CURRENT BLUE MOLD STATUS REPORT
by William C. Nesmith

A Blue Mold Watch was issued on July 19 for the Quicksand and Wilderness Trail Extension Areas. On July 22, the Fort Harrod Extension Area was added to the watch. Preventive spray programs should be put in place immediately within areas under a watch, especially for fields of excellent tobacco located in foggy or irrigated sites.

Conditions in much of southeastern Kentucky have become increasingly favorable (but not ideal due to high temperatures) for blue mold development during the past week and over the weekend. Much of this area has been receiving moisture, in some form, so the foliage is wet at night, plus much of the tobacco is at a very susceptible stage. Tobacco farms in the Quicksand and Wilderness Trail Extension Areas of Kentucky have been in the path of spores moving from Tennessee as well as Kentucky for much of the past week. New sporulation is being reported from Breathitt, Boyle, Clark, Casey, Estill, Jessamine, Jackson, Lincoln, Pulaski, and Rockcastle Counties. The overall level of activity is still light in Kentucky, but the level of new activity is increasing rapidly. Consequently, blue mold could begin to develop at economically damaging levels.

Eastern and central regions of Kentucky need to also remain alert to the possible movement of mass inoculum from the southern Appalachian mountains (western Virginia, western North Carolina, and eastern Tennessee) into Kentucky with winds moving from the southeast. Prevailing winds should keep most of those spores moving away from most of Kentucky’s tobacco, but a high pressure system located east of Kentucky accompanied by hazy skies can allow significant viable inoculum to reach Kentucky.

Hot dry weather has been keeping blue mold in check in most of Kentucky. However, field scouting is still urged for all areas of the state where irrigation is being used or frequent rainfall has occurred.

See issue 948 of Kentucky Pest News (April 22, 2002) for the foliar fungicide options labeled in Kentucky for use in the field.

STINK BUGS ON TOBACCO
by Lee Townsend

Single wilted leaves on tobacco plants often are the result of sap feeding by stink bugs. Most commonly the damage is done by either the brown or the one-spotted stink bug. Both are about 1/2" long brown, shield-shaped insects with a light yellow underside.

Enzymes injected into the plant by the sucking mouthparts as stink bugs remove sap will cause that leaf to wilt or collapse. On hot sunny days wilted leaves can be scalded. Frequently the leaf will recover and the only permanent damage is death of tissue in about a quarter-sizes or larger area immediately.
around the feeding site. The dead tissue will drop out leaving holes surrounded by yellow to brown areas.

Initial symptoms require several hours to develop so the culprit is long gone by the time the injury is apparent. Consequently, insecticide sprays in response to symptoms are useless. Stink bugs are good fliers and move frequently from plant to plant as well as into and out of the field. Because of their transient nature and generally minimal damage, insecticide applications specifically for stink bug are rarely justified.

BEES, WASPS CAN PUT STING IN TOPPING
by Lee Townsend

Bees and wasps are visiting tobacco flowers and can be very abundant on plants that are heavily infested with aphids. In the latter case, the bees and wasps 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 if stinging insects are numerous. However, they 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 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 symptoms listed above, coupled with 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.

BUMBLE BEE CONTROL IN TOBACCO BARNs
by Lee Townsend

Barns provide good nesting sites for bumble bees. They react angrily to defend the nest and have powerful sting. It is better to try to deal with them in a pro-active manner than after some one is hurt.

Bumble bees are social insects. An overwintering queen selects the nest site. While abandoned mouse nests are a real favorite, most any dark cavities containing fibrous material, are suitable. Old tobacco bed covers stuffed in a corner of the barn or most any accumulation of sticks or debris can become a nest.

Developmental time from egg to adult for bumble bees takes between 2 and 3 weeks. With enough food and a good nest site, colonies can ultimately contain from 50 to 400 bees. Bumble bees have relatively smooth stingers and can use them repeatedly and effectively to defend their nest.

While bumble bees are important pollinators, they can be dangerous neighbors when living in and around work areas. If these cumbersome insects are seen regularly around barns, watch to determine where they are entering their nest. Sevin dust is an effective means of control in hazardous situations. See Entfact 620, Controlling wasps, hornets, and yellowjackets, for more details, tips, and safety procedures.

CORN

RISK FACTORS FOR FUMONISIN IN 2002 CORN CROP
by Paul Vincelli

Fumonisin contamination represents a concern for corn producers in most regions of the country, but particularly in the Southeast, where the risk of contamination is greatest. Fumonisins can cause equine leukoencephalomalacia (“moldy corn disease” of horses) and pulmonary edema of swine. Fumonisins also promote certain human cancers. Last November, the US FDA issued recommendations for maximum levels of fumonisins in corn and corn by products for use in human foods and animal feeds (Table 1).

Weather records from the UK Agricultural Weather Center indicate that there is a broad swath of counties along the Ohio River from Mason County in Northeast Kentucky west to the Purchase Area where,
as of early this week, rainfall in most areas during the past 30 days was 2-3 inches below normal. This is a concern because drought prior to and during silking is considered a potential risk factor for fumonisin contamination, and some corn crops in this swath of counties were in silk during the past 30 days.

Another risk factor is insect injury to kernels. Some corn crops were sowed later than normal because of the wet weather this spring. This could lead to higher injury from kernel feeding insects in some fields, especially if sown past May 10-15 in Western Kentucky. This could result in a higher risk of fumonisins, especially if drouthy weather continues through silking in these crops. As reported in the March 11, 2002 issue of Kentucky Pest News, this risk factor concern would be reduced in fields planted to hybrids that express the Bt endotoxin in kernels.

Please understand that the above are not perfect predictors of fumonisin contamination. The development of mycotoxin contamination in crops is highly variable and is influenced by complex and interacting factors, such that it is impossible to confidently forecast their occurrence. Nevertheless, these risk factors raise a yellow flag about this possibility.

Consider the following suggestions as the harvest season approaches.

Sound harvest practices. Generally the best moisture level to start harvest is between 25-27 percent. Leaving the corn in the field for a long period after maturity increases the risk of contamination from mycotoxins. The combine should be adjusted to harvest the grain with a minimum of kernel damage. Shelled corn should be dried to 16% or less within a day or two of harvest, as mycotoxin-producing fungi grow readily in shelled, high-moisture corn.

Proper storage. Stored shelled corn should be aerated regularly and monitored during storage. More information on grain storage are provided in the UK Extension publication AEN-20 "Principles of Grain Storage", available through county Extension offices.

Testing for fumonisins. For those situations where the producer or the buyer is interested in testing the grain, rapid detection test kits are available for detecting fumonisins and other mycotoxins. A list of commercially available mycotoxin test kits is provided in Table 2. Be sure the test used is approved by the USDA Grain Inspection, Packers and Stockyard Administration. Laboratories that can test for mycotoxins are listed in a UK Extension publication “Laboratories For Mycotoxin Analyses”, PPFS-MISC-1, available at County Extension Offices or on the web at http://www.ca.uky.edu/agcollege/plantpathology/PPAExten/PPFShtml/ppfmisc1.htm

Feeding Contaminated Grain. Recommendations of the US FDA are provided in Table 1. Recognize that there may be many other known or unidentified compounds produced by Fusarium fungi that are toxicologically important. Predicting the effects of utilizing feeds of known analytical composition is still difficult. Do not feed corn screenings to livestock, especially sensitive species. Fumonisins are often concentrated in screenings, since concentrations are typically highest in broken and damaged kernels.

<table>
<thead>
<tr>
<th>Human Foods</th>
<th>Total fumonisins (FB$_1$+FB$_2$+FB$_3$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degemermed dry milled corn products (e.g., flaking grits, corn grits, corn meal, corn flour with fat content of &lt;2.25%, dry weight basis)</td>
<td>2 parts per million (ppm)</td>
</tr>
<tr>
<td>Whole or partially degemermed dry milled corn products (e.g., flaking grits, corn grits, corn meal, corn flour with fat content of &gt;2.25%, dry weight basis)</td>
<td>4 ppm</td>
</tr>
<tr>
<td>Dry milled corn bran</td>
<td>4 ppm</td>
</tr>
<tr>
<td>Cleaned corn intended for masa production</td>
<td>4 ppm</td>
</tr>
<tr>
<td>Cleaned corn intended for popcorn</td>
<td>3 ppm</td>
</tr>
</tbody>
</table>

Table 1. Maximum Levels of Fumonisins in Corn and Corn By-Products Recommended by the U.S. Food and Drug Administration (November 9, 2001)
**Animal Feeds**

<table>
<thead>
<tr>
<th>Corn and corn by-products intended for:</th>
<th>Total fumonisins (FB₁+FB₂+FB₃)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equids and rabbits</td>
<td>5 ppm (no more than 20% of diet)**</td>
</tr>
<tr>
<td>Swine and catfish</td>
<td>20 ppm (no more than 50% of diet)**</td>
</tr>
<tr>
<td>Breeding ruminants, breeding poultry and breeding mink*</td>
<td>30 ppm (no more than 50% of diet)**</td>
</tr>
<tr>
<td>Ruminants ≥3 months old being raised for slaughter and mink being raised for pelt production</td>
<td>60 ppm (no more than 50% of diet)**</td>
</tr>
<tr>
<td>Poultry being raised for slaughter</td>
<td>100 ppm (no more than 50% of diet)**</td>
</tr>
<tr>
<td>All other species or classes of livestock and pet animals</td>
<td>10 ppm (no more than 50% of diet)**</td>
</tr>
</tbody>
</table>

*Includes lactating dairy cattle and hens laying eggs for human consumption.  
**Dry weight basis.

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**Table 2. Commercially Available Test Kits for the Detection of Mycotoxins in Corn***

<table>
<thead>
<tr>
<th>Test Kit</th>
<th>Supplier</th>
<th>Level of Detection</th>
<th>Equipment Cost</th>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriscreen Neogen Corp.</td>
<td>DON</td>
<td>Screening</td>
<td>$6.00-7.00</td>
<td>Starter lab kit, up to $225</td>
</tr>
<tr>
<td>Veratox Neogen Corp.</td>
<td>DON</td>
<td>Quantitative</td>
<td>$6.00-7.00</td>
<td>Microwell strip Reader, $1,875. Starter lab kit, up to $970</td>
</tr>
<tr>
<td>Mycotest Romer Labs, Inc.</td>
<td>DON</td>
<td>Quantitative</td>
<td>$16.00</td>
<td>UV Lamp (long wave) $209</td>
</tr>
<tr>
<td>Zearlatest VICAM</td>
<td>Zearalenone</td>
<td>Quantitative</td>
<td>$16.00</td>
<td>Fluorometer $4,000</td>
</tr>
<tr>
<td>Fumonitest VICAM</td>
<td>Fumonisins</td>
<td>5-10 Quantitative</td>
<td>$10.00</td>
<td>Fluorometer $4,000</td>
</tr>
</tbody>
</table>

*Information courtesy of Dr. Gary Parker, UK Swine Extension Specialist.

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**FRUIT CROPS**

**ROTTEN APPLES—WILL SPRING RAINS MEAN MORE DISEASE?**

by John Hartman

Apple fruit rots can occur in the orchard and in storage after harvest. Decayed fruit represent a significant loss to growers because much of the investment in the crop is made before the fruits show any indication of decay. Several of the fungi that cause fruit rot disease can begin their infections at bloom or shortly thereafter. The fungi may invade...
Black rot is caused by the fungus Botryosphaeria obtusa. The fungus infects blossoms and leaves (causing frog-eye leaf spot) as twigs, branches, and fruits. Black rot inoculum originates from colonized dead wood within the tree or from mummified fruit and fruitlets. If black rot infections appear on the sides of growing fruit in summer, the source of inoculum can often be traced to one or more killed fruitlets located above the infection site within the tree canopy. Fruit with black rot infections at the calyx end usually result from sepal infections that occurred early in the season. These infections, which may happen as soon as the bud scales loosen, typically develop into blossom end rot. Rot around the core or seed cavity is another symptom of early season infection of the carpel, especially in cultivars with ‘Delicious’ parentage. Black rot is one of several different fungi that may be present in fruit with moldy core. Late fruit infections occur through cracks in the cuticle, wounds and lenticels. Eventually infected fruit dry down to mummies, which remain attached to the tree, serving as inoculum sources in the spring.

White rot of apple is caused by the fungus Botryosphaeria dothidea. The fungus is ubiquitous in nature, causing diseases on a wide variety of other woody hosts such as birch, chestnut, willow, mountain ash, quince, pear, sweet gum, Rhododendron, grape, roses, stone fruit, blueberry, blackberry, currant and gooseberry. As with black rot, the white rot fungus can also infect woody tissue and cause cankers. The white rot fungus does not infect leaf tissue. Latent infections may occur on immature fruit up to 7 weeks after petal fall. Most rotted fruits drop, but some may shrivel and remain attached to the tree, serving as a source of inoculum for further fruit infection.

Managing Black Rot and White Rot. Care should be taken to avoid wounding or pruning branches during periods of drought when trees are most susceptible to canker development. Summer pruning in particular may increase the incidence of infection. Sanitation is the key to managing these diseases. Removal and destruction of infected branches, cankers and other sources of inoculum, such as mummified fruit, is highly recommended. Removal of current season fire blight strikes is also important, as they provide inoculum levels are high. Captan and Flint are the most effective fungicides available for summer applications. Mancozeb is also very effective, but cannot be applied when fruit are at greatest risk of infection during late July and August. Benlate, Topsin-M, Rubigan, and Nova are relatively ineffective. No apple variety is completely immune to the disease; however, some varieties like ‘Fuji’, ‘Golden Delicious’, and ‘Empire’ are more susceptible.

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Dry eye rot (blossom end rot) and calyx end rot are normally minor diseases in Kentucky. These diseases appear when very wet weather occurs during bloom as happened in Kentucky this spring. Dry eye rot is caused by Botrytis cinerea, the "gray mold" fungus. Calyx end rot is caused by Sclerotinia sclerotiorum. The two diseases are often confused with each other because symptoms of both begin at the calyx end of the fruit and both cause a reddish color at the site of infection. Usually, isolation of the pathogen is necessary for positive identification. Fruit infected with either of the pathogens have a tendency to drop prematurely. If harvested, fruit infected with dry eye rot will develop gray mold in storage. The diseases are typically minor and do not spread to other fruit in summer once symptoms appear. Therefore, by the time these diseases appear it is too late to do anything about them.

Sooty blotch and flyspeck are important apple summer diseases but don’t cause fruit rot. Sooty blotch symptoms are just now appearing on apple fruits that have not been treated with fungicide. We
know from previous research that there is a correlation between accumulated leaf wetness hours and appearance of symptoms of sooty blotch. Beginning at 10 days after petal fall, the number hours of leaf wetness from dew or rain each day are added together. When the total approaches 200 hours, we typically see sooty blotch symptoms appearing on fruits of untreated trees. In many Kentucky locations, that total was reached last week.

GREEN JUNE BEETLE
by Ric Bessin

This year is shaping up to be quite the year for green June beetle. The adults are now active across the state on various field, vegetable and fruit crops including field corn, sweet corn, peaches, apples, blackberries, and grapes. On field corn, green June beetle is of minor importance as it is primarily a pollen feeder. However, in fruit crops green June beetle can be a very serious pest because it begins to feed directly on the fruit as the sugar content begins to increase. Once green June beetle injures the fruit, Japanese beetle and wasps begin to attack the wounded fruit.

Green June beetles numbers appear to be higher than what we have seen in the last few years. They are effective sprays listed in ID-94 (tree fruit) and ID-94 (small fruit), but sprays may need to be reapplied if populations are high. In addition, the beetles selectively attack the ripest fruit close to harvest. Sevin does a good job of controlling the beetles, but has a 7 day pre-harvest interval on many small fruit crops and a 3 day pre-harvest interval on some tree fruits. Other less effective products may need to substituted for Sevin on small fruit due to the long pre-harvest interval limitation.

Green June beetle populations are cyclical and populations were high for several years about ten years ago. So I expect that we are likely to fight these battles for a few years before the numbers decline.

GRAPE ROOT BORER: THE UNSEEN PEST OF GRAPES
by Ric Bessin

While surveying for sharpshooters and other leafhoppers on grapes this weekend, I spotted what initially looked like a large, brown paper wasp sitting on a grape leaf. But it wasn’t a paper wasp at all, it is a grape root borer (GRB) female moth. They these moths fly during the day and are mimics of paper wasps. Less than a minute after spotting the female, it was joined by two male moths. That same afternoon, I found two other female GRB moths. At least in this one location, GRB moths were active.

GRB is one pest of grapes that is often ignored until it becomes a serious problem affecting the vineyard. Symptoms of GRB attack include poor vine growth and fruit set, even loss of some vines. The larvae spend 22 months feeding in the roots and crown of grape vines before emerging as adult moths. Generally the moths are active from July through September and lay eggs on grape leaves or weeds. The eggs hatch and the larvae drop to the ground and burrow down to the roots.

Good weed management assists with control of GRB. Eliminating weeds around the base of vines reduces the sites for egg laying and improves spray coverage for GRB control. In small plantings, plastic mulch works as an effective barrier around the base of vines not allowing the GRB larvae from becoming established. Anether alternative is control through the use of mating disruption. Commercially available pheromone dispensers are placed in the vineyard at a rate of 100 per acre. This prevents the males moths from locating the females and mating. This method works best where vineyards are located away from woodlots and other wild grapes which serve as a source of mated female GRB moths. In terms of chemical control, Lorsban is the only insecticide labelled for control of GRB. This treatment is applied directly to the ground under the grape trellis at least 35 days prior to harvest. Do not allow this spray to contact the fruit or foliage. We recommend treatments for GRB if more than 5 percent of the vines are found to have GRB pupal cases emerging from the soil.

VEGETABLES

BEET ARMYWORM IN WESTERN KENTUCKY
by Ric Bessin

Last Friday, a photo of a beet armyworm was sent from a Daviess county pepper field. This can be a serious pest of the fruit of peppers, tomatoes, and eggplant in Kentucky. Many of the commonly used vegetable insecticides have provided little, if any, control of this insect.

The beet armyworm is distinctive, the larvae is light to dark green in color with a dark and light stripe on each side of the body. Above the second pair of true legs there is a dark spot. When scouting fields, look for the small larvae near the developing buds. Often the youngest leaves are full of holes. Larger larvae can be found anywhere on the plant and readily attack the fruit.
On peppers and tomatoes, we have several insecticides that are effective against beet armyworm. This includes SpinTor, Confirm, Avaunt, and XenTari. Growers will need to follow pre-harvest interval restrictions carefully. On eggplant, SpinTor and Confirm provide effective control.

**DIAGNOSTIC LAB HIGHLIGHTS**  
by Julie Beale and Paul Bachi

Samples during the past week included brown spot (Pysoderma) on corn; Rhizoctonia and Fusarium root rots on soybean; black shank, soreshin, frogeye leaf spot, blue mold, angular leaf spot, and tomato spotted wilt virus on tobacco.

On fruit and vegetable samples, we have seen cedar-apple rust, scab and bitter rot on apple; Botrytis fruit rot on raspberry; scab on nectarine; anthracnose on bean; bacterial leaf spot, blossom end rot, Pythium and Rhizoctonia root rots, and southern blight on pepper; Fusarium root and crown rot on squash; bacterial spot/ speck and canker, root knot nematode, Fusarium wilt, and southern blight on tomato.

On ornamentals, we have seen leaf streak and anthracnose on daylily; summer patch on perennial ryegrass; take-all on bentgrass; brown patch on fescue; Phomopsis canker on weeping cherry; powdery mildew on crabapple and dogwood; and black root rot on holly.

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

<table>
<thead>
<tr>
<th>Insect Trap Count</th>
<th>Count</th>
</tr>
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<tbody>
<tr>
<td>Black Cutworm</td>
<td>0</td>
</tr>
<tr>
<td>True armyworm</td>
<td>22</td>
</tr>
<tr>
<td>Corn earworm</td>
<td>7</td>
</tr>
<tr>
<td>European corn borer</td>
<td>1</td>
</tr>
<tr>
<td>Southwestern corn borer</td>
<td>379</td>
</tr>
<tr>
<td>Fall Armyworm</td>
<td>1</td>
</tr>
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</table>

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.