



KENTUCKY PEST NEWS

ENTOMOLOGY • PLANT PATHOLOGY • WEED SCIENCE

On line at - <http://www.uky.edu/Agriculture/kpn/kpnhome.htm>

Number 924

July 9, 2001

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CORRECTION

KARNAL BUNT UPDATE: MISTAKE IN LAST WEEKS ARTICLE

by **Don Hershman**

One of the main points I was trying to make in last week's karnal bunt article was that the risk is fairly low that the current karnal bunt situation in Texas will impact Kentucky. A significant factor to consider is that known cases of karnal bunt have not been documented near Kentucky.

Unfortunately, in last week's Kentucky Pest News article I said that the karnal bunt outbreak in 1996 occurred in the SOUTHEAST. This was a mistake, as I meant to say SOUTHWEST. Arizona was the main state involved in the 1996 outbreak. In addition, a small area of New Mexico and central Texas were impacted because a small amount of infected seed was planted, but those fields were destroyed.

In any event, until the recent occurrence in north

Texas this spring, there have been no additional confirmed outbreaks in the U.S. since 1996. However, it would not be a great shocker if someone looking hard would have found some airborne spores drifting through the midsouth at some point this spring. After all, many scientists believe that the outbreaks in 1996 and 2001 originated in Mexico where karnal bunt is firmly established. The aspect of the disease cycle which is greatly in our favor is that the causal fungus requires rather cool, wet conditions during the post-heading period to infect wheat; these conditions are hard to find in Kentucky in mid- to late-May. However, we still have a great deal to learn about karnal bunt, so time will tell how firmly established the disease becomes in the U.S. Nonetheless, the relative scarcity of karnal bunt in the U.S., despite the fact that spores of the fungus surely make their way into the U.S. from Mexico regularly, suggests to me that the disease is having a hard time becoming established in the U.S. Experience tells us that quarantine measures are rarely adequate when an aggressive disease organism is involved.

The above notwithstanding, the main reason karnal bunt is such a serious issue is due to trade policies and politics. It is not much of a yield-limiting disease, except in rare situations, no matter where the disease occurs. However, the serious trade laws and quarantine measures for farms with confirmed karnal bunt, make this a very serious disease. The fact that the recent finding in Texas is at the very southern edge of a wheat belt that stretches all the way into Canada has some folks really concerned. And rightly so!

I am sorry for any confusion or undo concern that the error in last week's article may have caused.

TOBACCO

RECENT STORMS INCREASED DISEASE POTENTIAL IN TOBACCO AND COMMERCIAL VEGETABLES by William Nesmith

In addition to the direct crop damage resulting from the recent storms in some communities, the potential for infectious diseases has also increased sharply for burley and dark tobacco, and commercial vegetables located in those communities. Below are some points to consider.

Direct Physical Damage:

* Wind and hail directly damaged the crops, and where fruit were involved, even minor damage made them unmarketable with today's consumers.

* Drowning has occurred in some low sites.

Moreover, at current soil temperatures, standing water is not necessary to experience drowning, because low oxygen levels occur in the root zone on most clay loams that experienced saturated soils for more than a few hours. Solanaceous crops such as peppers, tomatoes, and tobacco are very sensitive to low oxygen in the root zone. The above-ground symptoms vary depending on which roots are damaged, the evaporation rate, and when the affected plants are observed relative to the drowning event. The most acute symptoms relate to sudden wilting (flop), yellowing and death. However, equally damaging, are the symptoms developing more slowly such as stunting, yellowing, poor fruit development, and secondary infectious disease development.

*Saturated soils will prevent or delay equipment

use in the fields, yet the need for spray application is immediate. Growers need to keep this in mind when planning field layouts - leave grass spray strips so timely sprays can be applied when soils are saturated.

Increased Infectious Diseases:

Bacterial Diseases: Expect a sharp increase in bacterial soft rots and foliar bacterial diseases, because considerable water-soaking of tissues occurred which helps to drive the bacteria directly into the plants. In tobacco this includes hollow stalk and angular leaf spot and on vegetables this includes the soft rots and a wide range of leaf and fruit spots. Spray programs for bacterial diseases should have been in place all season, and with recent weather events, adjusted by closing the spray intervals to the shortest permitted by the labels. Where growers have waited until now to start bacterial spray programs in peppers or tomatoes, little can be done if the disease was active before the storms.

Phytophthora Diseases: Most of the crops we grow are plagued by their particular Phytophthora disease. Recent weather events have been near ideal for this group of pathogens, so expect sharp increases in black shank of tobacco, buckeye rot of tomatoes, and Phytophthora blight of peppers and cucurbits. Additional foliar sprays and/or soil-directed sprays are warranted for these diseases, but check crop recommendations and labels carefully. For example, in tobacco additional applications of Ridomil Gold or Ultra Flourish can be applied to the soil to help reduce losses from black shank.

Fungal Leaf Spot Diseases: Most fungal leaf spot diseases will be favored by the recent weather: Anthracnose of peppers; early blight, anthracnose, and Septoria blight of tomatoes; anthracnose, gummy stem blight, and Alternaria blight of cucurbits; and, blue mold and target spot of tobacco. Aggressive spray programs for these diseases are warranted in vegetable crops - See ID-36 for details. In tobacco, blue mold controls should be in place, consult the warning system for details. Controls are not available for target spot.

SORGHUM

SORGHUM PESTS

by Doug Johnson

Kentucky's producers of grain sorghum (milo) should be on the look out for two major pests. The most important of these is the sorghum midge. However, the fall armyworm is also active in the state.

Sorghum midge has the potential to be a devastating pest. It poses the greatest threat to late planted sorghum, and in sorghum fields that are planted sequentially. Johnsongrass also is a host for this insect so infested fields will be more at risk than fields clear of Johnsongrass.

The sorghum midge may be present in fields from about boot stage through the remainder of the season. However, it is A PROBLEM ONLY DURING BLOOM!

The sorghum midge lays its eggs in the open bloom. The maggot hatches and immediately enters the kernel, hollowing the it out from the inside. No damage will be seen until much later in the season when the kernels begin to fill out.

The sorghum midge is a very small fragile fly. This 1/8" long orange insect may be confused with winged aphids. However, most of the aphids will be black or dark green. Also when winged aphids appear, colonies of wingless individuals will also be present.

Scout for sorghum midge early in the day, generally before 10 AM. They will not be present in the hottest part of the day. Check 20 heads in each location by placing a clear plastic bag over the grain head and shaking it. Carefully remove the bag and examine it against a light background. Look for small orange fly-like insects.

The treatment threshold is an average of one sorghum midge per head. If you detect a population equal or greater DURING SORGHUM BLOOM an insecticide application should be considered. Midges are not difficult to control. See ENT-24 for insecticides that may be used.

We are a bit on the early side for fall armyworm problems. However, the insect has arrived in the state and will be active for the remainder of the season. Like the midge, fall armyworm will be the greatest threat to late planted sorghum. This insect

will begin by feeding on leaf material but will also feed on developing grain heads.

Fall armyworm larva are light tan to green to black with three yellow hair lines down the back. Each side will have a darker stripe above a waxy yellow stripe splotched with red. The front of the head has an inverted "Y" shaped white mark. There are three pair of true legs just behind the head, four pair of fleshy legs near the center of the body and one pair of fleshy legs near the rear end.

Larvae will feed in the whorl producing very ragged damage and lots of fecal pellets. Head feeding is characterized by kernel removal but not necessarily accompanied by the obvious production of fecal material.

When deciding if a control is required, treat if 50% or more of the plants are infested with live larvae. For head feeding when there is an average of two small worms per head. See ENT-24 for insecticides that may be used.

ALFALFA

BLISTER BEETLES AND ALFALFA HAY By Lee Townsend

Blister beetles are a relatively common group of insects that contain a chemical (cantharadin) that can cause blisters on the skin. Cantharadin can be toxic to animals, especially horses, that eat a sufficient amount of the insects. Blister beetles are active in Kentucky from mid-July through August but are not common in Kentucky alfalfa fields.

The best way to deal with blister beetles is through preventive management practices in July and August that will keep fields from being attractive. Cut hay on a schedule that keeps the alfalfa and weeds from producing the flowers that attract beetles and keep them in the field. Practice good weed management to keep other flowering plants to a minimum.

DO NOT use a hay conditioner when harvesting blister beetle-infested alfalfa or fields with heavy bloom of any flowers. Sickle bar mowers and some of the more modern circular or rotary mowers lay the hay down but do not crush it. Blister beetles have a behavioral characteristic that may be used

against them. When plants are disturbed, blister beetles play "possum" and fall to the ground. As the hay dries and cures, the beetles will leave the field to seek food and moisture.

There is no efficient way to inspect harvested hay carefully enough to be sure that it is beetle free or to determine that beetles are below damaging levels before it is fed.

Visit

www.uky.edu/Agriculture/Entomology/entfacts/fldcrops/ef102.htm to see the blister beetle fact sheet.

VEGETABLES

See Tobacco: *Recent storms increased disease potential in tobacco and commercial vegetables*

COPING WITH ACCIDENTAL APPLICATIONS

by Lee Townsend

"I finished spraying the shrubs and used the remaining spray in the tank to treat the vegetable garden. Will it be OK to eat the produce?"

This scenario is repeated fairly often each summer and the prospect of losing the fresh vegetables obtained from a hard summer of work is not appealing. Sometimes a check of the label shows that the pesticide is in fact labeled for all of the crops involved and the rates are correct. In those cases, the harvest intervals can be followed and the produce can be eaten. This information needs to be accompanied by a reinforcement of the importance of reading and following label directions.

There are times when the product that has been applied is not labeled for some or all of the vegetables or fruits that were treated. This means that there are no residue studies to go by and no harvest intervals to follow to assure that the pesticide residue (if any) is at or below a level that is considered acceptable for each crop. The only advice to give is to destroy the crop and be sure to read the label completely before buying and using pesticides - a harsh but important lesson.

SHADE TREES & ORNAMENTALS

BACTERIAL WETWOOD AND SLIME FLUX

OF LANDSCAPE TREES

by John Hartman

Recent inquiries by County Extension Agents and landscape maintenance persons suggest that wetwood disease and its associated product, slime flux, is fairly common in Kentucky landscape trees this summer. The foul-smelling and unsightly seepage from wounds in the bark or wood of various shade trees is known as slime flux. It occurs most commonly on bacterial wetwood-infected trees, such as elm, poplar, oak, birch, and maple. Although slime flux development is seasonal, evidence of wetwood and slime flux-stained bark is visible anytime.

Symptoms and Cause. Wetwood seepage originates from infections of the heartwood and inner sapwood by common soil-inhabiting bacteria such as *Enterobacter cloacae* (*Erwinia nimmipressuralis*). There are several other bacterial species also associated with wetwood. Wetwood bacteria are capable of growing anaerobically (without oxygen) in the internal wood tissues. Methane and osmotic or metabolic liquids, two by-products of the bacterial activity, accumulate under pressure and are forced out of the tree through the nearest available opening, usually a trunk wound or branch stub. Pruning a branch or taking a core with an increment borer can sometimes release the materials under pressure, squirting the worker with foul-smelling liquid and gas.

Normally flowing to the wounded bark surface, the wetwood fluid is a clear watery liquid containing several nutrients. On the surface it soon changes to a brown, slimy ooze, as a result of feeding by fungi, yeasts, bacteria, and insects. This surface slime flux may kill injured cambium and bark surface organisms as well as grass growing near the base of the tree. Otherwise, wetwood disease does not appear to be directly harmful to the tree. However, as the internal tissues are infected, the tree may lose some of its stored carbohydrate reserves and have less energy for warding off other diseases or insects or the effects of drought or pruning. Once a tree is infected, the disease does not normally go away.

Wetwood-infected trees have an internal core of wood that is wet but not decayed. These infected branch, trunk, and root tissues also have a high pH. Wetwood-infected wood is resistant to decay by

fungi. The extent of wetwood spread in the tree may be limited by tree defenses; however, wetwood can spread into new tissues as new injuries occur. Thus deep injection holes and pruning can expand wetwood infection. Tree workers must take care to avoid pruning live branches on infected trees.

Control. Thus far, no effective preventive or curative measure is known. If the bark is being stained it may be helpful to drain the slime flux away from the branch or trunk so that it drips on the ground. Drilling a hole into the tree and inserting a copper or semirigid plastic tube has helped in some cases; however, this results in additional wounding and the threat of expanded wetwood or decay should be considered. Loose, dead bark should be carefully cut away so that the area can dry.

LACE BUGS SAPPING COLOR FROM MANY LEAVES **by Lee Townsend**

Adult lace bugs are 1/8" to 3/16" long insects with clear, ornate, lacy wings. Nymphs are spiny and wingless. Feeding results in spotted leaves and dark, varnish-like excrement on the under sides. With broadleaved evergreens it is doubly important to prevent damage because the foliage will retain the ugly injury and be less functional for more than one year.

Most lace bugs spend the winter as eggs that hatch in early spring. There may be several generations during a season. With multi-generation species, numbers early in the season are so small that feeding symptoms may not be noticed. Populations peak in late summer and results of their feeding can make plants unsightly.

Azalea lace bugs are about 1/8" long with light brown bodies. They prefer evergreen varieties but attack deciduous varieties and mountain laurel. Sap removal by adults and nymphs causes a spotting visible on the upper leaves. In heavy infestations, leaves may be white and drop prematurely. Spots of their tarry excrement build up on the under sides of the leaves.

The lacy wings of the adults have dark brown to black markings, nymphs are black and spiny. Populations are greatest in mid- to late summer as

the second generation bugs appear.

Sycamore lace bugs have the same general life cycle as the azalea lace bug. In addition to symptoms on the foliage, the insects may fall from the trees onto people below. Attempts by lace bugs to probe can result in a "bite" sensation which can be very annoying, especially when lace bugs are at their peak. Some people may have a slight reaction to the bite but the insects are not a health threat.

WHEEL BUGS ON MANY PLANTS NOW **By Lee Townsend**

The wheel bug is a large insect (1-1/4") found on trees and shrubs throughout Kentucky from July through September. Its common name comes from a gear wheel-shaped projection just behind the head. The wheel-bug's piercing-sucking mouthparts may inflict a painful bite if they are handled. There may be some temporary reddening or an allergic reaction around the site of the bite. However, they are beneficial insects that feed on soft-bodied insects, such as caterpillars.

HOUSEHOLD

EARWIGS **By Lee Townsend**

Earwigs are distinctive insects that are easy to identify by the pincer-like tails on the end of their bodies. They have an intimidating appearance and can produce a foul odor but are mostly just a nuisance to homeowners and gardeners. Earwigs can pinch slightly with their forceps but cannot harm people or animals.

Earwigs are active at night and may be attracted to lights. They can enter buildings where they feed on sweet, oily or greasy foods or houseplants. These insects can run very fast but migrate only short distances.

Earwigs thrive in narrow crevices in shady, moist places such as foundation plantings, mulched areas, compost piles, and accumulations of trash, boards or wood. They usually congregate during the day under objects which are laying on the ground or are stacked against walls. Earwigs will eat most anything, including plants, small insects, and decaying organic matter. They can seriously

damage flowers, vegetables, fruits and other plants, as they chew small, irregular holes in the leaves.

The first step in control involves eliminating as many outdoor hiding spots and breeding sites as possible. Eliminate damp, moist conditions in crawlspaces, around outdoor faucets, and air-conditioning units. Be sure that downspouts carry water away from the foundation. Use caulking compound, putty and weather stripping around doors, windows, pipes and other entry sites, especially at the ground level. Create a clean, dry border immediately around the foundation wall.

Accumulations of earwigs can be killed by direct application of Insecticidal Soap but there is no residual activity from this product. Barrier applications of insecticides (3' to 10' wide around foundations) with products such as Bayer Lawn and Garden Multi-Insect Killer, diazinon, Dursban (chlorpyrifos), Sevin, or Tempo can be used. Treat during late spring and summer to control young earwigs. This will slow the population buildup.

Earwigs can be trapped outdoors in cardboard boxes baited with oatmeal or bran with pencil hole size entry sites punched in the sides near the bottom. Place boards, newspapers or other cover in mulch, shrubbery and similar habitats to collect individuals the following day. These can be physically destroyed.

Where earwigs are regular household invaders, use any of the insecticides labeled for indoor application against cockroaches to reduce their numbers until outdoor control has been accomplished.

Female earwigs lay 50 to 90 white eggs in below-ground chambers. They prefer rich soils with a southern exposure. Females provide some care of small nymphs, or immature stages, or immature stages for a time. Earwig nymphs are lighter in color than the adults, do not have wings, and much smaller pincers on the rear of the body. There is a spring brood and occasionally one later in the summer.

LIVESTOCK

FLY CONTROL ON HORSES

by Lee Townsend

Many products are registered to control flies (horse flies, stable flies, face flies) on horses. Some are sold as general livestock animal sprays that include beef and dairy cattle, swine, and horses. Others are the specialty products sold primarily to horse owners. Usually both sets of insecticides are based on the same active ingredients. While the product list for horses is very long, the major ingredients are - pyrethrins, often with the synergist piperonyl butoxide, - synthetic pyrethroids (permethrin, fenvalerate, cyfluthrin) or - organophosphates (coumaphos, dichlorvos, dioxathion). They may be available in sprays, wipe-ons, halter strips, or dusts. The synthetic pyrethroid products tend to have the longest residual activity of the three classes.

Often, the frustration from lack of fly control is due to the behavior and large numbers of flies rather than a lack of efficacy. The most troublesome species, such as face flies and horse flies, move over large distances and spend only short periods on the animals. There is a continual turnover of replacement flies so that it seems that nothing works very well. The products that are applied either kill the insect, or in the case of the synthetic pyrethroid insecticides, are very irritating to the flies, and they leave shortly after landing on the animal. Treated animals still draw flies. The protectant effect only comes into play once the insect lands. Consequently, treated animals will still be annoyed by flies to some extent, even when the "best" materials are used.

There are some screen masks for horses that provide a mechanical barrier around the eyes to ward off face flies. This may be useful for some animals. Also, face flies generally prefer open sunny areas and will not follow animals into deep shade. Open barns or sheds may provide a refuge for horses severely plagued by these nuisance flies.

DIAGNOSTIC LAB HIGHLIGHTS

by Julie Beale and Paul Bachi

Tobacco disease samples were abundant last week and included black shank, soreshin, blackleg, black root rot, Fusarium root/stem rot, Fusarium wilt, blue mold, brown spot, frog-eye, target spot, tomato spotted wilt virus, transplant shock, manganese toxicity, and genetic abnormalities (chimera). On soybean, we diagnosed Phytophthora wilt.

On fruits and vegetables, we diagnosed rosette disease on blackberry; Phytophthora root rot on raspberry; black rot on grape; Coccoomyces leaf spot on cherry; bacterial wilt and Alternaria leaf spot on cantaloupe; bacterial spot, southern blight and alfalfa mosaic virus on pepper; and buckeye rot, Septoria leaf spot, Fusarium root/stem rot, Fusarium wilt, bacterial spot and tomato spotted wilt virus on tomato.

On ornamentals, we saw bacterial blight on geranium; Rhizoctonia root rot on chrysanthemum; southern blight on rudbeckia; Pseudonectria canker on boxwood; Verticillium wilt on catalpa; and anthracnose and dollar spot on bentgrass.

INSECT TRAP COUNTS

UKREC, Princeton, KY June 29 - July 6

True armyworm	8
Fall armyworm	3
Beet armyworm	0
Corn earworm	0
European corn borer	0
Southwestern corn borer	20

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.