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KENTUCKY PEST NEWS

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ANNOUNCEMENTS

2008 IPM TRAINING – MARCH 5

The 2008 IPM Training School will be held on Wednesday, March 5, at the University of Kentucky Research and Education Center in Princeton. Registration will open at 8:30 AM with the meeting starting at 9:00 AM and ending at 3:00 PM.

Topics covered in the training will include: Soybean Rust Up-date, Corn Fungicides, Dectes Stem Borer, IPM Preventive Tools, Refinement of the UK Lime Recommendations and Herbicide Resistance.

The program is free of charge and lunch will be provided. **To guarantee a lunch, call (270) 365-7541 extension 216 or e-mail plucas@uky.edu before March 3.**

The program has applied for 5.0 CEU's for certified crop advisors and has been approved for 3 general and 1 specific hours (1a, 10, and 12) for pesticide applicators.

TRAINING ON HOW TO USE INSECT TRAPS

The training will cover the different types of pheromone baited traps, how they work, trap placement, which trap to use for specific insect pests, using the data you collect and more. It is scheduled for February 20th at the UK Research & Education Center in Princeton. The meeting will start at 10:00AM (LOCAL TIME) and end at 2:00 PM.

The training is offered free of charge and lunch will be provided. **PLEASE PRE-REGISTER TO IF YOU PLAN TO ATTEND. SPACE AT EACH TRAINING IS LIMITED. To register to attend the trainings, call (270) 365-7541 extension 216 or e-mail makelley@uky.edu before February 8 and tell us if you will be attending the training at Princeton or Winchester!**

The program will apply for CEU's for certified crop advisors and hours for pesticide applicators.

BROOD XIV CICADA EMERGENCE SCHEDULE
by Lee Townsend

Here are a few significant dates from a study of the emergence of this brood back in 1991 at Robinson Forest by Dr. Paul Kaliz, UK Forestry Dept. Emergence began on May 4 with wide spread activity by May 10. There was a 9-day difference between dates of peak emergence from upper south slopes and lower slopes. The last nymph was caught leaving the soil on May 31. The last adult was heard calling on June 16, apparently there was no answer.

CORN

"BEER CAN" EARS SOMETIMES CAUSED BY PRETASSEL APPLICATIONS OF STROBILURIN FUNGICIDES
by Paul Vincelli and Don Hershman

Corn ears with the markedly reduced ear size shown in Figure 1 go by several names: "beer can" ears, blunt ear syndrome, ear stunting, and arrested ear syndrome. The length of the husk and number of kernel rows are often normal, but the number of kernels per row is often greatly reduced.

Cold shock while corn is in the V8-V12 stage is thought to be one possible cause, but the pretassel application of certain strobilurin fungicides can also cause such symptoms.

Literature from BASF, the manufacturer of Headline®, indicates that this has been seen only 0.25% of treated fields. This literature also indicates that the problem has only been associated with applications which included an adjuvant such as a nonionic surfactant.

BASF's recommendation for Headline® is as follows:

1. Pre-tassel application. Product may be applied by ground rig but without an adjuvant. If applying by aerial application, apply in at least 5 gal/acre and without an adjuvant. Do not apply Headline® in less than 5 gal/acre.
2. VT through R2 application. Product may be applied aerially in at least 5 gal/acre or by ground rig; the use of an adjuvant is flexible. If applying aerially in less than 5 gal/acre, include crop oil in spray.

Although this specific syndrome has only been associated with fungicide application in less than 1% of treated fields, it is important to note that yield loss was frequently associated with application of strobilurin fungicides in tests conducted in 2007 by university researchers (Figure 2). We don't fully understand all the reasons these yield losses occur. Some of these may be explained by natural variation (random chance), but then again,

Figure 1. "Beer can" ears. Source of image: *Abnormal Corn Ears*, The Ohio State University, http://agcrops.osu.edu/corn/documents/AbnormalCornEarsPoster.pdf.

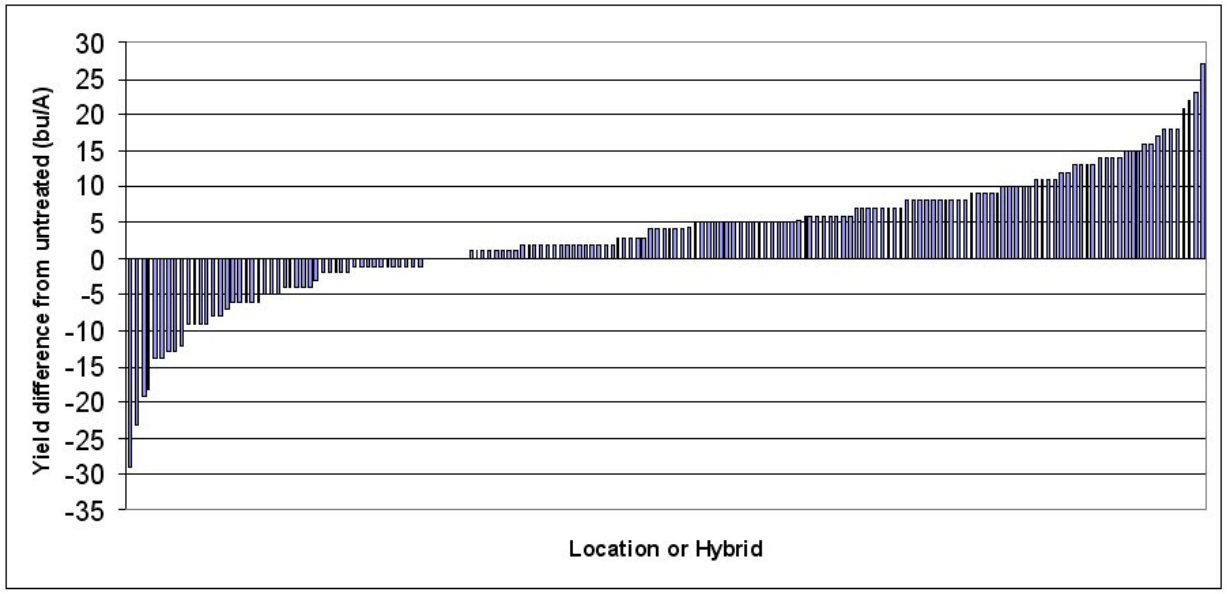


Figure 2. Distribution of yield responses between strobilurin-treated and untreated corn in university research in 2007. Source: Carl Bradley, Univ. of Illinois.

natural variation may also explain some of the yield increases that occur. In any case, the possibility of yield loss is something to be aware of when considering the use of strobilurin fungicides on corn.

WHEAT

QUESTIONS ABOUT SPRING POPULATIONS OF HESSIAN FLY ASSOCIATED WITH INFESTED VOLUNTEER WHEAT

by Doug Johnson, Extension Entomologist

I have received questions about the possibility of problems with the spring population of Hessian fly resulting from large areas of volunteer wheat that appear to be heavily infested with the pest.

Here is the situation described to me. In some areas a flush of volunteer wheat emerged in early to mid-September. This was probably linked to seed laying dormant over the dry summer, then germinating when rains finally appeared in early September. This early emergence was ideal for infestation by the Hessian fly. This has raised several questions regarding potential movement of Hessian flies from volunteer wheat into production fields.

1.) Did the fall infestation of volunteer wheat have any affect on infestation of our production wheat in the Fall?

The volunteer wheat was heavily infested because it emerged well before the "fly free" date so it was exposed for a long time to egg lay by the Hessian fly adults. The eggs laid in the volunteer wheat hatched into maggots which fed on that wheat and when grown, changed into pupae (called Flax seeds) to survive the winter. The resulting adults will not be active until spring; they had no impact on the Fall-seeded production wheat. In the south there appear to be three generations rather than the two that are normal for the Midwest. In this case volunteer or cover crop wheat infested in August or early September could complete an additional generation and be available to lay eggs on our production wheat in early October. Whether or not this occurs in Kentucky has not been researched.

2.) Would treating the infested volunteer wheat with an insecticide in the fall have controlled the problem?

If the volunteer wheat had been treated with a foliar insecticide shortly after it emerged, then some suppression of Hessian fly may have occurred; however, once the fly eggs had hatched and the maggots had moved under a leaf sheathes, insecticidal control would not be effective.

3.) Would mowing or killing volunteer wheat in the fall have controlled the infestation?

Mowing would have little or no effect because the plants would still be alive and growing.

Killing the volunteer wheat soon after emergence would have controlled this population but this would have had to be done BEFORE the Hessian fly larvae had changed into the flaxseed stage. Once in the flaxseed stage, the insect does not feed and only uses the plant for cover. Since the flaxseeds are usually very near ground level, mowing is unlikely to remove their cover.

4.) Will the infestations on volunteer wheat increase the Hessian fly problem in the spring?

This is the toughest question to answer. I have no way of knowing how widespread this problem may be. Certainly when the adults emerge from the flaxseed this spring they will seek a host upon which to lay their eggs. The volunteer wheat is likely to be unthrifty so these insects will seek more robust hosts. Certainly our production wheat is likely to "fill the bill".

The insect is not a great flyer but it can fly and certainly can drift on the breeze. No one can say exactly how far they might move, a "best guess" is that production wheat within 400 yards of heavily infested volunteer wheat is at increased risk from a spring infestation. Wheat is the principal host plant of the Hessian fly but it may also be found on rye, barley and other wheat-related species.

5.) Can a spring infestation be controlled with a foliar insecticide?

Yes, but it isn't easy. Remember the foliar insecticide must kill the adults or the very young maggots before they move under leaf sheaths. Information from North Carolina and Georgia indicates that a well-timed application of a long residual synthetic pyrethroid insecticide will control the adults and young larvae. Information from North Carolina (see link below) indicates that Warrior® is a preferred product. The major question then becomes *When should I spray?*

There are two ways to help time treatments if infestations in volunteer wheat are heavy. 1) Check for the flax seed (pupal) stage in infested shoots of volunteer wheat. Squeeze them, if they are creamy white it is too early to treat. If they appear orange they are about ready to emerge as adults. An application to a field at increased risk might be warranted. This is likely to occur some time in March but is completely dependent upon weather, specifically temperature.

2) One can look for Hessian fly eggs on the leaf but this will be very time-consuming. The tiny, almost transparent eggs are laid end to end in a row between leaf veins on the upper surface of wheat leaves. Treatment may be justified if there are 4 or more eggs per leaf.

Below is a link to a Hessian Fly in Wheat website maintained by my colleague Dr. John Van Duyn of North Carolina State University. This site addresses Hessian fly in general. However, if you look in the "Management" section, at the second to last paragraph, just after the five numbered reasons for early season control, you will see his discussion of controlling spring Hessian fly problems. http://www.ces.ncsu.edu/plymouth/pubs/ent/HFLYupdate03.html

There is no really good answer to this question. It does however serve to make the point that the best control is prevention. Never allow a green bridge. Destroy volunteer wheat and avoid using wheat as a cover crop.

PS: On Friday, 08 Feb 2008, I collected twelve flaxseed stage Hessian fly from the borders of my test plots. Upon applying the squeezing technique, I found that all of them were still milky white. Dwj

SHADE TREES AND ORNAMENTALS

PHYTOPHTHORA CAUSES BLEEDING CANKERS ON DECIDUOUS TREES
by John Hartman

In recent years there has been much discussion about *Phytophthora ramorum*, cause of bleeding cankers and sudden oak death disease. Other Phytophthora-caused bleeding cankers on landscape trees have recently been described by Dr. George Hudler of Cornell University in an article in the 2007 volume of Arboriculture and Urban Forestry. In addition to journal articles, I have had the opportunity to hear Dr. Hudler speak on this topic.

Bleeding canker diseases are characterized by trunk lesions that leak fluid through the bark or leave fluid stains on the bark. Bleeding cankers can be caused not only by fungus-like organisms such as Phytophthora, but also by fungi, bacteria, pruning, other tree wounds, or insects. Field diagnosis of a Phytophthora canker requires a specialized kit (e.g., Alert LF Strip; neogen.com) containing a five-minute test that detects only Phytophthora. For laboratory samples of bleeding cankers, the U.K. Plant Disease Diagnostic Laboratory uses a Phytophthora-specific ELISA (agdia.com) test. Bleeding cankers of landscape trees may be caused by a number of Phytophthora species including *P. cactorum, P. cambivora, P. cinnamomi, P. citricola, P. nemorosa, P. palmivora*, and *P. ramorum*. Some, like *P. ramorum*, are not known to be present in Kentucky. To determine the which species of Phytophthora is in a sample, laboratory cultures or PCR tests would also be needed.

The following landscape trees which grow in Kentucky are known hosts of bleeding cankers caused by species of Phytophthora. Although some bleeding cankers lead to tree decline or death, many of the Phytophthora bleeding cankers are not lethal and trees may be able to compartmentalize the lesions before they spread and girdle the tree.

- Beech can often be seen with Phytophthora-caused bleeding cankers.
- Birch bleeding cankers associated with *P. cactorum* can cause tree decline.
- Chestnuts are susceptible to ink disease, caused by *P. cambivora* or *P. cinnamomi*, and results in bleeding cankers on the roots and lower trunk. This disease was a serious disease of American chestnut before the arrival of Chestnut blight.
- Dogwood crown rot sometimes breaks out into bleeding cankers caused by *P. cactorum*.
- Elm infected with *P. cactorum* shows bleeding canker symptoms.
- Horsechestnut bleeding cankers have been attributed to *P. cactorum* and *P. citricola*.
- Linden is listed as a host of *P. cactorum* and producer of bleeding cankers.
- Maple bleeding cankers are often observed in Kentucky. At least five species of Phytophthora have been implicated as causes. *Fusarium solani*, a completely unrelated fungus, has also been implicated in maple bleeding cankers.
- Oak, in addition to being susceptible to *P. ramorum*, cause of sudden oak death (not present in Kentucky) is also susceptible to *P. cactorum, P. cinnamomi*, and *P. citricola,* which cause bleeding cankers.
- Willow bleeding cankers have been attributed to *P. cactorum*.
- Other trees with bleeding cankers, but not caused by Phytophthora include: Crabapple (*Botryosphaeria dothidea*), Poplar (*Cryptosphaeria populina* and *Ceratocystis fimbriata*), Prunus species (a bacterium, *Pseudomonas syringae*), Sweetgum (*Botryosphaeria ribis*), Walnut (two species of the bacterium *Brenneria*).

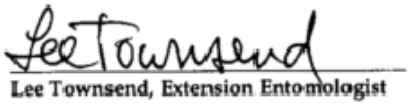
Management of Phytophthora bleeding cankers of landscape trees is difficult. Recent development and approval of formulations of phosphorous acid such as Agri-Fos®, Alude®, Arborfos®, and Whippet® provide tools that may be helpful in combating Phytophthora cankers. Such treatments can either be injected or applied with the aid of an adjuvant/penetrant such as Pentra-Bark® that

assists in the movement of chemicals directly through the bark into trees. Although much research needs to be done, preliminary results suggest that these treatments will gradually slow the growth of cankers and after a year or two, reduce their size.

DIAGNOSTIC LAB-HIGHLIGHTS

by Julie Beale and Paul Bachi

Diagnostic samples this winter have included indoor problems: Pythium damping off on tomato seedlings; low pH/iron toxicity symptoms on greenhouse geraniuim; bacterial soft rot on cactus. From the landscape, diagnoses have been made of Rhizosphaera needle cast and Cytospora canker on blue spruce; black root rot on holly; previous freeze injury of pine shoot tips; and cane borer on blackberry.



Lee Townsend, Extension Entomologist

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.

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