 - June 22
	Grantsville	---	---	May 25	May 28 - June 16
	Tooele	---	---	May 28	June 6 - June 22
Uintah	Vernal	May 28	June 9	May 30	June 8 - June 26
Utah	Alpine	May 30	June 10	June 1	June 8 - June 27
	Genola	---	---	May 27	June 4 - June 22
	Lincoln Point	May 30	June 10	June 1	June 8 - June 26
	Orem	---	---	May 25	June 2 - June 18
	Payson	---	---	May 26	June 4 - June 21
	Provo	---	---	May 28	June 3 - June 20
	Santaquin	---	---	May 28	June 5 - June 23
Weber	Pleasant View	May 29	June 8	May 30	June 7 - June 23

Peach Twig Borer, First 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 300 and 360 degree days after biofix, or 5% and 16% egg hatch.

County	**Location**	**Start sprays (large population)**	**Start sprays (small population)**
Box Elder	Perry	June 15	June 19
Davis	Kaysville	June 15	June 18
Grand	Castle Valley	---	May 28
Salt Lake	Holladay	June 13	June 16
	West Valley City	June 14	June 18
Utah	Lincoln Point	June 18	June 21
	Provo	June 13	June 17

Spray Materials - Commercial Applicators

NOTE: If your trees are in bloom, we do not recommend applying any pesticides unless you are controlling fire blight with antibiotics. Although it is OK to use "softer" materials such as Bt or spinosad during bloom, we still recommend either: waiting until the petal fall stage or applying at dawn or dusk when pollinators are not active.

Target Pest	Host	Chemical	Example Brands	Amount per acre	REI	Comments
Codling moth	apple, pear	hort. oil acetamiprid deltamethrin methoxyfenozide phosmet spinetoram thiacloprid rynaxypyr codling moth virus	variety Assail Battalion Intrepid Imidan Delegate Calypso Altacor Virosoft, etc	see lable 3.4 oz 7-14 oz 16 oz 5.33 lbs 6-7 oz 4-8 oz 3.5-4.5 ---	 12 h 12 h 4 h 5 d 4 h 12 h ---	• for all products, ensure good coverage for effective control • **hort. oil** works on eggs only • **codling moth virus** must be applied every 7 days • **Altacor** and **Delegate** have shown to have good efficacy
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	apply starting at open cluster stage
Woolly apple aphid	apple	spirotetramat diazinon endosulfan	Ultor Diazinon Thionex	12 oz 4 lb 3-4 lb	24 h 4 d 4 d	**Ultor**: apply once; petal fall is optimal timing
Peach twig borer	peach, nectarine	Bt spinetoram spinosad methoxyfenozide endosulfan phosmet	Dipel, Foray Delegate Success, Entrust Intrepid Thionex Imidan	see label 4.5-7 oz see label 8-16 oz 4 lb 4 lb	4 h 4 h 4 h 4 h 4 d 4 d	begin sprays according to spray timing table on previous page and keep fruit protected **Delegate**: apply 7 day intervals
Green peach aphid	peach, nectarine	acetamiprid imidacloprid	Assail Provado	8 oz 4-8 oz	12 h 12 h	
Lygus bug	peaches	azadirachtin beta-cyfluthrin cyfluthrin pyrethrin	Aza-Direct Baythroid Tombstone Pyganic	1-2 pints 2-2.4 oz 2-2.4 oz 4..5-18	4 h 12 h 12 h 4 h	OMRI certified organic restricted use product restricted use product OMRI certifiec organic
Brown mite	all fruit trees	abamectin acequinocyl bifenazate etoxazole fenpyroximate pyridaben spirodiclofen	Agri-Mek Kanemite Acramite Zeal Fujimite Nexter Envidor	10-20 oz 21-31 oz .75-1 lb 2-3 oz 32 oz 3.5-10 oz 16-18 oz	12 h 12 h 12 h 12 h 12 h 12 h 12 h	best used before mid-June only one application/season two applications/season one application/season

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	*Conventional* carbaryl malathion gamma-cyhalothrin bifenthrin *Soft/orgainc* spinosad codling moth virus	 Sevin, Bonide Fruit Tree Spray, etc. Malathion Spectracide Triazide Ortho Bug-B-Gone Green Light, Gardens Alive Bull's Eye Virosoft, Cyd-X	• Rotate among chemical classes to prevent resistance. • Most are applied every 7-14 days, but read the label. • codling moth virus is an organic option, but can only be purchased online.
Powdery mildew	apple	*Conventional* bayleton propiconazole *Soft/orgainc* lime sulfur neem oil potassium bicarbonate	 Lilly Miller Ferti-Lome Bonide Garden Safe Kaligreen	do not apply lime sulfur when temperature is over 75 degrees F
Woolly apple aphid	apple	*Conventional* carbaryl	 Sevin	apply only as needed; thorough coverage essential
Green peach aphid	peach, nectarine	*Conventional* malathion *Soft/orgainc* pyrethrin	Bonide, Malathion Pyganic	start with a single application
Peach twig borer	peach, nectarine	*Conventional* carbaryl malathion permethrin bifenthrin *Soft/orgainc* spinosad kaolin clay	 Sevin, Bonide Fruit Tree Spray, etc. Malathion Adams Yard Spray, Ortho Basic Solutions Yard and Garden, Bonide Eight RTU, Hi Yield Permethrin Concentrate, Spectracide Ortho Bug-B-Gone Green Light, Gardens Alive Bull's Eye, Ferti-Lome Borer, Bagworm, etc. Spray Surround	Do not spray until it is time in your area (see spray timing table) Most are applied every 7-14 days, but read the label. **Surround**: works to repel, not kill insects; only moderate control

Tree Fruit IPM Advisory
is published weekly by Utah State University Extension

Editor: Marion Murray, marion.murray@usu.edu

click here for archived advisories