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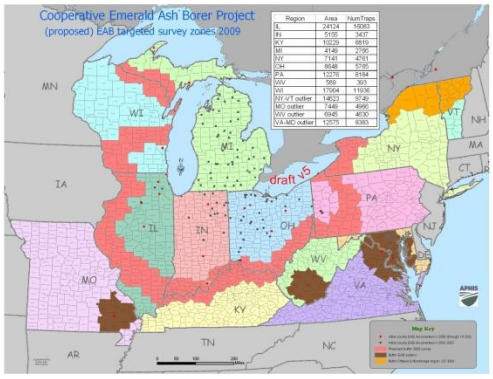
ANNOUNCEMENTS

Emerald Ash Borer Trapping Program Begins

By Lee Townsend

About 6,000 purple prism traps are being hung in ash trees along the northern border of Kentucky from Ballard County to Boyd County. The trapping area is 2- to 3-counties wide along that band (see map). In addition, traps will be placed in campgrounds, state and national parks, other tourist attractions, and interstate rest areas. No emerald ash borers (EAB) were found in any of the approximately 3,000 traps placed in Kentucky during the summer of 2008. The most current information on EAB in Kentucky is available at http://pest.ca.uky.edu/EXT/EAB/welcome.html .



The 24-inch long traps, baited with a combination of oils, will remain in place until August, the end of the EAB flight period. Adults of the metallic woodborers (family containing the EAB) are attracted to red and purple hues. The oils contain four compounds that are released by stressed ash trees and are among the cues used by borers to find host trees. Sticky surfaces of the trap will collect the beetles; there are no toxins or insecticides in the traps. The EAB trapping program is conducted to detect infestations of this invasive insect. In Kentucky, the traps are placed in a grid pattern;

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presence of a trap does not mean that EAB is present. The EAB survey is funded by USDA APHIS and Forest Service.

The EAB is a small, metallic-green, wood-boring beetle that was discovered in southeast Michigan in 2002 and has killed over 40 million ash trees. Native to Asia, it's believed to have been unknowingly transported to the United States in wood packing material. Since its discovery, the EAB has been detected in ten States -- Illinois, Missouri, Minnesota, Wisconsin, Indiana, Ohio, Michigan, Maryland, Pennsylvania, Virginia and West Virginia. Federal and State quarantines have been established in these States to mitigate the spread of EAB. Quarantines prohibit the movement (within the State and out of the State) of regulated articles, which include ash nursery stock, ash logs and lumber with bark, pallets, branches, stumps, etc., and all hardwood chips and firewood.

LAWN & TURF

Ground-Nesting Bees
By Lee Townsend

Several bee species nest in the ground; they can be seen entering and leaving pencil- diameter holes in sunny areas of sandy or well-drained soils covered with a sparse grass stand. These entrances are often surrounded by small mounds of fine soil particles. Many of these bees live in individual tunnels where they raise their young but over time, sizeable communities can develop where conditions are favorable and nearby flowers are abundant. They can sting if handled or stepped on but do not aggressively defend their nests.

Control may be warranted on children's play areas or if excessive tunneling is creating bare spots. However, ground bees select and thrive in areas that meet their requirements. While insecticide applications may have some temporary effect, the factors that make the sites attractive remain unchanged.

Carbaryl or Sevin, applied to burrowed areas according to label directions for turf pests, can reduce ground bee activity. However, this approach is a temporary solution. The bees are nesting there because the site is attractive - well-drained or sandy soil with relatively a sparse grass stand. Site alteration is needed to provide a long-term solution. Over-seeding bare areas, adequate fertilization, and watering should improve turf stand make areas less attractive to these bees. Raising the mowing height may help, also.

Most ground bees are 3/8 to ½" long and vary in color from solid black to brightly metallic and have "hairy bodies". These "wild" bees are important pollinators and should be left alone if they are not causing a problem.

There are many important pollinating bees in addition to the familiar honey bee.
These small, hairy bees tunnel into well-drained soils where grass cover is thin. Females may share entrances but dig separate tunnels with side branches for brood rearing. These bees collect pollen and nectar and bring them back to the nest to feed their larvae. They do not harm the turf. Ground bees can sting but generally are not aggressive and do not defend their nest area like honey bees. However, they pose a potential problem in children's play areas. In these cases, Sevin dust or other insecticides labeled for turf can be used to treat the entrances.

SHADE TREES & ORNAMENTALS

It Is Near Time for Injecting Oaks for Bacterial Leaf Scorch
By John Hartman

Bacterial leaf scorch, caused by *Xylella fastidiosa*, affects many Kentucky landscape trees including oaks (pin, red, scarlet, shingle, and white) maples (Norway, red, silver, and sugar), planes (American sycamore and London plane) sweetgum, hackberry, elm and mulberry. Oaks are widely planted in Kentucky and the disease is most common in them. Leaves of

Figure 1. Pin oak bacterial leaf scorch symptoms.

infected trees typically show marginal necrosis (scorch) late in the summer (Figures 1 & 2) followed by premature defoliation. Infected trees re-foliate normally in spring and the process of late summer scorch and premature defoliation is repeated. The disease begins on one or a few branches and over several years gradually spreads throughout the tree. After many years, dead twigs, then dead branches and limbs begin to appear in the tree and the condition continues to worsen over the years until the tree needs to be removed. Bacterial leaf scorch is a very problematic plant disease in Kentucky.

Figure 2. Red oak bacterial leaf scorch symptoms.

In 2006, we were able to show in replicated pin oak plots that root flare injection of oxytetracycline antibiotic in late spring delayed the appearance of scorch symptoms by about 2-3 weeks. In 2007, we determined that the best results were obtained when injections were made about 3 weeks after the first emerging leaves were fully expanded. This year, in Lexington, most red oaks and pin oaks were observed to have their first leaves fully expanded sometime during the week of May 4. Thus, arborists with clients who want their trees injected with antibiotic may wish to concentrate their efforts for sometime the week of May 25.

In our experiments we used Bacastat®, a commercial injectable form of oxytetracycline. This antibiotic is used for management of bacterial diseases in agricultural crops and is active against gram negative bacteria such as *Xylella*. Mycoject® is also an injectable formulation of oxytetracycline, but our results indicated that the more viscous formulation of this product was not as effective.

Although the time of appearance of scorch symptoms was delayed as a result of these treatments, none of the treatments prevented disease or cured trees with bacterial leaf scorch. When bacterial leaf scorch symptoms are delayed with antibiotic treatments, it is not known if this will prolong the life or vitality of the treated trees, but it might. Nevertheless, if clients are demanding a treatment, certified arborists trained in micro-injection techniques will want to make the injections in late May to provide the greatest effect. It appears that the effect of antibiotic injection lasts only one year, so annual injections may be needed. More research is needed to determine these long-term needs and effects.

TOBACCO

Quadris Receives a Special Local Need Label for Use on Greenhouse-Grown Tobacco
By Kenny Seebold

Over the past two weeks, we've seen an explosion of target spot on tobacco transplants around Kentucky. Even with a few of days of good weather, target spot is plenty active right now although it's likely that the pressure will subside as the days get warmer (and drier).

Our current recommendations for managing target spot include taking steps to maintain good ventilation, adequate fertility, and application of mancozeb fungicides (like Dithane, Manzate, or Penncozeb) on a 5-7 day schedule. Mancozeb is not specifically labeled for target spot, but is fairly suppressive when applied in a preventive manner. Earlier in May, though, disease pressure reached the point that mancozeb just couldn't keep up. What's been missing from the tobacco grower's toolbox is a fungicide that can be used legally in the greenhouse AND which has strong activity against target spot.

The fact is, a legal option has been in place for a while. Quadris fungicide, labeled for target spot and other diseases like frogeye and blue mold, does not have specific restrictions on greenhouse use on its label. However, there is not specific guidance on using the product on transplants, and neither the manufacturer nor I did not particularly want to see Quadris in the float system. The main reasons were potential for resistance development (especially with blue mold), and the potential for crop injury. The current crisis, though, dictated that we find something that could help stem the tide of target spot. I really think that, had we not found a solution, we were looking at a train wreck for a

bunch of growers. Thanks to the hard work of folks at Syngenta and Kentucky Department of Agriculture, a Special Local Need [24 (c)] label for the use of Quadris on tobacco in the greenhouse was approved on May 13.

Effective now through July 30, 2009, growers will be able to make ONE application of Quadris at a rate of 6 fl oz/A, which is the equivalent of 0.14 fl oz (4 ml) of product per thousand square feet of float bed (roughly 400 trays), applied in a recommended volume of 5 gallons – enough to get good leaf coverage. Thus, a grower mixing 20 gallons of spray solution would add 16 ml of Quadris, or roughly 3 teaspoons of product. After making the Quadris treatment, producers should switch back to mancozeb until plants are set in the field. This is critical to stay in compliance with the label, and to minimize the risk of resistance developing.

In cases where target spot is severe on float plants, a follow up application of Quadris may be needed at about 5-6 weeks after setting to suppress the disease in the field. Quadris is most likely compatible with products like mancozeb or Orthene, but it would be advisable not to mix Quadris and agricultural streptomycin to avoid potential injury. In terms of resistance to rain and weathering, we can expect Quadris to be fairly rainfast if it can dry for a couple of hours after treatment.

It's important that growers who use Quadris in the greenhouse have a copy of the 24(c) label in their possession. It is equally important to remember that the greenhouse application counts toward the seasonal limit (4-5 applications) allowed on tobacco. As I mentioned earlier, this label will expire at the end of July, 2009. It is not clear at this time if we'll renew this for next year.

Disease Update
By Kenny Seebold

Weather conditions have improved greatly over the past 4-5 days, giving float beds a chance to dry out. Warmer, drier conditions have also slowed epidemics of target spot and collar rot – both of which had exploded about 10-14 days ago.

At the moment, target spot is fairly widespread but starting to slow, as I mentioned earlier. The same can be said for collar rot, although there are indications that blackleg may be on the increase. This is a big concern because of the fast-moving nature of blackleg. What's more, we've got a lot of plants out there that have been injured by disease and environmental extremes, and these could be more susceptible to blackleg as a result. The key to controlling these problems is managing fertility, keeping as much air moving on plants as possible, clipping properly, and preventive applications of fungicide. We can use Quadris (see article in this issue of KPN) and mancozeb to help with target spot, and agricultural streptomycin to keep blackleg in check. For the latter, apply 5 or more gallons of a 100 ppm solution (1 tsp. per gallon of spray mix) weekly until plants are set for prevention of blackleg, or use a 200 ppm solution where disease is active.

The previous week also saw an uptick in the number of cases of Pythium root rot – to be expected as we get towards the end of May. If Pythium shows up on plants that will go to the field within 5 or so days, there may not be a need to apply Terramaster; however, if plants will be held for longer than a week, treatment at 1-1.4 fl oz/100 gallons of float water is advisable. This is because Pythium can really get going once float water warms up, and serious levels of disease could further delay planting or even result in losses to disease once plants are set. Keep in mind that Terramaster should not be used any later than 8 weeks after seeding tobacco in the float system.

It's important to keep watch for these late-season disease issues as we get ready to go to the field. As we've mentioned in previous articles, setting has been delayed for many producers because of weather and this means increased risk of diseases like Pythium root rot, blackleg, and target spot. Refer to the "2009 Kentucky-Tennessee Tobacco Production Guide" (ID-160) for more information. The guide can be found online at www.uky.edu/Ag/TobaccoProd/pubs/id160.pdf.

FORAGE CROPS

White Mold Risk in Alfalfa
By Paul Vincelli

Diseases of numerous crops induced by *Sclerotinia* fungi have been rampant lately, with all the cool to mild, cloudy, drizzly/rainy weather we have had. Normally white mold of alfalfa, caused by the very common fungus *Sclerotinia sclerotiorum*, is not a significant disease problem because taking the first cutting arrests disease development. However, first cuttings have been substantially delayed in many, many hayfields, because of the wet weather. Therefore, it is likely that *Sclerotinia* is active in some alfalfa fields.

Sclerotinia attacks stems of overgrown alfalfa, because the very dense canopy creates an environment of sustained high relative humidity. It causes stems to rot and infected shoots to wilt. In parts of the plants where rot is active, strands of white fungal growth are usually present if conditions are humid. Sometimes, carefully slicing open the diseased stem reveals very small, hard, oblong black bodies inside open cavities in the stem. These bodies are called *sclerotia*, and they are survival structures of the fungus.

The disease can be pretty striking when you see it, but the fungus doesn't typically infect the crown, so infected plants will recover. Therefore, cutting and drying the alfalfa usually takes care of the problem, because the fungus is no longer producing infectious spores during the growth of second and later cuttings.

PEST OF HUMANS

Preparing for Chiggers
By Lee Townsend

Any venture into low damp places with rank vegetation – berry patches, woodland edges, or along lakes and streams could invite encounters with chiggers; the painful consequences could easily linger for a week or more. Once on a person, chiggers will move to preferred feeding sites where clothing fits tightly against the skin, or where skin is thin, tender, or wrinkled. Tops of socks or along waist bands are common sites of itching but there are more. Their bites are the body's reaction to the digestive enzymes that chiggers use to liquefy skin cells. They cause the rash, intense itching, and misery that begin a few hours after chiggers have fed.

Protection from chiggers involves the same tactics used against ticks:

- Avoid walking through unmowed fields, brush, and other overgrown areas
- Wear long pants that are tucked into boots or socks and long sleeve shirts. Clothing made of tightly woven fabrics will tend to keep chiggers from reaching the skin as easily.
- Apply an insect/ chigger/ tick repellent. Products containing diethyl toluamide (DEET) or permethrin (clothing treatment only) are effective. Be sure to read and follow directions for use on the container.
- Showering or bathing immediately after coming indoors effectively removes chiggers which have not yet attached. If that is not possible, thoroughly and briskly rubbing your skin with a dry towel may remove many chiggers before they are able to attach and feed.

While most common in wild overgrowth, chiggers may become established in yards, parks, camps, picnic sites, and recreation areas. Effective vegetation management can make these locations less suitable for chiggers and may greatly reduce infestations. Pruning of trees and bushes and closer mowing allows more sunlight into an area and lowers humidity. Removal of scrub brush piles and accumulated debris reduces protection for small mammals and other animals that are important hosts for chiggers. These environmental modifications produce conditions that are less suitable for chiggers and can provide a more long term solution.

Insecticide sprays may temporarily reduce chiggers but, used alone, are not a long term solution. They are most effective when directed into "hot spots" where chiggers and their animal hosts are known to be abundant. Pay particular attention to borders and fences between wooded or brush areas and the lawn, around ornamental plantings, beside foot

paths, and the dog house. Products containing bifenthrin (Ortho Home Defense MAX), carbaryl (Sevin), cyhalothrin (Spectracide Bug Stop Indoor + Outdoor Insecticide), and permethrin (various brands) can be effective. A single application during late-April or May is often all that is required, although in severe infestations, treatment may need to be repeated in June. The ground and vegetation up to a height of about three feet should be thoroughly wetted with the insecticide and applied according to label instructions. Children and pets should be kept off treated areas until the vegetation is completely dry.

DIAGNOSTIC LAB HIGHLIGHTS

By Julie Beale and Paul Bachi

Recent agronomic samples in the PDDL have included Lepto leaf spot on alfalfa; blackleg, Rhizoctonia damping off, target spot and Pythium root rot on tobacco.

On fruit and vegetable samples, we have diagnosed double blossom on blackberry; leaf curl on peach; scab on apple; Pythium root rot on cantaloupe; onion maggot and bacterial soft rot on garlic; and early blight on tomato.

On ornamentals and turf, we have seen Sclerotinia stem rot on aster; bacterial leaf spot on ivy; Entomosporium leaf spot on photinia; sawfly injury on rose; lacebug injury on azalea; Botryosphaeria canker on rhododendron; Phytophthora root rot on arborvitae; black rot (Botryosphaeria) on crabapple; fire blight on ornamental pear; leaf blister on oak; Thyronectria canker on honeylocust; and anthracnose on linden, maple* and hornbeam.

*Note: We have had several calls in the PDDL this week about spots on maple leaves. Callers have been concerned that they were seeing tar spot disease of maple, but in fact, the disease they are seeing is **maple anthracnose**. Infections take place during cool, rainy weather as the leaves are expanding, so conditions this spring have been ideal for anthracnose to develop (on maple and many other shade tree species). Symptoms usually appear a couple of weeks after infection and include brown to black leaf spots, often concentrated along the leaf veins. Spots may coalesce to blight entire leaves.

In contrast, the tar spot disease of maple, which also infects leaves during spring, does not produce symptoms until a month or more after infection. Spots first appear as small, lighter green lesions and only develop the characteristic shiny, black patches on leaves in late summer. Beyond raking up and removing fallen leaves from around trees, controls are rarely needed for either disease.

Figure 3. Maple anthracnose (Beale).

Figure 4. Tar Spot (Long).

INSECT TRAP COUNTS MAY 8-15

By Patricia Lucas

Location	Princeton, KY	Lexington, KY
Black cutworm	12	10
Armyworm	21	311
Corn earworm	15	3
European corn borer	0	0
Southwestern corn borer	0	0
Fall armyworm	0	0

Graphs of insect trap counts for the 2008 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://ces2.ca.uky.edu/fulton/InsectTraps

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