

## News/What to Watch For:

Time to start protecting trees from peachtree borer  
Monitor for leafhopper nymphs on apple; examine cherry leaves and peach fruit for powdery mildew  
Watch for “cottony” colonies of woolly apple aphid in the next few weeks  
Spray timing (codling moth and peach twig borer), pages 4-5  
Spray material options, pages 6-7

## Insect and Disease Activity/Info

### APPLE/PEAR

#### Codling Moth

Along much of the Wasatch Front, moth flight is starting to wind down, as seen by our trap catches this week, which were less than last week. Egg hatch, however, is winding UP—slowly. The cooler weather is drawing out the length of the first generation. Having said that (and if you are curious), we are more than a week ahead of 2008, 1.5 weeks behind 2007, 1 week behind 2006, and about the same as 2005.

We stress the importance of keeping fruit protected during maximum egg hatch, which is just starting in most areas. During this narrow time period, about 70% of eggs are hatching. At the same time, fruit is actively expanding. So pay careful attention to your spray intervals and make sure fruit is protected at this time.

#### White Apple Leafhopper

Large numbers of leafhopper are now showing up in un-managed apple trees. There are two generations of leafhopper per year. Although the first generation is fairly small, and foliar damage is rarely noticed, the second generation density in late summer can be quite large. Apple trees can tolerate a large population (more than 6 nymphs/leaf) before any damage occurs to fruit, but hopping and flying insects can be a nuisance during harvest.

Look for leafhoppers by examining leaves for typical damage and turning them over to see nymphs. (Nymphs will remain on leaves while adults will fly away when disturbed.)

### PEACH/NECTARINE/APRICOT

#### Peach Twig Borer

Starting spray dates are coming up early next week for most areas of the Wasatch Front. Moths have not been caught in Cache County yet.

#### Greater Peachtree Borer

Growers in the Wasatch Front region should begin treatment should now on peach, nectarine, and apricot. Although cherry is listed as a host, this pest is not known to attack cherries in Utah. Plums are rarely attacked.

Greater peachtree borer adults were trapped in Utah, Salt Lake, and Tooele counties. We expect to see moths in Box Elder, Davis, and Weber counties soon. We don't expect to see moths in Cache or Carbon counties for at least 2-3 more weeks.

Greater peachtree borer (sometimes called trunk, root, or crown borer) is a day-flying moth that resembles wasps. You may see them (thin, metallic blue-black body with clear wings) resting on leaves. Adults lay eggs on the lower 12” of the tree trunk or on nearby soil, and larvae bore their way into the wood and remain there for the next 9-11 months.

Sprays only need to be applied to the lower 12-18” of trunk and exposed root flare. The residual material on the bark is there to kill the eggs and newly hatching larvae.

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. Please contact us if you are interested in learning more.

For more information, see the [USU greater peachtree borer fact sheet](#).

## Insect and Disease Information, continued from previous page

### CHERRY

#### Western Cherry Fruit Fly

Fruit flies were caught in Box Elder County in Utah Department of Agriculture and Food traps. Most sweet cherries are beyond the point of "coloring up" and sprays should have started on these trees. Tart cherries are just starting to develop the salmon blush. Again, be sure to check the cherries on the top of the tree or in the sunniest locations first.

### RAINFASTNESS OF PESTICIDES

We have had many questions about what to do when it rains after spraying. To answer this, we look at "rainfastness" of a product. This is the point at which it has dried long enough, or has absorbed into the plant tissue, so that rains cannot wash it off. Unfortunately, very few insecticides include information on rainfastness on their labels. Most products differ in how well they withstand rain. Some materials may come pre-mixed with a spray adjuvant that will improve rainfastness. In doing a Google search of pesticide rainfastness, there were lots of research projects, and not a lot of information on specific products.

In general:

- do not spray when rainfall may occur within 2 hours
- make sure plants are dry before spraying
- if the material is allowed 4 hours to dry after spraying, then depending on the material, it will usually be rainfast to light rains and reapplication earlier than label recommendation is not necessary
- if a heavy rain (1+ inches) falls, then the residual amount of some materials may decrease by half; for example if a material lasts 14 days and heavy rains fall a few days after application, it should be re-applied after 7 days.

NOTE: this does not apply to systemic materials (acephate, imidacloprid, spirotetramat, etc.)

- for residual control of insects, the factor that causes the greatest residual breakdown is UV exposure rather than water; materials break down faster in direct sunlight than under cloudy conditions

Materials that are not rainfast:

Surround (kaolin clay)  
neem  
spinosad, GF-120  
sulfur  
Mancozeb  
copper

# Degree Day Accumulations and Insect Development

## Upcoming Monitoring/Insect Activity

Pest	Host(s)	DD/Monitoring Action
White apple leafhopper	apple	Look for nymph and adult activity
Western cherry fruit fly	cherry	Adults can lay eggs within fruit at salmon blush coloring
Peach twig borer	peach, nectarine	5% egg hatch begins at 300 DD (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
Codling moth	apple, pear	Second generation egg-hatch begins at 1100 DD (after biofix)

## Degree Day Accumulations

March 1 - Wednesday, June 10

County	Location	GDD 50	Codling Moth			Peach Twig Borer			San Jose Scale (base 51)
			DD (post biofix)	% Moth Flight	% Egg Hatch	DD (post biofix)	% Moth Flight	% Egg Hatch	
Box Elder	Perry	660	432	82	38	206	42	0	405
	Tremonton	588	298	58	6	---	---	---	279
Cache	North Logan	454	263	52	3	---	---	---	243
	Providence	497	311	61	8	---	---	---	289
	Smithfield	428	253	51	2	---	---	---	233
Carbon	Price	594	334	66	11	116	13	0	310
	Spring Glen	467	243	50	2	---	---	---	223
Davis	Kaysville	621	384	74	26	223	50	1	359
Grand	Castle Valley	1059	765	100	93	604	0 (2nd)	89	712
Salt Lake	Holladay	702	432	82	37	247	59	1	400
	West Valley City	704	436	82	38	247	59	1	405
Tooele	Erda	664	432	92	37	210	39	0	407
	Grantsville	904	592	96	69	243	58	1	541
	Tooele	680	446	84	41	217	48	0	418
Uintah	Vernal	600	362	71	21	---	---	---	338
Utah	Alpine	601	353	69	16	64	5	0	330
	Genola	692	442	83	40	184	35	0	408
	Lincoln Point	618	365	71	21	186	36	0	341
	Orem	663	469	86	46	212	39	0	438
	Payson	676	452	84	42	201	38	0	421
	Provo	831	472	86	47	259	64	2	435
	Santaquin	642	428	82	37	189	35	0	389
Weber	Pleasant View	630	416	79	34	131	17	0	385

“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 - Codling Moth

Please check these chart each week for updated dates. These dates are forecasted using the average temperature for each site.

### Codling Moth, First Generation

“Start sprays” occurs at 220 DD. The period of greatest egg hatch occurs from 340 DD - 640 DD. “Last spray” occurs two weeks *prior* to the end of egg hatch. If you are using a material that lasts 2 weeks, it should be applied on this date.

County	Location	Start Date (1% egg hatch)	Period of greatest egg hatch	Last Spray Date
Box Elder	Perry	May 28	June 3 - June 22	June 26
	Tremonton	June 3	June 13 - June 29	July 1
Cache	N. Logan	June 5	June 16 - July 4	July 7
	Providence	June 1	June 12 - July 1	July 5
	Smithfield	June 5	June 17 - July 4	July 8
Carbon	Price	May 31	June 11 - July 2	July 7
	Spring Glen	June 7	June 18 - July 7	July 12
Davis	Kaysville	May 30	June 6 - June 23	June 24
Grand	Castle Valley	May 12	May 18 - June 4	June 6
Salt Lake	Holladay	May 28	June 4 - June 20	June 21
	West Valley City	May 28	June 3 - June 21	June 22
Tooele	Erda	May 28	June 3 - June 21	June 22
	Grantsville	May 20	May 27 - June 13	June 16
	Tooele	May 27	June 3 - June 20	June 22
Uintah	Vernal	May 30	June 8 - June 27	June 30
Utah	Alpine	May 30	June 9 - June 27	June 30
	Genola	May 25	June 2 - June 22	June 24
	Lincoln Point	May 31	June 8 - June 26	June 27
	Orem	May 25	June 2 - June 19	June 20
	Payson	May 26	June 3 - June 20	June 22
	Provo	May 27	June 2 - June 19	June 20
	Santaquin	May 26	June 3 - June 22	June 25
Weber	Pleasant View	May 29	June 4 - June 22	June 23

## Spray Timing - Peach Twig Borer

**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. The “last spray date” is the date 2 weeks *prior* to end of egg hatch, when the last spray (if your material lasts 2 weeks) should be applied.

County	Location	Start Date (large population)	Start Date (small population)	Last Spray Date
Box Elder	Perry	June 16	June 19	June 27
	Tremonton	June 25	June 28	July 5
Carbon	Price	June 24	June 28	July 8
Davis	Kaysville	June 14	June 18	June 22
Grand	Castle Valley	May 25	May 29	June 5
Salt Lake	Holladay	June 13	June 16	June 20
	West Valley City	June 13	June 16	June 22
Tooele	Erda	June 15	June 18	June 23
	Grantsville	June 15	June 18	June 23
	Tooele	June 15	June 18	June 23
Utah	Alpine	June 24	June 27	July 3
	Genola	June 17	June 20	June 27
	Lincoln Point	June 17	June 20	June 26
	Orem	June 15	June 17	June 22
	Payson	June 15	June 18	June 24
	Provo	June 12	June 15	June 21
	Santaquin	June 17	June 20	June 26
Weber	Pleasant View	June 19	June 22	June 27

## Spray Material Options - 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	variety	see label		• for all products, ensure good coverage for effective control
		acetamiprid	Assail	3.4 oz	12 h	
		deltamethrin	Battalion	7-14 oz	12 h	• <b>hort. oil</b> works on eggs only
		methoxyfenozide	Intrepid	16 oz	4 h	
		phosmet	Imidan	5.33 lbs	5 d	
		spinetoram	Delegate	6-7 oz	4 h	• <b>codling moth virus</b> must be applied every 7 days
		thiacloprid	Calypso	4-8 oz	12 h	
		rynaxypyr	Altacor	3.5-4.5		• <b>Altacor</b> and <b>Delegate</b> have shown to have good efficacy
codling moth virus	Virosoft, etc	---	---			
Powdery mildew	apple	potassium bicarbonate	Kaligreen	2.5-3 lb	4 h	apply starting at open cluster stage
		myclobutanil	Rally	5 oz	24 h	
		trifloxystrobin	Flint	2-2.5 oz	12 h	
		triflumizole	Procure	8-16 oz	12 h	
		fenarimol	Rubigan	12 oz	12 h	
		boscalid/pyraclostrobin	Pristine	14.5-18 oz	12 h	
San Jose scale	apple	acetamiprid	Assail	3.4 oz	12 h	<b>Talus:</b> one application/season <b>Esteem:</b> 45-day PHI; but provides excellent control
		buprofezin	Talus	see label		
		pyriproxifen	Esteem	4-5 oz	12 h	
Woolly apple aphid	apple	spirotetramat	Ultror	12 oz	24 h	<b>Ultror:</b> apply once; petal fall is optimal timing
		diazinon	Diazinon	4 lb	4 d	
		endosulfan	Thionex	3-4 lb	4 d	
Peach twig borer	peach, nectarine	Bt	Dipel, Foray	see label	4 h	begin sprays according to spray timing table on previous page and keep fruit protected
		spinetoram	Delegate	4.5-7 oz	4 h	
		spinosad	Success, Entrust	see label	4 h	
		methoxyfenozide	Intrepid	8-16 oz	4 h	<b>Delegate:</b> apply 7 day intervals
		endosulfan	Thionex	4 lb	4 d	
		phosmet	Imidan	4 lb	4 d	
Greater peachtree borer	peach, nectarine, apricot	chlorpyrifos	Lorsban	see label	4 d	<b>Lorsban:</b> max once/season; do not allow spray to touch foliage/fruit
		endosulfan	Thionex	see label	4 d	
		esfenvalerate	Asana	see label	12 h	<b>Thionex:</b> max twice/season
		pemethrin	Pounce	4-8 oz	12 h	
Western cherry fruit fly	cherry	carbaryl	Sevin	1 pint	12 h	
		malathion	Malathion	12 oz	12 h	
		imidacloprid	Provado	2 oz	12 h	
		spinosad	Success, Entrust	see label	4 h	
		spinosad + bait	GF-120	see label	4 h	

## Spray Material Options - 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	<i>Conventional</i> carbaryl malathion gamma-cyhalothrin acetamiprid	Sevin, Bonide Fruit Tree Spray, etc. Malathion Spectracide Triazide Ortho Max Flower, Fruit, and Vegetable	<b>Carbaryl:</b> every 7 days <b>Malathion:</b> every 14 days <b>Acetamiprid:</b> every 14 days
		<i>Soft/organic</i> hort. oil spinosad	many options Green Light Lawn and Garden Spinosad, Gardens Alive Bull's Eye, Ferti-Lome Borer, Bagworm, Leafminer & Tent Caterpillar Spray, Monterey Garden Insect Spray, Natural Guard	<b>hort. oil:</b> lasts 7 days; use at beginning of each generation; apply at 1% rate ONLY when temperatures are below 80 <b>spinosad:</b> every 7 days
San Jose scale	apple	<i>Conventional</i> bifenthrin carbaryl	Ortho Bug-b-Gone Sevin	two applications spaced 7-14 days apart should be enough
		<i>Soft/organic</i> hort. oil neem oil	many options Concern, Garden Safe, others	
Woolly apple aphid	apple	<i>Conventional</i> carbaryl	Sevin	apply only as needed; thorough coverage essential
Peach twig borer	peach, nectarine	<i>Conventional</i> carbaryl malathion permethrin	Sevin, Bonide Fruit Tree Spray, etc. Malathion Adams Yard Spray, Ortho Basic Solutions Yard and Garden, Bonide Eight RTU, Hi Yield Permethrin Concentrate	see comments under Codling Moth  <b>Surround:</b> every 3-5 days; works to repel, not kill insects; only moderate control; must purchase online
		<i>Soft/organic</i> spinosad kaolin clay	see 'codling moth' above Surround	
Greater peachtree borer	peach, nectarine, apricot	permethrin, bifenthrin	Bonide Eight, Ortho Bug-b-Gone, Green Light Borer Killer	apply every 14-21 days until mid-September in highly infested areas; two applications in low infestations
Western cherry fruit fly	cherry	carbaryl esfenvalerate malathion pyrethrin spinosad ( <i>Soft/Organic</i> )	Sevin Ortho Bug-B-Gone Malathion Concern Multi-Purpose Ferti-Lome, Green Light, Natural Guard, GF-120	start applications only when fruit in sunniest locations develops a salmon blush  <b>spinosad:</b> every 7 days

**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.

### Tree Fruit IPM Advisory

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