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CORN

Trichoderma Ear Rot of Corn

By Paul Vincelli

Trichoderma ear rot is one of the less common ear rots of corn in Kentucky. However, it is possible to occasionally see severe outbreaks of this disease.

This ear rot produces abundant growth of green fungal material between kernels, often involving much of the ear (Figure 1). Sometimes, in severely affected ears, kernels germinate within the husk (Figure 2). Not all greenish molds on rotted corn kernels are caused by Trichoderma fungi. However, Trichoderma can be commonly recognized by dark green to bluish-green fungal growth between kernels, often involving large areas of the ear.

I visited a very severe outbreak of this disease last season, and we did some follow-up research in this case. Here are some of the things we learned:

1. We confirmed that the fungus is a Trichoderma, using DNA sequencing. We could not positively identify the species even using DNA sequencing, in part because the taxonomy of Trichoderma fungi is still a "work in progress".
2. Diseased ears were associated with injury to the developing ear, in this case due to flocks of birds (Figures 3 & 4). Others

have made similar observations in the past. We also checked for internal infection by Trichoderma of stalks and cobs, and it was uncommon. These observations collectively suggest to me that the injury to the developing ear was the factor that allowed severe Trichoderma ear rot to develop (Figures 3-4). Such injuries would allow both windblown spores and rainfall to enter the ear, setting the stage for ear rot development.

3. Certain species of Trichoderma may produce mycotoxins, and so we checked badly diseased grain for toxins, including T-2 toxin. I was pleased to learn that no mycotoxin that we tested for was above detectable levels.



Figure 1. Trichoderma ear rot of corn.



Figure 2. Corn ear with *Trichoderma* ear rot, with some kernels germinate in the husk (Imagine by Bill Beachum, Pioneer Hi-Bred).



Figure 4. Same ear as in figure 2, with husk leaves partially removed.



Figure 3. Corn ear showing bird damage.

SOYBEAN

Root Mealybug

By Lee Townsend

The trochanter mealybug was found while investigating poor growth in a Lewis Co soybean field late last week. The symptoms, marginal yellowing and stunting similar to that seen with potassium deficiency, were limited to a very small low-lying portion of a field that had been in grass hay and some clover for the previous 6 years. The infestation consisted mostly of adults and egg sacs. Only a few newly-hatched nymphs were seen.

Infestations of the root-feeding mealybug were discovered Co during 2008-2009 in Bourbon, Fleming, and Lewis counties and on red clover and curly dock roots in Fayette. This sap feeding insect was also found in scattered soybean fields in Ohio, Indiana, and Iowa during that time. This mealybug is something to consider when troubleshooting soybeans showing stunting and

yellowing. Carefully dig some plants and examine the roots for the insects and their egg sacs. The trochanter mealybug appears to be widely distributed and associated with previous legumes and reduced tillage.



Figure 5. Marginal leaf yellowing of soybean associated with trochanter mealybug (photos by P. Konopka).



Figure 6. White arrow points to adult on infested root, as well as woolly egg sacs (photo by P. Konopka).

TOBACCO

Disease Update

By Kenny Seebold

Blue mold finally moved out of Pennsylvania, and fortunately for Kentucky growers, it went north. On July 21, a case of the disease was reported in an 8-acre field of tobacco in Massachusetts. Apparently, this was a very mild outbreak that affected a handful of plants in the planting. Current information from the North American Plant Disease Forecast Center at NC State indicates that the threat to Kentucky and surrounding states from blue mold remains extremely low. It's still a good idea to keep watch, though, and be prepared to act if blue mold threatens in the coming days.

It does seem that both target spot and frogeye leaf spot are on the increase, however, based on what I'm seeing and hearing. As was mentioned in a previous article ([KPN No. 1276](#)), Quadris fungicide, applied at 8 fl oz/A, is the recommended material for target spot and gives good control of disease if applied at least once beginning at layby. A second application could be needed at topping to help with a late-season flush of disease. Timing Quadris applications for frogeye control should be the same as for target spot unless disease pressure is heavy before layby. In these cases, treat with Quadris as soon as possible. A follow-up treatment may be necessary later in the season if disease is active, particularly around topping time. If multiple applications of Quadris are needed, the label requires alternation with a fungicide which has a different mode of action from Quadris. For frogeye and target spot, our only options would be Manzate Pro-Stick, Dithane DF, or Penncozeb (mancozeb fungicides). So a grower applying Quadris at layby could come back with mancozeb 2-3 weeks later, and then treat with Quadris either before or after layby to stay compliant with the label.

Given the recent spell of very hot and humid weather, it's important to remember that Quadris can cause injury to tobacco, and the potential for damage seems to increase at higher temperatures

and higher application rates. To reduce the potential for phytotoxicity, growers should try to treat earlier or later in the day to avoid very high temperatures and full sunlight. As a reminder, never mix Quadris with foliar fertilizers, sucker control materials, surfactants, liquid Dipel, or pesticides formulated as emulsifiable concentrates (EC) since serious leaf burn can occur. Other materials, such as Warrior and Orthene, are used routinely with Quadris, but have caused injury in a small number of cases; growers should use caution with these materials as tank-mix partners and follow the guidelines mentioned earlier for spraying in hot weather.

For recommendations on the control of tobacco diseases, please consult past issues of the Kentucky Pest News, or the Kentucky-Tennessee Tobacco Production Guide (ID-160), available at <http://www.ca.uky.edu/agc/pubs/id/id160/id160.pdf>.

LANDSCAPE

Green June Beetle

By Lee Townsend



Figure 7. Green beetle.

Green June beetles are out and will be active through August. The adults are attracted to over-ripe fruit but

will feed on a range of sweet things, from tree sap to corn silks. Beetles that locate a suitable feeding site will release an aggregation odor to call in others. Their feeding damage, odor, and excrement will ruin what they attack.

It is difficult to protect commodities under attack with insecticides because most of those products

with short harvest intervals provide very limited effectiveness. Netting that excludes adults may be the best alternative in many situations.

DIAGNOSTIC LAB HIGHLIGHTS

By Julie Beale and Paul Bachi

Agronomic samples this week have included brown spot (*Physoderma*) on corn; Septoria leaf spot, Rhizoctonia root rot, thrips injury and potassium deficiency on soybean; black shank, Pythium stem rot, frencing, Fusarium wilt and root knot nematode on tobacco.

On fruits and vegetables, we have seen double blossom and white druplet on blackberry; black rot and Isariopsis leaf blight on grape; brown rot on nectarine; Fusarium root/stem rot and ashy stem blight (*Macrophomina*) on bean; Rhizoctonia stem rot on broccoli; black rot on kale; Pythium root rot on pepper; angular leaf spot on melon; Fusarium and Rhizoctonia root/stem rots on pumpkin; Pythium crown rot on squash; scab on potato; and early blight, Septoria leaf spot and Fusarium wilt on tomato.

On ornamentals and turf, we have seen Pythium root rot on chrysanthemum; Sclerotinia stem blight on cleome; rust on hollyhock; bacterial blight and Pythium root/stem rot on geranium; Alternaria leaf spot on impatiens; dodder on petunia; cedar-quince rust on hawthorn; bacterial leaf spot on cherry and cherrylaurel; leaf blotch on buckeye; bacterial spot on hydrangea; Seiridium canker on Leyland cypress; spot anthracnose on linden; powdery mildew on magnolia; anthracnose on maple and redbud; Botryosphaeria dieback, anthracnose and Tubakia leaf spot on oak; chemical injury on pine; Botryosphaeria dieback on rhododendron; Rhizosphaera needlecast on spruce; take-all patch on bentgrass; and summer patch on bluegrass.

INSECT TRAP COUNT

July 15 - 22

Location	Princeton, KY	Lexington, KY
Black cutworm	60	0
Armyworm	16	618
Corn earworm	21	3
European corn borer	0	0
Southwestern corn borer	21	0
Fall armyworm	0	0

Graphs of insect trap counts for the 2011 season are available on the IPM web site at -

<http://www.uky.edu/Ag/IPM/ipm.htm>.

View trap counts for Fulton County, Kentucky at -

<http://ces.ca.uky.edu/fulton/InsectTraps>

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.