Blackleg/bacterial soft rot active in transplant systems

Corn

- Delayed applications of pre-emergence herbicides for corn

Wheat disease update

Wheat Lot & Forests pests

- Forest tent caterpillars
- Periodical cicada emergence reported

Blackleg is also common some years in the field shortly after transplanting, especially during rainy seasons in fields set with plants that have either been 'pushed' with nitrogen, clipped hard, or pulled while wet and stored before transplanting. It is very important not to confuse this phase of the disease with black shank - the two diseases at this stage can only be distinguished in a lab. Maintain good air circulation on plants being held for transplanting into the field on wagons, etc.

Cultural controls are the keys to limiting this disease, not chemicals. Use cultural practices designed to grow the plant slowly enough that tissues mature rapidly, by reducing wounding, and by keeping the system dry. To minimize the development of blackleg in floats consider

The bacteria causing these diseases need very wet conditions and are wound invaders, so reducing wounding is a key to control, especially during prolonged wet events. The bacteria produce enzymes that are able to degrade primary cell walls (pectin) but not those with secondary developments (cellulose and hemicellulose). Consequently, fertilization regimes that favor rapid growth and slow maturity keep a higher percentage of the cells in a susceptible stage. Also, related to this, the symptoms will vary with the age of tissues. The tender leaves and succulent stems may rot extensively when young and growing fast, but as these tissues become somewhat hardened the rot becomes limited and may spread up one side of the stem, resulting in splitting of the stem.

Historically with traditional plant beds, this was a major disease when trying to hold plants for several days after they had been pulled. The disease started as a soft rot of the leaves that had touched the ground followed by spread into the soft tender stems. That soil connection is not as involved in float plants, as it was outdoors, but is still important. Now, inoculum is often introduced from outside the bed on mowers but once established on/in a
the following: Do not over-fertilize; Do not mow plants while they are wet; disinfect the mower between beds, and the blade often (at minimum between beds); do not allow leaf debris to drop into the trays during clipping of plants or from mowing outside the system; and keep the soil surface as dry as possible.

No chemical is highly effective in controlling this disease, especially under strong disease pressure when plants are highly susceptible due to growing rapidly, wounds, and wetness. Streptomycin is labeled for plant bed use and improves control of soft rots, too, when used as a preventative for angular leaf spots. However, in our studies of rescue situations (where the disease is already active in the beds), streptomycin applications have improved control compared to no application, but seldom is the effect appreciable unless also accompanied by major changes in cultural practices to reduce plant susceptibility. Moreover, streptomycin is not specifically labeled for use in the greenhouse on any crop, nor does the label specifically prohibit its use in greenhouse or float beds. Streptomycin is labeled for use in outdoor plant beds, only. Greenhouse and float bed use is not on the label, however, these sites are not specifically prohibited on the label. Therefore, growers may elect to use streptomycin in these systems, but must accept that product liability protection may not be provided by the manufacturers. The labeled rate for outdoor beds is 100 to 200 ppm (1-2 teaspoons/gallon), using 3 to 5 gallons of material per 1000 sq ft of bed. Yellowing and stunting can occur if high rates are used. Efficacy is improved if applications are made under conditions that allow for slow drying.

**CORN**

**DELAYED APPLICATIONS OF PRE-EMERGENCE HERBICIDES FOR CORN**
J. D. Green, Extension Weed Science Specialist

Sometimes application of a soil-active herbicide treatment may be delayed due to weather conditions and other factors. In these situations the crop may have emerged before a soil residual herbicide can be applied. The following table outlines the maximum corn and weed size for use of soil-active herbicide products in corn. Keep in mind that not all soil-applied herbicides can be applied after corn emergence. In fact, some products may cause significant crop injury if applied after crop emergence. Many of these soil-applied herbicides do not control emerged weeds; thus, to obtain effective weed control a postemergence herbicide may also be needed. Consult the product label for specific guidelines, labeled tank mixtures, precautions, or other limitations.

Table 1. Maximum Corn and Weed Sizes for Soil-Applied Herbicides.

<table>
<thead>
<tr>
<th>HERBICIDE</th>
<th>CORN SIZE</th>
<th>WEED SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atrazine</td>
<td>12 inches</td>
<td>1.5 inches</td>
</tr>
<tr>
<td>Axiom</td>
<td>before corn emerges</td>
<td>before emergence</td>
</tr>
<tr>
<td>Balance PRO</td>
<td>before corn emerges</td>
<td>before emergence</td>
</tr>
<tr>
<td>Bicep II Magnum or Cinch ATZ</td>
<td>5 inches</td>
<td>2-leaf stage</td>
</tr>
<tr>
<td>Define</td>
<td>before corn emerges</td>
<td>before emergence</td>
</tr>
<tr>
<td>Degree or Harness</td>
<td>11 inches</td>
<td>before emergence</td>
</tr>
<tr>
<td>Degree Xtra or Harness Xtra</td>
<td>11 inches</td>
<td>2-leaf stage</td>
</tr>
<tr>
<td>Dual II Magnum or Cinch</td>
<td>5 inches</td>
<td>before emergence</td>
</tr>
<tr>
<td>Epic</td>
<td>before corn emerges</td>
<td>before emergence</td>
</tr>
<tr>
<td>Expert</td>
<td>12 inches</td>
<td>[consult label for use on Roundup Ready corn]</td>
</tr>
<tr>
<td>FieldMaster</td>
<td>before corn emerges</td>
<td>[consult label]</td>
</tr>
<tr>
<td>Keystone or FullTime</td>
<td>11 inches</td>
<td>before emergence</td>
</tr>
<tr>
<td>Guardsman Max</td>
<td>12 inches</td>
<td>1.5 inches</td>
</tr>
<tr>
<td>Hornet WDG</td>
<td>20 inches (V6 stage)</td>
<td>4 to 8 inches</td>
</tr>
<tr>
<td>Lumax</td>
<td>5 inches</td>
<td>5 inches</td>
</tr>
<tr>
<td>Outlook</td>
<td>12 inches</td>
<td>before emergence</td>
</tr>
<tr>
<td>Princep</td>
<td>before corn emerges</td>
<td>before emergence</td>
</tr>
<tr>
<td>Prowl</td>
<td>Spike through layby growth stage of corn or limitation of post tank mix partner</td>
<td>before emergence</td>
</tr>
<tr>
<td>Python</td>
<td>2 inches</td>
<td>before emergence</td>
</tr>
<tr>
<td>Surpass or TopNotch</td>
<td>11 inches</td>
<td>before emergence</td>
</tr>
</tbody>
</table>
WHEAT

WHEAT DISEASE UPDATE
by Don Hershman

Barley yellow dwarf is about the only wheat disease that is very active at the present time. Most fungal diseases, with the exception of powdery mildew in some fields, are at very low levels at the present time. This is probably due to cool and/or dry conditions that have prevailed thus far this spring. When it has rained, it has been cool and this, too, has discouraged most fungal diseases from developing. Late-season fungal diseases, such as leaf and glume blotch, leaf rust (and stripe rust), and Fusarium head blight (FHB) still have plenty of time to develop. Thus, we are not out of the woods yet. However, the lack of rain during the period 1-9 May, when a great many wheat acres were in full flower, has greatly reduced the FHB potential, in my opinion. Stripe rust has been reported in southern Illinois, so this disease may be in the move. Compared with leaf rust, which is visible as random orange pustules in leaves, stripe rust (also called yellow rust) has a linear arrangement of bright yellow-orange pustules in leaves. This linear arrangement of pustules is very distinctive, so stripe rust is very easy to identify. Experience with stripe rust has shown us that it is potentially a very destructive and fast-moving disease. To my knowledge, we have never had a severe outbreak of stripe rust in Kentucky. However, we are vulnerable. Most fungicides available today will do an excellent job in controlling rust if applied before infection takes place.

WHEAT DISEASE UPDATE
by Don Hershman

Barley yellow dwarf is about the only wheat disease that is very active at the present time. Most fungal diseases, with the exception of powdery mildew in some fields, are at very low levels at the present time. This is probably due to cool and/or dry conditions that have prevailed thus far this spring. When it has rained, it has been cool and this, too, has discouraged most fungal diseases from developing. Late-season fungal diseases, such as leaf and glume blotch, leaf rust (and stripe rust), and Fusarium head blight (FHB) still have plenty of time to develop. Thus, we are not out of the woods yet. However, the lack of rain during the period 1-9 May, when a great many wheat acres were in full flower, has greatly reduced the FHB potential, in my opinion. Stripe rust has been reported in southern Illinois, so this disease may be in the move. Compared with leaf rust, which is visible as random orange pustules in leaves, stripe rust (also called yellow rust) has a linear arrangement of bright yellow-orange pustules in leaves. This linear arrangement of pustules is very distinctive, so stripe rust is very easy to identify. Experience with stripe rust has shown us that it is potentially a very destructive and fast-moving disease. To my knowledge, we have never had a severe outbreak of stripe rust in Kentucky. However, we are vulnerable. Most fungicides available today will do an excellent job in controlling rust if applied before infection takes place.

Barley yellow dwarf is fairly common throughout the state at this time. However, there appears to be marked difference in the severity of the disease, depending on location. Pre-heading foliar symptom expression (yellowing/purpling) was common in the southern tier counties. In more northern areas, post-heading symptom expression predominated. Early symptom expression, which is indicative of fall or very early spring infection, is suggestive of a significant yield loss potential. In addition to foliar symptoms, these plants will be stunted and will frequently have a “spiked” appearance. Yield loss in these plants will be in the 20-40% range. Expression of foliar symptoms after head emergence is an indication of late-spring infection and is usually associated with minimal yield loss.

WOOD LOT & FORESTS PESTS

FOREST TENT CATERPILLARS
by Lee Townsend

The forest tent caterpillar, a close relative of the eastern tent caterpillar, caused heavy defoliation this spring in a Trimble county site. This “hairy” caterpillar is very similar to the ETC but has a single row of footprint-shaped whitish spots down the center of the back. FTC has a wider range of favored hosts than the ETC, feeding on oaks and many other hardwoods. When abundant, these caterpillars will defoliate host trees and move to shrubs, fruits, and vegetables to finish feeding. FTC does not tend to feed on red maple, sycamore, and most conifers. Dispersal of FTC can cover houses and mature caterpillars move from trees to find pupation sites. There is one generation each year.

FTC outbreaks last for about 3 seasons and then decline but can linger for 5 to 7 years. Growth of defoliated trees may be reduced significantly (up to 90 percent) but trees rarely die unless other factors are acting as stressors.

FTC do not spin the tents associated with ETC. Instead., the group together on silken mats which they lay down on trunks and branches. Development takes 5 to 6 weeks ending with pupation in crevices or wrapped in folded leaves.

PERIODICAL CICADA EMERGENCE REPORTED
by Lee Townsend

The first report of cicada emergence in the state (May 10) comes from Jefferson county where 4 individuals were seen on a backyard tree. Patrick Hale (Kenton Co) has been monitoring cicadas in Kenton and Gallatin Counties over the past few weeks and sent this report (5/10). “Cicadas are still about 4 inches deep in Kenton County with holes (in dry places) coming to within 1/4 inch of the surface. There are surface holes and mounds in wet areas. I expect them to emerge in the next 7-10 days. Gallatin County seems to have a heavier number of cicadas overall than Kenton County, however I have found isolated spots under trees and shrubs of 200 cicadas per square yard in both Kenton and Gallatin Counties.”

Reports on periodical emergence and activity will be available on the web through the Pest Alerts / News feature on the Entomology Department page. www.uky.edu/Agriculture/Entomology/enthp.htm Comments, observations, or pictures for posting can be sent to lee.townsend@uky.edu

There are many rumors and legends surrounding cicadas. While they can be an annoyance or inconvenience, cicadas pose little concern for animals and their owners. Cicadas are not poisonous and do not sting or bite. Consequently, they pose no direct threat to the health and the well-being of livestock or humans.

Dog and cats may be curious about bumbling cicadas as they fly slowly around and blunder into objects. Undoubtedly, pets will play with many and will consume some. As with most food, overindulgence is the main but unlikely downside. Some animals may be disturbed by the buzzing flight of these insects, especially if they live near wooded areas where cicadas are abundant. If they are near heavily infested woods, it may be necessary to relocate them for a time.

SHADE TREES & ORNAMENTALS

SUDDEN OAK DEATH UPDATE
by John Hartman

Readers of this newsletter are no doubt aware that the threat of the disease referred to as “sudden oak death,” caused by the fungus-like organism Phytophthora ramorum, is real. Although the disease can be lethal to oaks, many other plants in the nursery trade including rhododendrons, viburnums and camellias are carriers of the fungus. During the past year nursery plants inadvertently contaminated with P. ramorum were shipped from Monrovia Nurseries, a large wholesale nursery in California, to the states in the East. As a result, nursery inspectors and USDA-APHIS officials in states nationwide are gearing up to survey recipient nurseries and surrounding areas for evidence of the pathogen. In
Kentucky, we are just beginning our survey and so far, no *P. ramorum* has been found.

However, preliminary results from other states suggest that, unless we are very lucky, we may also find this disease here. In the East, as of last week, confirmed positive nurseries include Florida (5), Georgia (13), Louisiana (5), North Carolina (8), Tennessee (2), and Virginia (1). These results are based on tracing diseased shipments forward from Monrovia and detection of the fungus on nursery stock in the East. Keep in mind that the diseased shipments were made last year and therefore the fungus has had some time to escape from or be sold from these contaminated nurseries. Also of note, 46 nurseries west of the Mississippi River receiving contaminated plants from Monrovia (including 39 in California, Oregon, and Washington) are also recorded as positives for *P. ramorum*. Other states are beginning to record positive detections from nurseries not linked to Monrovia nursery, too.

The economic damage to the nursery industry caused by *P. ramorum* is already high. Infected plants and nursery stock growing nearby are destroyed in an effort to suppress the movement of the pathogen. Almost 700,000 plants worth millions of dollars have been destroyed and over 900,000 plants are on hold, most of them at Monrovia. Federal and state quarantines, some involving all plants coming from California, will also have an economic impact.

For example, in Kentucky, greenhouse growers wanting poinsettia stock plants from California have been facing just such a quarantine. This barrier need not totally prevent poinsettias or other plant materials from entering Kentucky, however. Suppliers of such plant materials need only provide the Kentucky State Entomologist with evidence that their plants are being produced with no risk of contamination with *P. ramorum*. For other kinds of plants, where such risks exist, proof of negative tests of plants and soil for presence of the pathogen may be needed.

For more information on sudden oak death caused by *P. ramorum*, consult the following web sites. These URL’s may take up more than one line of the newsletter column, so they are enclosed by [brackets]. See the following: [http://www.aphis.usda.gov/ppq/ispm/sod/] or [http://www.agctr.lsu.edu/eden/Issues_View.aspx?IssueID=650dd522-cc40-4434-8173-b6b4e18a65c] or [http://www.suddenoakdeath.org/].

**HOUSEHOLD**

**ELIMINATING CARPENTER ANTS**

by Mike Potter

“I’m seeing big, black ants in my house, a few here and there. I spray the ones I see, but they keep coming back. What kind of ants are these and how do I get rid of them?” These are the questions typically asked by clients who have carpenter ants. This time of year, callers may also complain about a swarm of winged carpenter ants emerging inside their homes — a sure sign that the ants are nesting within the structure.

**Description and Habits**

Carpenter ants vary in size and color, but are usually rather large (1/4-1/2") and blackish. Not every large black ant encountered around homes is a carpenter ant, however (see footnote* below). Besides being a nuisance, carpenter ants may damage wood while hollowing it out for nesting. The galleries have a smooth, sandpapered appearance and contain no mud, which distinguishes them from wood damaged by termites. Shredded fragments of wood similar to coarse sawdust are ejected from the galleries, along with dead ants and bits of insects that the carpenter ants have eaten. When such accumulations are found, it’s a good indication that a nest is nearby. Often, however, the excavated sawdust remains hidden behind a wall or in some other concealed area.

Carpenter ants nest in moist or dry locations, but prefer sites that are moist. Consequently, nests often occur in wood dampened by water leaks, such as around sinks, bathtubs, shower stalls, poorly sealed window and door frames, leaking roofs, and within damp crawlspaces.

When considering likely nesting sites, it’s also important to remember that carpenter ants nest in areas other than wood. Nests commonly occur in moist, hollow spaces, like the wall behind a dishwasher, beneath insulation in the crawlspace, garage, basement or attic, or in a hollow porch column. False ceilings, hollow-core doors, curtain rods, or even an old suitcase may serve as nesting sites for carpenter ants.

Nests can be located indoors and/or outdoors. Ants spotted indoors may actually be nesting outdoors in a tree stump or landscape timber, and foraging indoors in search of food. Noticing five or more carpenter ants per day in an area of the home where there is no food, such as a bathroom or bedroom, usually indicates an indoor nest. Swarms of winged carpenter ants emerging indoors is another sign of an indoor nest, as is the sighting of ants indoors on cool or rainy days.

The potential for damage exists only when ants are nesting inside the structure. In Kentucky, damage produced by *carpenter ants is often insignificant and seldom as extensive as that associated with termites*. Nonetheless, over extended periods, large colonies can weaken studs, joists and other structural timbers.

**Control Tips**

The traditional way to control carpenter ants has been to find and treat the nest(s) directly with an insecticide dust or spray. This is easier said than done. Carpenter ants seldom travel in clearly defined ant “trails” as do many other ants. When attempting to locate a nest, focus your efforts on where most of the ants have been seen. Areas dampened by moisture, e.g., around sinks, dishwashers, chimneys, fascia boards, roof edge, and window or door frames are especially attractive to carpenter ants, although dry walls may also serve as nesting sites. The chances of finding ants will be much greater at night since carpenter ants do most of their foraging after dark.

The vicinity of a carpenter nest can often be located by placing small dabs of honey, jelly, or maple syrup in the area(s) where ants have been seen. Cleanup is aided by placing the “bait” onto small squares of wax paper or the back (non-sticky side) of pieces of masking tape. The best time to check the bait spots is at night when the ants are most active. After the ants have fed on the bait, follow them on their journey back to their nest. Be patient — eventually the ants will disappear behind a baseboard,
Professional pest control firms have dusters specifically designed for this type of treatment. Homeowners wishing to perform treatment themselves can purchase boric acid in a ready-to-use, squeeze-type bottles. Don’t expect to see results overnight; a week or more may be needed to eliminate the entire nest which may contain thousands of ants.

As noted earlier, carpenter ants seen in the home may actually be nesting outdoors and foraging indoors for food and water. Consequently, you may end up following the ants out into the yard, possibly to a nest located in a stump, fence, dead tree limb, etc. Once an outdoor nest is discovered, treatment can be performed by spraying or drenching with Sevin or other liquid insecticide. If outdoor nests are suspected, inspect for ants around the foundation and siding at night with a flashlight. Like most ants, carpenter ants prefer to trail along wires, pipes and edges. Pay particular attention to the bottom edge of siding, areas around doors, windows, and where utility pipes and wires enter the structure. The sweet bait technique can again be used to trace these ants back to their nest.

Until recently, there were few effective carpenter ant baits available to homeowners. One new bait that may be worth trying is Combat® Ant Killing Gel with fipronil. The product comes in a syringe designed to dispense small (dime to nickel-size) dabs wherever ants are seen. If several ants can be “enticed” to feed on the insecticide-laced bait, there’s a decent chance the colony can be eliminated. The approach is especially worth trying if the location of the nest cannot be found, or is inaccessible.

Calling a Professional

Eliminating carpenter ants can be very challenging and clients may want to call a professional. Pest control companies tackle carpenter ants in different ways. Some try to locate the nest(s) and treat them directly. Other firms take a less targeted approach, drilling and treating as many potential nesting sites as possible, or spraying around the exterior foundation of buildings. The approach that should not be taken is simply to spray indoors, month after month, where ants were seen. Knowledgeable companies will spend less time spraying and more time inspecting and asking the homeowner where they have seen ants, whether there have been moisture leaks, etc. The homeowner can often assist the professional in locating nests by using the sweet bait technique discussed earlier. Two excellent new carpenter ant products available to professionals are Maxforce® Carpenter Ant Gel (a bait somewhat similar to the Combat® bait mentioned earlier), and Termidor® spray applied around the building exterior. Either product often will control an existing infestation.

Preventing Future Problems

1. Correct roof, plumbing, and other moisture leaks that attract carpenter ants.
2. Clip back tree limbs and branches touching the roof or siding of the house. These serve as “bridges” between ants nesting in dead portions of trees and the structure.
3. Seal cracks and openings in the foundation, especially where utility pipes and wires enter from outside.
4. Never store firewood in the garage since firewood is a prime nesting location for carpenter ants. Stack wood away from the foundation and elevate it off the ground.

* Another large black Kentucky ant often mistaken for carpenter ants is the black field ant. Many costly “carpenter ant” jobs are inadvertently sold to homeowners by companies that confuse these two “look-alike” pests. A good hand lens is needed to tell the difference: viewed from the side, carpenter ants have an evenly rounded thorax (the body segment just after the head); black field ants have a thorax which in profile appears ridged or uneven. Black field ants commonly form large, low-profile, earthen mounds in the yard. Unlike carpenter ants, they do not nest within buildings although they may wander indoors in search of food. The solution to black field ants is simply to drench the mound with an insecticide.

DIAGNOSTIC LAB-HIGHLIGHTS

by Julie Beale and Paul Bach

Recent samples diagnosed have included Aphanomyces root rot on alfalfa; barley yellow dwarf virus, bacterial streak, and loose smut on wheat; Sclerotinia collar rot, damping off (Rhizoctonia), Pythium root rot, and target spot on tobacco.

On fruits, we have seen orange rust on blackberry; Mycosphaerella leaf spot on strawberry; and leaf curl on peach.

On ornamentals, we have seen Botrytis blight on vinca; needle rust on pine; symptoms of ozone injury (from last fall) on white pine; and needle miner and spider mite on spruce.
INSECT TRAP COUNTS

UKREC, Princeton, KY April 30-May 7, 2004

Black Cutworm ........................................ 10
True Armyworm ........................................ 11
Corn Earworm .......................................... 5
European corn borer ................................. 1

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