

KENTUCKY PEST NEWS

ENTOMOLOGY • PLANT PATHOLOGY • WEED SCIENCE

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The 32nd Annual UK Pest Control Short Course will be held September 24-26, 2002. Call or e-mail Darlene Thorpe for more information, 859-257-5955 or dthorpe@uky.edu.

CORN

SCOUT FOR STALK ROTS OF CORN

by Paul Vincelli

The drought stress during and following silking that many areas experienced this season may lead to reduced stalk strength and to stalks rots in corn. Grain fill is a period of heavy demand for photosynthate (the products of photosynthesis), and drought stress at that time can reduce stalk strength. Here is how this happens. Within the plant, biosynthetic metabolic pathways –including photosynthesis—are sensitive to even mild water stress, so less photosynthate is produced by plants when water becomes limited. Yet plants under water stress will still attempt to fill the grain. However, when photosynthesis cannot meet the demand, the plants draw carbohydrates from the stalk. This weakens the stalk, and it sets it up for invasion by stalk-rot fungi.

Two stalk rots are possible under the conditions prevailing this summer: Fusarium stalk rot and charcoal stalk rot. A case of Fusarium stalk rot was confirmed recently in Kentucky. It causes a whitish to light pinkish color in the

pith, and no distinctive fruiting bodies are present on the plant. Thus, field symptoms and signs are nondescript, and a field diagnosis is not really possible. With charcoal rot, the pith contains many tiny black fungal structures, giving it a charred appearance. The roots may be rotted and black. Charcoal rot also attacks soybean, and has been diagnosed in several fields in Western Kentucky this season. Corn fields badly affected by charcoal rot may be best rotated to a crop other than soybean.

The weather experienced this summer may lead to enhanced stalk rot pressure in some fields. In addition, other factors can increase the risk of stalk rots and lodging. High plant populations are probably top on the list. Experienced corn agronomists at the University of Kentucky feel that many fields are 2000 plants per acre higher than they need to be for optimal yields. High nitrogen level can also increase the stalk rot risk. Ear set in a high position on the plant can also increase the risk, by making the plant top-heavy.

While widespread and serious problems with stalk rots seem unlikely at this time, it is always advisable to scout corn for lodging potential as it approaches maturity. This practice helps identify fields that should be harvested early and dried down. A simple way to scout for lodging potential is to walk the field and push plants 12-18 inches from vertical at about chest height. Stalks that don't spring back have the potential to lodge. If 10-15% of the field shows such lodging potential, plan on harvesting the field soon after the grain is physiologically mature (development

of black layer, about 30% grain moisture).

SOYBEANS

PODWORMS, GREEN CLOVERWORMS AND OTHER WORMS IN SOYBEANS

by Doug Johnson

There have been several reports of podworms and green cloverworms infesting soybeans. Most have come from the Purchase and Pennyrile areas but nowhere in the state is safe. You need to watch for these pests.

GREEN CLOVERWORM

Green cloverworms are in most soybean fields but usually are not a problem. They are controlled by natural enemies and usually the population does not reach economic levels. However, they can not be ignored.

Green cloverworm larvae are slender, light green caterpillars with three pairs of white stripes running the length of the body. There are three pairs of legs near the head, three pairs of fleshy legs near the middle of the body and a pair of fleshy legs at the tail end. Green cloverworms wiggle violently when disturbed. These caterpillars are often parasitized or diseased. Parasitized larvae will have small eggs on their body often near the head. Diseased larvae may appear “watery” and behave sluggishly or be covered in a fungal growth.

Green cloverworms feed extensively on soybean leaves. Young larvae skeletonize the underside of the leaf. Older larvae eat all of the leaf except the largest veins.

In wide row beans, sampling can be done using the shake cloth sample. Make one four-foot shake-cloth sample per location. Do not count the parasitized or diseased larvae. In large narrow row beans you will probably be better trying to estimate the percentage of defoliation the worms have caused.

Treatment decisions are based on a variable threshold scheme; either the number of green cloverworms per row foot or the percentage of defoliation. These tables can be found in ENT-13, Insecticide Recommendations for Soybeans and in IPM-3, IPM Scout Manual - Soybeans. See below for web site access.

SOYBEAN PODWORM

Soybean podworms (aka corn earworm) are the more important pest. While it may take 20 green cloverworms per row foot or more to cause a problem, it will only take two podworms per row-foot to be economically important.

Also, you will rarely see much podworms feeding on the leaves. Therefore, you will not see them unless you get out into the field and look at the pods.

Young podworm larvae are very small and grow to 1-1/2 inches in length when full grown. They are usually tan to pale green with several dark stripes down the back. Color may vary greatly with some appearing almost black.

The soybean podworm feeds mainly on pods but may also feed on leaves, stems, and flowers. Larvae will eat the pod wall and consume the seed. Full season and/or narrow row spacing soybeans fields form a complete canopy sooner and are less likely to have a problem. Delayed maturity may increase the risks of late-season damage. More severe damage tends to be present when large larvae are present on plants with fairly mature pods. This is because the larvae will now feed on the beans inside the pods rather than foliage.

Sampling for the soybean podworm in wide rows should be made using shake cloth. At each sample site, using a two foot cloth, bend the plants over the cloth and shake them vigorously. Note the number of larvae in a four foot sample area at each site. The number of sites you need to examine in a field is based on the size of the field. The economic threshold for soybean podworm is two worms(caterpillars) per row foot.

In narrow rows, the process is more difficult. The canopy is so tight that it is almost impossible to get into the field to sample. One must make the best educated guess possible based on pod damage and the presence of worms in areas which can be sampled. Remember, you have far more plants per acre in narrow row beans.

Good control of this insect is possible. The main danger is that most people do not look for podworm damage. Remember you will NOT necessary see any leaf feeding. You must examine the pods.

FALL ARMYWORM

You may find either or both of the previous pests in mixed populations with fall armyworms. Like the green cloverworm, fall armyworm is a foliage feeder. It is therefore not as big a threat to soybeans as the podworm. If you find the green cloverworm and fall armyworm in mixed populations, use the defoliation tables to make a decision about whether or not to treat.

Fall armyworm larvae vary from light tan to nearly black with three thin light yellow lines down the back. There is a wider dark stripe and a wavy yellow red splotched stripe on each side. They resemble both armyworms and corn earworms but fall armyworms have a prominent white inverted Y mark on the front of the head. The spherical gray

eggs are laid in clusters of about 150, usually on the leaves of host plants. Egg masses are covered with a coating of moth scales or fine bristles

You can view color pictures of these soybean insects and their damage to soybean at:
<http://www.uky.edu/Agriculture/IPM/scoutinfo/scout.htm>

You can find threshold and defoliation tables for all these insects in ENT-13 and IPM-3 and insecticide recommendations if needed in ENT-13.

If insecticidal control is warranted recommendations can be found in ENT-13 or on our web site at:
<http://www.uky.edu/Agriculture/PAT/recs/rechome.htm>

Scouting manuals may be down loaded from the IPM website at:
<http://www.uky.edu/Agriculture/IPM/ipm.htm>

These publications may also be obtained from your county extension office.

FRUIT CROPS

YOUNG APPLE TREES ARE SUSCEPTIBLE TO SOUTHERN BLIGHT by John Hartman

Southern blight can sometimes be a serious problem on young apple trees. Several 3-year old apple trees planted into an orchard last fall were found to be infected with southern blight when examined recently in our plant disease diagnostic laboratory. Southern blight, caused by the fungus *Sclerotium rolfsii*, is primarily seen on apples in the southeastern U.S.; however, we do commonly see this fungus attacking vegetables, ornamentals and weeds in Kentucky.

Symptoms and signs. The causal fungus, *S. rolfsii*, strikes the lower stems and roots of apple trees, killing the bark and girdling the trees. The disease is characterized by the presence of a white, web-like mycelium, which often forms at the bases and on the lower stems of affected trees. Tree death usually occurs rapidly. Additional signs of the fungus, tan to dark brown spherical sclerotia about the size of mustard seeds (1/16 to 1/8 inch in diameter), form in the mycelial mat. The fungus spreads from previously infected plants such as weeds or from infested decomposing plant material to new trees via sclerotia and mycelium in the soil. Sclerotia also serve as overwintering structures. The disease is most severe on 1- to 3-year-old trees. As the bark thickens, trees become resistant to infection.

Disease management. The key to managing southern blight is management of previous crops and weeds. Avoid planting sites where the disease has been severe on previous crops such as clover, tomato, and soybean. The fungus can also exist as sclerotia in old pasture soils from previously infected weeds. Plow or till apple planting sites a year in advance to allow organic matter to completely decompose before planting apple trees. Keep the soil around the bases of trees free of dead organic matter that may serve as a food base for *S. rolfsii*. This includes orchard weeds that are killed by herbicides. Large dead weeds provide an ample food base for the fungus. Apple rootstocks differ somewhat in their susceptibility to southern blight. The most resistant rootstock currently used is M.9. No fungicides are currently registered on apples for southern blight control.

PIERCE'S DISEASE APPEARING ON GRAPES by John Hartman

Pierce's disease symptoms are again appearing on leaves of grapes in Kentucky. This disease was first found in Kentucky last year. On some varieties, symptoms appear as well-defined brown scorching of the leaf margins with a narrow yellow zone between the brown tissue and the green leaf tissue remaining at the leaf center away from the margin. Growers or agents observing these symptoms on grape are urged to have grape leaves with symptoms sent to our plant disease diagnostic laboratory in Lexington to be tested for presence of the causal bacterium, *Xylella fastidiosa*.

VEGETABLES

EARWORM CONTROL ON LATE SWEET CORN IS A CHALLENGE by Ric Bessin

Field corn has dried down in much of the state and corn earworm pressure is intense for late maturing sweet corn. The relatively small sweet corn acreage acts almost like a magnet to draw in the moths with the scent of fresh corn silks. Management and control of corn earworm is much more difficult in the late season. Some important factors to consider to improve control of this pest are timing of insecticide applications, getting proper coverage of the plant, and selection of the appropriate insecticide.

Timing is key to getting proper control of corn earworm in sweetcorn. The corn earworm moth lays its eggs on fresh silks. So during the silking period, before the silks dry, corn earworm needs to be managed. Generally, producers spray when the first silks appear, some wait until 10% silking for the first spray. Then sprays are spaced at 3 to 5 day intervals depending on the level of insect pressure and temperature. Temperature is important as the silks grow

faster under high temperature. As silks continue to grow after an insecticide application, untreated silk is available to the earworm larvae. When temperatures are over 90F, I recommend that spray intervals be shortened by one day. The other factor is insect pressure. Late in the season, there are many times the numbers of moths that attacking corn than what was observed in the early summer. Pheromone traps can be used to monitor moth activity and help make decisions about spray intervals. Guidelines can be found in IPM-10, Sweet Corn IPM.

Another important consideration is spray coverage. Generally, ground applications will be superior to aerial applications. The key is to get thorough coverage of the middle third of the plant. The ear zone is where protection is needed. Ground equipment should be configured with drop nozzles to target this area for coverage.

Insecticide selection can also be important and it may affect the length of spray intervals. Generally, pyrethroid insecticides provide excellent control of corn earworm larvae in sweet corn. However, under high temperature extremes, pyrethroids are not as effective as they are at lower temperatures. Under these conditions, other insecticides may be preferred.

LIVESTOCK

PROTECTING HORSES FROM MOSQUITOES by Lee Townsend

Horses are particularly susceptible to encephalitis (inflammation of the brain) caused by the West Nile Virus. This virus can be picked up by any one of several species of mosquitoes that feed on infected birds. Infectious mosquitoes carry the virus particles in their salivary glands and infect susceptible hosts when they feed. The virus can be passed on to healthy birds, other animals, or humans when the infected mosquito takes another blood meal. Horses, humans, and most other animals are considered to be “dead end” hosts. They can become infected but do not develop a high enough level of the virus to infect other mosquitoes that may feed on them.

While source reduction, removal of mosquito breeding sites, should be the foundation of any mosquito control program, reduction of exposure to adult mosquitoes is important, also. This approach should not be the sole means of protecting horses but is an important part of the whole program.

! **Stabling** The northern house mosquito, an important potential vector, feeds around dawn, dusk, and at night. True to its name, it will enter structures to feed. Keeping horses in stables with screened windows will help to protect them. Fans that keep the air moving also can

interfere with mosquito flight.

! Repellents with quick knockdown and long residue can help to cut mosquito feeding. Active ingredients vary with the brand but can contain the synthetic pyrethroids cypermethrin or permethrin, or the natural “pyrethrins”. They may be purchased as ready-to-use products that are sprayed or wiped on, or as concentrates that must be diluted before use. Repellents will have to be reapplied periodically. Those containing synthetic pyrethroids should last longer than products containing pyrethrins.

! Residual sprays on stable and barn walls. Several products containing permethrin are registered for application to barn and stable walls where mosquitoes may be resting.

Continue to check standing water for signs of mosquito larvae and pupae- signs of breeding.

LAWN & TURF

GRAY LEAF SPOT APPARENTLY HAS SLOWED DOWN, BUT MODERATE RISK IS STILL PRESENT by Paul Vincelli

After an aggressive start in a number of locations in various areas of the transition zone in mid- to late July, gray leaf spot seems to have slowed greatly in Kentucky. The predominance of dry air masses in Kentucky through much of July and August probably was the factor responsible for the lack of notable disease activity in the past several weeks.

We're not out of the woods yet. Serious epidemics are still possible through September, and weather has been humid in the region over the past few days. However, while early indications suggested 2002 would be a repeat of the epidemic year of 1998, the good news is that this year seems to be shaping up to have no more than moderate disease pressure. At this level, the disease can still do a lot of damage, but probably will do so only in localized sites and not across large regions. In the meantime, I am still recommending fungicide protection on high-maintenance perennial ryegrass swards until mid-September. Stay tuned...

HOUSEHOLD

CRICKET WARS by Mike Potter

“Hundreds of black, ½ -inch long bugs are hopping out of my

grass, flower beds, and onto my patio. When I open the garage door in the morning, a bunch more jump inside. What are these critters and how do I get rid of them? Several homeowners have called with this complaint in recent weeks. The culprits are field crickets.

Warm, humid conditions often produce outbreaks of field crickets during late summer in Kentucky. Infestations are especially common in thatchy lawns and around buildings that are heavily mulched, landscaped or overgrown. Crickets lay their eggs in moist soil; consequently, homeowners who irrigated regularly during July appear to be having the worst problems. Immatures (nymphs) pass through several stages or instars, and there may be 1 to 3 generations per year.

Management -- Field crickets are primarily a nuisance pest; they do not bite, transmit diseases or infest foodstuffs. Since they are dependent upon moisture, they typically do not survive indoors more than a few days. One option is to do nothing other than vacuum or sweep up those that manage to get inside. Removing excess mulch (a 2 to 3-inch layer is plenty for landscaping), weeds and debris close to the foundation will make the area less attractive to crickets. Installing tight-fitting door sweeps, sealing cracks, and performing other forms of exclusion (see *Entfact-641 How to Pest-Proof Your Home*) will further limit the entry of crickets, spiders, ground beetles and other unwanted pests.

For clients demanding immediate relief, pest proofing can be supplemented with exterior insecticide treatment. Homeowners will get the most for their efforts by applying longer-lasting liquid formulations containing pyrethroids (e.g., Bayer Advanced™ Lawn & Garden Multi-Insect Killer Concentrate, Spectracide Triazicide Soil & Turf Insect Killer Concentrate). Sevin (carbaryl) also is effective. Apply with a pump up sprayer, hose end sprayer, etc. treating along the bottom of exterior doors, up underneath siding, and around the outside perimeter of the foundation in a 2 to 10-foot wide band along the ground, and 2-3 feet up the foundation wall. Pay particular attention to the crack where grass meets the foundation.

Homeowners or businesses who choose not to tackle these activities may wish to hire a professional pest control firm. Field cricket problems subside with the onset of cooler weather.

FOREIGN GRAIN BEETLE ALERT **by Mike Potter**

"I keep seeing tiny, brown beetles crawling along windows, walls, and floors of my new home. I spray the ones I see, but they keep coming back. What kind of bugs are these and how do I get rid of them?" These are the questions typically asked by

clients who have foreign grain beetles, especially when the calls come in late summer (August-September).

Foreign grain beetles are very small (about 1/16-inch long), brownish, 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 segment directly behind the head. A microscope or good quality hand lens is necessary to see this character (*See Entomology Entfact-610, Foreign Grain Beetle*).

Foreign grain beetles are frequently a problem 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 is concealed within the walls. The ultimate solution is time and patience. Most new homes dry out naturally within the first few 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. A vacuum cleaner can be used to remove beetles emerging from hidden locations. Pest control companies may be able to provide limited 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 emergence of the adult beetles during August-September, the problem will usually resolve itself. Most newly-built houses cease to have problems after a few summers. 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 a sound condition.

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

Recent field crop samples diagnosed in the Plant Disease Diagnostic Laboratory included crazy top (downy mildew) in corn; charcoal rot, Rhizoctonia root rot, and frogeye leaf spot in soybean; black shank, Fusarium wilt, soreshin, blue mold, target spot, brown spot and lightning injury on tobacco.

On fruit and vegetable samples, we have seen downy mildew and black rot on grape; southern blight and sooty mold/flyspeck on apple; wire stem on cabbage; Rhizoctonia root rot, Fusarium stem rot, manganese toxicity, and pepper mild mottle virus on pepper; vine borer on pumpkin; watermelon mosaic virus 2 on cantaloupe and squash; cucumber mosaic virus on squash; tomato mosaic and tobacco mosaic viruses on tomato; and Cercospora leaf spot on watermelon.

On ornamentals, we have seen Pythium root rot and growth regulator injury on chrysanthemum; summer patch on bluegrass; powdery mildew and drought stress on dogwood; Botryosphaeria canker on ash; Nectria canker on linden; and mimosa webworm on honeylocust.

INSECT TRAP COUNTS

UKREC, Princeton, KY --August 9-16

True armyworm	1
Corn earworm	59
European corn borer	2
Southwestern corn borer	263
Fall Armyworm	1

August 16-23

True armyworm	5
Corn earworm	99
European corn borer	5
Southwestern corn borer	287
Fall Armyworm	6

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.