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News/What to Watch For:

Look for shiny black rosy apple aphid eggs on stems and small, greenish green peach aphid eggs under buds
Prune out old fire blight infections
WSU Crop Protection Guide 2008 (for commercial growers) is now available online.
"Using Pheromone Traps," page 3
Images of bud stages, page 4

Bud Stages

Development of buds on trees in northern Utah is progressing slowly, far later than last year, and at more of a "normal" pace. See last page for pictures.

Davis County, Box Elder County, Salt Lake County:

Apples: Dormant - Silver tip
Apricots: Bud burst
Cherries: Dormant - Swollen bud
Peaches: Dormant - Swollen bud
Pears: Dormant

Cache County:

Apples: Dormant
Cherries: Dormant
Peaches: Dormant
Pears: Dormant

Utah County:

Apples: Dormant
Cherries: Dormant
Peaches: Dormant - Swollen Bud
Pears: Dormant

Weber County:

Apples: Dormant - Silver tip
Apricot: Bud burst
Cherries: Dormant - Swollen bud
Peaches: Dormant - Swollen bud
Pears: Dormant

Insect and Disease Activity/Info

Specific spray information found on last two pages.

This spring is turning out to be much different from last spring. At this point last year, apricots were blooming, dormant sprays were over, and we had our codling moth traps in the orchards.

Dormant Oil Applications

There is still time for dormant and delayed-dormant oil applications. Treatment timings can be made as shown:

Apples: swollen bud - 1/4" green
Pears: swollen bud - cluster bud
Peaches and Nectarines: swollen bud - pink bud

When applying, spray trees just to run-off to get good application on all the stems. Some eggs, such as green peach aphid, are under buds and will "escape" light applications. See the previous advisory for more information on specific materials.

Fire Blight: Continue to scout your apple and pear trees for overwintered cankers. Often they will be stems or twigs with last year's leaves still attached. Prune them out 8 - 12" below the canker. If they aren't pruned out, they will become an inoculum source for infections this spring.

Copper sprays can be applied up to green tip stage. Keep in mind that if heavy rains (3 inches or more) fall after application, then control will be greatly reduced. Alternatively, if no rains fall after application, there may be a risk of fruit russetting from too much copper. Do not apply more than the labeled rate.



Prune out any twigs and branches from apples and pears where leaves are still attached from last year. These are more than likely old fire blight infections.

Degree Day Accumulations and Insect Development

Upcoming Monitoring/Insect Activity

Pear Psylla	Adults active 0-50 degree days; egg-laying at 1-70 degree days
Codling Moth	Hang traps at 100 degree days (base 50) First flight at 190-260 DD
Rosy apple aphid	First egg hatch around 90 DD (base 50)
European red mite	First egg hatch around 135 DD (base 50)
Campyloomma bug	Egg hatch begins at first pink (apples)
White Apple Leafhopper	Egg hatch begins at first pink (apples)

Degree Day Accumulations

March 1 - Wednesday, March 26

County	Location	Western Cherry Fruit fly (Base 41)	Codling Moth, Peach Twig Borer (Base 50)
Box Elder	Perry	73	17
Cache	North Logan	21	2
	River Heights	23	4
Carbon	Price	57	8
Davis	Kaysville	85	23
Salt Lake	SLCC	121	24
	West Valley City	157	35
Utah	Alpine	80	21
	Genola	80	23
	Lincoln Point	75	20
	Orem	136	34
	Payson	80	26
	Provo	80	17
	Santaquin	80	23
	West Mountain	118	27
Weber	Pleasant View	77	19

“Base 41” and “base 50” refer to the lower temperature threshold at which certain insects develop. For example, no codling moth development occurs below 50 degrees.

Production Information

Using Insect Pheromone Traps

Last week, we mentioned a monitoring toolkit, and want to expand on the use of pheromone traps. Now is a good time to place orders for these traps. Trap catch data can be used to monitor moth emergence to start degree-day accumulations, to assist with determining optimal spray timings and the relative size of the moth population, and helps in evaluating the success of your management program.

Lure

A pheromone is a chemical produced by some species of insects to communicate with other members of that same species. Commonly, they are used by an unmated female to attract males of the same species. The pheromones are species-specific, and insects can detect minute quantities. These chemicals are synthesized, and imbedded into a lure to use in a sticky trap.

- The lures should be left in their original packaging until use in the field
- Do not touch lures; wear gloves or used forceps
- Do not let lures for two different species touch one another



The most common type of lure is the rubber septa, shown above. For the most part, they last 3 weeks, but some are available that last 6 weeks.

Trap Types

Traps for these types of lures can be purchased as a wing-type trap, or plastic delta trap. We recommend the delta style trap because it lasts longer, holds up to all weather, and is easier to use.

A sticky, replaceable liner catches the moths.



The delta trap is easy to use. A bright color is best, as white attracts bees and other pollinators.

Hanging the Trap

Trap placement within the orchard is a critical factor for optimizing trap performance: how many, where within orchard, where within tree. Note your "hot spots" to hang additional traps.

1. Hang a minimum of two traps per orchard, one near the edge, and one near the center. For orchards larger than 10 acres, hang one trap per 5 acres. Hang traps of different species at least 30 yards apart. For backyard trees, hang one trap per species.
2. Hang traps in the upper third of the canopy, at least 6 - 7 feet high. Make sure the trap entrance is not blocked by foliage and that it is parallel to the prevailing wind direction. Prevent it from spinning in the wind.
3. In large orchards, mark tree with flagging so that it can easily be found.

Servicing the Trap/Recording Results

1. Check traps daily soon after hanging to determine biofix (date of first moth catch). This is usually when 2 moths have been caught.
2. After biofix, check traps weekly and count the moths present. Record the number on a sampling form. This information will be useful for determining sprays (for mating disrupted

blocks) or for evaluating your program from year to year.

4. Remove and discard moths with forceps, twig, or other tool. Place liner back in trap.
5. Change liner after it has become filled with debris.
6. Change lure according to manufacturer's recommendation. Be sure to remove spend lure and other materials from the orchard.
7. Plan to use the same type of lure and trap from year to year.

When to Hang

Varies for different species, and our USU fact sheets can tell you this information, but for the most part:

- codling moth traps at 100 DD after March 1 (early-mid April)
- peach twig borer traps around 330 DD after March 1 (around mid-late April to early May)
- greater peachtree borer traps late May
- western cherry fruit fly traps at early to mid-May

Insect Trap and Pheromone Lure Suppliers

Great Lakes IPM - ph: (800) 235-0285
10220 Church Road
Vestaburg, MI 48891
www.greatlakesipm.com

Gempler's - ph: (800) 272-7672
P.O. Box 270
Mt. Horeb, WI 53572
www.gemplers.com

Suterra - ph: (866) 326-6737
213 SW Columbus
Bend, OR 97702
www.suterra.com

Trece - ph: (866) 785-1313
7569 Highway 28 West
Adair, OK 74330
www.trece.com/

Bud Phenological Stages

Apple



Dormant



Silver Tip

Cherry



Dormant



Swollen bud

Peach



Dormant



Swollen Bud

Pear



Dormant

Spray Materials - Commercial Applicators

For dormant and delayed dormant timing

Target Pest	Host	Chemical	Example Brands	Amount per acre	REI	Comments
San Jose scale	pome and stone fruits	hort. oil alone or with: lime sulfur pyriproxyfen methidathion	Esteem Supracide	6-12 gallons	varies 12 h 2-14 d	good coverage essential
Aphids	apple, cherry, peach	hort. oil alone or with: chlorpyrifos	Lorsban	6 gal 4 pints	varies 4 d	good coverage essential
Pear psylla	pear	hort. oil with: esfenvalerate lime sulfur kaolin clay permethrin lamda-cyhalothrin	Asana Surround Ambush, Pounce Warrior	4-6 gallons 3 qts 1 pint 1 l gal see label 2.5-5 oz	varies 12 h 4 hr 12 hr 1 day	good coverage essential Surround (organic) must be applied up to 3 times before first bloom.
Pearleaf blister mite	pear	hort. oil with: carbaryl	Sevin	4 gal 4 pints	4 h 12 h	
Coryneum blight (shot-hole)	stone fruits	copper hydroxide fixed copper	COCS, Kocide, etc.	varies varies	1 d 1 d	copper can be injurious to plant tissues; fixed copper less so. Do not use after green tip stages. Be sure tank is always agitated during sprays.
Fire blight	apple, pear	fixed copper	many	varies	1 d	do not apply copper after green tip stage because fruit russetting may result

Spray Materials - Residential Applicators

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

Dormant and delayed-dormant timing

Target Pest	Host	Chemical	Example Brands	Comments
San Jose scale, aphids	pome and stone fruits	hort. oil alone or with: esfenvalerate malathion permethrin	Ortho bug-b-gone, Ortho Max, etc. Malathion Bug Stop, Spectracide, etc.	
Pear psylla	pear	hort. oil with: esfenvalerate kaolin clay malathion permethrin	Ortho bug-b-gone, Ortho Max, etc. Surround Malathion Bug Stop, Spectracide, etc.	Best to treat before egg-laying and when adults are detected. Surround (organic) must be applied up to 3 times before first bloom.
Pearleaf blister mite	pear	hort. oil with: carbaryl lime sulfur	Sevin variety	Only a single application is needed
Coryneum blight (shot-hole)	stone fruits	copper hydroxide fixed copper	COCS, Kocide, etc.	copper can be injurious to plant tissues; fixed copper less so. Do not use after green tip stages.
Fire blight	apple, pear	fixed copper	many	do not apply copper after green tip stage because fruit russetting may result

Precautionary Statement: All pesticides have benefits and risks, however following the label will maximize the benefits and reduce risks. Pay attention to the directions for use and follow precautionary statements. Pesticide labels are considered legal documents containing instructions and limitations. Inconsistent use of the product or disregarding the label is a violation of both federal and state laws. The pesticide applicator is legally responsible for proper use. Any mention of a pesticide brand in this document is not an endorsement by USU, and brand lists are not all-inclusive.

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