



# KENTUCKY PEST NEWS

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<p style="text-align: center;"><b>TOBACCO</b></p> <ul style="list-style-type: none"><li>• Current blue mold status</li><li>• Bees and wasps at topping time</li><li>• Wasps, bumble bees and hornets in tobacco barns</li></ul> <p style="text-align: center;"><b>CORN</b></p> <ul style="list-style-type: none"><li>• Corn borers active</li></ul> <p style="text-align: center;"><b>FRUIT CROPS</b></p> <ul style="list-style-type: none"><li>• Apple maggots, in Kentucky?</li><li>• Pre-harvest management of fruit diseases of grape</li></ul>	<p style="text-align: center;"><b>LAWN &amp; TURF</b></p> <ul style="list-style-type: none"><li>• Turf diseases active</li></ul> <p style="text-align: center;"><b>HOUSEHOLD PESTS</b></p> <ul style="list-style-type: none"><li>• Foreign grain beetles - the "new house pest"</li><li>• Curiosities</li></ul> <p style="text-align: center;"><b>VEGETABLES</b></p> <ul style="list-style-type: none"><li>• Spider mites</li></ul> <p style="text-align: center;"><b>DIAGNOSTIC LAB-HIGHLIGHTS</b></p> <p style="text-align: center;"><b>INSECT TRAP COUNTS</b></p>
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## TOBACCO

### CURRENT BLUE MOLD STATUS

By William Nesmith

**Blue Mold Warning** exists for the following Kentucky Extension Areas: Bluegrass, Ft. Harrod, Licking River, Northern Kentucky, Northeast Kentucky, Quicksand, and Wilderness Trail. In addition, a warning has been issued for Southern Ohio and south western West Virginia. A warning means the disease is active and expected conditions should favor continued and increasing activity in the warning area.

**Blue Mold Watch** exists for the following Kentucky Extension Areas: Lake Cumberland and Louisville areas. A watch also has been issued for Southeastern Indiana. A watch means that conditions are favorable for the disease to develop and a source of viable spores is believed to be impacting the area under the watch.

**Blue Mold Advisory** exists for Lincoln Trail and Mammoth Cave areas. We have down-graded the status from a watch to an advisory, because no new activity has been reported during the past two weeks, except in the Chaplin River bottoms of Washington County. It appears there is not sufficient inoculum to drive an epidemic at this time. Some areas have not experienced sufficient moisture to support a major blue mold outbreak. There is not a need to be

spraying area-wide, but communities that had blue mold earlier should scout fields carefully and spray accordingly.

#### Forecasts:

**Regional Blue Mold Status:** Blue mold is firmly established and is increasing rapidly over much of eastern and northern Kentucky, and extending into southern Ohio and south western West Virginia.. Activity is also increasing in southeastern Kentucky and eastern Tennessee. The activity is widespread at low levels, but some strong activity is also present as "hot fields" or "hot spots" within fields. Few growers are applying timely controls, for a variety of economic and personal reasons, so those trying to control the disease could be facing massive inoculum loads in some areas. Growers should not be "looking to their neighbors" for timing their controls, because the neighbors may have very different reasons for not spraying. I urge each grower to assess their situation carefully, based on their particulars. Please understand that the available fungicides will not "resurrect" dead leaf tissues - they prevent infections, slow fungus movement into new tissues, and slow sporulation! Acrobat MZ is highly effective if applied preventively, applied well, and at labeled rates and intervals. All isolates I have tested from the region have been resistant to mefenoxam and sensitive to dimethomorph.

Foliar lesions and blighting range from small



fleck-like spots to large lesions the size of a quarter or larger. Some fields have serious damage already, with as much as 20-40% leaf surface spotted/blighted. Systemic infections of the leaf veins and stems have also occurred, many of those plants breaking over with recent winds. The fungus is building fast on ground suckers in some areas and systemic infection of the stem is occurring via these ground suckers.

The pathogen has been spread this season via airborne spores and transplant borne means, some spread over a month ago. I suspect blue mold can be found in about all counties east of Interstate Highway 65, based on survey data and the few samples submitted to the lab. The current means of spread is airborne spores, moving day and night, between fields and within the field, plus long distance. Most airborne movement has been north and east, but movement to the south and west is occurring. Considerable movement of spores from active sites into communities southeast of those sites should have occurred on July 11/12, in association with the strong storm systems in northern, central and eastern Kentucky.

The disease is now positioned such that damaging epidemics of foliar blue mold could develop immediately in crops with closed or closing canopies. Weather conditions of the past 72 hours have been highly conducive for rapid development of blue mold. Temperatures are just a few degrees too high for best development of blue mold. Had the average temperatures been 5 degrees cooler the last few days, the disease potential would be very high, with much more damage. So, higher temperatures continue to help limit development, but the temperatures are in the range where a lot of damage could still occur. The most aggressive blue mold occurs in sites where air/leaf temperatures drop into the mid 60's for 6-10 hours at night. With cloudy nights and high humidity, the air/leaf temperatures will usually be closer to the soil temperatures, which is now in the 70's in many areas, slowing development somewhat as compared to when high pressure dominate and the night sky is clear.

Areas receiving recent heavy rains could also experience bacterial leaf spots and soft rots operating in conjunction with blue mold, greatly increasing the severity of damage to leaf tissues from a combination of diseases. Rapid growth has made plants very susceptible to infections, especially to the foliar phases of the disease. The cool weather recently experienced 10 days ago has resulted in large lesions, heavy sporulation, and systemic development in low areas. The cloudy, misty weather of July 11 and 12 have been ideal for daytime spread. Temperatures are expected to be higher over the next few days which will slow systemic development, but not high enough to check the disease in the eastern and northern regions of Kentucky. Areas where the soil remains saturated for multiple days could also experience a major epidemic of target spot disease,

which can be equally damaging. Also, fields with black shank could experience heavy losses.

The most active and damaging cases are associated with sites of fast-growing tobacco in river/creek bottoms or sinks where cooler and wetter conditions occur at night. However, some very strong activity in upland and ridge sites is now being reported, also.

In west central Kentucky, only "old" blue mold activity (old foliar and systemic infections) has been observed, and at very low levels. We suspect infected transplants were set in early to mid May. County Extension Agents in these areas are not yet reporting newly developing activity as of July 12. Temperatures were just a little too warm at night at the critical times to sustain the outbreaks. However, these could serve as staging areas for the disease to breakout as more ideal conditions persist. Therefore, the reason for the watch remains.

Status reports by Extension Area or state/region are as follows.

PURCHASE AREA of far western Kentucky: Aware of no reason or evidence to suspect blue mold.  
PENNYRILE AREA of western Kentucky: Aware of no reason or evidence to suspect blue mold.  
GREEN RIVER AREA of northwestern Kentucky: Aware of no reason or evidence to suspect blue mold.  
MAMMOTH CAVE AREA of southwestern/south-central Kentucky: This area is under a Blue Mold Advisory mainly because blue mold was found earlier. It is too hot and dry for blue mold to become a significant problem except in irrigated crops. No new blue mold activity has been reported during the past two weeks, but old activity was found earlier in the counties of: Allen, Barren, and Simpson.  
LINCOLN TRAIL AREA of central and west-central Kentucky: This area is under a Blue Mold Advisory, with some activity counties found earlier in Larue, Nelson, and Washington counties, mainly in river bottoms. The only recent reports come from the Chaplin River bottoms of Washington County, however.  
LAKE CUMBERLAND AREA of southern Kentucky: A Blue Mold Watch has been issued with confirmed activity in Clinton, Pulaski, Taylor and Wayne counties. Limited inoculum has been a key factor to slowing disease development in this area.  
LOUISVILLE AREA: Blue Mold Watch was posted because the disease is present on the southern approaches and east of this area, plus low levels of new activity have been confirmed in Shelby County. Winds associated with low pressure systems the past two weeks should have introduced viable spores into the area from areas to the north and east.  
NORTHERN KENTUCKY AREA: A Blue Mold Warning has been posted. The disease has been confirmed in the counties of Campbell, Grant, Pendleton, and Owen but it is probably present in others. Lush tobacco in creek or river bottoms is

much more likely to have blue mold than ridge-land sites.

**FORT HARROD AREA** of central Kentucky: It is under Blue Mold Warning with confirmed activity in all counties: Anderson, Boyle, Franklin, Garrard, Jessamine, Lincoln, Mercer and Woodford. The disease is active at very low levels in most communities, with isolated cases of light to moderate activity in shady creek or river bottoms. Some very strong cases have been found in old plant beds. Some communities in this area have drought conditions.

**BLUEGRASS AREA** of central Kentucky: This area is under a Blue Mold Warning with confirmed cases in all counties, including: Bourbon, Clark, Estill, Fayette, Harrison, Madison, Nicholas, Powell and Scott. The activity level is mostly low, but some cases of strong and damaging activity are occurring. The potential for damaging activity is high due to an abundance of vigorous tobacco situated in foggy pockets of sinks, creek, and river bottoms. Recent evidence indicates the disease was established much earlier than June 21. One or more major greenhouse transplant producers may have had low levels of disease.

**LICKING RIVER AREA** of north central Kentucky: This area is under a Blue Mold Warning. This area is experiencing the strongest activity in the region and the disease could "explode" with the strong sporulation occurring, cool nights, abundant moisture, and lush growth being experienced. The disease has been confirmed in all counties, including Bath, Bracken, Fleming, Lewis, Mason, Menifee, Montgomery, Morgan, Robertson and Rowan. Bill Peterson, County Extension Agent in Mason County, reported that extremely active and destructive blue mold was present in some fields with strong activity about the region. Disease potential is highly variable, but lush crops in low areas are highly vulnerable. Infected transplants are moving about this area and into others. This region's blue mold is also a threat to southern Ohio and western West Virginia, and recently it served to re-infest the regions to the south and east.

**NORTHEAST KENTUCKY AREA:** This area is under a Blue Mold Warning because blue mold is very active within and prevailing winds will send blue mold spores from other areas directly into this region. I expect great damage to occur in this region, unless a major change in weather occurs. Some areas have received significant and frequent rains and the crop has made lush growth recently. The disease has been confirmed in the counties of: Boyd, Carter, Elliott, Greenup, and Magoffin. All reported activity is relatively new, but it is increasing rapidly in cool, wet sites. The region could sustain serious damage quickly, because all other activity in the state and region are sending spores into this area, plus, the cooler temperatures prevailing in this region will favor systemic blue mold. Moreover, a greater percentage of the crop is young and highly susceptible to systemic infections, the most damaging phase of the disease.

**QUICKSAND AREA** of southeastern Kentucky: This area is under a Blue Mold Warning. There is probably a lot more blue mold in the area than has been reported. The disease has been confirmed in most counties, including: Breathitt, Lee, Owsley, Perry and Wolfe. Growers in this region are unlikely to use preventive fungicides, so the region could generate significant spore loads as at the disease builds.

**WILDERNESS TRAIL AREA** of southeastern Kentucky: It is under a blue mold watch with warnings. The disease has been confirmed in the following counties: Clay, Jackson, Laurel, and Rockcastle. All cases have been found through survey, so the level of activity has not become sufficiently high to get the attention of growers and agents. This area is situated due north of strong activity in Tennessee and weather conditions have been favorable for infections. I suspect there may be a lot of blue mold in this region.

**WESTERN WEST VIRGINIA:** Blue mold has been confirmed in Cabell County, and it has been present there for probably several weeks. Weather conditions are highly conducive for the disease to develop rapidly. Plus, West Virginia should be receiving a large spore load from north central Kentucky. Consequently, I have issued a Blue Mold Warning for the tobacco producing counties of western and northern West Virginia.

**SOUTHERN OHIO:** This area has confirmed blue mold in Adams, Brown, and Gallia counties and should be receiving spores from Kentucky. Large spore loads have probably been impacting southern counties, due to the disease being established well in northern Kentucky, involving nearly the full length of the northern border from near Cincinnati to Huntington. Furthermore, crop and weather conditions are very conducive for blue mold development. Thus, a Blue Mold Warning now is present for this region.

**SOUTHERN EASTERN INDIANA:** Spores should have blown into this area last week from central Kentucky. Thus I have posted a Blue Mold watch. Is it there?

Eastern Tennessee, western North Carolina, and western Virginia also have active blue mold in burley tobacco that are impacting our region with spores. New activity has been reported in Maryland, Canada, Pennsylvania, and the Connecticut Valley.

#### **Control Efforts:**

During a Watch or Warning, controls should be put in place in crops that are at risk of serious damage from blue mold. However, not all field sites are at equal risk of developing blue mold or being seriously damaged by it, if it does develop.

**DESTROY IMMEDIATELY ALL TRANSPLANTS NOT TO BE SET!** Most agents report that transplanting is over, so there is no reason to be

holding onto transplants, except as a way of building up blue mold. Overlapping of transplant production and field production is a key factor in blue mold development. Holding transplants is an excellent way to get things started, especially during seasons when the blue mold potential has been very low and the greatest threat comes from airborne inoculum arriving from other areas.

Foliar fungicide sprays properly made at this time can greatly reduce the potential for blue mold building up in the field. The systemic aspect of this fungicide makes it especially valuable in blue mold control early in the epidemic, because it greatly reduces systemic infections in the lower stem and midribs. Preventive field applications of fungicides are especially needed at this time for sites set with highly susceptible varieties in foggy sites, especially those in rotated land (due to superior growth potential) and creek or river bottoms. Use Acrobat MZ at 2.5 lbs /100 gallons of water, adjusting the concentration and volume of fungicide to the stage of growth, according to the label. Repeat the applications at weekly intervals. Timely topping and sucker control should be practiced to aid in blue mold control.

Streptomycin sprays may also be needed where angular leaf spot is operating with blue mold. Foliar fungicides are not available for controlling target spot.

### **BEES, WASPS PUT STING IN TOPPING** **By Lee Townsend**

Bees, wasps, and many flies are all over aphid-infested tobacco at this time of the year. They are feeding on the sweet "honeydew" or waste excreted by aphids. The wasps and bees will sting readily, especially if grabbed when plants are being topped. An insecticide application of Orthene / Acephate or Golden Leaf Tobacco Spray may reduce numbers temporarily. However, these insects are moving in and out of tobacco fields all of the time so replacements are always showing up. Keep in mind that the restricted entry interval (REI) for these products is 24 hours.

First aid for bee and wasp stings consists of applying ice packs and / or pain relievers to minimize the pain and washing the wound to reduce the chance of secondary infection. In more severe, localized reactions, rest and elevation of the injured arm or leg may be needed.

Normal reactions to a small number of stings affect only the area right around the site. Redness, itching, swelling, pain, and appearance of some sort of welt within 2 to 3 minutes are common. Many of the symptoms are gone in about 2 hrs. Large local reactions are painful and may affect an area of about 2" in diameter. These are at the site of the sting. These usually are most intense after about 48 hrs but may

last as long as a week.

Systemic reactions include the reactions listed above coupled with symptoms and pain in other parts of the body. A constricted feeling in the chest, difficulty in breathing, and intestinal distress can develop. This requires immediate transport to a hospital.

### **CHECK TOBACCO BARN FOR HORNETS AND BUMBLE BEES BEFORE HOUSING TIME** **by Lee Townsend**

Paper wasps, hornets and yellowjackets, and bumble bees often nest in and around barns but also can occur in some unexpected places. In addition to painful stings, people working high up on rails in a barn can be injured as they try to escape these angry insects. As if this were not enough, some people can have a severe allergic reaction to the venom of these insects. Wasps, hornets and yellowjackets are more dangerous and unpredictable than honey bees and should be treated with respect; nests should be eliminated with great care and in a specific manner.

Paper wasps, hornets and yellowjackets construct nests of a paper-like material which is a mixture of finely chewed wood fragments and salivary secretions of the wasps. Paper wasps typically build their umbrella-shaped nests under eaves and ledges. These wasps are not as aggressive as yellowjackets or hornets, and can be eliminated rather easily with a wasp and hornet spray sold at most grocery and hardware stores. These formulations have an added advantage in that they often spray as far as 20 feet.

Treatment of wasps, hornets, and yellowjackets is best performed at night; paper wasps can be eliminated during the daytime provided you do not stand directly below the nest during treatment. Most wasp and hornet sprays cause insects to drop instantly when contacted by the insecticide. Standing directly below a nest increases one's risk of being stung. Following treatment, wait a day to ensure that the colony is destroyed, then scrape or knock down the nest. This will prevent secondary problems from carpet beetles, ants and other scavenging insects.

Hornets are far more difficult and dangerous to control than paper wasps. The nests resemble a large, inverted tear-drop shaped ball which typically is attached to a tree, bush or side of a building. Hornet nests may contain thousands of wasps which are extremely aggressive when disturbed. Treatment can be accomplished by applying a wasp freeze-type, aerosol insecticide or dust formulation (Sevin) directly into the nest opening.

Hornet nests have a single opening, usually toward the bottom, where the wasps enter and exit. It is essential that the paper envelope of the nest not be

broken open during treatment or the irritated wasps will scatter in all directions, causing even greater problems. Following treatment, wait at least a day before removing the nest to ensure that all of the wasps are killed. If hornets continue to be observed, the application may need to be repeated.

Bumble bees can nest in small piles of hay, paper, or other similar materials, usually at ground level. Look for activity around the barn and deal with it before the rush of housing begins.

## CORN

### CORN BORERS ACTIVE

by Ric Bessin

Pepper producers need to be monitoring and managing second generation European corn borer. The larvae of this generation are active now. Sprays need to be applied prior to egg hatch with peppers as only 12 to 24 hours are needed for the larvae to tunnel into the fruit. Producers picking peppers during this time will need to select insecticides to control European corn borer that have preharvest intervals that are compatible with picking schedules.

## FRUIT CROPS

### APPLE MAGGOTS, IN KENTUCKY?

by Ric Bessin

This past weekend, apple maggot flies were found laying eggs on apples in central Kentucky. This is not the first time that they have been reported in the state, but in the past they have been restricted to the northern areas of the state near Cincinnati. Generally, we have regarded apple maggot as a problem north of the Ohio River.

While this is bad news, producers should not change their current management practices. Only a few flies have been seen in the central Kentucky area, not enough to cause economic damage. Additionally, cover sprays used to control codling moth such as azinphosmethyl and phosmet provide excellent control of apple maggot.

The apple maggot fly is small, about 1/4 inch. The thorax is dark with a white spot on the tip. The wings are very noticeable, with four dark cross-bands. There are white bands around the dark abdomen. The larva, when full grown, is about 1/3 of an inch long, cream colored, and legless.

It passes winter as a pupa, and adults emerge from June to September, with most adults emerging in June and July. They puncture the skin of an apple and insert an egg into it. The maggots hatch and feed by tunneling throughout the apple flesh, leaving tiny brown trails. Apple maggots are common in northern

Illinois, Indiana, and Ohio. There is one generation per year.

## PRE-HARVEST MANAGEMENT OF FRUIT DISEASES OF GRAPE

by John Hartman

New grape plantings in Kentucky have been on the increase in recent years. It is important that growers recognize the important diseases facing grapes. A few weeks ago in this newsletter, black rot and cane and leaf spot diseases were discussed. At this stage of the season, bunch rot and bitter rot become more important. As certain grape varieties approach 'bunch closing', a stage when berries within the cluster begin to touch, they become more prone to bunch rot. Bitter rot becomes active now because this disease only attacks after the fruit sugar content begins to rise as they ripen.

Botrytis Bunch Rot. Bunch rot is caused by the fungus *Botrytis cinerea*. Infections by this fungus are favored by moist weather with high humidity. As the grape berries enlarge, it becomes more difficult to get fungicide coverage to the interior of the berry cluster. Tight-clustered French hybrids, such as Seyval and Vignoles and most vinifera varieties such as Chardonnay, Pinot Noir, and Riesling are prone to bunch rot.

Grape Bitter Rot. Bitter rot is caused by the fungus *Greeneria uvicola*, and is a common problem in Kentucky, especially during wet years. The bitter rot fungus only attacks mature berries, unlike black rot which does not infect berries once they are past 5-8% sugar content (veraison). It is easy for growers to mistake bitter rot for black rot because both diseases result in black, shriveled, mummified fruit. The difference is that if the rot develops on mature berries (8% sugar or above), the cause is probably not black rot. This late season rot is likely to be bitter rot.

Disease management. There are some cultural practices that can be implemented to enhance grape disease control. Consider how shading, weeds, irrigation method and timing, soil drainage, plant spacing, mulch, and disease-free plants will influence the disease situation. Use cultural practices which will help the grapes to dry off faster and to reduce the humidity in the canopy of the vines. Removal of leaves around clusters before bunch closing has been shown to reduce losses caused by Botrytis. Over-ripe fruits are more vulnerable to bitter rot, so fruit should be harvested in a timely way. In addition, prune and destroy diseased portions of vines and, if practicable, pick off fruit mummies as they appear so as to reduce inoculum loads. These measures will help to reduce disease and the need for fungicides.

Even with good cultural practices, grape diseases are

so devastating that it is difficult to grow high yields of high-quality grapes in Kentucky without the use of fungicides. For commercial growers, a publication entitled *Kentucky Commercial Small Fruit and Grape Spray Guide for 2000* (ID-94), available at County Extension Offices, provides details of fungicides to use. Proper timing and thorough spray coverage are essential for good control. Direct the spray toward the fruit zone, and use a minimum of 100 gal/A of water. Homeowners should refer to the Cooperative Extension publication entitled *Disease and Insect Control Programs for Homegrown Fruit in Kentucky Including Organic Alternatives* (ID-21).

For bunch rot management, there are four fungicide application times: a) early to mid bloom, b) just prior to bunch closing, c) veraison (beginning of fruit ripening), and d) prior to harvest if needed. Three products, Rovral, Vanguard, and Elevate, are registered for control of Botrytis. It is important to realize that these fungicides are effective only against Botrytis. They provide no protection against black rot, bitter rot, or powdery and downy mildews. These fungicides are prone to development of resistance in the pathogen population, so they should be used carefully. Do not make more than 4 applications of these materials per season. Vanguard is classified as a 'reduced risk' fungicide by EPA due to its favorable environmental and toxicological properties. Elevate can be applied up to and including the day of harvest.

Many of the fungicides used for black rot and cane and leaf spot control are also effective against bitter rot. However, the new systemic fungicides (Nova, Bayleton, and Rubigan) are not effective. Pre-harvest applications of Captan may be beneficial, but earlier sprays were more important because infection likely starts at or near bloom. Observe all pre-harvest restrictions.

## LAWN & TURF

### TURF DISEASES ACTIVE

by Paul Vincelli

Numerous turf diseases have been active recently, with the warm, humid weather of last week. Brown patch probably took the prize for the most active disease overall. Very aggressive brown patch activity was seen last week in creeping bentgrass, perennial ryegrass, and tall fescue. On greens, fungicides that provide at least a moderate level of preventive brown patch control should be used by the first week of June, and the most effective products (Heritage, chlorothalonil products, and possibly others) should be used from about the first of July through mid-August. Although weather over the weekend was cooler and drier, a return to warm, humid weather may necessitate a treatment of tall fescue swards seeded this spring, since they will be particularly

susceptible to stand loss from brown patch this first summer of growth.

We also found a case of Pythium blight on a wet site of perennial ryegrass. It can be very difficult to distinguish the mycelium of Pythium and Rhizoctonia (the cause of brown patch) when these are active on perennial ryegrass. I find I am not comfortable making a diagnosis on this grass without a microscopic inspection. Managers of this grass usually don't have access to a compound microscope, but they can use the Alert on-site test kits that allow users to distinguish these diseases without special lab equipment. These Pythium and Rhizoctonia kits can be obtained from Neogen Corporation in Lansing, MI (1-800-234-5333).

On *Poa annua*, both basal anthracnose and summer patch were showing symptoms last week. Both diseases produce striking yellowing of leaves as the tillers decline. Although summer patch tends to produce more discrete patches than anthracnose, suspect cases should be sent to one of the two UK Plant Diagnostic Labs for diagnosis, since symptoms of these diseases are not sufficiently different for consistently accurate field diagnosis, and the presence of anthracnose setae on foliage (which are visible with a hand lens in the field) does not necessarily indicate that the plants have basal anthracnose. One of the cases of basal anthracnose I diagnosed last week, effective fungicides (including Heritage) had been used, but spray intervals were not tight enough to assure freedom from infection. Furthermore, the one green on the course that showed the disease had unusually high disease pressure from the presence of layering which impeded complete and uniform water percolation. When anthracnose develops, try to identify predisposing factors like that.

*Poa annua* also can decline very quickly during stressful weather in summer in the absence of any infections; a case like that was diagnosed last week, as well. A variety of stress reduction practices can reduce—but not eliminate—this risk on *Poa*. Such practices include: raising the mowing height, double-cutting if higher green speed is desired; skipping mowing every third or fourth day; using lightweight, walk-behind mowers; spiking or using water injection to keep greens from sealing; applying water by hand when irrigation is needed to avoid overwatering; improve air circulation; spoon-feeding with 0.10 to 0.125 lb N every 10-14 days if nitrogen is needed. Stress reduction is thoroughly discussed in Dr. Pete Dernoeden's new book, *Creeping Bentgrass Management, Summer Stresses, Weeds, and Selected Maladies*. A case of southern blight was also very active last week on *Poa annua*; in my experience, two sprays of Prostar are sometimes needed to completely arrest this disease once it is active.

Some perennial ryegrass swards also had notable levels of rust with cinnamon brown pustules, many

with some browning around the pustule. No gray leaf spot had been found as of late last week, although preventive spray programs for gray leaf spot in Kentucky should begin this week or next.

## **HOUSEHOLD**

### **FOREIGN GRAIN BEETLES- THE "NEW HOUSE" PEST**

**by Mike Potter**

Foreign grain beetles are very small (about 1/16-inch long), reddish brown, and are often mistaken for flour beetles or other stored product insects. The key characteristic to look for in identifying this beetle is the presence of a slight projection or knob on each front corner of the the segment directly behind the head. A microscope or good quality hand lens is necessary to see this character.

Foreign grain beetles are frequently problems in new houses (less than 5 years old). These beetles are one of a group of beetles called "fungus beetles" that feed on the molds and fungi that grow on poorly seasoned lumber or wet plaster and wall board. If they are found infesting flour, grain, or other stored products, the products are generally moldy or in poor condition.

When new homes are built, damp wood is often covered with molds or mildew which attracts the beetles. The beetles are also attracted to accumulations of sawdust trapped behind walls during construction. Eggs are laid on this food material and the larvae develop on the surface fungi. The adults usually become a problem in late summer when they move out of wall voids and are attracted to windows and lights. Foreign grain beetles can also be associated with plumbing leaks, condensation problems, or poor ventilation.

There is no fast or easy way to get rid of foreign grain beetles. Control is difficult because the breeding source of the beetles (sawdust, etc) is sealed up within the walls. The ultimate solution is time (and patience). Most new homes dry out naturally within the first 1-4 years, and the fungi and molds disappear along with the beetles. Drying time can be enhanced by increasing ventilation, e.g., by use of fans and air conditioning. Homeowners can gain some relief with directed applications of aerosol sprays containing pyrethrins, but such treatments would need to be repeated frequently as the beetles continue to emerge. A vacuum cleaner works just as well and removes any visible beetles which are present. Pest control companies may be able to provide additional relief by locating the infested wall areas or source of dampness (usually next to where the beetles are most abundant) and injecting residual aerosols or dusts into cracks and crevices along baseboards and into the wall voids.

If the homeowner can tolerate the beetles during the period when they are most active (late summer) the problem will usually resolve itself. Some comfort can be taken in the fact that foreign grain beetles are only a nuisance by their presence, i.e., they do not bite or damage wood, fabric or stored food in sound condition.

### **GENERAL CURIOSITIES**

**By Lee Townsend**

Wheel bugs are large gray insects that appear to have half of a gear wheel on their back and grasping-like front legs. They are beneficial, feeding on caterpillars and other soft-bodied preys. Wheel bugs can give a painful bite with their thick beak. The area around the bite may hurt for a time and individual reactions vary with the persons sensitivity to the saliva injected with the bite. Wheel bugs are not poisonous but can make a strong impression. (EntFact 426)

Saddleback caterpillars are slug-like caterpillars with a pair of horns on each end and a green body with a large brown spot surrounded by a white margin. They have sharp, hollow spines filled with an irritant. The spines break off in the skin and cause a painful rash on any that brushes against them. Saddleback caterpillars are common on corn but also can occur on beans, some trees, and shrubs. They can be controlled by Bt sprays but usually the numbers are low and it is easiest just to be careful and watch for them when picking sweet corn or beans. (Several other stinging caterpillars can be harmful EntFact 003)

Samples of the Eastern Hercules beetles have begun to arrive. They are curiosities because of their size(2"+). Color ranges from a light olive with scattered dark splotches to dark brown-black. Males have an arching horn on the head and prothorax. The adults are attracted to lights at night and may be found resting near them on walls or trees. The larvae are white grubs that live in decaying log and stumps.

Nursery web or fishing spiders, which resemble wolf spiders, have been very active this summer. With "leg spans" of about 2" inches, these large, gray spiders are an awesome sight. This is especially true with unexpected encounters. The female can be carrying a large egg sac. They prefer undisturbed, relatively humid sites.

## **VEGETABLES**

### **SPIDER MITES**

**By Ric Bessin**

Two-spotted spider mites are occasional pests that can cause serious damage to some vegetable crops during hot dry weather. Mites can injure tomatoes, beans, muskmelons, watermelons, and sweet corn.

Extended periods of hot, dry weather favors mite buildups. Infestations usually first occur at the edge of a field, typically near rank weed growth or dirt roads.

Generally mites feed on the undersides of leaves. They use their sucking mouthparts to remove sap from plants, giving the upper leaf surface a speckled or mottled appearance. Leaves of mite infested plants may turn yellow and dry up, and plants may lose vigor and die when infestations are severe. The undersides of affected leaves appear tan or yellow and have a crusty texture. Heavy infestations of the two-spotted spider mite produce fine webbing which may cover the entire plant. Mites can be identified by shaking symptomatic leaves onto a sheet of white paper or by observing infected leaf areas with a hand lens. In hot dry weather, mites can cause plants to drop leaves in a few weeks. Fruit from severely infested plants are often unmarketable because defoliated plants tend to yield small, poor quality fruit.

The eight-legged female mites are yellow to dark green with two to four dark dorsal spots. At 1/60 of an inch, they are almost microscopic. Males are smaller with more pointed abdomens. The tiny, spherical, eggs are laid on the undersides of leaves, often under the webbing produced by the mites. A six-legged, colorless larva that emerges resembles the nymph and adult, but is only the size of an egg. Both of the eight-legged nymphal stages look like the adult, but are smaller and not sexually mature. Under optimum conditions of high temperature and low humidity, the life cycle may be completed in 7 days. Females can lay 200 eggs.

Natural enemies of mites are present in and around fields and can keep mite populations low. Many insecticides used for control of insect pests severely reduce numbers of beneficial insects that keep mite populations in check. Therefore, apply insecticides only as-needed, rather than at regularly scheduled intervals. When possible, select pesticides which will have the least impact on beneficial insects.

Destruction of weeds adjacent to and in fields should be done in the fall or early spring. Growers should manage weeds around fields carefully during the season. Grass should be mowed regularly. Spraying or mowing of weeds after growth has become rank may increase the movement of mites to cultivated plants.

Use of overhead-sprinkler irrigation may provide some short-term relief of mite infestations.

Miticides are available for some vegetable crops but should be used only where justified. As with aphids, mark infestations with flags, and check them again every 3 or 4 days. Mites can easily be moved to infested plants on clothing, so always examine

infested areas last during inspections. If the infestation is not spreading, treatment will not be required. Because mite populations often are localized, spot spraying may be effective. If you spray only a portion of the field, spray a buffer zone of 100 to 200 feet beyond the mite infested area.

Resistance to pesticides has increased the difficulty of controlling these pests. Because mites usually occur on the undersides of leaves, applications of contact miticides need to be directed at both the lower and upper leaf surfaces. Mite eggs are resistant to most miticides, so repeated applications are often necessary to control infestations. Two applications spaced 5 to 7 days apart may be necessary.

## DIAGNOSTIC LAB-HIGHLIGHTS

by Julie Beale

Samples last week included *Stemphylium* leaf spot on alfalfa; *Rhizoctonia* root rot and southern blight on soybean; blue mold, black shank, *Fusarium* wilt, soreshin, brown spot, frog-eye, angular leaf spot, tomato spotted wilt virus, alfalfa mosaic virus and manganese toxicity on tobacco.

On fruits and vegetables, we diagnosed anthracnose on blackberry; black rot on grape; rust on sweet corn; anthracnose on cucumber; alfalfa mosaic virus, bacterial spot and southern blight on pepper; and *Fusarium* wilt, tomato spotted wilt virus, bacterial wilt, southern blight and *Septoria* leaf spot on tomato.

On ornamentals and turf, we saw *Rhizoctonia* root rot on impatiens and chrysanthemum; bacterial spot on ivy; brown patch on bluegrass and fescue; *Pythium* on annual bluegrass; powdery mildew on dogwood; *Phytophthora* root rot on chestnut, barberry and rose; bacterial spot on English laurel; *Guignardia* leaf blotch on horsechestnut; and leaf blister on oak.

## INSECT TRAP COUNTS

### UKREC, Princeton, KY -July 7-14, 2000

Fall armyworm .....	3
European corn borer .....	17
Southwestern corn borer .....	613
Corn earworm .....	42

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.