West Virginia University
Extension Service

Cooperative Extension Service

The Orchard Monitor

Committed to the Integration of Orchard Management Practices

EXTENSION SPECIALISTS
Henry Hogmire — ENTOMOLOGY
Alan Biggs — PLANT PATHOLOGY

March 23, 2009

UPCOMING EVENTS

April 23, 6:00 p.m. – Tree Fruit Grower Twilight Dinner and Meeting at Gourmet Central (in Hampshire Industrial Park), Romney, W. Va. WVU Extension Specialists will discuss early-season insects and diseases and their management strategies. Dr. Gerald Leather, Hampshire County Extension Agent, will discuss the results of chemical mowing experiments conducted in 2008. For more information, contact the Hampshire County Extension Office at 304-822-5013.

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GROWER MEETING SPONSORS THANKS FOR YOUR SUPPORT

The following fruit industry support companies and representatives have contributed to a Grower Education Fund to cover expenses at fruit schools and grower meetings. Please let them know that you appreciate their support as we do.

Adams County Nursery – Phil Baugher
Arysta LifeScience – Alan Kurtz
BASF Corporation – Gar Thomas
CBC (America) Corp. – Greg Stamm
Dow AgroSciences – Patti Webb
Durand-Wayland, Inc. – Ron Shrum
Gowan Company – David Pieczarka
Helena Chemical Company – Todd Metzger
Knouse Foods Coop., Inc. – Dave Cox
Suterra – Mark Shannon
Syngenta Crop Protection – Chris Munsterman
Valent USA – Hal Blackmore
Winchester Equipment Co. – Doug Rinker

2009 SPRAY BULLETIN

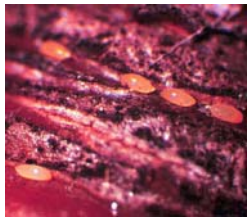
The 2009 Virginia/West Virginia/Maryland Spray Bulletin For Commercial Tree Fruit Growers may be picked up at the WVU KTFREC or obtained by mail for $12.60 each. A check (payable to West Virginia University) should be sent to the WVU KTFREC, PO Box 609, Kearneysville, WV 25430-0609.

ENTOMOLOGY

Chlorpyrifos re-registration has resulted in a label change that permits only one application per year on apples East of the Rockies (as already stated in the February 2 issue of this newsletter). However, a chlorpyrifos product with a Section 3 package label affixed (not a supplemental label) that permits more than one application may be used according to the label until this product is depleted.

Pear psylla adult

Pear psylla adults overwinter in or near pear orchards. When daytime temperatures exceed 50°F, adults return to pear trees, mate and begin laying eggs (pale cream to yellow-orange colored) in crevices on fruit spurs. The use of oil during the dormant to white bud stage delays egg-laying because females do not like to lay eggs on oily surfaces.



Pear psylla eggs

Oil application shortens the length of the egg-laying period, resulting in a population with a more uniform age structure which makes management easier. Oil can be used from dormant to the white bud stage, but the rate should be gradually reduced from 3% (dormant) to 2% (green cluster bud) to 1% (white bud). An effective strategy is to make two applications of oil at 2% each, the first at dormant to bud swell and the second at the green cluster bud stage. An insecticide to kill adults should be combined with oil, especially with the second of two oil sprays. A pyrethroid (Adjourn, Asana, Ambush, Battalion, Baythroid, Bifenture, Danitol, Decis, Lambda-Cy, Mustang Max, Perm-UP, Pounce, Proaxis, Silencer, Tombstone, Warrior) is a good option to combine with oil. Actara, Assail, Calypso, Esteem, or Dimilin are excellent options at green cluster bud and white bud for prebloom psylla control. Three prebloom applications (dormant-green tip, green cluster bud and white bud) of Surround have also provided very good control of overwintering adults. Surround should not be tank-mixed with oil.

In making pest management decisions during the prebloom period on apple, the first question to ask is: "Do I need to control **San Jose scale**?" The answer to this question should be based on the incidence of fruit injury due to scale (red spotting) at harvest last season. Although fruit injury due to scale would be of more immediate concern in fresh fruit blocks, since peeling of processing apples removes the injury, death of limbs from scale infestation would eventually impact processing blocks as well if control measures aren't taken. If scale control is needed, the most effective time for management is during the dormant to delayed dormant (1/2-inch green) stage to target the immature overwintering scale. Chemical control options at this stage include oil, chlorpyrifos (Lorsban, Nufos, Warhawk, Yuma), Supracide, Diazinon, and Esteem. A dilute application is highly recommended, since thorough coverage of the tree tops is a critical component of an effective management program for this pest.

San Jose scale fruit injury

After addressing the issue of **San Jose scale**, the next question to ask is: "How do I want to manage **rosy apple aphid**?" If chlorpyrifos (Lorsban, Nufos, Warhawk, Yuma), Supracide, Diazinon, or Esteem are applied for scale (dormant to delayed dormant), these materials will also provide initial control of **rosy apple aphid** nymphs that hatch from overwintering eggs. However, in some situations in recent years, these products have not provided complete control, and supplemental management has been needed at pink or petal fall to minimize fruit injury. If scale is not an issue, one can still choose to use one of these products, or a pyrethroid insecticide, for initial control of **rosy apple aphid**, knowing that supplemental control measures may be needed later. However, a more effective approach is to wait and control **rosy apple aphid** during the tight cluster to pink stage with products such as Actara, Assail, Calypso, or Beleaf. These products would be more effective in higher pressure situations, and typically provide total control with a single complete application at this stage. Actara should not be applied later than early pink, or within 5 days of placing beehives in the orchard, since it is toxic to bees exposed to direct treatment or residues on blooming crops. Beleaf is relatively non-toxic to bees, whereas Assail and Calypso are toxic through direct contact (before sprays have dried). In addition, these products also have activity against some other prebloom pests. Actara, Beleaf, and Calypso would also provide control of **tarnished plant bug** and **mullein bug**, whereas Assail and Calypso during pink to bloom would also be effective against **European apple sawfly** and early egg hatch of **oriental fruit moth**. The application rates of Assail and Calypso depend upon the pest being targeted. If **rosy apple aphid** is the target, Assail 30SG at 2.5-4 oz and Calypso 4F at 2-4 fl oz will provide excellent control. Where control of the other pests is also desired, rates must be increased to 5.5-8 oz for Assail 30SG and 4-8 fl oz for Calypso 4F.

Rosy apple aphid nymphs

Rosy apple aphid fruit injury

Pheromone traps should be installed at this time for monitoring of **red-banded leafroller**, and during the first week of April for monitoring of **oriental fruit moth**.

PLANT PATHOLOGY

Fire blight. Fire blight bacteria overwinter in cankers, often at the ends of pruning cuts where blight strikes were cut in the previous season. A good way to reduce the risk of a severe fire blight outbreak is to make a late dormant application (no later than 1/4 inch green on fresh-market fruit) of a copper-containing material (i.e. Bordeaux mixture, C-O-C-S, Kocide, Tenn Cop 5E, just to name a few) that acts to kill a large percentage of the bacteria on the plant surface (and provides some early-season protection against apple scab). Although this spray does not eliminate the possibility that fire blight could become epidemic this year, in some years it may reduce considerably the amount of inoculum available for blossom infections. The

effectiveness of the treatment may depend on how much rain we receive in the pre-bloom period. This dormant application is recommended where fire blight was present last year and on young trees of susceptible apple cultivars such as Gala, Fuji, York, Jonathan, and Rome Beauty (whether fire blight was present last year or not), or on any cultivar on M.9, Mark, and M.26 rootstock.

Given that the bacterium moves easily from unsprayed blocks to adjacent sprayed blocks, it may be useful to apply copper to blocks (or rows) of less susceptible trees that are adjacent to blocks of more susceptible trees. Most copper formulations are compatible with oil, although copper sulfate by itself is not. Streptomycin should be applied to blossoms of susceptible apple and pear cultivars when weather conditions favor infection.

There is additional information on fire blight biology and management in the Spray Bulletin. Monitor our WWW Site for up-to-date information on the disease at http://www.caf.wvu.edu/kearneysville/current.html.

Apple scab. Resistance to DMI fungicides (Nova, Rubigan, and Procure) was documented in all but one of the 11 West Virginia orchards sampled in 2005 through 2008. Control failures with these fungicides have been observed in West Virginia orchards, although other issues, in addition to resistance, may be contributing to these failures (the main issue being the idea that diseases can be controlled with a 7-day alternate-row-middle program). Nevertheless, growers will need to reassess their use of these materials in the next year or two, if they haven't already. Observations in New York suggest that in the year preceding a control failure, one would expect to see an increase in fruit scab into the range of 1 to 5%. I have heard a couple of reports in which this could be the case in W.Va. The very favorable weather during the 2008 season has resulted in a general increase in the amount of overwintering scab inoculum.

Here are some general observations on the usefulness of the common scab fungicides:

1. Mancozeb fungicides at 3 lb/A must be applied at 5 to 7-day intervals during rainy weather rather than at 10-day intervals as was common with DMI + mancozeb combinations. There is no early mildew control with mancozeb.

2. If one compares 3 lb/A of Captan 50W (or the equivalent of another formulation) with 3 lb/A of mancozeb, captan will almost always provide better scab control than mancozeb. Captan usage is limited, however, by its incompatibility with oil sprays, and its minimal activity against rust diseases. Where incompatibility with oil is not a factor, combinations of mancozeb and captan are a great choice for prebloom scab sprays. I would like to see the total pounds per acre at around 4.5 to 6 depending on scab history and weather conditions (based on captan 50W formulations; this will be less if using captan 80W formulations).

3. Dodine may still work in some orchards, but don't trust it unless you've had leaf samples tested for fungicide resistance and I've told you the results. Significant crop loss can result from just one or two early-season applications of dodine in dodine-resistant orchards.

4. Vangard and Scala fungicides usually provide scab control similar to that provided by mancozeb at 3 lb/A. However, Vangard and Scala can both provide 48-60 hr of post-infection activity against apple scab (counting from the start of the wetting period), whereas mancozeb sprays will provide only 18-36 hr of "kickback" activity when counting from the start of wetting periods, with the longer duration limited to colder infection periods. Vangard and Scala do not redistribute well, so combinations of mancozeb at 3 lb/A plus either 3 oz/A of Vangard or 5 fl oz/A of Scala are recommended when these products are used. Vangard may lose effectiveness at temperatures above 70° F.

5. Flint, Sovran, and Pristine are excellent protectant fungicides that provide better scab control than mancozeb or captan used alone. They can also arrest spore production if visible scab lesions are present in trees. However, they will not stop epidemics as effectively as DMI fungicides did in DMI-sensitive orchards if they are applied after scab infections are established. Do not rely on them for postinfection or "kickback" activity beyond 48 hours. They are a good choice for use at petal fall and first cover if you suspect resistance or if you have experienced failure of the DMI fungicides.

6. DMI fungicides in combination with either captan or mancozeb might still be used at petal fall and first cover unless resistance is documented or unless an increase in fruit scab at harvest has been observed

in the past two years when using a DMI program. Continuing to use the DMI's after resistance is documented but before a control failure is noticed represents a period of risk that should be considered seriously if these materials are to be used. DMI's applied at that timing will provide significant suppression of powdery mildew as well as postinfection activity against any scab and rust infections that may have slipped through the prebloom and bloom sprays. Using DMI's in two applications after bloom should minimize selection pressures for DMI-resistant scab while still maximizing the other benefits that DMI's provide for apple disease management programs. A good choice would be Inspire Super MP – one of the "second generation" of DMI fungicides with greater activity against the scab fungus than the "first generation" (Nova, Rubigan, and Procure).

In tests in New York, Inspire Super provided better control of resistant scab isolates when compared to Nova and Rubigan.

On our web site. Reprints of the presentations from the 2009 Winter Fruit Schools are available for viewing. Click on "Fruit Schools" on the Home Page menu to get to the various links for our presentations. For those of you who have Facebook accounts, visit us at our Facebook page by clicking the "Facebook" link on our Home Page.

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