TOBACCO

CURRENT BLUE MOLD STATUS
by William Nesmith

Situation:
Blue mold has become well established along a general southwest to northeast corridor-arc running from Robertson County, Tennessee/Logan County, Kentucky in the south, north to the Ohio River in Bracken County, Ky. The further north along that arc, the more intense and severe is the activity and damage, probably because the cooler temperatures are favoring systemic development. The only find located well away from that arc is that in Union County, Tennessee, which is also located on a connected but different corridor in a southeast to northwest alignment with the southern-most outbreaks of Logan County, Kentucky with Macon, Robertson, and Union counties of Tennessee.

As of June 14, counties with one or more confirmed cases included: in Kentucky - Logan, Hart, Green, Taylor, Adair, Lincoln, Boyle, Garrard, Anderson, Mercer, Jessamine, Fayette, Bourbon, Harrison, Mason, and Bracken counties; and in Tennessee - Union, Macon, and Robertson counties.

Warnings exist for all counties with confirmed cases, plus a watch for most of eastern and central Kentucky and southern Ohio as most likely inoculum has moved east and north from these initial outbreaks. The watch extends west in Kentucky to a north-south line formed by Daviess to Christian counties. So far, we have not found evidence that the disease has moved very far away from the main arc of current activity. Should cases be found well away from the current activity, please contact me immediately.

Most cases have involved setting infected transplants, with foliar and systemic blue mold. However, agents are now reporting finding newly developing lesions in early set tobacco that was set with clean plants. Several agents are reporting that serious damage has already occurred due to the systemic development of blue mold.

I expect blue mold is much more prevalent than is being reported, based on the strong activity occurring in transplant sites that are known to have it and the disease-conducive nature of the weather experienced during the past month. Temperatures have been nearly ideal for infections and sporulation in some areas, especially in northern counties. Systemic development (veins, midribs, buds, stems and roots) should also be occurring anywhere the disease is present, considering the cool weather experienced until recently, and this phase can be very damaging. However, rains have been very frequent, which may be washing spores out near the sources and reducing long distance spread. Also, in some areas blue mold lesions are being quickly colonized by bacteria and fungi, resulting in a rapid rotting of the lesions, which may be limiting spread, too. Target spot, anthracnose leaf spot, frogeye leaf spot, angular leaf spot and bacterial soft rot are often also present or even more prevalent in transplants with blue mold, so be careful not to miss the blue mold as it is the much bigger issue. Angular leaf spot is very active in some counties and outbreaks of it often precede blue mold epidemics, because it has a much shorter life cycle.

Another complicating factor is that many transplants are yellow, as they have been held under low fertility for several weeks, making it difficult to discern a yellow lesion (such as those of blue mold) on a yellow leaf. After such plants are set and fertilization improves, overall plant color will improve, and growers may find they have set infected transplants. After new growth has had time to develop in the field, systemically infected plants will appear yellow and stunted compared to greener healthy plants, and they are more likely to have soreshin, Pythium, Fusarium stem rot, or black shank. Plants with partially systemic activity sometimes grow off well, only to lodge later in the season due to poor root systems. It is important to find early field infections and take steps to control them, as these fields can serve as the centers of outbreaks later in the season. Once the canopy closes, foliar blue mold can increase rapidly in the field and control efforts are much less effective because coverage is difficult.

Further laboratory assays conducted with samples from Kentucky outbreaks indicate both mefenoxam/metalaxyl resistant (insensitive) and sensitive populations are present in the region. The sensitive portion of the populations can be easily controlled with soil-directed applications of Ridomil Gold or Ultra Flourish - consult labels for specific...
directions. So far, we have found no evidence of resistance to dimethomorph from the farms reporting failure of Acrobat MZ to control the disease. In such cases, the poor control is probably related to poor coverage, poor timing, or loss of the fungicide with rain. Acrobat MZ must be maintained at weekly intervals to maintain control.

Controls:
In Transplant Operations - Most of the crop has been set, but attention is still needed for the remaining plants. Fungicide sprays applied for good coverage and as often as labels will allow. The labeled fungicides for use in transplant systems can be found in the March 8, 2004 issue of Kentucky Pest News. [http://www.uky.edu/Agriculture/kpn/kpn04/pi040308.htm]. Remember our recommendations all season have been: “Because tobacco transplant production systems are so conducive to blue mold development, should even small amounts of inoculum arrive, we recommend that all tobacco transplant production systems should be managed to minimize leaf wetness and regular preventative fungicide sprays should be maintained. Once fungicide sprays have been stopped the remaining transplants should be destroyed to prevent the abandoned plants from serving as an ideal staging area for blue mold.”

In the field- Cultural practices that assist in blue mold control include: using blue mold tolerant or resistant varieties in conducive sites, setting blue mold-free transplants, reducing plant populations, avoiding high nitrogen rates, avoiding shade (especially from the south and west), maintaining good air circulation in and around the field, and destroying all unused transplants, promptly. Foliar fungicide sprays can be very helpful in blue mold management if applied regularly and well. Soil applied Ridomil Gold or Ultra Flourish can also be very helpful where mefenoxam-sensitive strains are operating. Guidelines can be found in the April 26, 2004 issue of Kentucky Pest News: http://www.uky.edu/Agriculture/kpn/kpn04/pi040426.htm.

Information on tank-mixing Acrobat 50 WP and Dithane DF Rainshield is presented in the June 1, 2004 issue: http://www.uky.edu/Agriculture/kpn/kpn04/pn040601.htm#tobnw.

For more information of the status of blue mold consult the Kentucky Blue Mold Warning System Website at http://www.uky.edu/Agriculture/kpn/kpnyblue/kpnyblue.htm.

AGGRESSIVE ROOT ROT COMPLEX DEVELOPING IN TOBACCO
by William Nesmith

An aggressive root rot complex is occurring widely in some tobacco production areas of Kentucky, especially those that have received frequent rains and temporary flooding. The general appearance is consistent with black shank, but other pathogens are involved, too. In fact, the black shank pathogen is not involved in some fields, and where it is, as often as not, it is a secondary pathogen rather than the initial invader.

Plants have often been set with active Pythium root rot or Rhizoctonia root rot, which have moved into the stem, severely stunting or killing the plant without help of other pathogens. In others, the black shank pathogen is invading directly into the base of the stem through routes opened by Pythium, Rhizoctonia, and Fusarium (wilt and basal stem rot). In still others the pathogens have moved into the stem via a leaf covered in mud, with both Pythium and Phytophthora (black shank pathogen) invading by this route during wet weather. In some, systemic blue mold is involved with sorseshin (Rhizoctonia) or black shank (Phytophthora) finishing-off the plants.

Pythium infections take on many different forms in tobacco. This pathogen can cause a root rot, both in the transplant beds as well as in the field, especially during prolonged wet conditions. Sometimes, it attacks transplants shortly after they are set in the field, causing a soft stem rot, usually at the soil line. These field attacks result in a soft, brown, watery rot that girdles the stem, causing the plants to fall over, if the plant is vigorous with a succulent stem. Plants attacked after stems harden may not die quickly but turn yellow due to injury to the stem and root system, with the pathogen slowly moving up the outside of the stem in the more fleshy tissues. Some Pythiums will move well up the stem, in a type of “running stem canker”. Invasions into the pith may also occur, but much less frequently than with black shank. If Pythium makes it to the pith, it often moves one side much more than the other, in contrast with black shank where the pith is more uniformly colonized. However, in fields where black shank is present, we often find black shank moving in to make the final kill, “stealing Pythium’s catch”.

Classic development of black shank is also occurring in some fields, and especially with susceptible varieties and under poor rotation and reduced fungicide programs. Proper diagnosis of all these involve careful use of incubation, culturing and microscopic techniques followed by analysis of the findings before drawing a conclusion as to which pathogen had the lead.

I urge growers to maintaining soil-directed fungicide programs (preplant, cultivation, and layby) in fields with a history of black shank or Pythium root rots. Our studies have shown that Ridomil Gold and Ultra Flourish are equally effective when used at equal rates of active ingredient, so long as the strains of the pathogens involved are sensitive to mefenoxam. The importance of cultivation and layby applications have increased with use of containerized transplants compared to traditional ground plants. The reasons for this are not clear, but we suspect it is because the media involved improves and prolongs the habitat for these pathogen at the critical area at the base of the plant and the amount of fleshy leaf/stem material covered with soil serves as a food-base for these microbes. Free water can be found in this zone much of the time in plants having soilless media associated with the stem base, thus favoring the more lethal shank-phase of black shank. Therefore, efforts made to adjust nozzles to insure the fungicide is directed under the plants and nearer the stem should improve control. Most of the crop is still at a stage where cultivation and layby treatments can be effectively applied.

CORN

CORN INSECT UPDATE
by Ric Bessin

As the summer begins to heat up, so does the insect pressure in corn. We are continuing to see a few insect
problems in corn. Much of the corn has progressed past the stage for cutworm damage, although replanted corn may still be vulnerable, as corn grows past the 18” stage it is not attacks by cutworms. Until plants reach this stage, corn should be scouted for cutworms at least twice a week. European corn borer moths are becoming active again for the second generation. It is this generation that will attack both corn and peppers. So pepper producers need to manage ECB in their plantings. Larvae of the first generation of SWCB are active in corn. While the damage is similar to that of ECB, we use a lower threshold of just 35% infested plants with larvae still in the whorls when making treatment decisions. In July and August, the second and possibly third generations of SWCB can cause serious yield losses to late-planted, late-harvested corn.

**CRAZY TOP**

by Paul Vincelli

The sustained wet weather of recent weeks led to some flooding of corn fields, which raises concern about the risk of crazy top. This disease is favored by flooding early in crop development.

**Infection Process:** Flooding of corn between emergence and the 4-5 leaf stage for 24-48 hr allows swimming zoospores of the crazy top fungus to enter the whorl and infect the growing point of corn. If infection occurs, the plant will produce numerous tillers, a leafy tassel (“crazy top”), and no ears.

**Occurrence:** The fungus that causes crazy top occurs in Kentucky and surrounding states, but it is not a widespread problem. Since the early 1980’s, we have diagnosed only five cases in the state, and only one case was anything approaching an economic level of loss. The fungus also infects wheat, several turfgrasses, and certain wild grasses, but is rarely important on other grass crops.

**Current Outlook:** Given that flooding has occurred early in crop development in some corn fields, I do expect to diagnose a few cases of crazy top this year. Most, if not all, cases are likely to be minor. Serious economic loss from crazy top is uncommon throughout the Midwest. It is important to note that serious loss can happen. Indeed, it may happen somewhere in Kentucky this year. However, many times in the past Kentucky corn producers have experienced serious flooding episodes of corn that would have allowed crazy top infection, yet serious cases are almost non-existent. This suggests that inoculum levels are generally very low.

**SOYBEANS**

**MANAGING THE SOYBEAN APHID IN 2004**

by Doug Johnson, Extension Entomologist

It is the season to begin thinking about management of soybean aphids in our soybeans. Although we usually do not see much activity until the end of June, it is the growth stage of the plant that is the important indicator. Let’s review the information, look at a management plan, and then, if necessary, apply appropriate controls.

The soybean aphid has been in Kentucky since at least 2000. In those years the pest has been largely a curiosity and hopefully, it will remain so. Since first discovery of the insect we have conducted informal surveys of where it has occurred. From this information it is obvious that the pest can reach all of Kentucky’s soybean producing regions every year. However, for the most part, the numbers of aphids remain very low.

The generally low numbers are probably due to two reasons. First, the soybean aphid can not over winter in Kentucky. This pest has a complex biology, but part of its needs is the presence of a specific plant on which to lay over-wintering eggs. The common buckthorn (*Rhamnus cathartica*) is the most important host but there are at least two other species that may also serve as over-wintering hosts. These plants either do not occur in Kentucky or are very rare. The result is soybean aphids must travel from more northern areas (N. Illinois, Wisconsin and Michigan) to get to us. Secondly, research in Wisconsin indicates that the soybean aphid is a “cool” weather insect. It does best at moderate temperatures. For example, the optimum temperature for growth and reproduction is from 68-77° F. At 86° F reproduction decreases by 60% and at 95° F the aphids die.

The number of aphids in the 2004 crop depends, at least in part, on how many aphids survived the winter. Winter survival depends, in part, on how many aphids migrated back to the over-wintering tree in the fall of 2003. Observations by the research group at the Illinois Natural History Survey indicate that the fall 2003 migration was smaller than expected. Hopefully, this will result in fewer aphids in 2004.

Early detection is of major importance with this pest. Generally, in KY we need to start looking at the end of June / beginning of July. However, it is the plant growth stage, not the calendar date, that is important. Plants should be examined beginning at least by the final vegetative stage.

Late planted and/or double-crop plants are probably at the greatest risk. Their reproductive stages occur later in the season, which allows more time for the aphids to migrate to Kentucky and become established. Additionally, any plant stress, but especially drought stress, increases the risk of yield loss at any particular aphid population level. Check these fields first.

When you examine plants, check the whole plant. Though aphids are most often found on the newest leaves, their intolerance to heat will cause them to move about the plant searching for the least stressful environment.

Aphid build-up generally occurs during the reproductive stages. Current research indicates that aphid density during the early reproductive stages (R1-R3) is definitely related to yield loss. Plants in the R4, and later stages, can tolerate greater aphid numbers, but just how many is a bit of a guess and undoubtedly depends upon environmental conditions. Current research may indicate why this is the case. It appears that yield reduction is based on the number of pods per plant. Seed weight and number of seed per pod do not seem to be affected.

Research and experience has been used to develop a set of action thresholds for soybean aphid. These thresholds were developed by consensus of extension/research entomologists working in the infested states. Though they are likely to become more refined and robust as more
work is completed, they are certainly serviceable at this point. However, many questions remain to be answered.

At present it is suggested that insecticidal control be applied if soybean aphid populations are: 1) increasing and 2) reach the level of 250 aphids per plant during growth stages R1 through R4. At R5 – R6, levels would need to be between 800 and 1000 aphids per plant. After R6, data indicates that nothing is gained by applying control.

It is important not to “pull the trigger” too soon. Many predators and parasitoids feed on these aphids, keeping their populations low. Application of insecticide removes this “Natural Control” but will not control all the aphids. Those that live have a predator free environment in which to feed and reproduce.

In the unlikely event that insecticidal control is warranted, producers will have several products from which to choose. The synthetic pyrethroid products - Asana XL (esfenvalerate), Fury (zeta-cypermethrin), Mustang Max (zeta-cypermethrin), Warrior (lambda-cyhalothrin) and the organophosphate products - Lorsban (chlorpyrifos) and Penncap-M (methyl parathion) currently have federal labels.

In Kentucky marketers of two additional products have issued 2(ee) recommendations. They are for Baythroid 2 (cyfluthrin), a synthetic pyrethroid, and Chlorpyrifos (chlorpyrifos), an organophosphate, that can be used within the state. If you choose to use one of these products make sure you have a copy of the 2(ee) recommendation sheet.

Regional research has shown that good return on investment can be made if insecticides are used in a timely manner when the appropriate populations of aphids are present. As timing (plant stage) changes and population size decreases from the recommended numbers, likelihood and size of return on control cost decreases.

**Review**

**Status in 2004.**

- The soybean aphid was first discovered in KY in 2000 and has been seen all subsequent years.
- The soybean aphid can be found in the complete KY production region every year.
- Generally aphid numbers remain low.
- Soybean aphid can not over-winter in KY. They must migrate to KY each year.
- Soybean aphid does not appear to be well adapted to hot temperatures.
- Fall 2003 migration to over-wintering hosts was reduced. Hopefully, this will result in fewer aphids in 2004.

**Management**

- Early detection is important. Begin examining plants AT LEAST by the final vegetative stage. Generally, about the end of June is a good time to start.
- Late planted / or double crop beans are at greater risk than early planted plants.
- Drought stress increases risk of yield loss.
- When checking plants, check the whole plant.
- Protecting plants during the R1 to R3 stages is the most important time.
- Plants in the R4-R6 stages can tolerate more aphids.
- After R6 it is unlikely that controlling aphids has any impact on the yield.

- Thresholds have been developed by entomologists across the soybean infested states.
- With an actively increasing population of soybean aphid, use an action threshold of 250 aphids per plant at R1 through R4 and 1000 aphids per plant from R4 through R5. This threshold incorporates an approximate 7-day lead-time between scouting and treatment. After R6 no control is warranted.
- Do NOT apply insecticides too early. You may end up with more aphids than you had!!

**Insecticidal Control**

- Several insecticides are available for use if needed. See INSECT MANAGEMENT RECOMMENDATIONS FOR FIELD CROPS AND LIVESTOCK at: http://www.uky.edu/Agriculture/PAT/recs/rechome.htm
- Print copies are available at your County Extension office

**VEGETABLES**

**CUCUMBER BEETLES**

by Ric Bessin

Melon, cucumber, pumpkin, and squash growers need to monitor their plantings for striped and spotted cucumber beetles. While many growers are using at-planting, systemic insecticides to control cucumber beetles and the disease they transmit, Bacterial Wilt, these treatments only last from three to five weeks. Higher rates provide longer periods of control. Growers need to continue to monitor for the beetles and use a threshold of one beetle per plant to base re-treatment decisions. Many growers have found that low rates of the at-planting treatments combined with as-needed rescue treatments have been effective control strategies for these pests.

**LAWN & TURF**

**JAPANESE BEETLES AND MASKED CHAFERS ARE FLYING**

by Mike Potter and Dan Potter

Adult Japanese beetles and masked chafer’s have begun to emerge. As is usually the case, it is difficult to predict how serious a problem these pests will be this year. Both Japanese beetles and masked chafer’s lay eggs in moist soil under turf. Their grubs then feed on turfgrass roots.

**Japanese Beetles (Adults)** - Detailed information on this pest can be found in ENT-5, Japanese Beetles in the Urban Landscape. Options for protecting landscape plants from foliage feeding adults are as follows:

**Plant Selection** - The best way to avoid perennial battles with adult Japanese beetles is to select plant material that is less preferred. Publication ENT-5 lists species and cultivars of trees and shrubs that are less likely to be attacked by beetles.

**Hand Picking and Exclusion** - For smaller plants, it may be practical simply to remove the beetles by hand. Volatile odors released from beetle-damaged leaves attract more beetles. By not allowing Japanese beetles to accumulate, plants will be less attractive to other beetles. One of the easiest ways to remove beetles from small plants is to shake them off early in the morning when the insects are
sluggish. The beetles may be killed by shaking them into a bucket of soapy water. Highly valued plants such as roses can be protected by covering them with cheesecloth or other fine netting during peak beetle activity (usually late June to mid-July).

**Insecticides** - Insecticide products containing the active ingredients bifenthrin (e.g. TalstarOne), cabaryl (e.g. Sevin), cyfluthrin (e.g. Tempo, Bayer Advanced Lawn & Garden Multi-Insect Killer), deltamethrin (e.g. Deltaguard), lambda cyhalothrin (e.g. Scimitar, Spectracide Triazicide), or permethrin are labeled for control of adult Japanese beetles. Foliage and flowers should be thoroughly treated. The application may need to be repeated at 7-10 day intervals to prevent re-infestation during the adult flight period, or if it rains before the residues have dried. Follow label directions and avoid spraying under windy conditions. Insecticidal soaps or pyrethrum may kill beetles that are hit by the spray, but they provide no residual protection. Products containing the botanical insecticide neem (azadirachtin) provide some deterrence of Japanese beetle feeding.

**White Grubs** - There is no reliable way to predict whether any given year will be a bad one for white grubs – the immature, turf-feeding stages of Japanese beetles, masked chafers, and certain other beetles. Moreover, since grub infestations tend to be localized and sporadic, only a small percentage (< 10 percent) of Kentucky lawns require treatment, even in bad years for grubs.

**Indicators of Infestation** - White grubs and their resultant damage are not usually evident until August or September. Although sampling the turf is the only way to confirm that grubs are present, certain factors may indicate an increased risk of infestation later in the season. If your turf has a history of serious grub problems, there is a greater chance that adult beetles will return and re-infest the same areas. Sites with large numbers of adult beetles in June and July are more likely to have grubs in late summer. Early warning signs include swarms of brown, ½-inch long masked chafers skimming over the turf at dusk, or green June beetles buzz-bombing the turf by day in search of mates and egg-laying sites. Masked chafer and May beetle adults are also attracted to porch and streetlights at night. Heavy infestations of adult Japanese beetles feeding in the area might also foretell subsequent problems with grubs of that species.

Rainfall and soil moisture are critical factors affecting the extent of grub damage during a season. Frequent irrigation in June and July may attract egg-laying female beetles to the turf, especially if surrounding areas are dry. High soil moisture also increases egg survival. If lawns are irrigated during periods of dryness in June and July, be especially alert for signs of grubs later in the summer. Conversely, adequate soil moisture in August and September (when grubs are actively feeding) can help to hide root injury. Irrigated turf can sometimes tolerate 20 or more grubs per square foot before showing signs of injury.

**Treatment Strategies** - Two different strategies are available for controlling white grubs with insecticides: preventive and curative. Each approach has its own merits and limitations. With **preventive control**, the insecticide is applied as insurance, before a potential grub problem develops. Consequently, preventive control is best suited for high-risk sites with a history of grub problems, or turf sites where heavy beetle activity is noted. Preventive control requires the use of insecticides with long residual activity in soil. Look for products containing the active ingredient imidacloprid (e.g. Merit®, Bayer Advanced™ Season-Long Grub Control) or halofenozide (e.g. Mach 2®). Both of those ingredients have sufficient soil persistence to be applied any time from early June to mid-July and still control young grubs hatching from eggs from mid-July to early August. The optimum treatment period for these products is mid-June to mid-July.

Preventive treatments afford greater flexibility in application timing, and are easier to schedule and implement than are curative treatments. They often afford greater peace of mind to golf superintendents and lawn service companies because potential damage is avoided or minimized. The main drawback of preventive grub control is that the decision to treat must be made before knowing the extent of infestation. Grub outbreaks tend to be localized and sporadic and only a small percentage of lawns require treatment in a given year. Thus, preventive control often results in areas being treated unnecessarily. Good record keeping and observation will help in pinpointing grub-prone areas, which are the most logical candidates for preventive applications.

With **curative control**, treatment is applied in late summer - typically August or September - after the eggs have hatched and grubs are present. Ideally, the decision to treat is based on site inspection and sampling or past history of infestation. Since white grub infestations tend to be localized, the entire lawn often will not need to be treated. Grub “hot spots,” which can be confirmed by sampling, are most likely to be full sun, south or west-facing slopes, lawns seeded with Kentucky bluegrass, lawns that were heavily irrigated during June and July, and turf areas that were damaged by grubs in previous years.

Proper timing of curative grub treatments can be tricky. Insecticides applied before early August may degrade before the eggs have hatched, whereas if the product is applied in late August or September, the grubs will be large and harder to kill and severe damage to turf may have already occurred. Granular formulations containing the active ingredient trichlorfon (e.g. Dylox, Bayer Advanced 24-hour Grub Control) are the fastest-acting, most effective insecticides for curative grub control. There is little benefit in applying a short-lived, curative-type product for white grubs in June or July.

**SHADE TREES & ORNAMENTALS**

**MULCHES, MUSHROOMS AND MOLDS**
by John Hartman

Recent rains and use of fresh wood chip or bark mulch in Kentucky landscape beds has resulted in a proliferation of nuisance fungi growing in the mulch. One that is prevalent now is slime mold which produces yellow or whitish patches of mold (sometimes referred to as “dog vomit fungus”) over the surface of the landscape mulch. Although the nuisance fungi rarely harm plants, some homeowners and landscapers object to their appearance and thus seek ways to prevent or eliminate these fungi.

Mulches are used in Kentucky gardens and landscapes for many reasons. By suppressing vegetation near trees and shrubs, they keep mowers and string trimmers from damaging the bark. In landscape beds and in the garden,
they control weeds, improve drainage, prevent soil water loss, lower soil temperatures, prevent soil erosion and, as they decompose they release minerals and leave behind humus which benefits the plants. Organic mulches generally suppress plant pathogenic fungi and enhance beneficial mycorrhizal fungi. For continuing benefits, mulches need to be reapplied periodically.

There are many examples of fungi that grow on or from landscape mulch. Examples include stinkhorns (Mutinus and other related species), bird’s nest fungus (Crucibularium), earth stars (Geastrum spp), assorted toadstools, slime molds (Physarum and other species), and the shotgun, or artillery fungus (Sphaerobolus). Of these, only the shotgun fungus is truly a nuisance because it shoots tiny black spore masses onto nearby surfaces such as home siding and cars. Fungi also permeate thick layers of dry mulch, creating a hydrophobic mulch which is not easily penetrated by water, thus causing irrigation problems. Fertility problems can result when the fungi decomposing mulch remove from the soil, nitrogen needed by the plants.

Can mulches transmit plant diseases? The fungi that cause Verticillium wilt and Phytophthora root rot can be carried in fresh mulch, but would not be a problem in composted mulch. Similarly, although the Rhizoctonia root rot fungus can use mulch as a food base before causing damping-off of seedling plants, it can be destroyed by six weeks of composting where mulch reaches 130-160 degrees F. Most organic mulches do not contain plant pathogens. Beneficial mycorrhizal fungi are active in shallow (1-2”) layers of mulch, but are inhibited by deep mulch layers (4-6”).

With proper manipulation, mulches can be prevented from developing nuisance fungi while maintaining the benefits of mulch. Much work on microbes and mulch has been done at Ohio State University where they have found that hardwood mulches (commonly used in Kentucky), especially if finely ground, contain a large amount of cellulose which decomposes fairly rapidly and leads to nuisance fungi. Such mulches, if composted for a few weeks with added nitrogen, and maintained at moisture levels over 40% will not develop nuisance fungi. Such moisture levels allow bacteria and other fungi to compete with the nuisance molds. Wet mulches are heavy and require more effort to transport, however moisture contents of organic products up to 50% will not present excessive transport weight problems.

The following are suggestions for the landscape industry and for homeowners wishing to avoid nuisance fungi:
• Purchase composted mulch products.
• Use mulches low in wood and high in bark.
• Avoid finely ground woody products unless composted first.
• If using fresh wood chips such as those from a tree maintenance firm, add water to the mulch and allow the pile to partially compost for six weeks. If the wood chips do not include fresh leaves, add some nitrogen to speed composting.
• Use coarse mulches, but do not apply them too deep.
• Soak all mulches with water immediately after application to enhance bacterial colonization.
• Do not apply mulch deeper than two inches.
• Do not use sour mulches (highly acidic mulches giving off an acrid odor) because they injure plants.

WHAT'S EATING MY MAGNOLIA?
by Mike Potter

Clients this week have been finding small weevil-shaped bugs on their magnolias, accompanied by numerous rice-shaped holes. The culprit is the magnolia weevil, also known as the yellow poplar or sassafras weevil. The black, 1/8”-inch long beetles are sometimes mistaken for ticks and ‘play dead’ when handled. They do not bite.

Magnolia weevils over-winter as adults and lay eggs the following spring in newly expanding leaves. After egg hatch, the larvae mine the leaves producing a brownish, blotchy area. The weevils and damage observed now are from the subsequent (second) adult generation, which chews small crescent-shaped holes in the leaves of magnolia, tulip poplar, and sassafras. Damage appears most severe on magnolias (southern, sweet bay, etc.) that hold their leaves year-round. The injury does not seriously harm the tree, but the leaf holes are concerning and cosmetically unappealing to some clients.

Control of the leaf-chewing adults can be accomplished by spraying the foliage with Sevin or any pyrethroid insecticide (Talstar, Tempo (= Bayer Advanced Multi Insect Killer), Scimitar (= Spectracide Triazicide, etc.). Thorough spray coverage on upper and lower leaf surfaces is essential.

DIAGNOSTIC LAB-HIGHLIGHTS
by Julie Beale and Paul Bachi

During the past week, we have diagnosed samples of herbicide injury, Fusarium root rot, and magnesium deficiency on corn; Leptot leaf spot on alfalfa; blue mold, target spot, angular leaf spot, tomato spotted wilt virus, black shank, Pythium root rot and manganese toxicity on tobacco.

On fruits and vegetables, we have seen Septoria leaf spot on blackberry; black rot on grape; Mycosphaerella leaf spot on strawberry; frogeye leaf spot and fire blight on apple; angular leaf spot (Isariopsis) on bean; Phytophthora blight and bacterial leaf spot on pepper; Septoria leaf spot, southern blight, tomato spotted wilt virus, and Pythium root rot on tomato; and yellow vine decline on zucchini.

On ornamentals, we have seen leaf/flower gall (Exobasidium) on azalea; Pythium root rot on daylily; rust on rose; Entomosporium leaf spot on photinia; Coccomyces leaf spot on serviceberry; manganese toxicity on ornamental pear; spot anthracnose and powdery mildew on dogwood; and anthracnose on oak.
INSECT TRAP COUNTS

UKREC, Princeton, KY – June 4-11, 2004

Black cutworm ........................................ 16
True Armyworm ..................................... 2
Corn Earworm ....................................... 14
European corn borer ............................... 1
Southwestern corn borer ......................... 8

To view previous trap counts for Fulton County, Kentucky go to - http://ces.ca.uky.edu/fulton/anr/
and click on “Insect Trap Counts”.

For information on trap counts in southern Illinois visit the Hines Report at -
The Hines Report is posted weekly by Ron Hines, Senior Research Specialist, at the University of Illinois Dixon Springs Agricultural Center

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.