Tree Fruit IPM Advisory

Weekly Orchard Pest Update, Utah State University Extension, **July 11, 2007**

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Jump to Treatment Timings:

Codling Moth - Commercial
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Peach Twig Borer - Homeowner

Upcoming Monitoring/Insect Activity

Peach twig borer	Second generation flight begins at 900 DD (after biofix)
Codling Moth	Second generation egg hatch begins at 1100 DD (after biofix)
Greater Peachtree Borer	Moth flight continues until mid-September

Attention COMMERCIAL GROWERS: Please see calendar announcements on page 7.

Degree Day Accumulations, as of Wednesday, July 11

County	Location	Codling Moth, Peach Twig Borer (Base 50°F)					Cherry Fruit Fly (Base 41°F)
		DD since March 1	CM DD since biofix*	% CM Egg Hatch	PTB DD since biofix*	% PTB Egg Hatch	DD since March 1
Box Elder	Perry	1535	1352	15%	1186	4%	2467
Cache	North Logan	1131	994	0	834	0	1877
	Richmond	1269	1015	0	866	0	2082
	River Heights	1282	1099	2	945	0	2094
Carbon	Price	1561	1290	10	----	----	2445
Davis	Kaysville	1471	1267	9	1086	0	2395
Juab	Tintic	1272	----	----	----	----	2099
Salt Lake	SLCC	1730	1466	27	1267	12	2729
	West Valley City	1689	1435	23	1238	8	2686
Tooele	Erda	1827	1423	22	----	----	2807
	Grantsville	1887	1482	30	----	----	2914
	Tooele	1842	1458	26	----	----	2830
Utah	Alpine	1354	1151	5	988	0	2234
	Genola	1540	1299	11	1119	1	2456
	Lincoln Point	1418	1206	6	1032	0	2314
	Orem	1585	1368	16	1127	2	2523
	Payson	1559	1353	15	1201	5	2470
	Provo	1590	1244	8	1119	1	2528
	Santaquin	1433	1253	8	1093	0	2316
	West Mountain	1368	1116	3	974	0	2233
Weber	Pleasant View	1595	1426	23	1242	8	2536

"Base 41F" and "base 50F" refer to the lower temperature threshold at which insects develop; ***Biofix*** is the date of moth flight. =Codling Moth, PTB=Peach Twig Borer)

Insect Activity

APPLES AND PEARS

Codling Moth (CM):

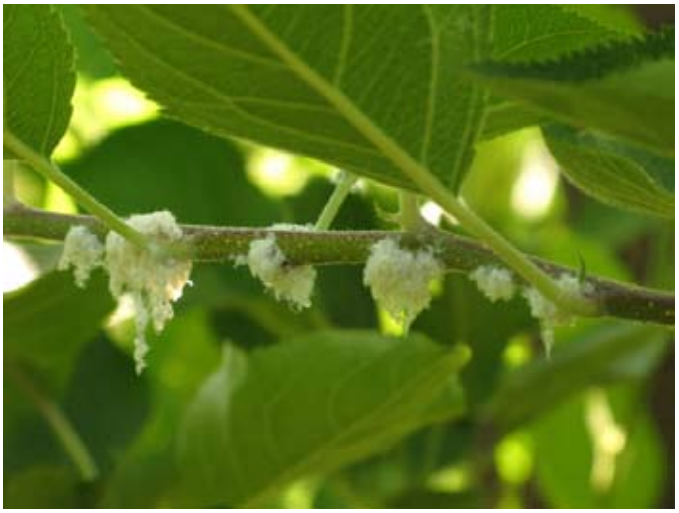
Egg hatch of second generation codling moth is occurring in all areas, and just starting in Cache County. Trap catch has increased significantly in conventional orchards and is low in orchards using mating disruption, which is to be expected.

See table on page 1 for the percentage of eggs that have hatched in your area. Those areas that are showing 15% egg hatch or more have entered the period of maximum egg hatch and should make sure fruit is well protected.

Commercial orchards using mating disruption should use traps to monitor for moth flight. The general threshold guideline for treatment is constantly being refined. According to Washington State University, the threshold for the second generation is half what it is for the first generation: if 2 or more moths are trapped in one week, an insecticide may be needed (but check for damage first); if 5 or more moths are caught in a week, a supplemental spray definitely is needed.

Click here for the USU codling moth fact sheet

Woolly Apple Aphids:



These apple aphids are still being observed in high numbers in West Mountain and Payson. The cottony masses can be sticky and cause a nuisance to workers while the damage causes swollen stems and root loss. Apply sprays heavily to penetrate the thick cotton masses.

PEACHES AND NECTARINES

Peach Twig Borer (PTB):

Second generation flight of PTB is well under way in all locations, and just starting in Cache County. No shoot strikes (tips of new shoots wilted due to borer entry) or fruit entries have been observed, so keep up the great control measures.

First spray coincides with 5% egg hatch. See the table on page 1 for the percent egg hatch in your area. First cover sprays should be on by now for Salt Lake, Weber, Box Elder, and parts of Utah Counties.

Click here for the USU peach twig borer fact sheet.

Greater Peachtree Borer (GPTB):

All locations should continue treatment of peaches, nectarines, and apricots by spraying the lower 2-3 feet of your tree trunk through mid-September.

Click here for the USU greater peachtree borer fact sheet.

CHERRIES

Black Cherry Aphid:

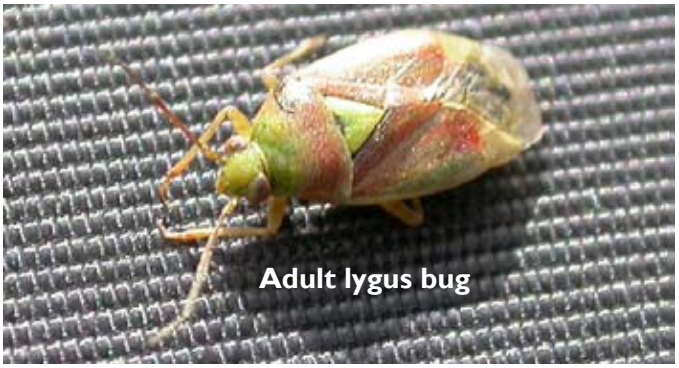
Some people are reporting black cherry aphids still active. These insects are usually more of a problem on new growth in spring. By mid to late July, they move away from the cherry trees to alternate vegetative hosts (plants in the mustard family) for the remainder of the summer.

The best treatment for this aphid is a dormant or delayed dormant oil spray, and possibly an application of Provado or Merit after petal fall if aphids are observed. If the infestation is severe, or if colonies of aphids are remaining on the tree in the summer, use Merit now.

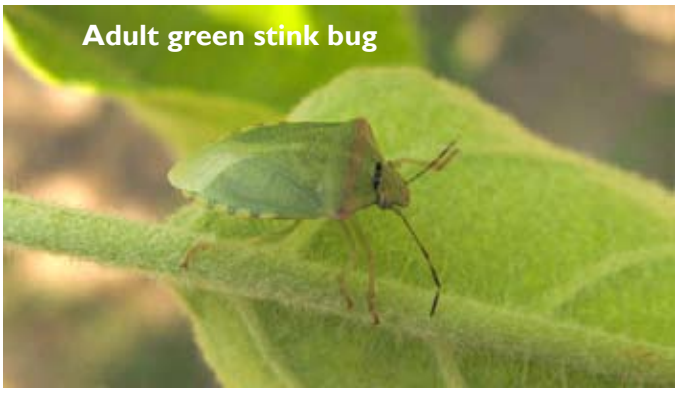
ALL TREES

Cat-facing Insects:

Damage to apple caused by a cat-facing insect earlier in the season



Adult lygus bug



Adult green stink bug

If you see oddly-shaped fruit, more than likely the damage was caused by an insect that causes "cat-facing." These insects pierce the fruit skin and suck out the juices. As the fruit expands and heals, the damage becomes visible. All types of fruits are susceptible, and feeding can continue up to about 4 weeks before fruit harvest.

Orchards that are adjacent to highly vegetated fields or shrub-land can experience heavy damage from the lygus bug. This insect feeds within the unmanaged landscape, but when the amount of decent food runs out, lygus bugs move rapidly to the orchard edges, feeding on the fruits.

Stink bugs are another insect that can migrate into orchards when broadleaf vegetation dries out in summer (as is happening now). A small number of stink bugs was observed in Payson.

Very little damage has been seen, but it is important to monitor fruits for scars, dimples, and depressed areas regularly. These insects are hard to treat because they are not exclusively tree fruit pests. If you have a healthy groundcover in your orchard, you should see very little damage.

No, this sad-looking pear was not damaged by a cat-facing insect, but rather by fruitworm (which are done for the season).

Monitor your orchard for these pests before deciding to spray. If necessary, spray borders or hot spots only. Materials for treatment are provided in the next section.

Spider Mites:

Continue to monitor for damage in the lower interior of the tree canopy. Use a hand lens to look for the fast-moving predator mites. If you can estimate approximately 1 predatory mite per damaging mite, then there is no need to spray.

Disease Activity

ALL TREES

Iron Deficiency:

In orchards where iron deficiency occurs, damage has been visible for several months now. Leaves of new growth will appear chlorotic (yellow) while the veins remain as thin green lines. Eventually leaves may curl up and drop prematurely. Some trees are genetically more susceptible to nutrient deficiencies than others. Iron is a nutrient necessary for the formation of chlorophyll. Lack of chlorophyll means reduced photosynthesis, and reduced tree vigor.

Iron deficiency is not caused by a lack of iron in the soil, but rather the pH of our soils. Utah soils are very alkaline, with pH measurements ranging from 7.5 to 8.5. In high pH, iron is insoluble, and therefore not available within the water that roots are absorbing. Our irrigation water is also of the same pH. Therefore, trying to reduce soil pH to manage iron deficiency is difficult. Frequent springtime irrigation or prolonged soil wetness can exacerbate the problem.

Chelated iron can be applied to the soil or foliage, but results are often unpredictable. Soil applications should be made in the spring, and worked into the root zone. Foliar sprays (0.1%) with a spreader-sticker can provide quicker but temporary results. Avoid applications when fruit are present because staining may occur.

Phytophthora Root Rot/Crown rot:

With the drought we are having, it is hard to imagine trees being affected by this pathogen that thrives in saturated soils. It is a fungus-like organism that is present in almost all soils, but infection only occurs when conditions are optimal: wet soils in the presence of the right host. Most fruit trees are susceptible, but pear and plum are somewhat resistant.

Phytophthora can kill trees quickly or slowly. Trees that die quickly will have wilted leaves throughout the canopy that eventually turn brown and are persistent. Symptoms of chronic infections include slightly yellow, undersized leaves and reduced tree growth. Once trees are infected, there is no

A cherry tree recently killed by Phytophthora, and the diagnostic brown staining of the inner bark at the base of the tree.

"cure." These trees should be removed immediately.

To prevent infection, avoid planting trees in low dips or in poorly drained soils. Plant new trees slightly high so that they do not settle lower than the normal soil height, and prevent water from puddling around the root collar.

Plant resistant cultivars in questionable areas:

Pears: relatively resistant

Apples: M.9, M.2, and M.4 are relatively resistant; M.7 (and M.7a), M. 26, and MM. 111 are moderately susceptible; MM.106 and MM.104 are highly susceptible

Plums: relatively resistant

Cherry: susceptible to very susceptible; Mahaleb is the most susceptible cherry rootstock; Mazzard, Morello, and Colt are somewhat more resistant

Peach and apricot: very susceptible

Coryneum Blight:

Continue to monitor orchards for infections on peach, apricot, and cherry. Look for circular holes in the leaves, small rust-colored spots on peach fruit, reddish-amber gumming on the bark, and dark, sunken cankers.

Current Spray Timings - Commercial Growers

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

Codling moth Second Generation:

The projected timing dates of the spray periods shown below will be updated each week. Beginning of 2nd generation egg hatch is 1100 DD after biofix. The critical period of protection corresponds to the period 1320-1720 DD, when the rate of egg hatch is the highest. The end of egg hatch for the second generation is 2100 DD after biofix.

County	City	Beginning of 2nd Generation Egg Hatch	Critical Period of Protection	End of Second Generation
Box Elder	Perry, Willard, Brigham	July 2	July 10 - 25	August 9
Cache	North Logan	July 17	July 27 - August 15	September 5
	Richmond	July 15	July 25- August 14	September 4
	River Heights	July 14	July 24 - August 12	September 1
Carbon	Price	July 4	July 14 - August 2	August 20
Davis	Kaysville	July 5	July 14 - July 29	August 13
Salt Lake	Salt Lake City	June 29	July 6 - 22	August 3
	West Valley City	June 29	July 7 - 21	August 4
Tooele	Erda	June 30	July 8 - 22	August 4
	Grantsville	June 28	July 5 - 20	August 2
	Tooele	June 28	July 9 - 21	August 3
Utah	Alpine	July 9	July 18 - August 3	August 19
	Genola	July 2	July 11 - 27	August 11
	Lincoln Point	July 7	July 15 - 31	August 15
	Orem	July 1	July 9 - 25	August 9
	Payson	July 1	July 10 - 27	August 11
	Provo	July 6	July 14 - 30	August 14
	Santaquin	July 5	July 14 - 30	August 15
	West Mountain	July 10	July 18 - August 3	August 18
Weber	Pleasant View	June 29	July 8 - 23	August 7

Materials for codling moth control:

eggs: Rimon, Horticultural oil, Esteem, Confirm, Intrepid, Azatin

larvae: Assail, Asana, Calypso, Carbaryl, Clutch, Diazanon, Guthion, Codling Moth Granulosis Virus, Imidan, Intrepid, Warrior, Sevin, Malathion

Cat-Facing Insects:
chlorpyrifos (Lorsban), endosulfan (Thionex, Phaser), carbaryl (Sevin)

Greater Peachtree Borer
chlorpyrifos (Lorsban), endosulfan (Thionex, Phaser), carbaryl (Sevin), lambda-cyhalothrin (Warrior), permethrin (Ambush, Pounce, many brands)

Rosy and Green Apple Aphids:
Provado, Thiodan

Spider Mites:
Acramite, Envidor, FujiMite, Savey, Zeal

Current Spray Timings - Commercial Growers, continued

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

Peach Twig Borer, Second Generation:
The projected timing dates of the spray periods shown below will be updated each week. The spray date represents 1200 DD after biofix, when 5% of eggs have hatched.

County	City	Beginning Spray Date. Second Generation
Box Elder	Perry, Willard, Brigham	July 12
Cache	North Logan	July 28
	Richmond	July 25
	River Heights	July 23
Davis	Kaysville	July 15
Salt Lake	Salt Lake City	July 8
	West Valley City	July 10
Utah	Alpine	July 19
	Genola	July 14
	Lincoln Point	July 17
	Orem	July 14
	Payson	July 11
	Provo	July 14
	Santaquin	July 15
	West Mountain	July 20
Weber	Pleasant View	July 9

Materials for peach twig borer control:

-same as codling moth materials

Western Cherry Fruit Fly:
imidacloprid (Merit, Provado-every 14 days), phosmet (Imidan-every 14 days, but not on sweet cherry), chlorpyfros (Lorsban-every 14 days but not on sweet cherry), diazinon (every 14 days), spinosad (GF-120, Success), permethrins

White Apple Leafhopper:
carbaryl, cyfluthrin (Baythroid), endosulfan (Thionex), novaluron (Rimon), permethrin

Woolly Apple Aphid:
Provado, Calypso, malathion

Cherry Powdery Mildew:
azoxystrobin (Amistar), boscalid (Pristine), fenarimol (Rubigan), myclobutanil (Laredo), propiconizole (Orbit), qunioxyfen (Quintec), triadimefon (Bayleton), trifloxystrobin (Flint), triflumizole (Procure)

Calendar Information for Commercial Growers

UPCOMING ACTIVITIES:

Utah Orchard Tree Fruit Tour:

Thursday, August 2, 3:00 pm,
Commercial growers are invited to attend a field tour and discussion at three orchard locations in Utah and Juab Counties:

Tart Cherry Orchard in Tintic: Growers and Farm Owners Phil and Thad Rowley discuss their use of center-pivot irrigation in a harsh, dry environment. In addition, Extension Fruit Specialist Brent Black discusses other irrigation techniques and Extension Entomologist Diane Alston discusses research on attractants for trapping and managing western cherry fruit fly.

Apple Site at Orchard in Genola: Grower and Farm Owner Dale Rowley discusses his codling moth program, use of puffers (a newer mating disruption dispenser), and monitoring program. Diane Alston discusses her latest research on codling moth monitoring in mating disrupted orchards.

Apple site at Orchard in West Mountain: Grower Chris Wall, Horticultural Consultant Earl Seeley, and Extension Specialist Kent Evans discuss this season's fire blight problem, control and management practices, and where we go from here. Other disease problems may be discussed.

We hope you can join us! Travel is on your own/carpool. Refreshments will be provided. Directions and start location will be announced in a separate flier.

Utah Berry Growers Summer Tours

Bear Lake Tour, Thursday, July 26, 5:00 – 7:00 p.m.
The tour will begin at Roger Earley's farm on West Round Valley Road in Laketown. We will be looking at the USU variety trial at that location, discussing weed, disease and insect pest management, and irrigation scheduling. We are also planning additional stops in the Laketown area as time permits.

Driving directions:
Turn South off Highway 30 in Laketown. Turn right at the stop sign onto Center Street/North Round Valley Road. Follow North Round Valley Road approximately 3 miles to the T intersection at West Round Valley / Meadowville Road. Turn left on West Round Valley and travel about 1.4 miles until you see the raspberry fields on the west side of the road.

Utah County Tour, Wednesday, August 22, 3:00 – 5:00 p.m.
Vern Stratton will be hosting the tour, with the first stop at his field just east of State Street (US 89) on 1360 North Street in Orem. We will be looking at strawberry and fall raspberry production, and discussing insect pests and irrigation management. Vern will also be talking about his peach production, and has agreed to share some of his wealth of experience in growing and marketing fresh fruit.

Driving Directions:
Take State Street in Orem to West 1360 North. Go one block east on 1360 North. The paved road turns to the left, but continue straight through the gate.

Current Spray Timings - Homeowners

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

Codling moth Second Generations:

The projected timing dates of the spray periods shown below will be updated each week. The "beginning spray date" is at 1100 DD after biofix, when the next batch of larvae begin hatching, and the "ending spray date" is 2100 DD after biofix, when the eggs finish hatching.

Read your pesticide label for residual period (length of time it is effective) and re-apply at the given interval from beginning date to ending date, so that fruit is protected during this entire period.

County	City	Beginning Spray Date	Ending Spray Date
Box Elder	Perry, Willard, Brigham	July 2	August 10
Cache	North Logan	July 17	September 5
	Richmond	July 15	September 4
	River Heights	July 14	September 1
Carbon	Price	July 4	August 20
Davis	Kaysville	July 5	August 13
Salt Lake	Salt Lake City (estimate)	June 29	August 3
	West Valley City	June 29	August 4
Tooele	Erda	June 30	August 4
	Grantsville	June 28	August 2
	Tooele	June 28	August 3
Utah	Alpine	July 9	August 19
	Genola	July 2	August 11
	Lincoln Point	July 7	August 15
	Orem	July 1	August 9
	Payson	July 1	August 11
	Provo	July 6	August 14
	Santaquin	July 5	August 15
	West Mountain	July 10	August 18
Weber	Pleasant View	June 29	August 7

Materials for codling moth control:

Chemical	Example Names	Protection Period
carbaryl	Sevin, Bayer Advanced Complete Insect Killer, etc.	7-14 days (read label)
malathion	Bonide Malathion, Hi-Yield 55% Spray,	7-14 days (read label)
Bacillus thuringiensis	Dipel	3-6 days (read label)
spinosad	Success, Entrust	3-6 days (read label)
CM granulosis virus	Virusoft	10-14 days
kaolin clay	Surround	5-7 days

Cat-Facing Insects:

carbaryl (Sevin), esfenvalerate (Bug Buster, KGro Multi-Purpose), malathion, permethrin (many brands)

Greater Peachtree Borer

carbaryl (Sevin), permethrin (many brands) (just spray the bottom 2-3 feet of the tree trunk, and maintain protection through mid-September

Current Spray Timings - Homeowners, continued

Peach Twig Borer, Second Generation:
The projected timing dates of the spray periods shown below will be updated each week. The spray date for the second generation represents 1200 DD after biofix, when 5% of eggs have hatched. For materials that last fewer than 10 days, apply a second spray.

County	City	Beginning Spray Date, Second Generation
Box Elder	Perry, Willard, Brigham	July 12
Cache	North Logan	July 28
	Richmond	July 25
	River Heights	July 23
Davis	Kaysville	July 15
Salt Lake	Salt Lake City (est.)	July 8
	West Valley City	July 10
Utah	Alpine	July 19
	Genola	July 14
	Lincoln Point	July 17
	Orem	July 14
	Payson	July 11
	Provo	July 14
	Santaquin	July 15
	West Mountain	July 20
Weber	Pleasant View	July 9

Materials for peach twig borer control are same as for codling moth

Rosy and Green Apple Aphid:
malathion (Ferti-lome Mal-a-cide, etc.), pyrethrin (Hi-Yield Rose and Flower Spray, etc.)

Spider Mite Adults:
insecticidal soap, permethrin, malathion, neem oil

Western Cherry Fruit Fly:
spinosad (GF-120, Natural Guard Spinosad, every 7 days), Sevin (every 7 days), permethrins (every 7-14 days)

Woolly Apple Aphid:
carbaryl (Sevin), malathion

Cherry Powdery Mildew:
Hi-Yield Lime Sulfur Spray, Bonide Sulfur Dust