

## News/What to Watch For:

Hang peach twig borer traps  
Examine leaves for leafhopper, spider mites, caterpillars (fruitworm, leafrollers, cankerworm)  
Spray timing (codling moth) page 4  
Spray materials, pages 7-8

## Insect and Disease Activity/Info

### APPLES/PEARS

#### Codling Moth

Codling moths have been detected in most areas of northern Utah. Check page 4 for spray timing information. We have included two options for treating first generation larvae:

1. The "typical" starting spray date is at approximately 1% egg hatch. The first cover should go on at about this time, and the second cover should occur during the period of "greatest egg hatch." At this time period, 50% of all the eggs are hatching, so it is important to make sure the fruit is well protected.
2. Growers may choose a second option, and that is to apply horticultural oil (1%) as an ovicide before eggs start hatching. By applying the oil, all eggs that have been laid will be killed. This option "delays" the 1% egg hatch timing by about 7-10 days. Oil is less expensive than many of the newer codling moth insecticides, and so this option could result in some savings.

#### White apple leafhopper

A few white apple leafhopper nymphs have been spotted in Utah County. They typically start showing up around petal fall. Growers that have had a problem with this pest in the past should be monitoring now. One or more per leaf causes stippling damage. This in itself will not harm the tree, but the problem is that untreated early generations lead to a nuisance situation for apple pickers at harvest. They are very difficult to control as adults or later in the season.



Using Sevin XLR for fruit thinning will provide sufficient control. For commercial growers, entomologists from Cornell suggest using Provado, Actara, or Assail for leafhopper, as these products also provide control for rosy apple aphid.

#### Fire Blight

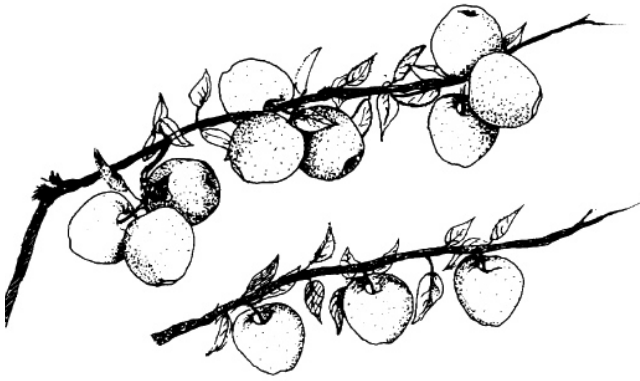
The last two days were at HIGH risk for infection in most areas, so if you applied a treatment, that was wise. The colder weather today and the next 3-4 days has brought the infection risk level down to none to CAUTION through May 24, even with the rainfall.

#### Fruit Thinning (From Dr. Brent Black, Fruit Specialist)

**Apples** should be thinned when the largest fruits are between  $\frac{1}{2}$  and  $\frac{3}{4}$  of an inch in diameter. Here's how to thin the apples:

1. Pick off the smallest fruits as well as any that are misshaped or damaged.

## Insect and Disease Information, continued from previous page



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Each apple cluster should be thinned to the largest fruitlet, and individual clusters spaced 6-8 inches apart.

2. Remove excess apple clusters so that the tree is left with clusters spaced 6 to 8 inches apart.
3. Thin each remaining clusters to one fruit each (pick the largest).

**Peaches, nectarines, apricots, and plums** should be thinned when fruits are  $\frac{3}{4}$  to 1 inch in diameter. Waiting too long wastes the plant's energy and the opportunity to get the largest, sweetest fruit possible. Here's how to thin these species:

1. Space fruit out 3 to 5 inches along a shoot.
2. If the trees have not been properly pruned to reduce the amount of fruiting wood, additional thinning may be required to prevent a heavy crop from breaking limbs.
3. To achieve the large sweet peaches that we all enjoy, a moderate-sized peach tree should only produce 100 to 150 fruits on the entire tree.



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Your hand can guide you in spacing peaches, nectarines, apricots, and prunes, 3-5 inches apart.

# Degree Day Accumulations and Insect Development

## Upcoming Monitoring/Insect Activity

Pest	Host(s)	DD/Monitoring Action
Apple powdery mildew	apple	Look for small white lesions on new foliage
White apple leafhopper	apple	Look for white nymphs on the undersides of leaves
Codling moth	apple, pear	Egg-hatch begins approximately 2 weeks after biofix
San Jose scale	apple mostly	Crawler emergence early June; treat in late June
Cherry powdery mildew	cherry	Look for small white lesions on new foliage near the base and interior of the tree
Western cherry fruit fly	cherry	Hang traps in late May; first flies in early June
Peach twig borer	peach, nectarine	Hang traps in late May; first flight early June

## Degree Day Accumulations

March 1 - Wednesday, May 19

County	Location	GDD (50)	Codling Moth			Fire Blight Warning
			DD (post biofix)	% Moth Flight	% Egg Hatch	
Box Elder	Perry	---	41	4	0	May 20: HIGH, May 21-24: LOW
	Tremonton	175	---	---	---	May 20: HIGH, May 21-24: LOW
Cache	North Logan	164	---	---	---	None
	Providence	---	12	2	0	None
	Smithfield	146	---	---	---	None
Carbon	Price	---	6	1	0	May 20-24: LOW
Davis	Kaysville	---	43	4	0	May 20: HIGH, May 21-24: LOW
Grand	Castle Valley	---	136	24	0	---
Juab	Tintic	---	6	1	0	May 20-22: EXTREME, May 23: HIGH, May 24: CAUTION
Salt Lake	Holladay	---	64	7	0	May 20-24: LOW
	West Valley City	---	68	7	0	May 20-24: LOW
Tooele	Erda	230	---	---	---	May 20-24: LOW
	Tooele	---	13	2	0	May 20-24: LOW
Uintah	Vernal	---	17	2	0	May 20-22: CAUTION, May 23-24: LOW
Utah	Alpine	211	---	---	---	May 20: CAUTION, May 21-24: LOW
	American Fork	---	59	7	0	May 20: HIGH, May 21-23: CAUTION, May 24: LOW
	Genola	---	61	7	0	May 20: HIGH, May 21-23: CAUTION, May 24: LOW
	Lincoln Point	---	91	15	0	May 20: HIGH, May 21-23: CAUTION, May 24: LOW
	Orem	---	61	7	0	May 20: HIGH, May 21-23: CAUTION, May 24: LOW
	Payson	---	35	4	0	May 20: HIGH, May 21-23: CAUTION, May 24: LOW
	Provo	---	67	7	0	May 20: HIGH, May 21-23: CAUTION, May 24: LOW
	Santaquin	---	55	7	0	May 20: HIGH, May 21-23: CAUTION, May 24: LOW
West Mountain	---	56	7	0	May 20: HIGH, May 21-23: CAUTION, May 24: LOW	
Weber	Pleasant View	---	61	7	0	May 20: HIGH, May 21-24: LOW
Wasatch	Heber City	145	---	---	---	None
Wayne	Capitol Reef	---	110	17	0	---

## Spray Timing

Please check this chart each week for updated dates. These dates are forecasted using the average temperature for each site. Most residential growers should start sprays at the "traditional start date," unless you choose to use horticultural oil at 200 DD. Fruit should remain protected through each generation according to interval provided on pesticide label.

### Codling Moth, First Generation

County	Location	If using oil for early ovicide		Traditional Start Date (1% egg hatch)	Period of Greatest Egg Hatch (340-640 DD)
		Apply Oil (200 DD)	Apply delayed 1st cover (350 DD)		
Box Elder	Perry	June 2	June 13	June 4	June 12 - June 29
	Tremonton				
Cache	N. Logan				
	Providence	June 8	June 19	June 9	June 18 - July 6
	Smithfield				
Carbon	Price	June 11	June 23	June 13	June 22 - July 10
Davis	Kaysville	June 1	June 11	June 2	June 10 - June 26
Grand	Castle Valley	May 24	June 2	May 25	June 1 - June 16
Juab	Tintic	June 6	June 17	June 8	June 16 - July 3
Salt Lake	Holladay	May 29	June 7	May 31	June 7 - June 21
	West Valley City	May 30	June 9	June 1	June 8 - June 24
Tooele	Erda				
	Tooele	June 3	June 12	June 5	June 12 - June 27
Uintah	Vernal	June 4	June 15	June 6	June 14 - July 1
Utah	Alpine				
	American Fork	May 31	June 10	June 2	June 10 - June 26
	Genola	June 1	June 11	June 2	June 11 - June 27
	Lincoln Point	May 29	June 9	May 31	June 9 - June 26
	Orem	May 29	June 7	May 31	June 7 - June 21
	Payson	June 1	June 10	June 2	June 10 - June 25
	Provo	May 29	June 8	May 31	June 7 - June 22
	Santaquin	June 1	June 12	June 3	June 11 - June 28
	West Mountain	May 30	June 9	June 1	June 8 - June 24
<b>Weber</b>	Pleasant View	May 31	June 9	June 1	June 9 - June 24
<b>Wasatch</b>	Heber City				
<b>Wayne</b>	Capitol Reef	May 25	June 4	May 27	June 3 - June 18

## 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 label 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 --- ---	<ul style="list-style-type: none"> <li>for all products, ensure good coverage for effective control</li> <li><b>hort. oil</b> works on eggs only</li> <li><b>codling moth virus</b> must be applied every 7 days</li> <li><b>Altacor</b> and <b>Delegate</b> have shown to have good efficacy, and target eggs and larvae</li> </ul>
Powdery mildew	apple	potassium bicarbonate myclobutanil trifloxystrobin 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
Fire blight	apple, pear	streptomycin oxytetracycline	Agri-mycin Mycoshield	check label check label		apply within 24 h of a wetting event only if fire blight was present last year
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 certified organic
Brown mite	all fruit trees	abamectin acequinocyl bifenazate etoxazole fenpyroximate pyridaben spiroadiclofen	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.

Products are listed by **Conventional** (usually broad-spectrum pesticides that are effective, but harmful to beneficial insects), or **Soft/Organic** (not as effective, but safer for environment and humans). Products are listed in order of efficacy.

Target Pest	Host	Chemical	Example Brands	Comments
Codling moth	apple, pear	<i>Conventional</i> carbaryl acetamiprid malathion gamma-cyhalothrin bifenthrin  <i>Soft/organic</i> hort. oil (1%) spinosad  codling moth virus	Sevin, Bonide Fruit Tree Spray, etc. Ortho Max Flower, Fruit, and Veg., Malathion Spectracide Triazicide Ortho Max Lawn and Garden Insect Killer  Many products Green Light, Gardens Alive Bull's Eye Virosoft, Cyd-X	<b>acetamiprid</b> : every 14 days <b>carbaryl</b> : every 14 - 21 days <b>malathion</b> : every 7 days <b>gamma-cyhalothrin</b> : every 14 days <b>bifenthrin</b> : every 14 days <b>hort. oil</b> : lasts 5-7 days for killing eggs; use at beginning of each generation; apply at 1% rate only when temperatures are below 80; follow up with a different product <b>spinosad</b> : every 7 days <b>codling moth virus</b> can only be purchased online
White apple leafhopper	apple	imidacloprid acetamiprid	Ortho Max Tree and Shrub Ortho Max Flower, Fruit and Veg.	one application when nymphs are first noticed in spring
Powdery mildew	apple	<i>Conventional</i> bayleton propiconazole  <i>Soft/organic</i> 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
Fire blight	apple, pear	streptomycin oxytetracycline	Ferti-Lome Mycoshield	Do not use antibiotic unless necessary; apply <b>streptomycin</b> within 24 h of a wetting event only if fire blight was present last year; <b>oxytetracycline</b> within 12 hr.
Green peach aphid	peach, nectarine	<i>Conventional</i> malathion  <i>Soft/organic</i> pyrethrin	Bonide, Malathion  Pyganic	start with a single application

**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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