This report is very different from that of May 14. Strong blue mold activity is occurring in central Kentucky mainly associated with greenhouse float systems, but also present in outdoor-floats and in field plantings. The disease is quickly going systemic in transplants causing some people to suspect root diseases rather than blue mold. Activity has been confirmed in Taylor, Green, and Jessamine counties but it is most likely active in other counties, too. Evidence collected at the sites supports the hypothesis that initial infections probably occurred in early May, meaning the disease has been cycling and building. In Jessamine County, at least one greenhouse full of plants was destroyed by the disease (from systemic activity) before the grower realized it was blue mold. No fungicide sprays were being used in any of the houses at the center of the worst outbreaks, but light activity was also found in several operations receiving fungicide sprays. In general, growers reported regular fungicide applications early in the season, but many have reduced fungicides in recent weeks when they starting holding plants during the wet weather and as they became busy with many other farming activities.

It is important to appreciate that contrary to what was said in our May 14 report, considerable inoculum has been generated and was disseminated during the past two weeks right here in Kentucky. Consequently, blue mold is ahead of us and could build very rapidly with the disease conducive weather being experienced. Blue mold warnings have been issued for the counties of Green, Jessamine and Taylor where the disease has been confirmed. Also, blue mold watches exist for the following counties that have probably received spores from the above outbreaks: Allen, Adair, Anderson, Barren, Bourbon, Boyle, Clark, Casey, Cumberland, Fayette, Garrard, Harrison, Lincoln, Madison, Marion, Mercer, Metcalfe, Monroe, Scott, Washington, and Woodford.

Priority needs to be given to transplants! Keep 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/kpn_04/pi040308.htm] Remember our recommendations all season has 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 preventive 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.” Leaving a few trays abandoned on a float bay can be trouble, as observed in Taylor County this week. Any remaining trays should be maintained in the middle of the greenhouse where air movement is best and sprayed regularly. All other bays should be drained to reduce humidity in the house. Based on the sites visited, growers need to increase the attention to details concerning timely clipping, fungicide applications, management to reduce leaf moisture, and keep weeds under control around the beds. In several sites visited, recent weed/grass growth was providing shade and blocking air movement to the beds. In other cases, poorly maintained side curtains were blocking air movement and shading plants. Be especially concerned about anything shading or blocking air movement from the west and southwest!

Growers from all states, including Kentucky, need to be aware of the risk Kentucky-produced transplants may pose to movement of blue mold to other states and other counties within Kentucky. It is logical to expect other states to recommend against use of Kentucky transplants now that we have active blue mold. Kentucky growers are urged to use locally grown transplants to minimize movement of the disease within the state, especially movements counter to those provided by natural wind movements from known sources. For example, movement
of transplants from south central Kentucky to western regions of the state is not sound.

Transplanting is well underway and setting of blue mold infested plants has occurred in several communities. In addition, evidence of wind borne inoculum into fields has also been found. Consequently, weekly fungicide sprays should be put in place immediately in counties under a watch or warning. Growers statewide should become prepared to spray in a short order should a watch or warning be issued for their community. In addition, growers should be incorporating cultural controls. If you cannot remain informed, then start your Acrobat MZ spray program now, or the Actigard program where plants are large enough. Guidelines can be found in the April 26, 2004 issue of Kentucky Pest News: [http://www.uky.edu/Agriculture/kpn/kpn_04/pi040426.htm].

Some observations in Taylor County point towards this population of blue mold being mefenoxam sensitive. It will take several days to conduct the tests to determine if that is the case. The Ridomil Gold and Ultra Flourish used as soil directed treatments can be highly effective where mefenoxam-sensitive strains of blue mold are present. County extension agents are asked to interview growers carefully concerning patterns of mefenoxam use and blue mold activity. In addition, agents are ask to put out small test plots to held determine the prevalence of sensitive strains in their communities.

Should blue mold be found or suspected, whole-plant-samples of suspects should be submitted immediately to the Plant Disease Diagnostic Laboratories. To prevent spore release, please insure that such samples are double-sealed in plastic bags and placed into a sturdy shipping container and either delivered directly to the nearest lab, or use over-night mail or carriers. Experienced agents should call or email the lab to advise them that a suspected blue mold sample is in route. Agents inexperienced with blue mold handling blue mold samples should call the laboratory or me prior to shipping the samples for assistance and guidance. Under no circumstances, should a suspected blue mold sample be transported unless bagged carefully in plastic to prevent escape. At the laboratory, identification will be based on microscopic examination and other assays as needed.

FORAGE CROPS

WHITE MOLD OF ALFALFA
by Paul Vincelli

A sample of alfalfa with white mold disease was received in the Plant Diagnostic Lab last week. If the disease is highly active, the stems and leaves appear mushy and soft and may exhibit white moldy growth. A couple days of dry weather can dry out these symptoms and signs, in which case plants appear to simply be drying rapidly from the lower canopy upwards. If you cut into affected stems, you will find that much of the stem is empty, hollowed out by the fungus. You may also find small survival bodies called sclerotia. Sclerotia are black on the outside and white or gray on the inside. You may also find white moldy growth inside the stem at the advancing edge of the infection. Crowns of affected plants are unaffected.

White mold disease is caused by *Sclerotinia sclerotiorum*. This is related to the fungus that causes Sclerotinia crown and stem rot of forage legumes, which is called *Sclerotinia trifoliorum*. However, they are distinct species, and fortunately, the white mold disease does not typically cause significant stand loss. This is the same white mold fungus that attacks tobacco, canola, perennial flowers and vegetables.

White mold is most likely to attack alfalfa that is overgrown, particularly when springtime growing conditions are unusually wet. Prompt cutting and harvest is the only control measure necessary against white mold in alfalfa.

WHEAT

FUSARIUM HEAD BLIGHT AND GENERAL DISEASE UPDATE
by Don Hershman

Fusarium head blight (FHB), also known as head scab, is now very severe in some fields. I was on a tour in Christian, Todd, and parts of southwest Logan Counties last Friday (May 21). It was very common to see fields with 30-50 percent incidence. In research plots (non-irrigated, non-inoculated) near Keysburg, in the southwest corner of Logan County, some experimental lines had an incidence of 95-100%, and severity approaching 60%. That’s a lot of FHB!

At this time I really do not know the full extent of FHB, statewide. I do not think conditions were such that we will have a statewide epidemic. I say this because I have been closely following the FHB prediction center’s (http://www.wheatscab.psu.edu/) findings for over the past month. It appeared to me that most areas of the state had only brief periods of weather favorable to FHB. In any event, if you have not looked at your wheat lately, I suggest you do so now. This late in the season, do not expect FHB incidence to increase since new infections are not likely to occur. However, severity can increase up to crop maturity.

In addition to FHB, leaf rust is now very active on susceptible varieties in many fields that were not sprayed with a fungicide. On a good note, in my tour last week, I did not see a single field with fungicide sprayer tracks that had a significant level of leaf rust. This is no surprise since all of the fungicides currently labeled for use in wheat do an excellent job against leaf rust when sprayed before infection takes place. In my plots here at Princeton, based upon my knowledge of when I sprayed and the leaf rust symptoms I am observing, I estimate there was a significant leaf rust infection period sometime during the first five days in May in west Kentucky.

Finally, I am beginning to get reports of significant levels of glume blotch in fields that were not sprayed with a fungicide, and also black chaff in both sprayed and non-sprayed fields. Black chaff is a bacterial disease, so no disease control should be expected if a fungicide was applied.
GRAIN STORAGE

PREPARING GRAIN BINS AND HARVEST EQUIPMENT FOR THE 2004 WHEAT CROP
Doug Johnson, Extension Entomologist and Sam McNeill,

Extension Agricultural Engineer

Spring is a busy time for Kentucky rain farmers and this year is no different. Wheat harvest often follows corn and full season soybean planting chores so quickly for many folks that little time is available to properly prepare grain bins, combines, grain carts, trucks and handling equipment for the incoming crop. However, completing appropriate pre-harvest chores is the first step towards protection from insect and mold infestations during storage. And with this year’s higher wheat prices and potential for above average yields, motivation to prepare bins and equipment before harvest begins should be high!

Harvest Equipment

All traces of old grain and trash should be removed from combines, grain carts, truck beds, augers, dryers and any other equipment used for harvesting, hauling, and handling grain. Bear in mind that a small amount of moldy or insect-infested grain left in any piece of equipment from last fall can contaminate an entire bin of new grain. If you expect to hire equipment from a neighbor to get the crop in more quickly, don’t forget to thoroughly clean their equipment if it’s been idle or sitting in a shed where insect populations can thrive as temperatures warm. High-pressure air or water systems can help reduce time spent cleaning equipment.

Adjust combines according to the manufacturer’s specifications to minimize grain damage and maximize the removal of fines, trash and other foreign material. Be sure the straw spreader or hopper is working properly, especially on combines with a wide header (> 20 feet), to avoid leaving windrows of residue that can interfere with planting double-crop soybeans. Once harvest begins, check individual wheat kernels from the grain tank or truck frequently to see if rotor or cylinder speed or clearance, fan speed, or ground speed should be adjusted. When assessing combine losses recall that approximately 20 kernels per square foot are equivalent to one bushel per acre loss for medium size seed (14,500 seeds per pound*60 pounds per bu /43,560 sq ft per acre = 20 seeds per sq ft).

Grain Bins and System Components

Clear all traffic areas near the bins of any items or debris that would interfere with safe, unobstructed truck movement. Remove all spilled grain and mow the area to discourage insect and rodent activity. Fill in ruts or regrade the site so that water will drain away from all bins.

Inspect each bin ‘inside out’ for soundness and structural integrity. Cracks in the concrete foundation can be the result of shoddy construction or uneven settlement and can create gaps between the bottom ring and concrete base over time. For bins without aeration floors, small gaps can provide an entry for water, insects, or rodents while large gaps can result in grain spilling from the bin. If perforated floors are used, a gap between the concrete foundation and bottom ring will allow air to escape, which can drive up energy costs for drying and/or aerating wheat. Small gaps can usually be filled with a high quality caulking compound, but if deterioration is extensive, the mastic seal may need to be replaced. While inspecting the foundation, also be sure that all anchor bolts are tight and not damaged.

After checking the foundation, be sure the outside and inside access ladders are intact and securely fastened to the bin. Inspect both sides of the bin wall and roof for leaks, loose or missing bolts, rust, or other damage. Check the seal around roof vents, access hatches, and temperature cables and repair as needed.

Thoroughly clean inside bins by removing all old grain, dust, and debris from the floor, ladder, and ledges with brooms and a wet-dry vacuum cleaner. Adjacent bins should also be thoroughly cleaned even if not used for wheat this year since insect populations can migrate from them.

Wiring for fans, switches, controls, and other electrical components should be inspected for corrosion, loose, or broken wires and dry, cracked, frayed, or broken insulation. Exposed wiring should be run through waterproof, dust-tight conduit for protection. Disconnect the circuit panel and make sure all wire connections are tight.

Test-fire fans and heaters and inspect air ducts and transitions for corrosion and air leaks. Remove any accumulated dust and dirt that will reduce operating efficiency.

Cleaning under perforated floors is the most challenging area, so fumigation of this space by a trained, certified pesticide applicator can be an alternative. It’s best to remove the fan and then tightly seal all openings (transition, unloading auger tubes, etc.) with heavy plastic sheeting and tape or twine prior to fumigation. A sheet of plastic large enough to seal the floor should also be cut, placed inside the bin, and rolled out of the way prior to fumigation. Otherwise, the pesticide applicator must seal roof vents, hatches, or other open areas and apply enough active ingredient to treat the entire bin volume.

If storage through the summer is anticipated, consider treating the empty bin(s) after cleaning, with a protective insecticide, at least two weeks before harvest. Liquid sprays should be applied to the point of runoff to as many interior and exterior surfaces as possible, especially joints, seams, ledges, corners, doors, vents, ducts, fans, and the foundation. Insecticides such as Tempo or TalstarOne (inside or outside the bin), Reldan or Storcid (inside only), or diatomaceous earth (in ducts, or under perforated floors) can be used for treating metal and concrete surfaces.

As always when applying insecticides read the label and comply with any use requirements. Because these applications are being made inside the bin there are restrictions on applicator location during application and reentry time.

If you choose to treat the grain directly, Reldan, Storcid and diatomaceous earth are labeled for use on wheat. A ‘cardinal rule’ is to always treat grain with a compound other than one used to treat the empty bin. This provides broader protection and aids in preventing insect resistance. Also, be aware of your buyer’s requirements. For example, some grain processors will not except grain...
treated with diatomaceous earth because it can damage their equipment.

More information on insect control and specific insecticide recommendations for stored wheat are available on the UK Entomology Department’s web page: http://www.uky.edu/Agriculture/Entomology/entfacts/fldcrops/ef145.htm.

**HOW MUCH IS IN THAT BIN?**
by Sam McNeill, Extension Agricultural Engineer

A new spreadsheet is available to estimate the capacity of storage bins (in bushels) based on the diameter and grain height. Developed by Sam McNeill, Extension Agricultural Engineer with the University of Kentucky, it is freely accessible on the UK Grain Storage homepage (www.bae.uky.edu/ext/GrainStorage/). The attached table is presented to show the capacity for specific size bins with diameters from 18 to 60 feet and heights from 1 to 60 feet. Values for any size bin can be instantly calculated for other structures by entering the diameter and height on the spreadsheet. A second table is also shown on the spreadsheet to compute the temporary storage capacity of barley, corn, milo, soybean, or wheat in the top portion or headspace of a bin (above level full) based on the angle of repose for each grain.

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SHADE TREES & ORNAMENTALS

BAGWORMS VULNERABLE
by Mike Potter

Bagworm eggs have now hatched and the young larvae are at their most vulnerable stage for treatment. This caterpillar is a serious defoliator of many different kinds of landscape and nursery plants. They are especially damaging to evergreens such as juniper, arborvitae, spruce, pine and cedar. Bagworms overwinter as eggs within spindle-shaped bags made of silk and bits of plant material. Young larvae emerge and immediately begin feeding on the upper side of leaves, camouflaged within a tiny bag pointed upward. The bag is gradually enlarged as the larva grows. Older larvae strip evergreens of their needles and consume whole leaves of susceptible hardwood species, leaving only the larger veins.

Control. The best time to control bagworms is while the larvae are small. Carefully inspect susceptible landscape plants, especially evergreens, for last year's bags. Preventive treatment is often justified on plants that were heavily infested with bagworms the previous year. Small bagworms may also disperse to previously non-infested plant material after becoming wind-borne on silken strands.

Overwintering eggs can be destroyed by hand-picking old bags during the winter or early spring. Since this opportunity has passed, insecticides are now the only effective means of control. For homeowners, Sevin, pyrethroids (e.g., Spectracide Triazicide, Bayer Advanced Lawn & Garden Multi-Insect Killer), or the microbial insecticide Bacillus thuringiensis (BT) work well. For nursery and landscape professionals, other effective products include Scimitar, Suspend, TalstarOne and Tempo.

For further information, see Enfact 440: Bagworms on Landscape Plants.

PINE TIP BLIGHT SYMPTOMS APPEARING NOW
by John Hartman

Pine tip blight, also called Sphaeropsis blight or Diplodia blight, caused by the fungus Sphaeropsis sapinea, is the most devastating disease of Austrian pine (Pinus nigra) in Kentucky and is especially ruinous to trees growing under stress. Scots pines and Mugho pines are also affected, but because Austrian pines are more widely grown in landscape here this report concentrates on this species. During the past several weeks, Austrian pines have been vulnerable to infection because there have been numerous rainy periods sufficient to initiate significant infections.

Symptoms. Austrian pine candles (shoots) are now several inches long and individual needles on these shoots are partially elongated. Diseased candles of Austrian pines can readily be spotted now in the landscape because they are turning a light brown color. They can be differentiated from the healthy candles which are green.

As the weeks pass, the differences will become more pronounced and the diseased shoots and needles will be stunted and obviously dead compared to the healthy shoots. Tip blight disease is first observed in the lower branches of mature trees and over several years can kill entire branches. After many years the disease continues to affect branches higher and higher in the tree until the tree finally dies or is taken down as unsightly.

Disease progress. Young Austrian pines in the landscape are normally not affected by tip blight. The disease most often appears in pines about 12-13 years old which are just beginning to produce cones. Conidia of the causal fungus, produced on previously infected shoots and pine cones, are spread by splashing rain and germinate and infect susceptible pine tissues anytime they are wet for about 12 hours when temperatures are above 55 F. Infections leading to tip blight begin on buds, on succulent stems of elongating shoots, and sometimes on immature needles during the several-week period in spring when shoots begin to grow. The fungus produces pycnidia, fungal fruiting bodies on infected shoots, needles, and cones.

Sphaeropsis tip blight disease has been observed to first affect trees growing under stressful conditions, especially trees subject to drought, shade, and cone-bearing. The last-mentioned stress fits the observation that trees become susceptible after they reach cone-bearing age because producing cones could divert resources from defense to reproduction. However, infected cones containing high levels of fungal pycnidia, a source of the infective spores, can readily be observed in diseased trees. Thus, it could be suggested that increased fungal inoculum resulting from cone production leads to more disease. During recent years, we have found that the fungus S. sapinea can be found even in healthy shoots, cones and branches in Austrian pines. This raises the possibility that active fungal infection of trees could come from within as well as from infections beginning on the outside. These issues are being researched.

Disease Management. Where the disease has appeared in previous years, dead shoots and branches should be pruned out and destroyed. Infected cones, a source of inoculum, should also be removed, if possible. Stressful growing conditions such as drought, compacted soil, root injury, excess shade, or reflected heat need to be alleviated as well. Fungicide sprays can be used, but our experience suggests that they are only partially effective. If fungicides are used, they are probably best used on trees of cone bearing age rather than younger trees. Fungicides applied in early spring at bud swell, again when shoots are
elongating, and finally when needles are emerging through the fascicle sheaths will protect the susceptible tissues. Use fungicides containing thiophanate-methyl such as Cleary’s 3336, Fungo-Flo, or 3336, with a spreader-sticker. Tip blight disease control measures could also benefit Mugo and Scots pines but are not needed for white pines which are rarely attacked here.

CALICO SCALE ALERT
by Mike Potter

In recent years, calico scales have become prevalent on several landscape plants, including honeylocust, hawthorn, hackberry, sweet gum, yellowwood, dogwood, flowering crabapple, and sugar and Norway maples. Infestations are so heavy in some cases that entire twigs and stems are covered by the scales and the trees are in decline.

Mature calico scales, Eulecanium crawshayi, are large, black and white globular-looking insects about the size of a pencil eraser. They have a soft, leathery body and when crushed ooze a gummy, wax-like fluid. The immobile, adult female is the life stage observed during the spring, attached to twigs and stems. Some people mistake them for ladybugs, which are roughly the same size. Like other scale insects, the calico scale feeds by sucking plant juices. Heavy infestations can cause premature leaf drop, branch dieback and, coupled with other stresses, eventual tree death.

The mature females are now dying. Underneath them are thousands of eggs which have begun hatching into crawlers. The crawler stage prefers to suck plant juices from the leaves (further stressing the plant), and also excretes copious amounts of honeydew. The sticky honeydew and resultant sooty mold are cosmetically unappealing and can stain patios and car finishes, and attract wasps and other nuisance pests. Another reason to take action against the crawlers is that they can become wind borne, spreading the infestation to other trees nearby.

Management
It’s too late to impact the mature females, which turn brown and die just before crawler hatch. However, the underlying eggs have hatched and the crawlers have begun to crawl about and settle on leaves. The yellowish, newly-hatched crawlers are tiny, but under close inspection their movement will be visible to the naked eye.

Insecticide applications, timed to coincide with emergence of young crawlers, will break the cycle of development and help alleviate further plant stress. The most effective insecticides for crawler control are synthetic pyrethroids such as TalstarOne, Tempo (= Bayer Advanced Lawn & Garden Multi Insect Killer), and Scimitar (= Spectracide Triazicide). Sevin also can be used. So-so control of crawlers can also be achieved with 2% horticultural oil or insecticidal soaps. Thorough coverage of infested twigs, branches and adjoining leaves is important. The hatching period lasts several weeks so a second application 2 to 3 weeks after the first may provide more complete control.

Calico scales overwinter on the bark as mid-sized nymphs. To further reduce the likelihood of problems occurring next year, it probably would be wise to follow up with a dormant oil application in fall or winter to trees that were heavily infested with calico scales this year.

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 a reddish stain, further elevating their status as pests.

Technically speaking, these are mites in the family Trombiculidae – 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 such 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

Samples diagnosed during the past week included Fusarium root rot, Stewart’s wilt, stinkbug injury, and zinc and magnesium deficiency in corn; Sclerotinia collar rot and Lepto leaf spot on alfalfa; take-all on wheat; Pythium root rot, target spot, bacterial blackleg/soft rot, low fertility and chemical injury on tobacco.

On fruits, we have seen anthracnose, Mycosphaerella leaf spot and leather rot on strawberry; powdery mildew, fireblight and cedar-apple rust on apple; leaf curl on peach; and blister mite on pear.

On ornamentals and turf, we have diagnosed powdery mildew on phlox; rust on hollyhock; Rhizoctonia stem
canker on petunia; leaf/flower gall (Exobasidium) on azalea; Katatina twig blight on juniper; Entomosporium leaf spot on photinia; bark beetle injury, Mycosphaerella needle blight, and needle rust on pine; anthracnose and petiole borer on maple; leaf blister on elm; spring dead spot on bermuda; and necrotic ringspot on turfgrass.

INSECT TRAP COUNTS

UKREC, Princeton, KY May 14-21, 2004

<table>
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<tr>
<th>Insect Type</th>
<th>Count</th>
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<td>8</td>
</tr>
<tr>
<td>Southwestern corn borer</td>
<td>5</td>
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</tbody>
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Cam Kenimer reports the following trap counts for Fulton County:
May 12 - 19
True Armyworm - 7
Southwestern corn borer - 6
European corn borer - 2

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.