



Contact:

Marion Murray
435-797-0776
marion.murray@usu.edu
www.utahpests.usu.edu/ipm
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News/What to Watch For:

Look for pear psylla eggs near base of buds
Prune out old fire blight infections
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Pesticide Updates

Movento (spirotetramat, Bayer CropSciences) is in the process of registration, and expected to be available in spring 2008. It is in a new class of insecticides (ketoenoles substance) that targets a variety of chewing and sucking insects such as woolly apple aphid and San Jose scale. It will be registered for use on pome and stone fruits. It works systemically up and down through the entire plant system, and is non-toxic to beneficials.

Altacor (rynaxypyr, DuPont) is also expected to be available spring 2008. It is in a new class of insecticides (anthranilic diamides) and targets the major lepidopteran pests on pome and stone fruits.

Delegate (spinetoram, Dow AgroSciences) is a new Reduced Risk compound registered in early fall 2007. It represents a new mode of action, in the spinosyn insecticide class, and is registered on stone fruits for control of leafrollers, codling moth, oriental fruit moth, fruit worms and thrips. The active ingredient is spinetoram, a metabolic product from the bacterium, *Saccharopolyspora spinosa*. Delegate lasts 14 days, is non-toxic to many natural enemies, and recent research shows it is fairly effective on codling moth.

Imidan (phosmet) has changes to its label:

- maximum yearly amount applied is 30 lbs. on apples, 16 lbs on pears, 17 lbs on peaches, 13 lbs. on plums/prunes, 7.5 lbs on tart cherries.
- REI of 3 days for apple, pear and cherry, 5 days for peach and nectarine

(product breaks down in alkaline water; buffer to a pH of 5.0 – 5.5)

Mycosshield (oxytetracycline) now has a supplemental label for use on apples for the control of fire blight.

Insect and Disease Control

Delayed-Dormant Treatments

Sprays targeting overwintering eggs and adult insects and diseases can be applied at delayed-dormant (from bud break to pre-bloom) timing. They should be used when temperature is above 40 and when there is no threat of freezing temperature for 36 hours. The advantages of pest control at this time is that beneficial insects and pollinators are not affected, and oils and other materials for this purpose are relatively inexpensive.

The delayed dormant sprays can be effective against:

pear psylla: use horticultural oil alone or with esfenvalerate, sulfur, kaolin clay, or permethrin; two applications

San Jose scale: horticulture oil alone or with pyriproxyfen (Es-teem), lime sulfur, or methidathion (Supracide)

aphids: horticultural oil alone or with Lorsban* at delayed-dormant; repeat if infestations were high last year

peach twig borer: delayed dormant spray of horticultural oil plus malathion, esfenvalerate, Bt, or spinosad targets overwintering larvae as they emerge to find food

shothole (coryneum blight of peaches, cherries): copper products at dormancy; chlorothalonil (Bravo) at delayed-dormancy

fire blight: copper spray at silver tip stage and when temperatures are above 45° (Bordeaux mixture, copper hydroxide, copper oxychloride, copper sulfate) Do not apply copper after ¼-inch green leaf stage or when drying conditions are slow, as severe injury can occur. Fixed coppers such as Kocide and C-O-C-S can be tank mixed with early season oil sprays, but do not combine copper sulfate alone with dormant oil.

*Restricted Use

Insect and Disease Control, continued

More information on fire blight

Fire blight is a bacterial disease caused by *Erwinia amylovora*, and attacks apple, pear, and a variety of other rosaceous plants. It causes foliar and shoot dieback, twig death, and even tree death. It is difficult to control because it is spread by insects, wind, blowing rain, and pruning cuts, and has developed resistance to streptomycin in certain locations. Antibiotics—streptomycin in particular—are the primary means of control, and must be applied at the right timing to protect open flowers from infection.

A word of caution on control: Dr. Kent Evans, USU Extension Plant Pathologist has studied the *Erwinia* population across northern Utah and warns that there is widespread resistance to streptomycin in Utah County. Growers in that region should NOT use streptomycin for fire blight control. He reports that Mycoshield is a viable alternative to streptomycin. Growers elsewhere in the state should alternate between Mycoshield and streptomycin products.

Bloomtime FD™ is an OMRI-approved organic treatment for suppression of fire blight during bloom. It is a bacterial antagonist that does not completely control infections, but in research studies, reduced them by 30-60%.

Incidence and severity of fire blight was widespread in Utah's fruit-growing regions in 2007. Management for this bacterial-

caused disease is a year-round process, and begins in the winter with pruning, pruning, pruning. All visible cankers should be cut and removed from the orchard. Monitoring is essential to locate diseased tissue by thoroughly examining the entire tree. Look for stems with leaves still attached, discolored bark, or dried bacterial ooze. If a canker is on a main scaffold limb, it still must be removed. If the canker has spread to the primary stem, consider removal of the entire tree.

Copper sprays can reduce the amount of inoculum somewhat in an orchard and can be used as primary control in residential settings. It doesn't kill the overwintering bacteria directly. It coats the bark, and when the bacteria population starts to ooze in warm, wet conditions, it is exposed to the copper residue, and the population is reduced. Copper sprays should only be used during dormancy as they can be phytotoxic to the tree, causing fruit russetting and foliar necrosis.

In commercial orchards, additional applications of antibiotics are necessary when conditions favor spread. Remember that a variety of conditions must occur simultaneously for fire blight infection: warm, moist weather to initiate bacterial ooze, open flowers, and transport of the inoculum (insects, wind, rain, etc.).

Watch this advisory for fire blight warnings this spring.

Production Information

Fruit Thinning

A new formulation of Fruitone® L (AMVAC Chemical Corporation) has been released for use in apples and pears. It is liquid instead of powder, making it easier to handle. The recommended rates are 0.5 to 4.0 fluid ounces per 100 gallons. (Use higher rates for more difficult to thin cultivars.) The label also has recommendations for its use to promote return bloom on apple trees. It is also used for preventing premature fruit drop in the fall on apples and pears.

Get Ready to Start Monitoring

Monitoring for pests is an important component of any IPM program. Ideally, you should monitor once/week through mid-summer, then every other week. These regular inspections will tell you when insects or diseases are active so that pest management can be implemented at an optimal timing.

Some tools for pest monitoring:

- 10-30x **hand lens** for examining small insects or disease infections
- large delta **traps** and pheromone lures (www.greatlakesipm.com/)

for monitoring moth insects such as codling moth

- **double-sided tape** to wrap around tree limbs to look for scale crawler activity
- a cloth sheet wrapped tightly around a wire frame or in an old window screen, and a padded stick for the "**beat tray method:**" bang the stick several times on a large branch and examine the insects that are dislodged onto the cloth tray
- vials of **alcohol** and tweezers or small paintbrush, and tupperware containers:

collect unknown insects to send to Utah Plant Pest Diagnostic Lab (www.utahpests.usu.edu/uppld) for identification and management information. (Put soft bodied insects in tupperware with food source and hard bodied insects in alcohol.)

- helpful **field guides:**

- Agnello, A. et al. Tree Fruit Field Guide to Insect, Mite, and Disease Pests and Natural Enemies of Eastern North America. Natural Resource, Agriculture, and Engineering Service. 2006. ISBN: 1-933395-02-8
- Strand, L. Tree Fruit Pest Identification and Monitoring Cards. University of California ANR. 2005. <http://anrcatalog.ucdavis.edu/IntegratedPestManagement/3426.aspx>

Precautionary Statement: Pay attention to pesticide labels and 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. Inclusion of chemical brand names in this document is not an endorsement by the University or Cooperative Extension.