

## News/What to Watch For:

Peach twig borer spray timing dates added for Cache County, Spring Glen, Carbon County, and Vernal, Uintah County  
Watch for colonies of woolly apple aphid in the next few weeks

Commercial growers [Click Here](#) for an interesting article on some of the new pre-mixed insecticides and limits on application

Spray timing (codling moth and peach twig borer), pages 4-5

Spray material options, pages 6-7

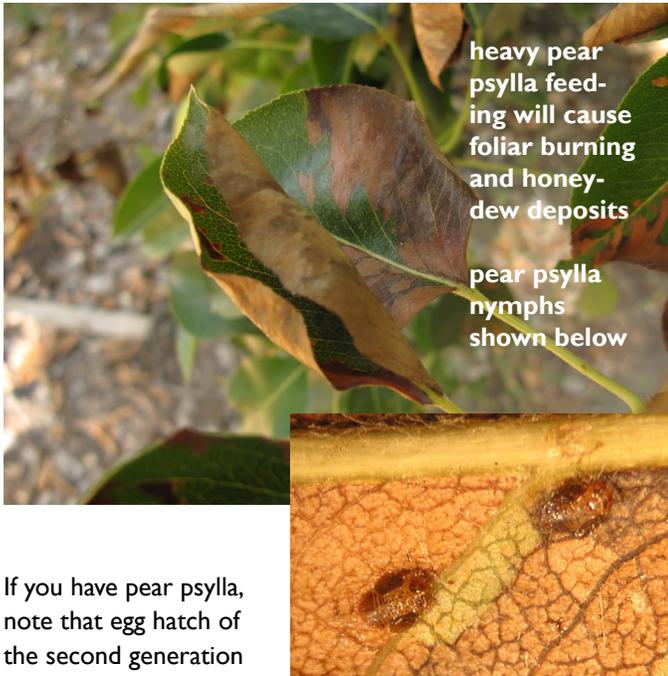
## Insect and Disease Activity/Info

### APPLE/PEAR

#### Codling Moth

Moth flight of the first generation is waning, and the weather has been cool and wet, both of which led to low trap catches this week. Starting spray dates for the second generation have been provided on the table on page 5.

#### Pear Psylla



heavy pear  
psylla feed-  
ing will cause  
foliar burning  
and honey-  
dew deposits

pear psylla  
nymphs  
shown below

If you have pear psylla, note that egg hatch of the second generation is going on now, so you may see honeydew and burning of the foliage, especially as the weather heats up. Honeydew that is produced from the nymphs is the perfect medium on which sooty mold grows, which can also affect

fruit. With the rain and cooler temperatures, foliage is still succulent, which attracts more feeding.

Removing suckers and water sprouts will decrease the population, as these are the prime feeding sites. If the suckers have not hardened off, they can simply be ripped off by folding the branch down.

Commercial growers can use Agri-Mek plus oil, but there is a 21-day PHI, so keep this in mind. Delegate is also effective against pear psylla and is improved with oil. Using Delegate for codling moth will control pear psylla. Many other products are effective as well, including Actara, Assail, Calypso.

### PEACH/NECTARINE/APRICOT

#### Powdery Mildew

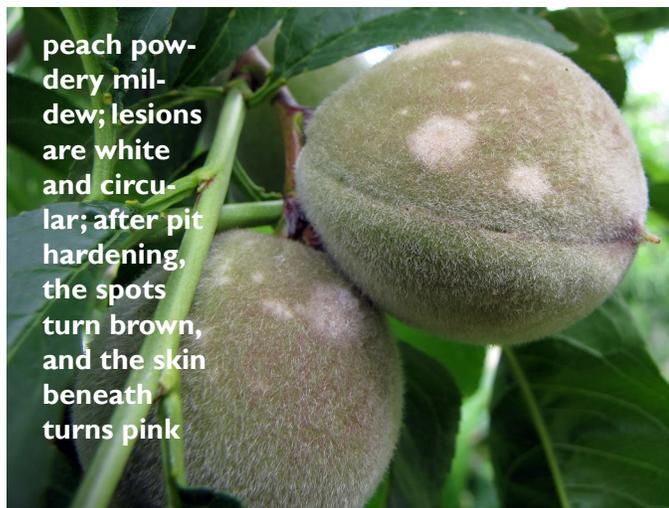
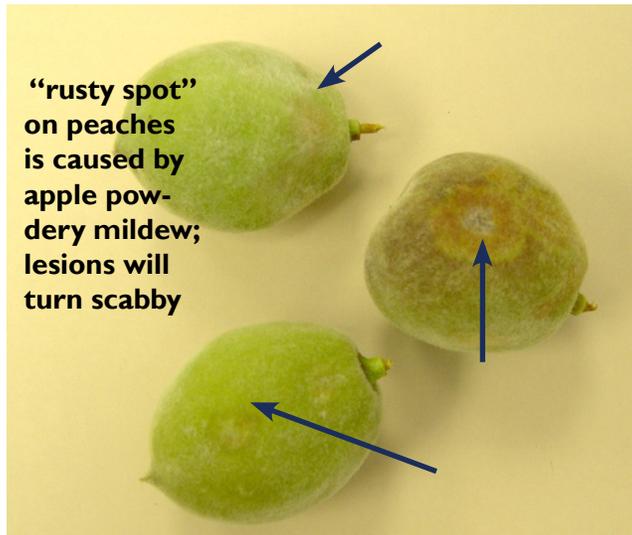
Powdery mildew on peach fruit was found in several areas of Utah and Box Elder Counties. The leaves and twigs do not seem to have infections. There are two different powdery mildew diseases affecting the fruit: apple powdery mildew and peach powdery mildew. Apple powdery mildew only affects the fruit, and only causes "rusty spot," where the surface looks like droplets of rusty water have stained the surface. No conidia or mycelium (signs of the fungus) can be seen on the fruit surface when infections are caused by apple powdery mildew.

Peach powdery mildew normally affects leaves, twigs, and fruit. This spring however, we are just seeing symptoms on the fruit. One theory for this is that the spores causing the infections are coming from nearby woody ornamentals, especially roses, and not affecting the foliage. Normally, this fungus overwin-

## Insect and Disease Information, continued from previous page

ters on the peach buds, like apple powdery mildew. Peach powdery mildew will cause white circular lesions that may expand in size with optimal weather conditions (humidity). Within each lesion, spores and mycelium is visible with a 20x hand lens.

After pit hardening, fruit is less susceptible to infection by either powdery mildew species.



### Coryneum Blight

Another disease that we are seeing earlier and heavier than ever is coryneum blight (shot hole) on peach, nectarine, and apricot. Brand new infections on fruit may appear as a water-soaked lesions with a bit of ooze (see right). Soon after, lesions turn purple, and fruits



may be infected multiple times. Early infections on the fruit will result in scabby, deformed fruit at harvest. Late infections leave sunken, grayish lesions.

Coryneum blight can be difficult to eradicate because it overwinters in buds, and the fungus can survive in infected twigs for up to three years. A grower must be dedicated to eradication, and combine annual pruning of diseased twigs with a regular spray program. Fall is the optimal timing for treatment with copper, at 50% leaf drop.

Growers that see disease developing on the fruit should apply 1 to 2 captan or ziram sprays at 10 - 14 day intervals. The weather is predicted to become warm and dry after this weekend, so infections should slow down. But when rains are expected, plan to apply a preventative spray up to harvest.

### Earwigs

Earwigs were seen feeding on peach fruit in Utah County. Usually damage on peach, nectarine, and apricot is seen later in the season, when fruit is more ripe, but wet conditions favor earwigs, so their activity is increasing. They often will

## Insect and Disease Information, continued from previous page



or tuna juice plus vegetable oil in the bottom. Place the trap cans at the base of trees and remove the trapped earwigs and refill with bait as needed. Warning: the tuna can traps are attractive to cats, dogs, and other furry animals.

Another trap that I've read about, but haven't tried, is made from rolling a strip of corrugated cardboard, tying it closed with a piece of twine and tying it to the trunk of the tree. Earwigs are nocturnal in their activity and will hide in the roll of cardboard during the day. You can remove and dispose of the cardboard roll and replace it with a fresh one to reduce earwigs climbing into the trees.

## CHERRY

### Powdery Mildew



B.C. Ministry of Agriculture and Lands

enter fruit through the stem end, but they can also create pits or gouges that extend deep into the fruit. Please note that earwigs are also predators, so if damage is low, you may want to consider letting them be.

Control can be troublesome. Sprays such as Sevin applied to the trunk provide protection for less than one day. Trapping or prevention may be the next best option. The following information is provided by Diane Alston, Extension Entomologist:

I recommend using Tangletrap (a sticky adhesive) applied to a duct tape band placed around the tree trunk (4-5" high to avoid contact with ground cover vegetation). Place the sticky band now before the earwigs begin to crawl into the tree, and reapply the Tangletrap as needed to keep a sticky surface. Tangletrap comes in tubes, tubs and aerosol cans, and should be available in most garden center stores or online.

Alternatively, you can use attractive traps for earwigs. I've had success with tuna cans with a 1/4 - 1/2" layer of bacon grease

Cherry powdery mildew is a serious disease of cherries, particularly tart cherries, and is causing quite a headache for some growers this year. It is not necessarily the rain that is causing spread, but the humidity that comes with it. Cherry powdery mildew overwinters as resting spores in fallen leaves, on the orchard floor, or in bark crevices. It needs 90 percent humidity and temperatures between 50-78F for infection. Leaves, fruit, and fruit pedicels can all become infected.

The earliest infections are found on leaves near the crotches, on the lowest, interior twigs (where humidity is highest). These infections then serve as inoculum for future infections that can be repeated throughout the summer.

Sprays are recommended as soon as the first lesions are spotted, and continued until growth hardens off (every 2 weeks for most fungicides). Prompt sanitation (removal of infected leaves) will help tremendously, too.

# 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
Pear psylla	pear	Second generation egg hatch at 584-750 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 17

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	731	503	90	54	277	69	3	469
	Tremonton	699	409	77	30	148	24	0	382
Cache	North Logan	547	365	71	21	28	1	0	331
	Providence	590	404	77	30	28	1	0	377
	Smithfield	521	346	68	15	28	1	0	321
Carbon	Price	678	418	80	35	201	38	0	388
	Spring Glen	552	328	65	10	103	10	0	302
Davis	Kaysville	686	449	84	43	288	74	4	418
Grand	Castle Valley	1189	895	1 (2nd)	98	734	100	99	835
Salt Lake	Holladay	845	575	95	69	389	93	25	536
	West Valley City	834	566	94	67	377	91	21	582
Tooele	Erda	792	560	94	66	338	85	11	528
	Grantsville	998	686	99	85	338	85	11	629
	Tooele	751	518	91	58	289	73	4	483
Uintah	Vernal	709	471	87	47	260	64	2	441
Utah	Alpine	711	463	85	46	174	36	0	434
	Genola	761	511	91	56	253	61	1	472
	Lincoln Point	732	479	88	49	300	76	5	449
	Orem	802	608	96	74	350	91	19	570
	Payson	805	581	95	70	330	83	10	543
	Provo	964	606	96	74	392	93	26	561
	Santaquin	712	499	90	51	259	64	2	454
Weber	Pleasant View	701	487	88	50	202	38	0	449

“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 and Second Generations

The period of greatest egg hatch occurs from 340 DD - 640 DD.

“Start sprays for second generation”: do not apply any materials between your last spray for the first generation and this date. Apply your first spray for 2nd gen. on this date.

County	Location	Period of greatest egg hatch	Keep Fruit Protected Through This Date	Start Sprays (2nd Generation)
Box Elder	Perry	June 3 - June 22	July 12	July 20
	Tremonton	June 13 - June 29	July 15	July 23
Cache	N. Logan	June 16 - July 4	July 22	July 31
	Providence	June 12 - July 1	July 19	July 28
	Smithfield	June 17 - July 4	July 22	July 31
Carbon	Price	June 11 - July 2	July 21	July 31
	Spring Glen	June 18 - July 7	July 26	August 5
Davis	Kaysville	June 6 - June 23	July 10	July 17
Grand	Castle Valley	---	June 21	June 29
Salt Lake	Holladay	June 4 - June 20	July 4	July 12
	West Valley City	June 3 - June 21	July 6	July 14
Tooele	Erda	June 3 - June 21	July 6	July 14
	Grantsville	May 27 - June 13	July 1	July 9
	Tooele	June 3 - June 20	July 8	July 16
Uintah	Vernal	June 8 - June 27	July 14	July 24
Utah	Alpine	June 9 - June 27	July 13	July 22
	Genola	June 2 - June 22	July 10	July 18
	Lincoln Point	June 8 - June 26	July 10	July 19
	Orem	June 2 - June 19	July 4	July 12
	Payson	June 3 - June 20	July 6	July 14
	Provo	June 2 - June 19	July 4	July 12
	Santaquin	June 3 - June 22	July 10	July 18
Weber	Pleasant View	June 4 - June 22	July 9	July 17

## 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
Cache	All Locations	July 3	July 6	July 14
Carbon	Price	June 24	June 28	July 8
	Spring Glen	June 30	July 4	July 14
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	
Powdery mildew	peach	azoxystrobin	Abound	11-15 oz		
		potassium bicarbonate	Kaligreen	2.5-3 lb		
		trifloxystrobin	Gem	4-8 oz		
		pyraclostrobin + boscalid	Pristine	10.5-14.5 oz		
		sulfur products	Variety	see label		
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, Bonide Borer-Miner Killer Enforcer Outdoor Insect Killer, Hi-Yield Indoor/Outdoor Broad Use Including Gardens; Hi-Yield Pemethrin, Lilly Miller Multi-Purpose Insect Spray, Spectracide Bug Stop Garden	<b>permethrin:</b> apply every 14-21 days until mid-September in highly infested areas; apply twice (now and one month later) in low infestations
		carbaryl	Sevin, Bonide Fruit Tree Spray	<b>carbaryl:</b> must be applied every 7 days
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

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### Tree Fruit IPM Advisory

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