First, let’s be sure to put blue mold in its current perspective to other tobacco diseases. A complex of root and stem diseases involving soreshin, black shank, Pythium, and viruses is causing extensive damage in many fields this year. In contrast, blue mold is not causing major damage anywhere in Kentucky to my knowledge, but it has become established and could increase rapidly with changing weather. Therefore, we will continue to post information about blue mold, because the warning system is a valuable tool in the timing of blue mold controls - including not needing to apply them at all. With the tools available today, knowing where the disease is present and where its spores are headed allows one to time control programs.

Weather events late last week and during the weekend significantly increased the potential for new blue mold development in areas receiving rain. Airborne spores being released from the activity in Kentucky, north-central Tennessee, and the southern Appalachian mountain areas were moving mainly northwest all weekend, with near ideal conditions for transport of viable inoculum into tobacco fields. The level of inoculum should not have been sufficient to result in economically damaging levels directly from these events, but it should be high enough to establish the disease in most fields within the path of the spores. Most of the eastern two-thirds of Kentucky should have been exposed, plus southern Indiana, southern Ohio, and western West Virginia. Areas that received the most rain or experienced fog have the greatest risk from this new threat. Expect new lesions by Wednesday or Thursday. In addition, where blue mold was already established, weather conditions should have been conducive to support the development of strong hot spots of economically damaging levels, especially in rapidly growing tobacco with ground suckers, closed canopy, and heavy fertilization.

Hot dry weather has been keeping blue mold in check in most of Kentucky. The state’s tobacco crop was seriously needing the moisture during the weekend. There were only a few isolated cases of blue mold be reported in Kentucky prior to the weekend, mostly near the Knobs from Powell County southwest to Casey-Taylor then northwest to Breckinridge County. Most likely these areas were provided with slightly cooler temperatures and more moisture at critical times, just enough difference to allow establishment and continued activity. Counties with one or more active cases confirmed as of July 14 are: Powell, Estill, Clark, Fayette, Rockcastle, Boyle, Casey, and Breckinridge.

I still have not issued watches and warnings for large areas, keeping the warnings for the fields involved and watches for a 25 mile radius of the activity. Until more widespread or threatening activity is encountered, effective fungicide programs can be based on weekly scouting if the grower is capable of quickly responding with effective spray equipment.
Be most watchful in the southern and eastern Knobs in fields of rapidly growing tobacco, or irrigated tobacco, within a few miles of current outbreaks. Scouting will be especially important late this week. In making decision, be careful to consider the ability of the field to support spray equipment should additional moisture develop. If activity is found, promptly report it, and immediately start fungicide programs in the field that include Acrobat MZ or Acrobat 50W, because they will check sporulation if applied well and in a timely manner. See issue 948 of Kentucky Pest News (April 22, 2002) for the foliar fungicide options labeled in Kentucky for use in the field.

Black shank continues to increase, causing extensive damage on some farms. Growers are urged not to forget the cultivation and layby applications of mefenoxam-containing fungicides for black shank control. However, attention to placement and timing of these applications is very important. See issue 947 of Kentucky Pest News (April 15, 2002) for details.

CORN

FIRST GENERATION EUROPEAN CORN MOTH FLIGHT UNDERWAY
by Ric Bessin

Moth from the first generation European corn borer are active across the commonwealth. Egg laying for the second generation will be continuing for the next several weeks. In particular, growers should monitor late planted corn for corn borer egg laying. Experience with Bt corn has shown us the potential losses that can occur from late-season corn borer attack. For a guide on European corn borer scouting thresholds and decision guidelines, see ENT-49, European corn borers in corn.

Southwestern corn borer egg laying generally lags behind that of European corn borer by two to three weeks. So corn producers should expect egg laying by the first generation southwestern corn borer moths to begin shortly. The potential for harvest losses in late planted corn due to southwesterns is significant. Producers should monitor these late planted fields closely, identify the most heavily infested fields and schedule them for the earliest practical harvest to avoid these late season harvest losses.

Pepper growers will also need to manage European corn borers during the next few weeks. Insecticides for corn borer control will need to be selected carefully in order to avoid secondary outbreaks of green peach aphid and to comply with the mandatory preharvest intervals. The preharvest intervals can vary from 0 to 7 days depending on the type of insecticide used for corn borer control.

SOYBEAN

STEM CANKER OR SUDDEN DEATH SYNDROME?
by Don Hershman

Stem canker (SC) and sudden death syndrome (SDS) may soon be visible in many full-season soybean fields. Both of these diseases tend to kick into high gear about the mid pod-fill stages. Because of the media hype that tends to occur when SDS begins to show up in fields, most farmers are generally aware of the symptoms and ramifications of that disease. In contrast, SC, which is often a much more significant threat to soybean production in Kentucky, has been given little press. This lack of attention is due to the fact that serious SC epidemics are few and far between and because, superficially, the foliar symptoms of SC resemble those of SDS. As a result, a lot of SC is incorrectly identified as SDS.

Once you know all of the symptoms associated with both SDS and SC, differentiation of the two diseases becomes relatively simple.

Root symptoms:

SDS: Primary, secondary and tertiary roots are severely rotted. Nitrogen-fixing nodules are mushy.

SC: Roots healthy.

Stem symptoms:

SDS: Exterior of stem appears healthy. Interior of stem is a milky-brown color compared to the yellow-white color of a healthy stem.

SC: Early symptoms are a dark brown-firm canker in the vicinity of nodes which are visible on the external stem. At this time, the interior of the stem will be unaffected, except for slight discoloration associated with the exterior canker. As the disease progresses, the dark brown canker may extend the length of the stem, often on one side, but the entire stem may become involved. Individual branches of plants may die, while others remain unaffected. The interiors of severely diseased stems are often completely deteriorated.

Foliar symptoms:
SDS: Yellow blotches form between the veins, usually developing first on the uppermost leaves. In a few days the yellow blotches will coalesce and begin to turn brown. The end stage is complete tissue death between the veins, with the only green tissue remaining being that associated with the primary leaf veins. The edges of severely diseased leaves will roll inward. Over time the diseased leaflets may fall off the petioles or they may remain attached to the plant. Serious yield loss usually only occurs when plants are exhibiting serious foliar symptoms BEFORE mid pod fill. After that time, plants can look pretty rough, but yields may still be little affected.

SC: Unlike SDS which initially appears as yellow spots, leaves of plants with SC develop a general yellowing in the tissue between the veins. Over time, these areas die and the end symptoms are essentially identical to those caused by SDS. More often than not, however, the leaves of plants with SDS will drop off the plant while those with SC will die and remain attached to the plant.

Time of appearance:
SDS and SC: Plants are infected early in the season, but symptoms are rarely (in the case of SDS) and never (in the case of SC) expressed prior to the plant reaching the reproductive stages.

Pattern of symptoms:
SDS: Individual plants and groups of plants, 10-50 feet in radius, usually show a range of symptoms ranging from some leaf spotting to complete defoliation. Wet or otherwise stressed areas of fields, such as long field edges, will usually be the first to develop symptoms. In extreme cases, entire fields may show symptoms. When SDS is severe, symptoms will first develop in “hot spots” and later progress into other areas. This gives the effect that the disease spreading, but in reality it is not. Rather, the time of infection, crop health, and field conditions vary. As a result, SDS symptoms are usually expressed at varying times and rates.

SC: Single random plants in small to large areas die seemingly overnight. It is not uncommon for entire fields to be completely destroyed by SC in more southern states. Fortunately, complete wipeouts due to SC are very rare in KY. Since plants are infected only during the vegetative stages, symptoms will not “spread” to unaffected plants once they begin to appear during mid to late season. Similar to SDS, SC may appear to spread somewhat only because infection levels and rates of symptom expression may vary from plant to plant and field to field.

Variety:
SDS and SC both are fairly variety-specific. Thus, it may be common to see either or both SDS or SC confined to specific fields; you will probably notice a pattern in regards to the varieties being most impacted. SDS in particular is often more extensive where soybean cyst nematode (SCN) is also a problem. This means you may see more SDS symptoms in varieties that are susceptible to SCN. Note: this relationship does not always hold true and early and severe SDS can exist SDS in fields not impacted by SCN.

Make room in your field observations for the possibility that diseased plants in any given field may be showing both SDS and SC. I would recommend that all tentative field diagnoses be backed up by sending us a sample at the Plant Disease Diagnostic Lab for confirmation. You may not be able to do anything to help the present crop, but proper identification of the problem this year may assist in limiting future SDS and/or SC problems.

FRUIT CROPS

PEACH SCAB SYMPTOMS ARE VISIBLE
by John Hartman

Peach scab is occurring in orchards where an early protective fungicide agenda was not strictly maintained. The scab fungus, Cladosporium carpophilum, causes primarily an unsightly spotting of the fruit skin.

Symptoms. Scab first appears as small, round, green to black spots on the fruit about six or seven weeks after petal fall. Fruit lesions first appear as small, greenish, circular spots, primarily on the stem end of half-grown fruit. Older lesions become black and velvety as spores are produced. When the disease is severe, the lesions often run together which results in fruit cracking or abnormal fruit development. Low levels of infection generally do not reduce crop yields. Fruit of early maturing cultivars infected during rainy periods at shuck-split may not show symptoms until just before harvest. This is because there is a relatively long incubation period from the time the fungal spore begins the fruit infection until disease symptoms are visible. Thus, early infections are not observed until fruit are fairly well developed, so infections occurring a month before harvest will not
appear until fruits are marketed. Although the most conspicuous symptoms of peach scab occur on the fruit, the disease can also occur on twigs and leaves. Shoot and twig infections are circular to oval, becoming brown with slightly raised purple margins later in the season. The fungus overwinters in twig lesions where, under high humidity, conidia are produced at high levels during shuck split (just after petal fall) and the following weeks.

Consumers who purchase fruit with only a few lesions should not notice much difference in the taste or nutritional value of the fruit. However, consumers who preserve the fruits often dip them in hot water to cause the skins to slip off the fruit easily. Skins of scab-infected fruits do not slip off easily. Peach preservers will want to select scab-free fruits for canning.

**Disease management**: Pruning to increase air circulation facilitates drying of fruit and foliage and increases the possibility of good spray penetration into the trees. The appearance of peach scab can usually be traced to a failure to apply a fungicide in the early season spray program due to rainy weather or sprayer malfunction. Peach scab can be controlled using fungicides such as Captan, Sulfur, Benlate, Bravo, Tospin M, Thiram, and Ziram applied according to label directions. Spray applications begun at shuck-split and again at shuck off are critically important (to cover the newly exposed fruit surface). Sprays just before harvest to protect against scab are unnecessary. For fungicide suggestions and timing, consult the U.K. Cooperative Extension bulletin ID-92, “Kentucky Commercial Tree Fruit Spray Guide,” available at County Extension Offices.

Hornworms and corn earworm are not listed in the recommendations for peppers in ID-36. However, the sprays listed for European corn borer control should provide good control of these pests.

**LAWN & TURF**

**WHAT ARE THOSE BIG YELLOW, ORANGE & BLACK THINGS?**

*by Mike Potter*

Cicada killers have been flying, prompting many calls from homeowners. Despite their menacing appearance (up to 2 inches long with rusty red head/thorax, amber-yellow wings, and black and yellow striped abdomen), the wasps seldom sting unless handled or otherwise molested.

**Biology** - Cicada killers do not live in communal nests like hornets or yellowjackets. They overwinter as larvae within cocoons, deep in the soil, emerging as adults during July. The females feed, mate, and excavate burrows in the ground about ½ inch in diameter, ending in a series of brood chambers. Bare ground or sand are especially prone to infestation. Excess soil is pushed out of the burrow, leaving a small, U-shaped mound of dirt at the entrance. Each female excavates numerous burrows and provisions them with adult cicadas which she ambushes, paralyzes with her venom, and stuffs into individual brood chambers. She then lays an egg on top, backs out, and seals the cell behind her. The egg hatches within a few days and the hungry larva devours the offering, eventually transforming into a pupa the following spring.

**Management** - Cicada killers seldom sting and the females normally do not defend their burrows. The males, while incapable of stinging, sometimes dive-bomb passes-by, or hover menacingly nearby. Insecticide treatment may be warranted where the soil burrows become unsightly or the wasps are digging in a ‘high-traffic’ area, such as along a sidewalk, the entrance to a building, or a sand trap on a golf course. Individual burrows can be effectively sprayed or dusted with most lawn & garden insecticides (Sevin, Bayer Advanced Lawn & Garden Multi-Insect Killer, Spectracide Triazicide Soil & Turf Insect Killer, etc.) or a wasp & hornet aerosol spray. Large numbers of nests may need to be treated with a broadcast application to the ground surface, in which case an insecticide concentrate formulation will be most convenient, applied with a pump up or hose-end sprayer.

As a long-term solution against future nesting, clients...
should be advised to eliminate bare-ground areas. Cicada killers generally do not prefer to burrow into well-managed turf, gravel, pebbles or mulch. In some situations, such as playgrounds, camping areas, or commercial landscapes, these materials can be substituted for sand or bare soil as a deterrent to future burrowing. The other option for now is to wait and do nothing - in a month or so, the adults will die off and there's a chance the problem may not reoccur next year.

**DIAGNOSTIC LAB HIGHLIGHTS**
(Weeks of July 8 & 15, 2002)

by Julie Beale and Paul Bachi

Recent samples in the Diagnostic Lab have included bacterial stripe on corn; Rhizoctonia root rot, brown spot (Septoria) and southern blight on soybean; black root rot, black shank, soreshin, Fusarium wilt, blue mold, tomato spotted wilt virus, Pythium root rot, target spot, ragged leaf spot (Ascochyta) and nutritional problems on tobacco.

On fruit and vegetable samples, we have diagnosed black rot, anthracnose and phylloxera on grape; fire blight and cedar-apple rust on apple; brown rot, bacterial spot and scab on peach; bacterial canker, Septoria leaf spot, bacterial spot, Fusarium and Pythium root rots and tomato spotted wilt virus on tomato; Fusarium root rot on watermelon; and bacterial wilt on cantaloupe.

On ornamentals, we have seen Botrytis blight on peony; Rhizoctonia root rot on petunia; Pythium root rot on petunia, rudbeckia, and scabiosa; anthracnose on bentgrass; brown patch and gray leaf spot on perennial ryegrass; anthracnose on fringetree and itea; Botryosphaeria canker on maple and sweetgum; bacterial leaf spot on nandina; ozone damage on white pine; and black knot on plum.

**INSECT TRAP COUNTS**
UKREC, Princeton, KY --July 5-12

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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.