1. Late Blight Found in Tennessee

Late blight has been found on tomato plants in a garden in Dickson County. The symptoms appeared around June 3 and the diagnosis was made today by spore identification at the UT Soil, Plant and Pest Center. This was a mysterious appearance, because late blight has not been reported anywhere in the country other than south Florida by the website that tracks the movement, http://usablight.org/.

We are not sure of the source of the late blight. The agent in Dickson County, Vickie Witcher, is investigating. Extended cloudy weather favors the disease, and spread is possible to nearby gardens and fields. Even distant sites may be affected, as the causal spores are readily air-borne and capable of surviving transport of some distance in the air. The most effective protectant against late blight is chlorothalonil. If late blight is imminent in the vicinity, commercial growers may wish to incorporate some specialized fungicides, found in our control guides. Organic growers can use copper sprays.

Please report to us any suspected or known cases of late blight. It can be recognized by dark, irregular-shaped lesions on leaves, sometimes covered by a thin, white mold. A symptom that is very diagnostic is stem lesions that are brown to copper in color (see photos). It is important that we know where the disease is located in the state, so that we can protect our industry and home gardeners with proper warnings. If the weather turns hot and dry, that will take care of it, but it’s better to be safe than sorry. (SB)

2. The Mildews of Cucurbits

Powdery mildew made an early appearance this year. On June 6, powdery mildew was found on winter squash (see photo) in a garden in Nashville. There are two main species of cucurbit powdery mildew. The common one, *Podosphaera xanthii*, usually occurs late in the growing season. When powdery mildew is found in the early season, it is usually the less aggressive species, *Erysiphe cichoracearum*. The mildew found at Nashville was *P. xanthii*.

This finding should not change your control strategy for your cucurbit crop. Powdery mildew is a disease that can be controlled successfully with field scouting to ensure that the first mildewcide application is made promptly upon first detection of colonies. Whereas most disease control requires preventive fungicide applications, powdery mildew responds to reactive applications, if products with curative activity are used in a prompt manner.

Downy mildew, *Pseudoperonospora cubensis*, has not yet been found in TN. It has been reported recently from southern Georgia and central North Carolina. This pathogen must re-enter TN each year, as it does not overwinter here. While not yet close to TN, the spores can be carried long distances in air currents. As always, susceptible cucurbit crops should be treated with a protectant spray program using broad-spectrum fungicides. If downy mildew becomes an imminent threat, specialized fungicides should be used. A map of the known downy mildew distribution and forecasts can be found at http://cdm.ipmpipe.org/. (SB)
3. Spotted Wing Drosophila Control

I still have plenty of the 32 oz plastic deli containers with lids that can be used to make traps for detecting spotted wing drosophila (SWD). Please let your local county agent know if you need some and they can contact me (Frank Hale). I have also been asked to comment on the types of insecticides and insecticide rotations needed to manage this pest. Once the SWD is detected at your farm, preventive insecticide applications will need to be made on at least a weekly schedule for the rest of the production season. If significant rain occurs, it is best to make another insecticide application as soon as possible. There are many hosts for SWD, both cultivated and wild. We are just starting to get a handle on all the wild host plants. Thus, SWD populations can increase rapidly on plants both within and outside the fruit farm or vineyard.

While SWD populations are highest during the fall, they can still be found in spring strawberry crops. If SWD is active in your county (adults caught in traps or larvae found in fruit) while fruit are developing, treat at least weekly and reapply treatments in the event of rain. Recommended insecticides for strawberries include bifenthrin (Brigade 10 WSB), fenpropathrin (Danitol 2.4 EC), malathion (several products 57EC), spinetoram (Radiant SC), and spinosad (Entrust, Success). Note that Entrust 80W is OMRI listed. Also, rotate to a different mode of action insecticide after two successive applications of spinosad. Of course, the use of any broad-spectrum insecticides during bloom will damage honeybee populations. Do not apply when bees are foraging. Dr. Hannah Burrack at NCSU recommends that if infested fruit are observed, ripe and ripening fruit should be removed and destroyed to prevent marketing of potentially infested product.

In brambles, SWD preferentially lay their eggs in ripening or ripe fruit, and larvae develop internally. In sites where SWD are present, weekly insecticide applications should be made beginning when fruit begins to ripen and should be made more frequently if it rains. Fruit should be sampled on a weekly basis to check for larval presence as adult sampling may not predict fruit infestations and pesticide treatments may not necessarily prevent infestation, depending on environmental conditions and application methods. Recommended insecticides include Brigade 2 EC, and generics, Malathion 57EC, Entrust 80WP, spinetoram (Delegate 25 WG), and Danitol 2.4EC.

In bunch grapes, for thin-skinned red varieties, closely examine berries for oviposition beginning at véraison. While it is unclear how significant SWD will be as a grape pest. Growers should carefully monitor adult presence in vineyards and larval presence in fruit. Wine grapes can likely sustain greater injury than fresh market grapes. Larvae begin to infest fruit as they ripen, so insecticide treatments should be applied on a weekly basis and reapplied in the event of rain. Recommended insecticides include beta-cyfluthrin (Baythroid XL), imidacloprid & cyfluthrin (Leverage 2.4), Delegate, Malathion 8F, zeta cypermethrin (Mustang 1.5EC) and Entrust.

In blueberries, SWD larvae are much smaller than blueberry maggot larvae. If SWD has been found on or near your farm, preventative insecticide applications are recommended beginning when fruit begins to color through the end of harvest. Recommended insecticides include imidacloprid (Baythroid XL), imidacloprid & cyfluthrin (Leverage 2.4), Delegate, Malathion 8F, zeta cypermethrin (Mustang 1.5EC) and Entrust.

Basically, we have a limited number of effective insecticides to choose from in just a few insecticide classes or their corresponding mode of action groupings. The synthetic pyrethroid class includes fenpropathrin, bifenthrin, beta-cyfluthrin, and zeta cypermethrin. A combination product of a neonicotinoid class insecticide (imidacloprid) plus a pyrethroid (cyfluthrin) is another choice that I would lump together with the pyrethroids when considering insecticide spray rotations. Organophosphate class insecticides include malathion and phosmet. The recommended spinosyns class of insecticides includes spinosad and spinetoram. A weekly rotation between a pyrethroid, organophosphate, and spinosyns class insecticide is recommended. There are a few more insecticides that are being proposed to be added to the 2014 Integrated Management Guides. I will comment more on specifics such as number of applications of a particular insecticide allowed per season, reentry intervals, preharvest intervals, insecticide efficacy, maximum residue levels (PPM), and some insecticide rotation schedules in future newsletters. (FH)

4. Blackberry Orange Rust Sprays Can Stop

Spore production by orange rust of blackberry has ended for the season, and you should stop your fungicide sprays now, if you have been applying them for this disease. The orange rims of infected leaves have become necrotic (see photo) as spore production by the fungus has ended and left dead tissue behind. This has occurred on both wild and domestic brambles. (SB)
5. Bitter Rot of Apple: Control News

Bitter rot has been an acute problem for some apple growers the last several years. I have conducted some tests on detached fruit to determine the most effective fungicides against the strains of the bitter rot fungus that are causing these severe outbreaks. I have tested old products as well as some that have recently been registered for use on apples. In my trials, Ziram has performed the best. Other products that performed well were Inspire Super and Merivon. Performing moderately well were Captan and Pristine. No other fungicides performed well enough to recommend, including some that have been recommended in the past for bitter rot control, such as Flint and Sovran. The bitter rot cases that we have been dealing with recently may be caused by new strains.

In orchards that have experienced severe cases of bitter rot, I would recommend using Ziram during the peak bitter rot season. Infections can begin in late spring/early summer, but activity is greatest beginning in mid-summer. Ziram 76DF is limited to seven applications per year. The rate is 6 pounds per acre and there is a 14-day PHI.

Bitter rot was found on a young fruit in a Middle TN orchard on June 3 (see photo). (SB)

6. Yellowmargined Leaf Beetle

The yellowmargined leaf beetle is a pest of crucifers, although in Tennessee I have primarily seen it feeding on leafy turnip and mustard crops. Apparently, it is native to South America and it was first reported in the U.S. in coastal Alabama in 1949. Larval feeding can make leaves look ragged as seen here from a recent infestation on mustard. The larvae are grayish to yellow brown with a dark head capsule. The body is covered with many setae (hairs) with some arising from raised dark bumps. Once the larvae have done their damage, they will pupate in loosely spun silk pupal cases that are attached to the underside of leaves. The pupal stage only lasts five or six days. The adults will stay in the pupal cases for a couple more days before they emerge. The adult is 1/5 inch long and generally dark brown to black with the margins of the elytra (hard wing covers on back) outlined in a lighter yellow or brown coloration. After they become adults they are thought to hibernate through the summer and become active again later in the fall. While more than one generation per year may occur along the Gulf Coast during mild winters, it only has one generation per year in Tennessee. The yellowmargined leaf beetle tends to be more of a problem in home gardens and organic vegetable production where insecticide use is minimized. Insecticides recommended for turnip include Belay 2.13 SC, Admire Pro 4.6F, various brand names of the imidacloprid 2F formulation, Platinum 75 SC, Actara 25 WDG, and any of the pyrethroid insecticides registered for use on this crop. Some of the information used in this article is from the University of Florida on-line Featured Creatures article on yellowmargined leaf beetle that can be found at: http://entnemdept.ufl.edu/creatures/veg/leaf/yellowmargined_leaf_beetle.htm. (FH)

The Fruit Pest News URL is: http://web.utk.edu/~extepp/fpn/fpn.htm

Contacts:
Steve Bost, Professor and Extension Plant Pathologist 615-832-6802
sebost@utk.edu fax 615-781-2568
Frank Hale, Professor and Extension Entomologist Soil, Plant and Pest Center
fahale@utk.edu 5201 Marchant Drive

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