UNIVERSITY OF IDAHO **EXTENSION UPDATE**

Tree Fruit Pest Advisory

University of Idaho, U.S. Department of Agriculture, and Idaho counties cooperating.
Spring 2009 Issue 3

Protect Yourselves

Fire Blight and **Codling Moth** are this weeks headlines. According to temperature models (Nampa and Parma temperatures) Both pests need management considerations this week.

Fire Blight infections on apples and pears through Friday are extremely likely if flowers are open. Numerous serious blight outbreaks have occurred in past years when degree hours near or exceed 70 degrees and blossoms are wetted by rain, 2+ hours of dew or light irrigation. The risk of severe damage due to infection increases in later stages of primary bloom and petal fall until late bloom is finished, and may return any time that secondary blossoms are numerous. The potential severity of infection is increased as a series of High risk days occur as is the case this week. **For antibiotic materials: apply within 24 hours before or after flowers are wetted if the high risk threshold is exceeded**

- **Antibiotic (Agri-Mycin)**
- **terramycin (Myco-Shield)**
- **Biological (Blightban)**

Codling Moth degree day Temperatures are indicating egg hatch on apples and pears will begin on the 22nd of May. (Nampa, Parma weather stations data using J.Bruners 2008 no biofix data.) Insecticides that target both larva and egg stages are recommended. Such as: (commercial)

- Altacor
- Assail
- Calypso
- Intrepid

Homeowners should use

- horticulture oil as soon as possible

With the additional application of one of the following late this week.

- Carbaryl (Sevin)
- Esfenvalerate (Ortho Bug B Gone)
- Malathion (Malathion)
- Permethrin (Bayer Advanced Dust)
- Pyrethrin (Concern Multipurpose)
- Spinosad (Green Light)

The oil will smother unhatched eggs and the insecticide will protect the fruit from hatched larva. Good residue coverage on your fruit is vital during the first generation. So After this initial period, growers should continue to apply the chosen material(s) at the interval provided on the label. An additional alert will be sent out via the phone alert system when critical temperatures during the first generation are forecasted.

Degree Day post biofix (5/18/09)

Sta. Elevation	CM/PTB	1%Hatch	WCFF
Payette(2150)	186	May22	640
Emmett(2390)	140	May24	537
Nampa(2635)	136	May25	613
Parma(2290)	172	May22	656
Ontario(2188)	153	May24	658
WallaWalla(1375)	141	May25	659

Look out for:

- Examine lower and interior cherry leaves for bright white spores of powdery mildew
- Examine apple leaves for powdery mildew
- Examine apple, peach, and cherry leaves for new colonies of aphids forming

University of Idaho Extension

Organophosphate-alternatives for Codling Moth Control (Commercial)

WSU Tree Fruit Research & Extension Center Jay F. Brunner, Keith R. Granger, Michael D. Doerr

A key to successful Codling Moth(CM) control with Organophosphates (OP) alternatives is the ability to disrupt the CM life cycle in multiple places. CM overwinter as mature larvae protected in hibernacula under loose bark scales on the tree or under leaf litter at the base of the tree. The first opportunity to begin a control program for this pest is to target the adult moth. Very few insecticides currently registered have activity against adult CM; however, CM mating disruption products that are applied before moths begin to emerge can be very effective at disrupting mating and thereby limiting the number of CM eggs that are deposited in the orchard. Reducing egg deposition results in a smaller CM population that will need to be controlled with insecticides. All insecticide programs appear to perform better when used in combination with CM mating disruption. We estimate that seventy-five percent of Washington's bearing apple acreage is currently using CM mating disruption, which is a good indication that many Washington growers are already well prepared to begin using OP-alternative insecticides to supplement their pheromone-based CM programs.

CM Ovicides

The next susceptible life stage in the CM life cycle is the egg. Traditional CM control programs have focused on control of the CM larvae. OP-alternatives allow growers to use insecticide applications to specifically target the egg stage, effectively reducing or eliminating eggs that otherwise would have hatched.

Insecticide	Class	Activity
Assail	neonicotinyl	disrupt nerve transmission
Calypso		
Rimon	insect growth regulator	chitin inhibitor
Intrepid		molt accelerator
Esteem		juvenile hormone mimic
Delegate®	spinosyn	disrupt nerve transmission
Success		
Proclaim	avermectin	disrupt nerve transmission
Altacor®	anthranilamide	disrupt muscle action
HMO	biologicals	asphyxiant
Virus		viral infection
BT		bacterial infection

Ovicides are insecticides that kill eggs. Some ovicides, horticultural mineral oil (HMO) and the neonicotinyls [Assail (acetamiprid) and Calypso (thiacloprid)], work only if applied over the top of the egg (topical). Others, the insect growth regulators (IGR) [Esteem (pyriproxyfen), Intrepid (methoxyfenozide) and Rimon (novaluron)], can provide residual as well as topical control. When HMO is used as an ovicide against CM, the optimal application timing is just prior to the beginning of the egg-hatch period, 200 degree-days (DD) past first moth flight (biofix). Repeat applications at 200 DD intervals are necessary to control eggs deposited after the initial HMO application. The ovicidal activity of Assail and Calypso add value to their control activity when applied at the more typical egg-hatch timing (250 DD).

The IGR insecticides allow more flexibility in application timing because they effectively control *eggs* that are deposited on top of residues as well as eggs that are covered when the application is made. Optimal timing for these products to control CM is between 75 and 200 CM DD. The IGR insecticides also kill overwintering LR larvae that are active during this time period. The flexibility in CM timing with these products allows growers the opportunity to focus on optimizing Leaf Roller application timing without compromising CM control.

CM Larvicides

Larvicides are insecticides that kill larvae. CM larvae find and enter the fruit very shortly (hours) after hatching. OP insecticides kill larvae when they crawl across or consume residues of the product applied. CM larvae must consume the residues of the OP-alternative larvicides (Assail, Calypso, Intrepid, Delegate, Altacor, and granulovirus) before these products are effective. Traditionally, larvicides have been applied at the very beginning of the CM egg-hatch period (250 DD) and then reapplied based on the expected residual life of the product being used. Many of the OP-alternative insecticides have a shorter residue life than the OP products that they are replacing. To help compensate for this fact and to further optimize their efficacy as larvicides, an ovicide applied before the onset of the egg-hatch period is recommended. This strategy delays the egg-hatch period thereby shortening the period of time when larval control is necessary.

Optimizing CM Larvicide Timing

Codling moth degree-day model predictions show that average CM egg-hatch begins approximately 230 DD past biofix. The hatching of deposited eggs starts off slowly and in the first 10-15 days (100DD) only 12-15% of the total egg hatch occurs. The

UNIVERSITY OF IDAHO **EXTENSION UPDATE**

PayetteCounty

Publication frequency by University of Idaho Extension, Payette County. Subscription information.

Editor: Tony McCammon PO Box 10 Payette ID 83661 tonym@uidaho.edu 208-642-6022

Names of authors and contributors:

Tom Tankersley Wilbur Ellis Consultant Treasure Valley

Marion Murray Utah State University Extension IPM Project Leader

WSU Pest Management Transition Project Newsletter

WSU Decision Aid System

rate of egg hatch then becomes more rapid and in the 21d period after 350 DD almost 70% of the eggs hatch. After this period of peak activity, the rate of egg hatch slows and the final 15-20% of the first generation egg hatch occurs over about a two-week period.

The potential problem with the traditional larvicide application strategy is that the most active residues from the first application are in the orchard at a time when relatively little CM egg hatch is occurring. As a result the weakest residues from the first application occur during the period of peak egg-hatch activity, when the potential for injury accumulation is the highest. By applying an ovicide just prior to the onset of the egg-hatch period and delaying the larvicide application to 350 DD the most active larvicide residues coincide with the most active egg-hatch period. In this strategy the ovicide kills eggs that would have hatched in the period starting at 230DD allowing growers an opportunity to delay the first larvicide application until 350 DD, which is the beginning of the period of peak egg-hatch activity. This strategy also shortens the period of time that larval control is necessary, which may be more accommodating to the OPalternative larvicides that, in general, have a shorter residual life than the OP insecticides that they are replacing.

Tank-Mix Strategy

One CM control strategy that takes advantage of the multiple modes of action of the OPalternative insecticides is to combine two insecticides with different modes of action in the same tank. Using a tank-mix strategy that combines an ovicide and a larvicide can enhance CM control by killing both eggs and larvae that are present in the orchard with a single application. In this strategy, an ovicide (IGR or HMO) is used before the egghatch period begins allowing a delay of the next application until 350 DD. A tank-mix (ovicide plus larvicide) application at this time kills eggs that are deposited after the earlier ovicide application as well as eggs that will be deposited on top of the ovicidal residues from the tank-mix. The larvicide in the tank-mix kills any larvae that successfully hatch and then feed on residues. The added value of this approach comes when eggs that would have hatched once the residues of the larvicide had been depleted do not because they were killed by the residual activity of the ovicide in the tank-mix. The combined action of the ovicide and larvicide in the tank-mix extends the period of control from this single application to cover the entire first generation under average conditions.

Coryneum Blight

Marion Murrey
USU Entomologist

Coryneum blight (also known as shot hole) infections are showing up in orchards now, and in some areas, are worse than usual due to the cool, wet spring. Coryneum blight is caused by a fungus that overwinters in buds, causing small gummy cankers. From there, it spreads to leaves and later, to developing fruit. Infections on the leaves cause small round holes, with the center of the lesion sometimes barely attached.

On fruit, lesions vary from dark colored warts to sunken lesions (depending on time of infection). Look for developing lesions holes in the leaves) and treat if necessary to protect fruit for later in the season.

Peaches in most areas are at shuck-split stage, and at this timing, growers can use Bravo chlorothalonil, Daconil for residential use), Abound, Captan, Ziram, or Pristine.

An application of copper at 50% leaf drop in the fall is an excellent option for control of coryneum blight.

PayetteCounty

Payette County Orchard Review Board:

The following message will be sent out to 8500 Payette county landowners via county assessment notices. A hotline has been set up to receive calls that this notice will generate. You can see the homeowner control recommendations for major pests on the Payette County Extension Website.

Payette County Orchard Review Board
Mr/Mrs Landowner,

Please Don't Bug the Valley of Plenty! Local and State law specifies that you are responsible for controlling growth, pests, and disease of fruit trees on your property. An infestation of pests could put Payette County in a Quarantine Zone. Your Fruit Industry asks that you please take care of or remove your fruit tree growth.

Payette County Orchard Review Board/ County Extension Office 642-6022.

University of Idaho
Extension

Payette County
P.O. Box 10
Payette ID, 83661