

KENTUCKY PEST NEWS

ENTOMOLOGY • PLANT PATHOLOGY • WEED SCIENCE

On line at: www.uky.edu/Agriculture/kpn/kpnhome.htm

Number 1127

May 14, 2007

**WATCH FOR
ARMYWORMS**

- Armyworm flight curves begin to make sense

TOBACCO

- Blue mold status report & disease update

FORAGE CROPS

- Foliar diseases on alfalfa
- Aphids, spittlebugs, and leafhoppers in alfalfa

FRUIT CROPS

- Cool, moist weather favors downy mildew

LAWN & TURF

- Unusual syndromes in zoysiagrass

SHADE TREES & ORNAMENTALS

- *Diplodia pinea*, the causal agent of diplodia tip blight

HOUSEHOLD

- What are those tiny, red things?

DIAGNOSTIC LAB-HIGHLIGHTS

WATCH FOR:

CRANE FLIES in lawns; YUCCA PLANT bugs feeding; 1st generation EUROPEAN CORN BORER moth flight begins; IMPORTED CABBAGEWORMS on cole crops; PINE NEEDLE SCALE crawlers active soon; Mid May treatment for HOLLY LEAFMINERS; ASPARAGUS BEETLES laying eggs

LEXINGTON TRAPS

The story in Lexington is a little different. Moth captures for May 11 are 361, up from 297 last week. Once the population recovered from the freeze, it has increased for four weeks in a row. If May 11th is the peak moth flight, then we should see peak caterpillar activity about May 24th. Nevertheless, there will be caterpillar activity long before this time. So keep your eyes open for caterpillar activity from now through the end of the month.

ARMYWORMS

**ARMYWORM FLIGHT CURVES BEGIN
TO MAKE SENSE**

by Doug Johnson, Extension Entomologist

Our graphs of first generation armyworm moth flight appear to be making some sense. Though the damaging stage (caterpillars) populations are yet to reach their maximum size, we should at least know when to expect them.

PRINCETON TRAPS

The moth capture at the UK-REC in Princeton continues to decline. This week the count stands at 78, down from 108 last week. This trend has continued for the third week in a row and should signify the end of the moth flight for this generation. I would suggest that it also tells us that our predictions of the last several weeks concerning when the caterpillars would appear are about right. We do know that some caterpillars are present. Additionally, we should be seeing significant populations of caterpillars during this week if we are going to have a problem.

TOBACCO

**BLUE MOLD STATUS REPORT & DISEASE
UPDATE**

by Kenny Seebold

Active blue mold is present in western Cuba (Pinar del Rio) as of May 14, 2007; however, the disease has not been reported in the U.S at this time. The North American Plant Disease Forecast Center (www.ces.ncsu.edu/depts/pp/bluemold/) predicts a low level of risk to blue mold based upon this information.

Diseases of tobacco transplants are beginning to increase in severity. Pythium root rot and Rhizoctonia damping-off continue to be the most serious problems reported across Kentucky. We can expect to see further increases in Pythium root rot prior to transplanting; preventive measures (i.e. sanitary production practices and application of Terramaster at 1 fl oz per 100 gallons of float-bed water) should be taken to avoid losses or delays in transplant production.

Updates on the status of blue mold and other diseases in Kentucky and surrounding states can be found on the KY Tobacco Disease Information page at www.uky.edu/Ag/kpn/kyblue/kyblue.htm.

FORAGE CROPS

FOLIAR DISEASES ON ALFALFA

by Paul Vincelli

UK plant diagnosticians have found spring black stem and Lepto leaf spot in alfalfa samples examined in the past week. Spring black stem produces tiny dark spots on leaflets, causing them to turn yellow and fall off prematurely. It also can produce brown to black blotches on stems. Lepto leaf spot produces tan dead spots with a thin brown border. One or both may be active in alfalfa fields at this time.

Wet weather favors both diseases, and both diseases can cause a loss of yield and forage quality. The only meaningful management recommendation is to cut the alfalfa on a regular basis, anywhere from early bud to first flower. This not only maximizes yield over the course of the season; it also reduces damage from the leaf spotting diseases. By capturing diseased leaves before they fall to the ground, this:

1. Reduces yield loss from the diseases
2. Reduces buildup of infectious material on the soil surface.

APHIDS, SPITTLEBUGS, AND LEAFHOPPERS IN ALFALFA

by Lee Townsend

Pea aphids and spittlebugs are common sap feeders that thrive during cool spring weather. The light green pea aphids can be found in clusters on plant stems and terminal buds. Use of an insecticide to control them might be justified if alfalfa foliage is yellow and wilting and there is an average of 50 to 75 aphids per stem. If many aphids are present, you may see bloated, straw-colored aphid mummies that have been parasitized by a tiny wasp. The wasps and hotter weather will reduce aphid numbers naturally.

Spittlebugs overwinter as eggs inserted between the sheath and stem of grasses. They are most common in mixed grass and alfalfa stands. The nymphs, or immature stages, excrete a frothy liquid that covers them completely, providing protection from drying out and may provide some protection against natural enemies that prefer to look for food that isn't covered with spit.

An average of one or more spittlebugs per stem is needed to justify concern. Even then, the spittle probably provides protection against insecticide spray, reducing the effectiveness of any attempted control measure.

The potato leafhoppers is a key pest of alfalfa. They should be present in most fields now and pose the greatest potential for damage in fields that have the longest time until the next harvest. A 35-day harvest schedule generally keeps leafhoppers from building to large numbers. Cutting drives the winged adults out of the field. The wingless nymphs are unable to leave and most starve or die from some other cause before regrowth gets started. Alfalfa fields must be checked carefully with a sweep net to detect damaging numbers before symptoms appear.

FRUIT CROPS

COOL, MOIST WEATHER FAVORS GRAPE DOWNY MILDEW

by John Hartman

Cool temperatures are in the forecast for Kentucky vineyards this week. Midweek rains could provide conditions suitable for an outbreak of downy mildew which can be a major disease of grapes in Kentucky. The fungus rots inflorescences, clusters, and shoots, causing direct losses while indirect losses result from premature defoliation. Premature defoliation is a serious problem, because it predisposes grapevines to winter injury. It may take a vineyard several years to fully recover after severe winter injury. In general, vinifera (*Vitis vinifera*) cultivars are much more susceptible than American types, and the French hybrids are somewhat intermediate in susceptibility. Downy mildew is caused by the fungus *Plasmopora viticola*.

Symptoms and Disease Cycle. Infected leaves develop yellowish-green lesions on their upper surfaces and as lesions expand, the affected areas turn brown, necrotic, or mottled. At night, during periods of high humidity and temperatures above 55°F, the fungus produces sporangia on numerous branched structures that protrude out through stomata (tiny pores located mainly on leaf undersides through which the plants transpire). Sporulation on the underside of leaves gives the surface of the lesion its white, downy appearance, which is characteristic of the disease. The sporulation (downy growth) generally occurs directly below the yellowish-green spots that develop on the upper surface of the leaf. Severely infected leaves may curl and drop from the vine. The disease attacks older leaves in late summer and autumn, producing a mosaic of small, angular, yellow to red-brown spots on the upper leaf surface. Lesions commonly form along leaf

veins, and the fungus sporulates in these areas on the lower leaf surface. When young shoots, petioles, tendrils, or cluster stems are infected, they frequently become distorted, thickened, or curled. White, downy sporulation can be abundant on the surface of infected areas. Eventually, severely infected portions of the vine wither and die.

Infected green fruit turn light brown to purple, shrivel, and detach easily. White, cottony sporulation is abundant on these berries during humid weather. The fruits remain susceptible as long as stomata on their surfaces are functional. After that, new infections and sporulation do not develop. Fruit are thought to become resistant to downy mildew infection about three to four weeks after bloom, but cluster stems (rachis) and leaves remain susceptible throughout the growing season. Later in the season, infected berries may turn dull green to reddish purple, remain firm, and are easily distinguished from non-infected ripening berries in a cluster. Infected berries are easily detached from their pedicels leaving a dry stem scar.

The causal fungus overwinters as tiny oospores in leaf debris on the vineyard floor. In spring, the oospores germinate during wet periods to form sporangia which are then disseminated by wind or rain-splash. When free water in the form of rain or dew is present, the sporangia liberate small swimming spores, called zoospores, which are disseminated by rain splash to grape tissues. Zoospores swim to and encyst in the vicinity of stomata. Encysted zoospores infect grape tissues by forming germ tubes that enter stomata and from there invade inner tissues of the plant. The fungus can infect all green, actively growing parts of the vine that have mature, functional stomata. Infections are usually visible as lesions in about seven to 12 days, depending on temperature and humidity. The fungus sporulates in infected tissue to initiate a number of secondary infection cycles depending on the frequency of suitable wetting periods during the growing season and the presence of susceptible grape tissue.

Disease Management. Downy mildew symptoms often do not appear until after bloom so this is why it is often referred to as a late-season disease.

- Apply fungicides early and continue to spray for downy mildew after bloom.
- Use effective downy mildew fungicides especially on highly susceptible cultivars. Examples of cultivars highly susceptible to downy mildew include Catawba, Chancellor, Chardonnay, Delaware, Fredonia, Ives, Niagara, White Riesling, and Rougeon.
- As with black rot and powdery mildew, the period from immediate prebloom through three to four weeks after bloom is critical for controlling fruit or cluster infections by downy mildew.

- For fungicide selection and use suggestions, consult U.K. Cooperative Extension Publication ID-94 "Midwest Commercial Small Fruit and Grape Spray Guide, 2007" available at County Extension Offices statewide.

LAWN & TURF

UNUSUAL SYNDROMES IN ZOYSIAGRASS by Paul Vincelli

Zoysiagrass in Kentucky and beyond is exhibiting two unusual syndromes, briefly described below.

Decline (?).

Large, irregular areas of thin and dead zoysia fairways have been documented on a golf course in northern Kentucky. Much of the dead verdure is missing, presumably rotted and gone from stunting, slow growth, and even death that must have occurred late last year. When washed and examined under a dissecting scope, one sees some rot of roots, stolons, and tillers. A microscopic examination of these symptomatic tissues reveals quite a bit of colonization by the ectotrophic fungus *Gaeumannomyces graminis* var. *graminis* (Ggg), a known weak pathogen of many grasses. At this point, I don't know exactly what role Ggg is playing in this particular case but it seems there is enough of a literature base to be concerned about its presence on symptomatic roots, stolons, and tillers of zoysia.

Zoysiagrass experiencing the above symptoms should be evaluated in your state's plant diagnostic lab. I don't feel I know enough about this problem to issue public recommendations for management at this time, but it is one we plan to learn more about.

Spring dead spot (?).

Turf pathologists in other states have reported seeing symptoms on zoysia that may be best described as "spring dead spot" – more or less circular patches 1-3 feet in diameter of turf that fails to green up in the spring. Spring dead spot (SDS) is a well-recognized disease of bermudagrass, and in Kentucky it is caused by at least two soilborne fungi: *Ophiosphaerella herpotricha* and *Ophiosphaerella korrae*. However, much less is known about SDS on zoysia. As in SDS of bermudagrass, the verdure in these dead zoysia patches that are showing up currently is rather dense, suggesting the turf appeared visually healthy and dense going into dormancy last autumn. This is in contrast to the decline problem described above, where the dead turf is thin or missing at this time. This SDS-like problem in zoysia is distinct from *Rhizoctonia* large patch – a very common zoysia disease – because in large patch, the margin of the patch typically exhibits or-

ange rings of recent disease activity during springtime, whereas those rings are not apparent in this problem.

Work in the early 1990's by Dr. Ned Tisserat and others in Kansas showed that *O. herpotricha* can cause SDS symptoms in zoysia, although research at the time suggested that SDS may not be a common problem in this grass species. Dr. Megan Kennelly at Kansas State University is currently investigating an outbreak that could possibly fit an SDS *modus operandi*, though this is still very preliminary. Dr. Lane Tredway at North Carolina State is currently studying a SDS-like problem on zoysia, and his preliminary work suggests that *O. korrae* is involved.

Significance

Maybe a paradigm shift is in order, at least in my mind. I used to think of zoysia as relatively free of destructive root infections. Based on all this, I am opening my mind to the possibility of some new – and unpleasant – syndromes in this grass. Stay tuned as the research unfolds.

SHADE TREES & ORNAMENTALS

***Diplodia pinea*, THE CAUSAL AGENT OF DIPLODIA TIP BLIGHT**

by Amy Bateman, Plant Pathology Grad Student

Diplodia tip blight, as discussed previously, is a very serious disease in Kentucky on Austrian and Scots pines, as well as on other 2-, and 3-needle pines worldwide. The fungus *Diplodia pinea* causes tip blight, and it has also been shown to infect *Cedrus*, *Abies*, *Larix*, *Thuja*, *Juniperus*, *Picea*, and *Pseudotsuga*, but these are rare cases in Kentucky. The fungus was first identified as *Diplodia pinea* in 1842 in France and first reported in Kentucky in the early 1940s. It was known by this name until 1980 when it was changed to *Sphaeropsis sapinea* based on the morphological characteristics of the spores. In 2003, a change of the fungus' name back to *Diplodia pinea* was proposed due to its genetic relation to other *Diplodia* species. This name change is still being discussed and the fungus is still known by both names.

D. pinea reproduces by forming asexual spores in pycnidia. These spores are clear to dark brown in color and oval shaped. For some observers, the spore shape resembles that of a microscopic baking potato. Pycnidia are black fungal structures embedded in and protruding through the host tissue, and in *D. pinea* are only produced on dead host tissue, such as cone scales and dead needles. Pycnidia are tiny but can be seen with the naked eye and look like black pepper sprinkled on the dead cones and needles. It is not uncommon to see dead cones and nee-

dles from infected trees covered with pycnidia. The pycnidia release spores in warm, rainy weather, ideally in spring/summer, but they have been reported to release spores from March through November. These spores are dispersed by rain-splash and windblown rain.

Pines are most susceptible to *D. pinea* infection in spring when shoots are just elongating and not yet lignified. The elongating needles are also susceptible to infection, and are more susceptible than the previous year's needles. Spores germinate and penetrate directly into the host tissue. As the fungus colonizes the host, it kills the host cells which causes the necrotic symptoms. A common defense reaction of pines is resin production. This would account for the excess resin production and exudation on needles and cankers of both Austrian and Scots pines, although some research suggests that once inside the tree, the fungus is not halted by resin. After the fungus has killed the host tissue, it can produce pycnidia which can overwinter and be a source of inoculum the following spring. It has been reported that cones from infected windbreaks are an important source of *D. pinea* inoculum in forest nurseries.

Optimum conditions for infection are between 68-86°F, but infections have also been reported to occur from 50-100°F. Adequate leaf wetness (at least 3 hours) and humidity are also necessary for infection. Under optimum conditions, symptoms of necrosis, discoloration, or resin droplets can occur within 24 hours of infection. In addition to infecting young, non-lignified tissue, *D. pinea* can infect wounds, such as those caused by hail damage and possibly shearing. *D. pinea* is most active, aggressive, and destructive during springtime in Kentucky.

HOUSEHOLD

WHAT ARE THOSE TINY, RED THINGS?

by Mike Potter

Several calls have been received about tiny red, mite-like "specs" crawling over pavement, patios, foundations and other outdoor surfaces. Oftentimes the critters make their way indoors and wander over floors, walls, counter tops, computer monitors, etc. When crushed they leave reddish stains, further elevating their status as pests.

Technically speaking, these are mites in the family *Trombididae* – a large group of outdoor, free-living mites that prey on insect eggs and other tiny soil arthropods. They breed outdoors in moist, organic, vegetative environments such as occur around the foundations of buildings. The mites cannot breed indoors, nor will they bite pets or humans. They are often mistaken for clover mites, which have similar outdoor origins and habits. (Clover mites

tend to be reddish, orange or olive-brown in color and when viewed under magnification, and the front pair of legs extend much farther forward than the others). Some people also mistake the mites for chiggers.

Control- Most clients will not tolerate the mites once they have made their way indoors. Tremendous numbers often appear on foundations, patios, and other adjoining surfaces. Given their abundance and very small size, it's virtually impossible to prevent their entry by caulking and sealing alone. The most efficient and immediate solution is an outdoor perimeter application of insecticide around the base of the foundation in a 2 to 6-foot-wide band along the ground, and 2-3 feet up the foundation wall. Also spray along the base of exterior doors, beneath the bottommost edge of siding, along the crack where brick veneer meets foundation wall, and around framework of windows and doors. Several different homeowner products are effective when applied with a pump up or hose end sprayer, including Sevin, Ortho HomeDefense, Spectracide Triazicide, and Bayer Advanced Lawn & Garden Multi-Insect Killer Concentrate. Professional pest control firms also perform treatments around building exteriors.

Mites occurring indoors are best removed with a vacuum to minimize red smears and stains. Indoor insecticide applications are not needed or recommended. The occurrence of this mite around structures is a temporary event. For clients who opt to do nothing, the problem usually corrects itself in a matter of days or weeks.

DIAGNOSTIC LAB-HIGHLIGHTS

by Julie Beale and Paul Bachi

Agronomic samples over the past week included spring black stem and Lepto leaf spot on alfalfa; and target spot, Rhizoctonia damping off, Pythium root rot, cold injury and blackleg on tobacco.

On fruit and vegetable samples we have diagnosed Botrytis gray mold on strawberry; fire blight on blackberry, apple and pear; and Rhizoctonia wirestem on cabbage.

On ornamentals and turf we have seen Rhizoctonia crown rot on petunia; impatiens necrotic spot virus on impatiens and nemesia; oedema on geranium; Botryosphaeria die-back on rhododendron; black root rot on holly; crown gall on euonymus; Phomopsis gall on forsythia; Drechslera leaf spot and red thread on perennial ryegrass; and rust on fescue.

INSECT TRAP COUNTS

UKREC, Princeton KY

Kentucky – Tennessee

May 4-11, 2007

Jackson, TN

Black cutworm.....	12
True armyworm	7
Corn earworm.....	1
European corn borer	0

Milan, TN

Black cutworm.....	4
True armyworm	12
Corn earworm.....	0
European corn borer	0

Princeton, KY

Black cutworm.....	2
True armyworm	78
Corn earworm.....	10
European corn borer	2

Lexington, KY

Black cutworm.....	2
True armyworm	361
Corn earworm.....	0
European corn borer	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.

The following chart shows 2007 True armyworm trap counts in green as compared to 2006 and also the average for 2002 through 2005.

