

KENTUCKY PEST NEWS

ENTOMOLOGY • PLANT PATHOLOGY • WEED SCIENCE

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June 5, 2006

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- Tobacco budworm

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- Flowering pears are showing fire blight symptoms

DIAGNOSTIC LAB-HIGHLIGHTS

INSECT TRAP COUNTS

WATCH FOR:

APHIDS on ornamentals; CORN LEAF APHIDS in whorls; BUDWORMS on tobacco; SAN JOSE SCALE crawlers active; BAGWORM egg hatch; SOD WEBWORM moth flight; BEAN LEAF BEETLES on emerging soybeans; SMALL GRASSHOPPERS on emerging soybeans, especially in the southwest.

TOBACCO

UPDATE ON BLUE MOLD

by **Kenny Seebold**

During the week of May 29, blue mold was found in Adair (1 case), Bourbon (1 case), and Menifee Counties (2 cases). This brings the total number of counties affected by blue mold to 6, and the total number of confirmed cases to 13. Initial outbreaks were limited to transplants in greenhouse or outdoor float beds; however, the disease has been confirmed in the field as of June 1. In this particular case the plants used to set the field had come from a float bed where blue mold had been found. The outbreak in Bourbon County is the first one that we've found on direct-seeded transplants. These plants appeared to have become infected some time after the first cases of blue mold were reported. I believe that we are starting to see blue mold move from initial outbreaks into new areas and our transplants still in float beds are prime targets right now. More alarming is that a lot of diseased tobacco seedlings are being set, either out of desperation or ignorance. In Bourbon Co., Glenn Mackie found that a substantial number of plants had been set from the greenhouse where he found blue mold, and he found active blue mold in the fields where these plants had been set. The same story is being told in Menifee and other counties. Julie Beale has identified systemic blue mold in some samples over the past couple of days, and we all know

the implications of this finding. Plants with blue mold that has gone systemic will suffer a number of problems in the field if transplanted (something that we should discourage as vigorously as possible).

The first cases of blue mold that we confirmed (mainly during the week of May 22) were all found on plants that had been raised from "mini-plugs" that had been produced in Florida. This is not to say that every grower who bought mini-plugs got blue mold – I have visited two transplant facilities, both using mini-plugs, which did not have the disease. Still, there seems to be a connection between the 2006 blue mold epidemic and out-of-state plugs, and this is why I recommend that anyone who brought plants into Kentucky from Florida be on the lookout for this disease. How and where did the mini-plugs become infected? This is a good question, and we don't have an answer right now (and may never have one). In theory, these plants could have come into contact with spores of the blue mold pathogen at any point between production and delivery to the end user. I have been in contact with the Florida-based producer of tobacco mini-plugs sold in Kentucky and have been told that all plants that left their facility were inspected and found to be symptom-free before shipment. Dr. Tom Kucharek, my major professor at the University of Florida in Gainesville, informs me that the winter and spring have been unusually warm and dry in most of the state, meaning that local conditions would not be favorable for blue mold. At our end in Kentucky, we had weather that was highly conducive to blue mold during a 2-week period prior to our finding the first cases of the disease. Was the Florida-grown tobacco infected after it entered Kentucky? Possibly – but it seems that if we were dealing with a local source of inoculum, then we would have found blue mold in greenhouses that did not use Florida-grown mini-plugs at around the same time that we found the other outbreaks. The same argument could be made

against airborne spores moving into the areas where blue mold was found from in-state or out-of-state sources. Circumstantial evidence therefore points to a source of inoculum that originated outside of Kentucky, but it would be speculative to say where this source was located. As I mentioned earlier, we may never figure out how the blue mold pathogen got established so early this year, but now that it's here we need to take every precaution to keep the disease in check. Here's a quick rundown of the products that can be used on tobacco in the field and their application rates:

- **Acrobat 50WP** (2-8 oz/A); tank-mix with Dithane DF (1.5-2 lb/A). Begin applications when conditions favor blue mold and continue on a 5-7 day schedule while favorable conditions prevail.
- **Actigard 50WG** (0.5 oz/A); apply 3-5 days prior to infection for best results and do not apply to tobacco smaller than 18 in.
- **Aliette WDG** (2.5-4 lb/A); make first application after transplanting and continue on a 7-10 day schedule.
- **Dithane DF** (1.5-2 lb/A); make first application when conditions favor blue mold and continue on a 7-day schedule while favorable conditions are present. Tank-mix with Acrobat 50W for maximum efficacy.
- **Forum** (2-8 fl oz/A); this is a flowable formulation of dimethomorph, the active ingredient found in Acrobat 50WP. Apply in the same manner as Acrobat 50WP.

Please consult the **2006 Fungicide Guide for Burley and Dark Tobacco** (PPFS-AG-T-8) for more information. Refer to product labels for specific use directions, precautions, pre-harvest intervals, and resistance management guidelines.

The forecast for the next week to 10 days calls for warm temperatures, mostly sunny days, and chances for rain. The warmer temperatures and sunshine should help slow the spread of blue mold in the field. Pop-up showers and cool night temperatures could provide favorable conditions for infection in specific locations, however. The highest risk of infection at this time is in those counties where blue mold has been reported. Please let me know if you find blue mold or suspect it in your area. I will continue to send out emails to keep you posted on the situation, and you can visit the Kentucky Tobacco Disease Information page for regular updates on blue mold and other diseases (<http://www.uky.edu/Ag/kpn/kyblue/kyblue.htm>).

TOBACCO BUDWORM **by Lee Townsend**

Tobacco budworm moth flight should begin soon, the potential for damage is greatest in early-set fields which

will be most attractive to moths. Budworms feed in the buds of young tobacco plants, chewing holes in the developing leaves. As the leaves expand, the familiar large rounded holes are apparent but by then, the damage is done. If the bud is destroyed, a new early sucker growth is started.

The trick to reducing budworm damage is to catch infestations early by carefully inspecting plant buds at least weekly. Feeding by small budworms can be detected early and the black pepper grain-like droppings are also a good diagnostic clue. Treat if you find 5 or more budworms (1/2" to 3/4" long) per 50 plants from button stage to topping.

There is a parasitic wasp that attacks budworms. Frequently the 1/4" long white to gray cocoon of this beneficial insect can be seen on the top leaves of tobacco plants. They can be conserved by avoiding unneeded insecticide applications. Insecticides for budworm control include Denim, Orthene, Tracer, and Warrior. Examples of Bt products include Agree, Biobit, Dipel, Javelin, and Xen-Tari.

If treatment is necessary, make the application during the coolest parts of the day when buds are more exposed and budworms are out feeding on the tip leaves. A cone nozzle over the row will help to give good coverage of the area where these larvae are feeding.

FORAGES

ARMYWORM OUTBREAKS IN PASTURES **by Lee Townsend**

Armyworm damage is becoming evident as irregular brown areas spread across hundreds of acres of central Kentucky pastures. Most larvae range from 0.75 to 1.25 inches and probably come from eggs that were laid 2 to 3 weeks ago. While there are at least a few armyworms in every pasture in the region, significant damage is evident only in fields that received large numbers of egg masses. These seem to be fields in which grass was tall in comparison to other pastures back when moth flight occurred or those that were only lightly grazed. Little damage is appearing in closely clipped or moderately grazed pastures where grass was relatively short during moth flight.

Egg laying is over for this generation so fields that are still uniformly green received fewer numbers of masses and the only threat they face is an influx of armyworms from adjacent fields with severe infestations. Damage can spread where armyworms crawl in from adjacent fields where grasses have largely been eaten.

Armyworms prefer grasses and feed on the edges of grass blades, eventually leaving only the tough midrib. They will leave broadleaves alone until there are no grasses left. Most larvae probably have 7 to 10 days of feeding left before entering the soil to pupate and ultimately emerge as a moth. They do about 80% of their feeding during the last few days of their development. The next generation should pose no threat to pastures.

Armyworms usually do not damage the growing point of grasses so their injury is similar to very close mowing. Without foliage to eat, they will leave defoliated fields and move en masse (in armies) to adjacent grass. If their behavior follows that of eastern tent caterpillar dispersal, watch for them to move east or west in search of food. A good rain and favorable growing conditions should see grasses recover as soon as larval feeding ends. This is the pattern predicted for the area through the weekend. Chances for injury are greatest with close clipping followed by hot dry winter that would scald grass crowns.

In looking at pastures on June 1, armyworms were clustered under clumps of mowed grass and much less abundant in areas without mulched clippings. Feeding damage will tend to be more intense around these pockets.

Decisions on use of insecticides should be made carefully and targeted at fields where armyworms have eaten grass completely down to the crown or perhaps protecting adjacent fields where armyworms are moving in. Sevin, Malathion, and Bt based (Dipel, etc.) products are labeled for pastures. There is no value in treating just before the rain. Examination of some Bourbon county pastures on June 1 showed small white cocoons of parasitic wasps on the ground are a good sign that natural enemies are beginning to have an impact.

Armyworm larvae are striped caterpillars that range in length from about 1/16" when newly hatched to 1.5 to 2" when full grown. They vary from dark greenish-brown to black with pale white, orange, and dark brown stripes along the length of the body. The head is yellowish brown with a brown network of veins.

LAWN & TURF

RING-LIKE PATCHES SHOWING UP ON GOLF GREENS

by Paul Vincelli

A number of states are reporting symptoms on putting greens of circular to irregular rings with a narrow circumference of yellowed turf. The diameter of the rings varies from 4 inches to 2-3 feet. These patches look like yellow patch, but they show up during warm to hot weather,

which is not typical for yellow patch. These patches may also be mistakenly thought to be fairy rings, but diagnostic tests reveal no evidence of typical fairy-ring fungi in the root zone. Several states report that *Poa annua* is more affected by this problem than creeping bentgrass. Images of this problem in a neighboring state are available at the Ohio State University's SK Notes electronic newsletter at: http://hcs.osu.edu/sk/notes/rss_detail.lasso?id=1043.

It is somewhat uncertain what this problem is, and it is currently receiving a lot of attention from turfgrass pathologists. There is a possibility that the disease is a newly recognized disease that has been called by several names: Waitea patch, sheath spot, brown ring patch, to name a few. This disease, first described in Japan, has been confirmed in California and Ontario. However, one should not assume this is the problem from looking at a few pictures. Extensive laboratory work is needed to determine the cause of the problem, particularly since accurate identification of *Rhizoctonia*-like organisms requires lots of lab work.

If superintendents are seeing symptoms like those described above, they should collect cup-cutter size samples and provide them to the plant diagnostic labs in their states. Don't expect a quick answer on this but the investigations can't proceed unless labs have the plant material to work with.

Be aware that diagnostic samples should not be sent across state lines unless the receiving lab has an APHIS permit for out-of-state samples.

SHADE TREES & ORNAMENTALS

NURSERY SURVEYS FOR *Phytophthora ramorum* IN 2006

by Patricia B. de Sá and Joe Collins, Departments of Plant Pathology and Entomology

Phytophthora ramorum is the cause of Ramorum blight diseases on ornamental plants like camellia, rhododendron and mountain laurel, and Sudden Oak Death on tanoak and oak trees. This pathogen can move long distance by the movement of infected plants, plant parts and soil. This has been demonstrated in recent years with *P. ramorum* infected nursery stock being accidentally shipped across the United States. Luckily infected shipments were identified and follow up inspections were made to minimize the risk of spread and establishment of *P. ramorum*.

During 2006, national surveys are underway to detect *P. ramorum* and determine its distribution in nurseries in the United States. In Kentucky, the nursery survey will con-

concentrate on 20 nurseries and garden centers in central and eastern Kentucky. This area of the state is considered to be at high risk for establishment of Sudden Oak Death due to the forest composition in Appalachia.

Research and experience in nurseries have indicated that although many plants are hosts to *P. ramorum* or have been found associated with it, six genera of plants seem to be very susceptible to infection and are considered high risk plants: *Camellia*, *Rhododendron* (excluding the type of azaleas that have small leaves), *Viburnum*, *Pieris*, *Kalmia* (mountain laurel) and *Syringa* (lilac). The Kentucky nursery survey will concentrate on these genera. The USDA APHIS PPQ website at: www.aphis.usda.gov/ppq/ispqm/pramorom/ is periodically updated and newly discovered host plants and plants associated with *P. ramorum* are added to this list.

Other websites that show symptoms and recent information about Ramorum blight and sudden oak death are the California Oak Mortality Task Force web site at <http://www.suddenoakdeath.org> and the web site of the USDA *Phytophthora ramorum* Educate to Detect (PRED) Program at <http://www.ncpmc.org/alerts/suddenoakdeath/pred.cfm>

In order to be considered a host plant, a species or variety of plant must be found infected with *P. ramorum*, the pathogen is then isolated and grown in pure culture, and this culture is used to infect a healthy plant of the same species and variety. If this once healthy plant develops a disease like the first plant from which *P. ramorum* was isolated and if *P. ramorum* can be re-isolated from this once healthy plant, the plant is considered a host. An associated host plant is one that is found to be infected by testing in the lab, but for which the assay described above (Koch's postulates) has not yet been completed.

The conditions in the nursery that are conducive to infection of plants and expression of symptoms, are the presence of water on the leaves, shoots and stems for 12 hours a day for 10 days or more at temperatures between 37 °F and 82° F. Plants are particularly vulnerable when grown under shade and in greenhouses in these moisture and temperature conditions. Some plants like camellias and some rhododendrons shed the infected leaves and may look like they are not infected. Even if symptoms can be seen on the leaves, this pathogen cannot be identified by symptoms alone, because the symptoms are common to other less damaging pathogens. Correct identification can only be done in a lab by trained professionals and samples should be collected by an inspector or extension agent.

Early detection and prevention of spread is the best way to deal with *P. ramorum* to protect Kentucky's nursery industry and forest resources.

FLOWERING PEARS ARE SHOWING FIRE BLIGHT SYMPTOMS

by John Hartman

Fire blight, a bacterial disease caused by the bacterium *Erwinia amylovora*, occurs in Kentucky almost every year, but the severity of outbreaks varies from year to year. Significant fire blight shoot symptoms are appearing in flowering pears (i.e., 'Bradford' and 'Aristocrat' pears) in Kentucky landscapes. Many backyard apples and crab-apples are also affected. Several homeowner associations in subdivisions predominantly planted to flowering pears are reporting widespread damage to neighborhood flowering pears. In addition, County Extension Agents have been inquiring as to how to best advise their clients with blighted pear and apples. Many growers wonder why the disease is widespread and yet sporadic this year.

- Fire blight is widespread on pears because during April, conditions were ideal for infections, especially during bloom when primary infections take place. Frost in some areas may also have played a role.
- The disease is sporadic because not all trees faced ideal fire blight conditions this spring. Warm periods needed for buildup of bacterial populations were punctuated by cold spells which in some locales cut short the potential for infection. In addition, timely rain showers needed for infection were sporadic. Small differences in microclimate based on the tree location or exposure can make a critical difference in disease potential. In addition, timing of bloom in relation to the weather affected fire blight.

Fire blight symptoms being seen now in flowering pear trees are very visible. New shoots are brown or black and dead and the ends of the shoot are bent over, resembling a shepherd's crook. Trees look sick and inexperienced gardeners wonder if their trees will die because of these infections. Gardeners with infected trees are often tempted to remove infected branches or to apply a treatment to stop disease spread. In most cases, these measures are not needed or may even make the situation worse. So what should one do with infected trees now?

- Gardeners should just let the disease run its course, allowing the tree defenses to stop fire blight spread within the tree. In most cases, this has already happened.
- When the disease has run its course, new shoots will emerge from buds on healthy branches and these

INSECT TRAP COUNTS UKREC, Princeton KY

May 26-June 2, 2006

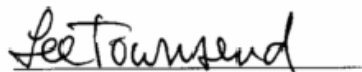
Black cutworm.....	5
True Armyworm	16
European Corn Borer.....	0
Corn Earworm.....	9
Southwester Corn Borer.....	61

View UKREC trap counts for the entire 2006 season at -
<http://www.uky.edu/Ag/IPMPrinceton/Counts/2006trapsfp.htm>

View trap counts for Fulton County, Kentucky at -
<http://ces.ca.uky.edu/fulton/anr/Insect%20Trap%20Counts.htm>

For information on trap counts in southern Illinois visit the Hines Report at -
http://www.ipm.uiuc.edu/pubs/hines_report/comments.html

The Hines Report is posted weekly by Ron Hines, Senior Research Specialist, at the University of Illinois Dixon Springs Agricultural Center.


Lee Townsend, Extension Entomologist

NOTE: Trade names are used to simplify the information presented in this newsletter. No endorsement by the Cooperative Extension Service is intended, nor is criticism implied of similar products that are not named.

shoots will soon mask today's symptoms.

- Dead shoots and branches should be removed in winter when there is little chance of spreading the disease. At that time, cut dead branches back to healthy wood. In winter, it should not be necessary to sterilize cutting tools between cuts because there is little likelihood of spreading the bacteria at that time.
- Do not engage in normal and needed summer prunin-gand training without wiping the cutters with steriliz-ing solutions like 70% alcohol or 10% bleach between each cut.
- Do not apply chemical controls such as streptomycin. They are only effective if used during the normal bloom period.

DIAGNOSTIC LAB-HIGHLIGHTS

by Julie Beale and Paul Bachi

Agronomic samples received in the PDDL this past week included spring black stem on alfalfa; stinkbug injury on corn; take-all and wheat streak mosaic virus on wheat; aphid injury on orchardgrass and timothy; blue mold, target spot, Pythium root rot, tomato spotted wilt virus, herbicide injury and transplant shock on tobacco.

On fruit and vegetable samples, we diagnosed angular leaf spot on strawberry; cedar-apple rust and frogeye leaf spot on apple; leaf curl and Oriental fruit moth injury on peach; black knot on plum; early blight, timber rot (Sclerotinia), and nitrogen deficiency on tomato; and blackleg on potato.

Ornamental samples included bacterial soft rot on calla lily; Pythium root rot on lily; rust on hollyhock; Penicil-lium bulb rot on tulip; fire blight on crabapple; anthrac-nose on sycamore; Phyllosticta leaf spot on maple; and anthracnose (Discula) and spot anthracnose on dogwood.

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