Fruit Pest News

Volume 5, No. 13  June 8, 2004

A weekly, online newsletter whose goal is to update Extension agents and growers of commercial tree fruit and small fruit crops on diseases and insects in Tennessee.

Text appearing in blue or red can be clicked to link to other web sites. Be aware that much of the linked information is produced in other states and may not be applicable to Tennessee.

In This Issue:

1. Pest Reports
2. Apple: Summer Disease Control Program
3. Apple: Powdery Mildew
4. Apple: Necrotic Leaf Blotch of Golden Delicious
5. Blackberry Rosette: Continue to Watch for It
6. Tree Fruit: Plant Bugs and Green Stink Bugs
7. Vegetable Corner: Tomato Spotted Wilt Virus

1. Pest Reports for the Past Week

First reports for the year: Eastern raspberry fruitworm - raspberry, June 3, Sullivan County; peach scab - peach and nectarine, June 8 (late this year), Davidson County. Other reports: grape tumid gall midge on grape, Coffee County, and Oriental fruit moth damage and fire blight have been abundant.

2. Apple: Summer Disease Control Program

Your summer disease control program is, no doubt, well underway. The so-called summer diseases take a greater toll on Tennessee apple production than the spring diseases. The summer diseases are fueled by a continuing source of overwintered inoculum, and there are fewer effective fungicides from which to choose. Furthermore, it is more difficult to obtain good spray coverage during the summer than during the spring because of more dense foliage, fruit clustering, and limbs drooping under heavy crop loads.

Your choice of fungicides will depend to some extent on what diseases have historically been a problem in your orchard. If bitter rot has been a problem, captan should be a major component of your summertime spray program. Flint also performs well against bitter rot. If white rot has been a problem, captan or Topsin M should be relied on heavily. For sooty blotch and flyspeck, be sure to include Topsin M or a strobilurin (Flint, Sovran). Strobilurins are also a valuable component of a program if
scab is still active. In Golden Delicious blocks, it is a good idea to include ziram or thiram to help protect against necrotic leaf blotch (see article below). Mancozeb provides good control of most summer diseases, but cannot be used within 77 days of harvest when used at the 3/4 lb per 100 gallon rate.

Captan has had a 4-day re-entry interval in the past. The re-entry interval has been changed on the Captan 80WDG label, allowing workers to enter the treated area in 24 hours.

Remember that management of diseases with fungicides is improved if cultural practices that reduce inoculum and enhance coverage are used. (SB)

3. Powdery Mildew of Apple

Powdery mildew is usually thought of as a dry-weather disease. However, high humidity caused by frequent rains can also contribute to mildew problems by favoring spore production and germination. Powdery mildew will continue to spread as long as there are new leaves developing on apple trees. When terminal growth stops, the potential for spread of powdery mildew will decrease. On susceptible varieties, apply effective mildewcides such as the sterol inhibitors, the strobilurins, or sulfur every 10 to 14 days until terminal growth stops. (SB)

4. Golden Delicious Growers - Protect Against Necrotic Leaf Blotch

Necrotic leaf blotch can strike with great suddenness. A prevention program should be begun right away on Golden Delicious and its bud sports, because a remedy is not possible after the disorder appears. Although necrotic leaf blotch is not a disease, certain fungicides will help control it. In the past, we relied on the EBDC fungicides (Dithane, Manzate, Penncozeb, etc.) for control. However, with the current label restrictions (77-day PHI and 3 lb/acre maximum rate), the EBDC fungicides are no longer useful for managing necrotic leaf blotch. Ziram or thiram should be applied on a 10-14 day schedule from mid-June through early August. Tank mixing with captan will improve the control of certain other diseases. Foliar sprays of zinc oxide are also effective for prevention of necrotic leaf blotch.

Necrotic leaf blotch begins as broad necrotic areas on green leaves. The green turns to yellow and the leaves fall from the tree. The affliction can occur in several "waves" throughout the summer. It is usually most severe when a period of overcast, rainy weather is followed by sunny weather. (SB)

5. Blackberry Rosette: Continue to Watch for It
Rosette (double blossom) disease is the scourge of blackberries. It has the potential to destroy a blackberry planting. If it is present in your planting, it should be readily apparent as bare berry caps; i.e. berries that do not develop. Click here for an image. The sepals (the green, leaf-like structures that enclose blossoms) are abnormally long and pointed and may have a pink to purplish color. The infected fruit clusters usually consist of multiple shoots, rather than the normal single shoot. Such growths are known as rosettes or witch's brooms.

These rosettes should have been removed in the spring, before the blossoms opened, releasing the spores. Removing and destroying the rosettes now would still be worthwhile, since some spores are still being released. The fungus is not systemic in the plant, so only the side stems showing disease symptoms have to be removed. Alternate Pristine with Switch. However, do not expect fungicide applications to control rosette in this year's crop. Fungicides applied this year control rosette in next year's crop by protecting the new primocanes. Any rosettes you see this year arose from infections that occurred on primocanes last year.

Fungicidal control may have a place even if you do not currently have rosette, if you are growing a susceptible variety. Shawnee, Cherokee, Comanche, and Black Satin are examples of very susceptible varieties. (SB)

6. Tree Fruit: Plant Bugs and Green Stink Bugs

Plant bugs are true bugs (Order Hemiptera) in the family Miridae. They have piercing-sucking mouthparts and their feeding and oviposition can cause damage to fruit or foliage. Tarnished plant bugs are small (4.9 - 5.7 mm), brownish and mottled with shades of yellow and reddish brown. They feed on a large number of plants including wild mustard and other flowers, tobacco, cotton, some field crops, vegetables, and tree fruit. In apple, the overwintered adult bugs move to apple buds around delayed dormant bud stage. They lay eggs in the blossom buds beginning when the blossoms in the clusters begin to separate. They continue to feed and lay eggs until the fruit are 1/2 inch in diameter. The feeding punctures cause tiny indentations and distortions of the fruit. There is a complex of plant bugs that can attack apples. These include the apple redbug, green apple bug, dark apple redbug and the mullein leaf bug. Some cause a conical indentation in the fruit without russeting or corky tissue, such as the tarnished plant bug. Others produce corky indentations or even long corky scars due to repeated feeding tracks. Since the feeding or oviposition damage is done early in the fruit development, there is nothing that can be done to reverse the damage. Fortunately, much of the feeding damage, especially the indentations without russeting or corky tissue, is overlooked when grading the fruit.

The tarnished plant bug is the major pest of peaches although the oak plant bug, the hickory plant bug and the green stink bug (Pentatomidae) can be damaging. The general injury categories are blossom injury and fruit drop, cat-facing injury, scarred injury, water-soaked injury and gummosis. Blossom
injury, fruit drop and cat-facing are the most damaging. Blossom injury and fruit drop include feeding
damage causing blossom drop, and feeding damage between petal-fall and shuck-off causing fruit drop.
About one third of blossom drop can be caused by tarnished plant bug.

Cat-facing deformities are caused by feeding between the shuck-split stage and 20 mm diameter fruit.
Cat-facing damage consists of depressions that are covered with brown, corky tissue, predominately free
of fuzz. There is usually a mass of gum at the center of the injured area. The fruit attacked early usually
drop while that injured later (diameter greater than 20 mm) will be scarred but remain on tree.

Typical scarred injury consists of small (1-2 mm) brown, corky, fuzz free areas sometimes with a red
pigment in the skin around the edge of the scars. When numerous, these small scars can blend to form 9
by 25 mm scarred areas.

Water-soaked injury consists of small dark green areas that appear water-soaked. They are round and 2-
3 mm in diameter. Gummosis is the oozing of clear gum from insect feeding punctures.

Monitor for plant bugs by hanging reflecting, white rectangular sticky traps 3 feet from the ground.
Hang the traps along the edge of a block preferably near wooded areas. Hang 3 traps per block or one
trap for every 3-5 acres. Start monitoring at Pink and continue until mid-summer. The threshold for
peach is one plant bug per trap.

The green stink bug causes sunken areas or pits that can badly deform the fruit. Much of the damage
occurs late in the summer as shallow, water-soaked depressions. You can monitor for green stink bugs
by jarring the branches over a ground cloth (sheet) or beating tray. I referred to "Common Tree Fruit
Pests" by Angus H. Howitt for much of the information on plant bugs and green stink bugs. (FAH)

7. Tomato Spotted Wilt Virus

We have been receiving quite a few samples of tomato spotted wilt virus (TSWV) in tomato and
tobacco. This year, the disease has occurred in central and eastern Tennessee. TSWV is characterized by
purplish to bronze colored specks on the leaves, followed by chlorosis (yellowing ) and blighting of the
leaves. The leaf discoloration sometimes appears as blotching, rather than as discrete specks. The
symptoms sometimes appear first in the upper part of the plant. This characteristic aids in diagnosis of
the disease. Fruit symptoms include an uneven yellow and red color and the occurrence of "alligator"
skin. For commercial growers, fruit quality is a problem even in mild cases of TSWV.

TSWV is spread by a tiny insect called thrips. These insects, which are difficult to see, are favored by
mild temperatures. Thrips enter a field or garden from nearby areas or can be carried into a planting on
the wind from some distance. They reproduce well on tomatoes, and can continue to spread the virus
throughout the growing season.
Control is difficult on susceptible varieties. BHN seeds has developed a couple of resistant varieties, but they are not widely grown. Reflective mulches are effective in delaying the onset and in reducing spread, but they must be applied at planting time. Pruning out affected parts of plants is not effective in control, because the virus has already spread systemically throughout the plant by the time symptoms appear. Roguing (removing) affected plants is not recommended, because of the possibility of exciting the thrips and causing them to move to uninfected plants. After the planting of a susceptible variety the only control method is the use of insecticides. Insecticides should be applied early and often, for this method to be effective in suppressing TSWV spread. Commercial growers can use Admire (soil applied), Lannate, or SpinTor according to label directions. Gardeners have fewer options, but could try pyrethroid insecticides such as Bug-Be-Gone. (SB)

The *Fruit Pest News* URL is: [http://web.utk.edu/~extepp/fpn/fpn.htm](http://web.utk.edu/~extepp/fpn/fpn.htm)

Contacts:

Steve Bost, Professor and Extension Plant Pathologist
[scbost@utk.edu](mailto:scbost@utk.edu)

Frank Hale, Professor and Extension Entomologist
[fahale@utk.edu](mailto:fahale@utk.edu)

Both authors available at:
615-832-6802
fax 615-781-2568
Plant and Pest Diagnostic Center
5201 Marchant Drive
Nashville, TN 37211