



KENTUCKY PEST NEWS

ENTOMOLOGY • PLANT PATHOLOGY • AGRONOMY

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Number 849

June 1, 1999

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CURRENT BLUE MOLD STATUS

By William Nesmith

***BLUE MOLD WARNING:** for CLAY, JACKSON, LAUREL, LEE, AND OWSLEY counties of southeastern Kentucky.

**** BLUE MOLD WATCH:** for all Kentucky counties EAST OF US HIGHWAY 27 and SOUTH OF INTERSTATE HIGHWAY 64. However, do not be surprised if some of these counties are moved into the warning category quickly, or if the watch area is expanded north and west.

***** BLUE MOLD ADVISORY:** for all remaining counties in Kentucky.

SITUATION IN KENTUCKY: On May 29, Jeff Casada, Clay County Extension Agent for Agriculture, identified a very large and damaging outbreak of blue mold in his county. Clay County is located in southeastern Kentucky and has significant burley tobacco production. I visited the site the same day to help determine the timing and source of the pathogen, to assess control potential/failures, and to collect samples for laboratory assays.

This epidemic involves several commercial greenhouses and outdoor float beds located near

Burning Springs in the northern portion of Clay County. However, some plants have already moved from this operation to neighboring counties and additional movement of infected transplants within this area should be expected. The disease was discovered about two weeks earlier as a small "hot spot" in one corner of the greenhouse, but it had been present for some time in those plants based on the amount of stunting and systemic activity involved. The grower tried to manage spread within the greenhouse by roguing-out the "hot spot" by moving the trays that were obviously involved to an outside float bed, plus changing from a weekly preventive program of Dithane to a more aggressive fungicide regime. But, he still lost one large greenhouse full of plants ready to set. The disease had gone systemic in most of the plants, often without foliar spotting, making the disease easily confused with Pythium unless stems were cut to check for systemic infection. About 20% of the plants in all other houses and outdoor float beds had active lesions/spotting, mostly of two recent ages. However, estimating lesion age was difficult, because the antibiotic Streptomycin had also been used regularly. Streptomycin provides little or no control of blue mold but can delay symptom development. Heavy sporulation had been occurring for several days from this site, so some short-range, airborne spread may have occurred during a recent foggy morning.

How did this outbreak develop? Most likely, it was initiated by airborne spores from the Georgia/Florida epidemic. In the trays removed from the greenhouse to the outdoor site, I found a cluster of stunted and dead seedlings in a tray. My strongest suspicion is that initial inoculum arrived in mid April, and if so, there are probably other events "cooking" about southern Kentucky. Trajectory analysis by the North American Blue Mold Forecast System at NC State University predicted spore dispersal into eastern and central Kentucky at that time and we alerted Kentucky's industry to this possible threat. All trays at this site were direct-seeded on the farm, so unlike the past several seasons, there is no direct connection to southern transplants with this outbreak, assuming we have correctly identified the initial source of inoculum. All evidence is consistent with the idea that a single infection center developed initially, it became enclosed in the canopy, then spread slowly to adjacent trays, followed by rapid and widespread development once sporulating lesions became exposed in the upper foliage and inoculum was present in the float water. In several areas there was systemic development without obvious lesions, a symptom we usually associated with root infections, when spore are in the float water or washed into the media/rootball. Rapid spread by airborne spores to the rest of the house and other greenhouses and outdoor float beds appears to have occurred about 7-10 days ago, probably after the disease reached the tops allow spores to be released into the air currents. Short range, airborne spread to other counties during and since that event may have also occurred, especially at night and during the foggy period of last week. Long range spread from this source was unlikely until very recently, based on the extended period of dry and sunny weather. However, airborne spread (long range and short range) are highly probable during the weather system moving through Kentucky the week of May 31.

This site was extremely conducive to blue mold, mainly due to inadequate ventilation of the system and inadequate clipping of plants, but late initiation of a protective fungicide, delayed roguing of infected plants and poor coverage with fungicides also contributed. In part, the grower was relying too heavily on fungicide sprays and not enough on environmental management of the greenhouse system. Since they were using Dithane DF, which is highly toxic to small seedlings, I also suspect they left the "door open" for blue mold during the very small seedling stage. This is exactly why Ferbam is

labeled, and strongly recommended in Kentucky, to bridge the protection gap until the plants can tolerate a stronger fungicide.

Weather conditions statewide in Kentucky have not been favorable for field outbreaks of blue mold most of the time since transplanting started. Therefore, the current risk of blue mold developing in the field is very low, except where infected transplants are being set. But the risk is NOT zero, because some inoculum has arrived during the past month and become established in transplant production systems. Conditions in greenhouses, float beds, and traditional plant beds (if being irrigated) are very conducive for blue mold development should inoculum arrive - as evident from the above example. Also, the weather system forecasted to move in on Memorial Day and continue most of the week, could sharply increase the risk of blue mold should it develop as forecast.

County Extension Agents, agriculture suppliers, and growers are the "eyes and ears" of the Kentucky Blue Mold Warning System. We need for you to be especially watchful now and during the next few weeks for blue mold and report promptly any suspicious disease for conformation. It is very important that we find the initial centers of blue mold activity as soon as possible so that we can more accurately predict past and future movement in order to help growers time their control efforts and assess the risk. Have I included too much or too little area in the watch and warning areas? Only time and better information will tell. We also need samples of blue mold from all initial outbreaks, so that the fungicide sensitivity and other characteristics of the pathogen can be documented. Most County Extension Agents have considerable experience in dealing with blue mold, but there are a number of new agents in the system. Inexperienced County Agents, especially those in eastern Kentucky, need to contact me so that they can be briefed on their role in collection samples of blue mold and advising their clientele during blue mold epidemics.

STATUS IN OTHER STATES: Blue mold is active in the flue cured production of the eastern Carolina's. Confirmed cases have been reported from Jones County, North Carolina and Williamsburg County, South Carolina. Activity continues in southern Georgia and northern Florida. However, it is unlikely that any of these southern sources have provided airborne spores to Kentucky the past two weeks, based on analysis conducted by

the North American Blue Mold Forecast Center at NC State University. However, as long as the disease remains active in the southeast, it could serve to threaten Kentucky's crop with a major change in the weather systems or further buildup. Now that blue mold is established in Kentucky, our primary focus should be on eastern Kentucky, plus watch for similar events that may be brewing, especially in other mountain burley production areas.

CONTROL TIPS:

How much of a threat blue mold becomes to Kentucky now that it is here, depends on how widespread this initial activity has spread, when and where it arrives in the future, how many infected transplants are set, how much inoculum is involved, how conducive the weather in Kentucky remains for development, and action/inaction by tobacco growers. Quick action is now needed in the watch and warning areas. With this scenario, the prudent route is: Do not introduce it on transplants; keep transplant sites protected with fungicides until through transplanting; promptly destroy all transplants once transplanting is over, lest they become sites to harbor buildup; remain alert to changing blue mold situations; and, start spraying fungicides in warning and watch areas and be prepared to make immediate field fungicide applications in the advisory areas should the status change.

Transplant Production: Our methods of transplant production provide favorable conditions in float beds and greenhouses nearly every night for infection should viable pathogen be present. How much more clearly can this be illustrated than with the example from Clay County? Therefore, regular fungicide sprays of either Dithane DF or Ferbam should continue in all transplant production systems because of the high value of these plants and the sudden damage that blue mold could cause before it is detected. Also, continue to operate all transplant production systems as dry as possible, by taking advantage of ventilation opportunities. Clip plants regularly to manage growth and development and to allow better coverage with fungicide. Do not set infected plants to the field and destroy promptly all transplants once transplanting is over or fungicide programs have stopped to avoid allowing them to serve as staging areas for blue mold.

Field: Foliar fungicide sprays are authorized and warranted at this time in fields in the warning or

warning areas. Acrobat MZ and Dithane DF have state-labels in Kentucky covering foliar fungicide applications in the field, and this activity in Clay County has served as an adequate "trip-wire" to fully activate those labels. These are the two most important chemical options for blue mold control, because we are probably dealing with the metalaxyl/mefenoxam-resistant strains of blue mold. These fungicides are most effective when used as preventives against the disease and least effective when treatments begin after the disease has become established. Acrobat MZ is the fungicide of choice in the warning areas, because of the systemic component, but Dithane DF applied well is probably adequate at this stage in the watch area. However, remain alert to changing status of your region.

These fungicides should be applied in a manner to provide complete coverage of the buds, leaves and stems and at weekly intervals to cover new growth. Acrobat MZ should be applied at 2.5 pounds per 100 gallons, adjusting the volume of this fungicide to the stage of growth. Use 20 gallons of spray solution/acre on newly set tobacco, increasing the gallonage as plants grow up to a maximum of 100 gallons per acre on shoulder-high tobacco. Be sure to use adequate nozzles properly directed to the plant to insure complete coverage. The use pattern for Dithane DF is similar to Acrobat MZ, except the mixture ratio is 2 pounds/100 gallons.

Ridomil Gold and Ultra Flourish are labeled for preplant applications for blue mold control, but they will control only the sensitive strains of blue mold. Preliminary evidence suggests we are dealing at least in part with metalaxyl/mefenoxam-resistant strains, so these fungicides will have little impact on this strain of blue mold. We did not detect the sensitive strains in Kentucky during the 1998 season, and only a few cases were confirmed in 1997. The primary use of these two products should be for black shank and Pythium control, not blue mold.

POAST HERBICIDE ON TRANSPLANTED TOBACCO

By J. D. Green

The renewal of the 24(c) label for POAST 1.5E herbicide on tobacco fields was granted by the EPA for use in Kentucky during the 1999 crop season. This herbicide registration was initially in effect for the 1998 crop season. In Kentucky, 24(c) registered products are subject to review each year before they

can be renewed. Therefore, the continued registration of POAST in tobacco fields in subsequent years will depend on a renewal of the 24(c) label or when a full federal label is issued. Highlighted below is more specific information relative to the use of POAST on tobacco fields.

CROP STAGE: POAST can be broadcast over-the-top of tobacco any time after transplanting. The only crop stage restriction is to avoid applications within 42 days of harvest.

WEED SIZE: POAST is a selective herbicide that will control annual and perennial grasses. This herbicide does not control nutsedge or broadleaf weeds. In general, apply when grasses are small (6 to 8 inches) and actively growing. The exception would be shattercane and johnsongrass, which should be approximately 18 to 25 inches at time of first application.

RATE: Apply POAST (1.5 pt/A) plus an Oil Concentrate (2 pt/A). Spray volume can range from 5 to 20 GPA (gallons per acre) with an optimum at 10 GPA. For adequate control insure good spray coverage. For rhizome johnsongrass more than one application may be needed. Make the first application of POAST (1.5 pt/A) when johnsongrass plants are 20 to 25 inches; followed by a second application of POAST (1 pt/A) when regrowth is 12 inches. A maximum of 4 pt/A of POAST can be applied per season to tobacco.

SPOT TREATMENT: In some situations a spot treatment with a back-pack sprayer or other type sprayers may be the desired method of application. To apply, prepare a 1% to 1.5% solution of POAST plus a 1% solution of Oil Concentrate. This is equivalent to POAST 1% (1.3 oz/gal) or 1.5% (2 oz/gal) plus Oil Concentrate 1% (1.3 oz/gal). Apply spray solution to the grass foliage on a spray-to-wet basis.

CULTIVATION: The label states "do not cultivate within 5 days before of 7 days after applying POAST".

during the 1999 crop season

OTHER INFORMATION: Keep in mind that POAST on tobacco is currently allowed as a 24(c) pesticide registration. This supplemental label should be in the hands of the applicator at time of application.

Can POAST PLUS be used instead of POAST? The

only product labeled for use on tobacco is POAST. As many of you know, both POAST and POAST PLUS contain sethoxydim (the active ingredient); however, the amount of sethoxydim in each product formulation is different. POAST 1E contains 1 lb ai/gal and POAST PLUS 1.5E contains 1.5 lb ai/gal of sethoxydim.

CORN

IT'S NOT TOO LATE TO CONTROL CORN ROOTWORM LARVAE

By Ric Bessin

The fireflies are now flying in the early evening so this is the signal that corn rootworm eggs should be hatching. Generally, corn rootworms can be a problem in Kentucky where corn is grown continuously in the same field. Left uncontrolled, rootworm larvae can destroy the root system of plants. Rotation with other crops remains the most effective tactic to prevent damage by these pests in our state.

Corn producers have several options for rootworm control. The best is rotation. But where corn needs to follow corn and there is a high likelihood of damaging numbers of rootworm larvae, then chemical control should be considered. Most rootworm insecticides are applied at planting but there are a few listed in ENT-16 that can be applied as cultivation treatments before symptoms of rootworm injury begin to appear. Use an insecticide treatment and cultivation if rootworm larval numbers exceed 2 per root mass. This is not a rescue treatment, cultivation applications should be made before symptoms of rootworm damage become apparent.

ARMYWORMS MOBILIZING

By Ric Bessin

Corn producers should pay particular attention to no-till fields and conventional tillage fields adjacent to grassy waterways and small grains for armyworms. When scouting fields, look for characteristic armyworm feeding on leaf margins and feeding around the whorl. Cool, wet, spring weather usually favors armyworm development and there has been considerable moth activity over the last several weeks. Smaller plants and less rapidly growing plants may show signs of severe damage.

Are small larvae more damaging than large ones?

While a 1-1/2 inch armyworm will consume more in a night than one that is only a 1/2 inch long, the smaller armyworm will be more destructive because it has most of its feeding left to do. For this reason, it usually does not make sense to treat an armyworm infestation if most of the larvae found are between 1 and 1-1/2 inches long.

If the characteristic armyworm damage is observed while scouting, look on the ground for armyworms or their black pepper-like droppings littering the ground. Remember, during the day, armyworms hide in soil cracks or under clods and crop residues. Armyworms usually feed only at night but some may be found in the whorl of the plant during the day. To sample for armyworms, examine 20 consecutive plants in each of at least 5 random locations in the field. Note the number of plants with the characteristic damage and the size of the larvae. Use 35% as the economic threshold.

While scouting, look for parasitic fly eggs behind the heads of the armyworms. These eggs are minute, light yellow, and shaped like rice. Armyworms with these eggs behind their heads should NOT be counted when determining if armyworms exceed the economic threshold.

EUROPEAN CORN BORER ACTIVITY **By Ric Bessin**

European corn borer moth flight continues to be strong in the Lexington area, so producers should continue to monitor fields during the next few weeks. Higher levels of European corn borer can be expected in fields with more advanced corn or in fields that have excessive weed growth around field margins. Where Bt corn is grown, producers should monitor the Bt corn as well as the refuge corn.

SOYBEANS

EARLY SOYBEAN PESTS **By Doug Johnson**

In certain areas of the state farmers are having a hard time with cutworms in corn. Unfortunately, some found out about their problems long after major damage had been done. With most corn reaching a growth stage that cutworms can not damage, you may want to check on your young soybeans.

Cutworms rarely cause significant damage in soybeans. The threshold is much greater than in

corn (30 % cut plants in soybean versus 3% in corn) but the effect on an individual plant is more final. Corn is generally cut above the growing point which often allows some regrowth but soybean are generally cut below the growing point which results in death of that plant.

The black cutworm is the most common pest in both crops. Control is usually quite good, often better in soybeans than in corn. However, the really important decision is whether or not to apply an insecticide. The only way you can make this decision is to visit your fields and look for this pest. With any luck they will not be there.

You can obtain additional information from IPM-3 KY IPM Manual for Soybeans and ENT-14 Insecticide Recommendations for Soybeans, and from your County Extension Agent for Agriculture.

SHADE TREES AND ORNAMENTALS

DRY WEATHER CAUSING SYMPTOMS **IN LANDSCAPE TREES AND SHRUBS** **By John Hartman**

For some areas of the state, the early June rainfall is apparently a welcome relief to otherwise dry spring weather. County Extension Agents, homeowners, and landscape maintenance workers are observing scorching symptoms on woody plants in some Kentucky locations. Trees that once were apparently healthy have leaves with interveinal and leaf tip necrosis typical of foliage water shortage. The species most often affected is sugar maple, but other trees such as dogwood, Japanese maple, and burning bush are also suffering. Although it is rare to see drought damage symptoms this early in the season, there may be good reasons why drought damage is appearing now in some locations.

For Kentucky, although January precipitation was above normal, February, March, April, and May precipitation has been below normal, especially in the Bluegrass region, according to data from the U.K. Agricultural Weather Center. It is the lack of rainfall in May that has brought on drought symptoms for sensitive plants. While May normally brings 4-5 inches of rain to most locations, all sites where data are being taken were short for the month. The shortage was quite variable, and sites such as Berea, Bowling Green, Campbellsville, Cumberland Gap, Dix Dam, Glasgow, Hardinsburg, Louisville, Mayfield, Paducah, Princeton, and Somerset received over 3 inches of rain in May,

which should have been adequate for most landscape plants. On the other hand, sites such as Covington, Lexington, Spindletop, and Williamstown received less than 2 inches of rain; the latter three sites received not much more than 1 inch. Thus, it is along this I-75 corridor that drought symptoms are appearing, especially in the bluegrass region.

Trees with shallow root systems are most likely to undergo drought damage. Many landscape trees experienced saturated soil conditions last year from May until the middle of July. During this time, deeper roots may have been lost to flooding while roots near the soil surface were most likely to survive. This spring, in locations lacking rain, the shallow roots left from last year have not been sufficient to support the water needs of the trees. In other cases, trees growing in locations where bedrock is close to the surface and soils are shallow, the lack of rain has simply desiccated these sites. In still other circumstances, trees recently transplanted just simply have not been watered regularly.

Fortunately, temperatures have not been above normal, or the damage could have been worse. Established trees withstand drought better than those that have been planted in recent years. The rain this week should be a big help for the landscape plants that have needed moisture. As summer temperatures begin to increase, homeowners and landscape managers will want to continue monitoring the water status of their landscape plants and take appropriate action to avoid drought damage.

LAWN AND TURF

BROWN PATCH WEATHER

By Paul Vincelli

Warm, humid weather experienced or expected this week are favorable for brown patch disease. Several days of humid weather with high temperatures in the low to mid 80's and low's in the mid 60's can be expected to lead to active outbreaks of the disease on cool-season grasses. Perennial rye is perhaps the most susceptible of the hosts grown in Kentucky. Tall fescue is also likely to be infected during these weather conditions, and possibly creeping bentgrass.

On all three grasses, brown patch outbreaks usually produce discrete to diffuse patches of diseased turf

six inches to several feet in size. On *tall fescue*, examine diseased blades closely: lesions resulting from very recent infections are olive-green; as they dry, lesions become tan and are surrounded by a thin, brown border. In *perennial ryegrass*, brown patch causes blades to wither and collapse. Infected leaves initially are dark green or grayish green but quickly become tan as decayed leaves dry. On *creeping bentgrass*, discrete circular patches usually form on putting green turf; active outbreaks have an olive-green "smoke ring", a ring of recent disease which is activity easily visible before the dew dries.

Brown patch is caused by certain strains of *Rhizoctonia solani*, a fungus that is very common in our soils. *R. solani* commonly grows in and feeds on the organic matter in thatch. When temperatures begin to rise enough to stress cool-season grasses, the blades and sheaths become susceptible to infection by this fungus, and so a foliar disease develops. Sustained periods of high humidity are also necessary for destructive outbreaks.

Management

High nitrogen fertility favors this disease on all cool-season grasses, because it creates more lush, succulent foliage that is easily infected. Thus, the more nitrogen is applied in late spring and summer, the more susceptible is the turf. If fertilizer applications are made now on lawns, they should be light (no more than 0.5 lb nitrogen per 1000 sq. ft.). Ideally, the fertilizer should have a significant amount of the nitrogen in a slow-release form, to avoid a flush of highly susceptible growth.

On tall fescue lawns, mowing height can also greatly influence brown patch development. Tall-cut lawns tend to have more foliar brown patch than a closely mowed lawn. This may be because of the higher humidity and closer proximity of leaves, allowing the fungus to grow more easily from leaf to leaf. Close mowing heights, however, can be hazardous to the health of tall fescue. At a mowing height of one inch or less, we have found that the leaf blades of tall fescue can be free of leaf infections yet the tillers can die from root infections by *R. solani*. Thus, a mowing height of 2-3 inches represents the best balance between these and other factors that can limit tall fescue quality.

Fungicides are often an important component of disease control on high-maintenance turf swards like golf turfs. Professional turfgrass managers should be sure to have a copy of the UK Extension publication PPA-1, "Chemical Control of Turfgrass Diseases". This publication provides a great deal of information on fungicides for brown patch and other diseases, including ratings of the efficacies of fungicides based on many years of published research.

For lawns, I normally encourage people to try to manage the disease without fungicides. Probably the principal situation where judicious use of a fungicide in a tall fescue lawn is necessary is to control brown patch in a newly seeded lawn. During the summer following a spring seeding, the immature plants can be easily killed by outbreaks of brown patch during warm, humid weather. Fungicide sprays may be helpful to protect turf seeded this past spring, to prevent loss of turf this summer. Under very high disease pressure, a fungicide spray may even be needed this summer following a seeding made last autumn, especially if the lawn was sown in late autumn. Inspect the lawn regularly during hot, humid weather and be prepared to have a certified pesticide applicator treat the yard if necessary. Systemic fungicides like Heritage, Prostar, and Sentinel provide the longest interval of protection against this disease, and are excellent choices for preventive treatments. For treatment of a highly active outbreak, a foliar application of the contact fungicide *chlorothalonil* (Daconil, for example) or the locally systemic fungicide *iprodione* (Chipco 26019, for example) is very suitable for the initial application in a curative program, based on published research.

More information on brown patch and its management in lawns is available in the UK Extension publication, ID-112.

HOUSEHOLD

BIRDS, BUGS AND BUILDINGS

By Mike Potter

Despite their role in nature, birds may become pests when they nest or roost around structures. In recent weeks, clients have been experiencing a host of problems stemming from birds nesting on their premises.

Significance as Pests - Pigeons, starlings and

sparrows cause millions of dollars in damage by defacing buildings, sidewalks and cars with their droppings. Gutters, downspouts and air vents may become stopped up by nesting materials, and the feathers, filth, and carcasses can lead to secondary pest problems by attracting carpet beetles, mealworms and other scavenger insects.

Birds nesting around buildings may also pose a health hazard to people and farm animals. Mites, lice and bedbugs can invade living areas and bite humans after the nestlings leave or a bird dies. Birds can also transmit salmonellosis (food poisoning), and cryptococcosis and histoplasmosis – systemic fungal infections acquired by inhaling airborne spores which grow in bird droppings.

Bird mites- These bloodsucking ectoparasites normally live on the birds or in their nests, but will sometimes migrate into buildings when a bird dies or abandons the area. People become aware of the problem when they are attacked by mites searching for an alternate food source. This can be quite distressing – as it was, last week, for a family whose newborn infant became infested when mites dispersed from a nest located in the wall-mounted air conditioner in the child's room. The bites cause itching and irritation, but do not result in disease. Bird mites are tiny but usually can be seen with the naked eye. They are about the size of the period at the end of this sentence and appear as slow-moving specs.

Bird mites can survive several days without a host. Unless corrective measures are taken, the occupants will probably continue to be bitten. The first step in controlling bird mites is to remove the birds and their nests. Nests typically will be found in attics, around eaves, window ledges, and rafters, or in gutters or chimneys. Wear gloves when handling dead birds, and a respirator when removing nest materials to avoid inhaling fungal spores and other potential disease-producing organisms associated with the droppings.

After nests are removed, the nest location (and adjacent areas) should be sprayed with an insecticide such as those labeled for flea control. Permethrin and carbaryl are examples of effective active ingredients. A vacuum cleaner or cloth moistened with alcohol or dilute ammonia solution can be used to eliminate mites crawling on walls, floors and other indoor surfaces. Laundering (hot or warm cycle) will kill any mites crawling on clothing or bedding.

DIAGNOSTIC LAB - HIGHLIGHTS

By Julie Beale

Bird Management - The most effective way to avoid problems with pest birds around buildings is to deny them nesting and roosting sites. The best time to do this is before nests are well established. Vents and other small openings should be sealed with 1/4-inch hardware cloth or similar exclusion materials. Attic vents may need to be screened or netted on the exterior to prevent sparrows from nesting between the louvers. Nesting or roosting on ledges, eaves, window sills and other surfaces can be deterred by installing tightly strung, parallel strands of wire just above the surface of the ledge. Roosting can also be discouraged by changing the angle of the ledge to 45 degrees or more with sheet metal or wood boards. "Porcupine" wires (Nixalite®, Cat Claw®), coils (Bird Barrier®), repellent gels, or netting are effective, provided they are correctly installed. Homeowners can purchase bird exclusion materials at hardware or farm supply stores, or may want to call a professional pest control firm.

Before installation, remove nests and droppings to avoid problems with scavenger insects and potential disease pathogens. Gloves and a respirator (dust masks are insufficient) should be worn to avoid inhaling fungal and bacterial spores. Lightly moistening droppings and nesting materials with water before removal reduces the tendency for spores to become airborne.

Fake owls, snakes, balloons, and other visual repellents usually fail because birds soon become acclimated to these objects and ignore them. If these devices are tried, reposition them periodically or vary the pattern. Repeated disruption of nest-building activities, such as with loud sounds or the spray from a water hose, can be effective but require persistence. Such efforts should ideally begin before the birds have formed a strong attachment to the site. If frightening efforts are to be successful, they must continue for several days, and may need to be repeated if the birds decide to rebuild. Toxic baits or shooting of birds should be avoided and in many areas is illegal. Large or complicated bird jobs may require the expertise of a professional pest control or nuisance wildlife firm.

Finally, any leftover bird seed from winter feeding should be stored in tight-fitting containers. Unsealed bags of seed left in the garage or basement are prime targets for meal moths, mice and other pests.

We have seen a few more cases of take-all of wheat in western Kentucky; recent corn problems have mostly been associated with herbicide exposure and nutrient deficiencies (phosphorus, zinc). On tobacco, we are seeing also seeing a number of samples with symptoms of exposure to growth regulator herbicides; diseases such as target spot, Pythium root rot and blackleg (*Erwinia*) are occurring in scattered locations; transplant shock is widespread as small plants are transplanted under dry, stressful conditions.

On fruits, we are seeing black rot of grape in a number of areas, plus more cases of fireblight on pear and apple. Also seen this week were cedar-apple rust on apple (and crabapple), frog-eye leaf spot on apple, and *Rhizoctonia* root rot on strawberry. On vegetables, we have seen bacterial leaf spot on pepper and tomato mosaic virus on tomato. We have also diagnosed a sample of ginseng with *Alternaria* blight.

Diseases of ornamentals diagnosed this week have included: blackleg (*Erwinia*) on larkspur; a bacterial leaf spot on hosta; bacterial blight on geranium; necrotic ring spot and thatch problems on turf; black spot on rose; black root rot on holly; twig blight (both *Kabatina* and *Phomopsis*) on juniper; tip blight and pine wilt nematodes on Scots pine.

INSECT TRAP COUNTS

UKREC, Princeton, KY, May 14-21

European corn borer	1
Black cutworm	2
True armyworm	12
Southwestern corn borer	4

Tennessee - May 17

Southwestern Corn Borer

Dyer County	36
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Lexington, May 17-24

Black cutworm	0
European corn borer	11
Fall armyworm	0
Corn earworm	0
Diamondback moth	0
Cabbage looper	0
Beet armyworm	1
Squash vine borer	0

Lee Townsend, Extension Entomologist

