UK COOPERATIVE EXTENSION SERVICE
University of Kentucky – College of Agriculture

LEXINGTON, KY 40546

# KENTUCKY PEST NEWS

ENTOMOLOGY • PLANT PATHOLOGY • WEED SCIENCE
On line at: www.uky.edu/Agriculture/kpn/kpnhome.htm

**Number 1140** **August 13, 2007**



## WATCH FOR:

PARASITIZED HORNWORMS on tobacco and tomatoes, they will not cause any more damage; time for pre-harvest GRAIN BIN SANITATION; FRUIT FLIES infesting over-ripe fruit and vegetables; bites from LONE STAR TICKS

## TOBACCO

### DISEASE UPDATE
**by Kenny Seebold**

A few new outbreaks of blue mold cropped up in KY this past week, despite the oppressive heat that prevailed during this time. We found new cases of the disease in Clark & Fayette Counties, and have unconfirmed reports from Breckinridge, Lincoln, and Warren Counties. Blue mold has also spread to Connecticut and Wisconsin.

Our weather remains unfavorable for widespread dispersal and infection through the week of August 13, making the overall risk to our growers fairly low. More and more tobacco is being topped and treated with sucker-control materials, further reducing the risk since tobacco becomes less susceptible to blue mold after topping. Suckers, on the other hand, are particularly prone to developing blue mold and puts extra emphasis on getting good control of suckers while blue mold is in our area.

Growers should continue to scout their crops for the presence of blue mold, however, and be prepared to make applications of fungicides if disease-favorable conditions prevail and if the tobacco has not been topped. Please see ID-160, the 2007 KY Tobacco Production Guide, for recommended disease-control products.

Please be on the lookout for blue mold and let me know if the disease is found in your area. 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).

## CORN

### FREQUENT DROUGHTY SPELLS INCREASE MYCOTOXIN RISK
**by Paul Vincelli**

Mycotoxins are toxic substances produced by fungi. Although mycotoxins may develop in a corn crop as a result of improper storage conditions, pre-harvest contamination does occasionally occur in Kentucky corn.

**Fumonisins** are a class of mycotoxins which cause toxicity to horses, swine, and other animals. There is also concern about possible detrimental health effects of fumonisins to humans. Fumonisins commonly are produced by the fungus *Fusarium verticillioides*, the fungus that causes Fusarium ear rot.

Fumonisin contamination in the field is often associated with hot, dry weather prior to and during silking, conditions many fields experienced this summer. Fumonisins also have been reported following late- season rains on corn where harvest has been delayed.

**Aflatoxins** are probably the most well-known mycotoxin, because they have been long regulated by the US Food and Drug Administration. Although aflatoxins are very uncommon in Kentucky corn as it comes out of the field, they can occur preharvest in crops that were exposed to sustained drought stress and high temperatures during grain fill.

In a year like this with conditions that might enhance mycotoxin risk, prompt harvest will help reduce the risk of contamination. Leaving a crop in the field for an extended period increases the risk of mycotoxin buildup. It also may be advantageous to harvest at a moisture content of 25-28% MC and dry down the grain to no more than 15.5% MC within 24 hours. This should help to reduce the risk of fumonisin buildup, as compared to letting the crop dry down in the field.

Keep in mind that, even if the corn was not contaminated in the field, mycotoxins can accumulate in corn in storage, if environmental conditions permit. Spores (microscopic fungal "seeds") of mycotoxin-producing fungi can be present on the outside of kernels as the grain is harvested and stored. By themselves, the spores do not produce significant levels of mycotoxins. However, when warm, moist conditions develop in storage, the spores can germinate and infect the harvested grain, which can then result in contamination. For these reasons, it is recommended that grain be cooled to 60F or lower as soon as possible after drying to control storage temperatures and mold and insect activity.

If there is any doubt about the condition of corn already in storage, it should be inspected for mold and tested at the UK Grain Quality Testing Laboratory.

**Additional Resources**
More information on fumonisins in corn is available online at http://www.ca.uky.edu/agc/pubs/id/id121/id121.pdf.

More information on aflatoxins is available at http://www.ca.uky.edu/agc/pubs/id/id59/id59.pdf

Grain storage recommendations are available in the Extension publication, *Principles of Grain Storage* (AEN-20).

Information on laboratories that do mycotoxin testing is available at http://www.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-MISC-1.pdf

A multi-state Extension publication entitled *Moldy Grains, Mycotoxins, and Feeding Problems* is available at http://www.oardc.ohiostate.edu/ohiofieldcropdisease/Mycotoxins/mycopagedefault.htm

## SHADE TREES & ORNAMENTALS

### SOME OF THE CAUSES OF DECAY IN TREES by John Hartman

During the past two weeks, issues of wounding and tree wood decay and tree hazards created by decay were addressed in this newsletter. Living landscape trees are subject to internal decays of branches and trunk and of buttresses and roots. Decay in living trees appears as a softening or weakening of the woody xylem tissues of the sapwood and the heartwood. These decays are caused by fungi that can decompose the structural material of the tree.

Disease progress. The disease begins when a windblown spore of a wood-decay fungus comes in contact with a tree wound and, given the right conditions (possibly involving other non-decaying microorganisms), germinates. Wounds such as those caused by lawn equipment, construction activity, pruning, or wind and ice damage are typical locations for this activity. The germinating spore produces a germ tube and then branched hyphae and mycelia which invade fiber, vessel, tracheid, and ray cells of the wood. Wood often becomes discolored. The fungal hyphae release enzymes that break down cellulose (brown rot) or cellulose and lignin (white rot), thus providing food for the fungus and loss of rigidity for the tree. Parts of the tree may break and fall, or the tree may topple over if roots are decayed. The fungus reproduces by forming a mushroom, conk, or shelf-like structure (fruiting structure in which spores are formed) directly on the limbs, trunk, butt, root flares or on roots at some distance from the base of the tree.

However, trees are not passive victims; they respond to wounding and fungal invasion. When an injury occurs, the invading wood-decay fungi encounter tree defense mechanisms. The vertical movement of the decay fungus is impeded by plugging of xylem tracheids and vessels with resins and tyloses above and below the wound. Horizontal movement of fungi is impeded in an inward direction by the already existing growth rings and in a radial direction by toxic substances produced by the ray cells. Decay is prevented from moving outward to new growth by barriers laid down by the vascular cambium after injury occurs. Of these various defenses the strongest is that formed by the new growth. Consequently, decay will not proceed into subsequent yearly growth increments unless they are re-injured.

In circumstances where wounding is minimal and the tree is quick to respond to wounding and invasion, the tree suffers some internal discoloration and little or no decay, thus retaining its structural integrity. However, where wounding is extensive and when the tree is not capable of producing a quick, effective response, the decay fungus spreads and the tree is weakened.

Wood decay fungi are usually identified by their conks. The conks of some of the common wood decay fungi important to tree health are described here. The first four listed have slits, or gills on the underside of the conk or mushroom cap, and the others have pores on the conk underside. Several of them are characterized as having a broad host range and can attack many species while other decay fungi are specialized, attacking just one or a few tree species.

- ***Armillaria mellea*,** the shoe string root rot or oak root rot fungus has a wide host range including conifers and hardwoods and is very important in shade tree pathology. White patches of mycelium and shoe-string-like rhizomorphs of the Armillaria fungus can be found under the bark of infected trees. Clusters of gilled, tan-colored mushrooms may develop at the base of infected trees.
- ***Flammulina velutipes*** (*Collybia velutipes*) annually produces clusters of mushrooms with stout stalks and moist, smooth reddish orange to reddish brown caps. The cap has white gills and is one to three inches across and the dark, hairy stalk is one to three inches long. This fungus produces white rot of a wide range of tree species.
- *Pleurotus ostraetus*, the oyster mushroom, causes a white rot of the heartwood and sapwood of many landscape trees. The fungus produces an off-white fleshy shelf-like mushroom up to eight inches across. The mushroom may have a short stout stalk and the underside of the conk has gills.
- ***Schizophyllum*** *commune* annually forms clusters of small, leathery gray fan-shaped conks one or two inches across. The gilled cap of this fungus is attached directly to the tree without a stalk. The fungus causes white rot on a wide range of declining and dead trees.
- ***Fomes fomentarius*** produces gray, woody, perennial hoof-like fruiting conks. The conks have pores on their underside and may be eight inches wide and several inches thick. The fungus causes white rot on a wide range of trees.
- ***Ganoderma applanatum*** (*Fomes applanatus*) forms a thin shelf-like gray-brown conk up to one foot across. The underside of the conk consists of minute white pores and the surface turns brown when bruised or scratched - giving it the name artists' conk. This fungus causes a white rot of a broad range of tree species.
- ***Ganoderma lucidum*** also produces a large conk, usually at the base of the infected tree. The upper surface has a reddish-brown smooth varnish-like appearance while the undersurface with pores is white to tan. This fungus also has a wide host range.
- ***Inonotus dryadeus*** (*Polyporus dryadeus*) causes a root and butt rot particularly on oaks. The decay begins on the root system and the fungus eventually reaches the butt of the tree where it forms large, tough, irregularly shaped gray to brown brown shelves with pores at or just above the soil line. With age, they become rough and dark brown.
- ***Laetiporus sulphureus*,** (*Polyporus sulphureus*) also called the sulfur fungus causes brown rot of the butt and heartwood of living and dead trees. This fungus produces clusters of annual bright yellow or yellow-orange conks up to a foot across. The undersides of the conks are covered with minute pores. It has a wide host range.
- ***Phellinus robineae*** (*Fomes rimosus*), a pathogen of black locust, produces yellowish brown to gray conks with a brown pore-bearing surface. The conks are several inches to a foot across and protrude shelf-like away from the trunk of affected trees.
- *Stereum gausapatum*, a major oak pathogen, and other related *Stereum* species cause white rot of many different trees. Conks appear as clusters of thin, brownish, shelf-like structures a little more than two inches across. Injured conks may leak a red fluid.
- ***Trametes versicolor*** **(***Coriolus versicolor, Polyporus versicolor*) fruiting bodies annually form dense overlapping clusters on decaying branches and trunks. The caps, one to two inches across, are leathery and colorfully arrayed with zones of white, yellow, red, brown, gray, green and bluish green. Tiny white pores can be found on the cap underside. Generally causing white rot on stressed trees, it can in some circumstances cause heart rot of wounded, but not otherwise stressed trees.

***Trametes hirsuta*** (*Coriolus hirsutus, Polyporus hirsutus*), somewhat larger than *T. versicolor*, produces leathery gray to brownish caps without zones. This fungus also causes a white rot of many tree species.

## FALL WEBWORM TENTS
**by Lee Townsend**

The light gray silk tents of fall webworm caterpillars, recently hatched from masses of 400 or so eggs, are visible at the ends of tree branches. These caterpillars are covered with long white to yellow-tan hairs. They feed on over 100 species of deciduous trees, black cherry, walnut, hickory and mulberry are favorites. Fall webworm larvae incorporate the leaves they are eating into their tent. The tent is expanded to include more leaves as needed. They can be numerous enough to completely defoliate trees but this is not common. Usually, little real damage is done to trees but the ugly webs detract from their aesthetic value. Accessible nests can be pruned out and discarded. Bt insecticides are effective on small larvae if chemical control is necessary and the sprayer can reach foliage around the nest. There are two generations in Kentucky each year-from mid-June to early July and again in August.

## HOUSEHOLD

### FRUIT FLIES
### by Mike Potter

Hot weather and over-ripe fruits and vegetables can mean fruit flies. Information on this common pest is available in Entfact 621 http://www.uky.edu/Ag/Entomology/entfacts/struct/ef621.htm. Here are the basics for those who have thriving infestations that need immediate attention: Once a structure is infested with fruit flies, all potential breeding areas must be located and eliminated. Unless the breeding sites are removed or cleaned, the problem will continue no matter how often insecticides are applied to control the adults. Finding the source(s) of attraction and breeding can be very challenging and often will require much thought and persistence. Potential breeding sites which are inaccessible (e.g., garbage disposals and drains) can be inspected by taping a clear plastic food storage bag over the opening overnight. If flies are breeding in these areas, the adults will emerge and be caught in the bag.

After the source of attraction and breeding is eliminated, a pyrethrum-based, aerosol insecticide may be used to kill any remaining adult flies in the area.

A better approach, however, is to construct a trap by placing a paper funnel (rolled from a sheet of notebook paper) into a jar which is then baited with a few ounces of cider vinegar. Place the jar trap(s) wherever fruit flies are seen. This simple but effective trap will soon catch any remaining adult flies.

## DIAGNOSTIC LAB-HIGHLIGHTS
### by Julie Beale and Paul Bachi

Agronomic samples over the past week included downy mildew, potassium deficiency Phytophthora root/stem rot, and thrips injury on soybean; blue mold and tomato spotted wilt virus on tobacco.

On fruit and vegetable samples we have diagnosed cedar-apple rust on apple; fire blight on pear; Alternaria leaf blight and drought stress on sweet corn; powdery mildew on cucumber; spider mite injury on watermelon; and Septoria leaf spot on tomato.

On ornamentals and turf we have seen white smut on gaillardia; Pythium root rot and iron deficiency on chrysanthemum; Rhizoctonia stem rot on dahlia; black spot on rose; tip blight on pine; powdery mildew on dogwood and oak; bacterial scorch on maple and oak; transplant shock, drought and heat stress on numerous tree species, particularly honey locust; and Pythium root dysfunction on bluegrass.

## TRAP COUNTS
**UKREC, Princeton KY**

Kentucky — Tennessee

**August 3-10, 2007**

***►Jackson, TN***

| | |
|---|---|
| Black cutworm | 0 |
| True armyworm | 0 |
| Corn earworm | 0 |
| European corn borer | 4 |
| Southwestern corn borer | 4 |
| Fall armyworm | 0 |

***►Milan, TN***

| | |
|---|---|
| Black cutworm | 0 |
| True armyworm | 0 |
| Corn earworm | 0 |
| European corn borer | 25 |
| Southwestern corn borer | 0 |
| Fall armyworm | 0 |

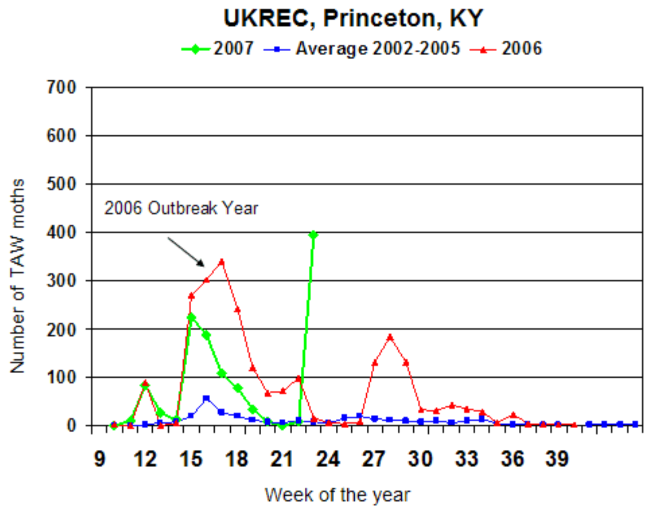
***►Princeton, KY***

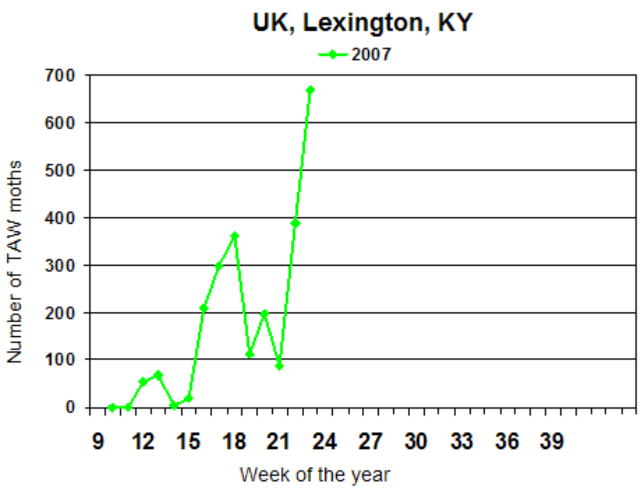
| | |
|---|---|
| Black cutworm | 5 |
| True armyworm | 1 |
| Corn earworm | 67 |
| European corn borer | 0 |
| Southwestern corn borer | 10 |
| Fall armyworm | 2 |

***►Lexington, KY***

| | |
|---|---|
| Black cutworm | 25 |
| True armyworm | 295 |
| Corn earworm | 273 |
| European corn borer | 6 |
| Southwestern corn borer | 0 |
| Fall armyworm | 0 |

This season insect trap counts will be provided for locations in Kentucky and Tennessee.
View trap counts for past seasons and the entire 2007 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/
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.


UKREC, Princeton, KY
2007
Average 2002-2005
2006
2006 Outbreak Year
Number of TAW moths
Week of the year
700
600
500
400
300
200
100
0
9 12 15 18 21 24 27 30 33 36 39


UK, Lexington, KY
2007
Number of TAW moths
Week of the year
700
600
500
400
300
200
100
0
9 12 15 18 21 24 27 30 33 36 39