

# WHAT'S HAPPENING

Volume 24, Issue 14

August 8, 2008

ENTOMOLOGY AND PLANT PATHOLOGY EPP#60

## Wheat

By Russ Patrick



Hessian Fly Pupa

### Hessian fly:

Last week I indicated that the Hessian fly appears to have bounced back to extremely large populations. These populations were so great it was not difficult to find the flax-seed or pupae in wheat straw from March to harvest of 2008. We currently have biotype L, as do most other states. There are no resistant varieties to this biotype. I expect the adults to emerge about the same time the newly planted 2008 wheat crop sprouts from the ground. If wheat is planted in September, I

expect to see a great deal of infestation to show up in March to harvest of 09. Generally you will not see damage until the spring, because the insects move down to the base of the leaves in early plant development. The midges are difficult to control and I don't recommend insecticide applications because it is difficult to control this pest without knowing when the greatest amount of adults are present. We have tried several times in past years to monitor for the presence of this pest using sticky cards, however using sticky cards to determine their presence was not successful, due to the trap becoming contaminated with field trash.



Hessian Fly Eggs on Wheat

## Storage

By Russ Patrick

During our first examination of wheat stored in bags, we had some good results, no insects. I expected this because the wheat was treated with Storcide II as wheat was added to the storage bag. We will continue to monitor for the next few months.

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## Grain: Sorghum

By Russ Patrick



Web worm sorghum

Check grain heads for midges, sorghum webworms, corn earworms and fall armyworms. Late planted sorghum will be susceptible to these insects. Take a white cloth or pan and shake the heads to dislodge any worms hiding inside the grain head. Three webworms or one fall army and one corn earworm is considered to be at threshold levels. Look in our publication for details on treatment timing and insecticides recommended for control. The sorghum midge can cause serious damage during pollination of the plants. After pollination they no longer represent a threat.



Fall armyworm



Sorghum Midge

## Southwestern Corn Borer

By Russ Patrick

Traps records have shown that not as many Southwestern Corn Borers are being caught as last year. Many factors may have led to the population decline. We have noticed that in fields that were flooded this past fall had a great deal of mortality of larvae overwintering in the base of the stalks. I have had reports of this from several agents in different counties. Of course with Bt varieties there will be no problem with this insect, but in non-Bt varieties treatment may provide control if the pest becomes a threat.



Southwestern Corn Borer

## Soybeans

By Russ Patrick

Watch for plants that have fallen over onto the row middles. This may be a sign of *Dectes* stem borer damage. Obviously, there is nothing that could be done at that time of plant maturity. The larvae will overwinter inside the stalk and emerge as adults the following year. Occasionally you may see a limb dying and cut it open to observe the creamy white larva. Some work has been done with seed treatments, but no one recommendation for complete control has been established.



Dectes stem borer

## Laurel Wilt

By Darrell Hensley

A new vascular wilt of Lauraceae plant species (laurel) has developed in the southeastern United States. The disease was first observed in Savannah, Georgia in 2003 and has since been reported in the lower coastal plains of South Carolina and northeastern Florida. Death of redbay (*Persea borbonia*) plants in these areas is attributed to a newly named fungus, *Raffaelea lauricola* sp. nov. This fungus was found in association with the exotic ambrosia beetle, *Xyleborus glabratus*.

The disease has been observed on the following Lauraceae plants: swamp bay (*Persea palustris* or *P. borbonia* var. *pubescens*), sassafras (*Sassafras albidum*), pondberry (*Lindera melissaefolia*), pondspice (*Litsea aestivalis*), camphor tree (*Cinnamomum camphora*) and avocado (*Persea americana*). Host range studies have also found susceptibility in spice bush (*Lindera benzoin*) and California bay (*Umbellularia californica*). Red maple, tulip poplar, and red oak were not found susceptible and testing with avocado gave inconsistent results. Nonetheless, avocado growers are concerned. The behavior of this fungus is similar to that of the Dutch elm disease pathogen, *Ophiostoma novo-ulmi*, where the pathogen moves systemically through the vessels of its hosts causing a vascular wilt. It is believed that the beetle and fungus were likely introduced via solid wood packing material.

This is the first report of an ambrosial fungus acting as an aggressive tree pathogen. The species is fast growing and is able to colonize an entire tree from a single introduction point.

The host range includes plant species listed as threatened or endangered in the United States. Pondberry is listed as a federally endangered species while pondspice is considered a threatened species in some southeastern states. Already the loss of redbay in these southeastern coastal areas is extensive. Total loss of redbay could also impact a variety of associated plant and animal species such as the palamedes swallowtail butterfly (*Papilio palamedes*) which uses redbay as its primary host for larval development.

### Additional Reference material:

Fraedrich, S.W., T.C. Harrington, R.J. Rabaglia, M.D. Ulyshen, A.E. Mayfield III, J.L. Hanula, J.M. Eickwort, and D.R. Miller. 2008. A fungal symbiont of the redbay ambrosia beetle causes a lethal wilt in redbay and other Lauraceae in the southeastern United States. *Plant Dis.* 92: 215-224.

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Mayfield, A.E. III. 2008. Laurel Wilt. Forest and Shade Tree Pests. Florida Department of Agriculture and Consumer Services, Division of Forestry. [http://www.fl-dof.com/publications/fh\\_pdfs/Laurel\\_Wilt.pdf](http://www.fl-dof.com/publications/fh_pdfs/Laurel_Wilt.pdf)

USDA Forest Service. 2008. Laurel Wilt. USDA Forest Service, Forest Health Protection, Southern Region. <http://www.fs.fed.us/r8/foresthealth/laurelwilt/index.shtml>

## Fusarium Wilt of Tobacco

By Steve Bost

We have had a few cases of Fusarium wilt of tobacco this summer. Losses to this soil-borne disease are usually not severe, but can be sufficient to require control practices. The most conspicuous symptoms are slow yellowing and drying of the leaves on one side of the plant and on one side of some leaves. The leaf midrib may be curved due to unequal growth of the plant. The top of the plant may be drawn over toward the diseased side. The vascular tissue, viewed by a cut through the stem, is brown rather than the normal white.

The strain of the *Fusarium* fungus that causes disease in tobacco has few other hosts. The disease is most severe in hot weather, on actively growing plants. Moisture shortage that reduces vegetative vigor of the plant also reduces disease development. *Fusarium* wilt severity is increased by root-knot nematode infection.

The causal fungus is a soil-inhabitant, and very long crop rotation intervals would be required for control. In infested fields, tobacco should not be grown in rotation with sweet potato, which is a host for this strain of *Fusarium*. The principal means of controlling *Fusarium* wilt is the use of resistant varieties. Resistance is not complete, and none of the current, commonly-grown burley varieties have a resistance rating higher than 6 on a scale of 0-10. This rating is given to ms KY 14xL8LC, NC 4, Hybrid 403LC, and R7-11. NC 7 has a rating of 5, and Hybrid 501LC, R 630LC, and R7-12LC have 4 ratings. The TN and KT series are very susceptible.



One-sided chlorosis



Cut-away view of stem

## Small Fruit Flies

By Karen M. Vail

During the hot summer, when vegetables harvested from the garden are piling up on the counter and fruit ripens very quickly, small fruit flies often become a nuisance. Small fruit flies in the genus *Drosophila* are about 3 mm or 1/8-inch long, have a yellow to light brown thorax, a yellow abdomen with black stripes and the most striking characteristic is the red eyes. Most entomologists will use the wing venation to confirm identification.

As with most flies, locating and removing larval food sources is the only way to eliminate an infestation. Repeated applications of fast-acting insecticides will knockdown the adult population, but the problem will continue as new adults emerge. Until larval sites are removed or cleaned, the problem will continue.

### Prevention - Eliminate attractive food sources.

- If possible, refrigerate vegetables and fruits.
- Remove spoiled parts from vegetables and fruits.
- Clean and empty bottles and cans before placing them in the recycling bin.
- Clean empty garbage cans periodically.
- Check behind and under refrigerator and kitchen cabinets for dropped or spilled organic matter.
- Check children's rooms for hidden organic matter, i.e., banana peels in the garbage or elsewhere.
- Check pantry for rotting vegetables (potatoes, onions, etc.).
- Ensure containers of bottled or canned fermented products, such as beer, wine, cider, fruits, etc., are clean before sealing and then seal tightly, as eggs laid under edges of the lid can hatch and the small larva will crawl into the product.
- Clean under and around bars where fermented products may be spilled.
- After mopping floors, clean the mop to remove organic matter.
- If windows are left open, use tight-fitting screens of 16 mesh size to stop the fruit flies from flying into the structure.

### Control

Find and remove larval sites described above. For areas that can't be inspected such as garbage disposals or drains, try covering them with a clear plastic bag and tape down the sides to seal it against the surface. If flies are present, they will be caught in the bag.

The flies will often be found in more than one site, so such the entire structure for all potential fly food sources.

Once the larval sites have been eliminated, the structure can be rid of adult flies by using traps or spraying aerosols. Commercial fruit fly traps are available, but most folks can make an inexpensive and effective trap from materials found around the home (Figure 1). Make a paper funnel, i.e., roll a sheet of notebook paper, place it into a jar and bait the jar by adding a banana slice or a few ounces of cider or other vinegar. Place these traps where the fruit flies have been seen and soon the remaining adult flies will be caught.

**Note:** Several species of fruit flies besides our most common, *D. melanogaster*, are becoming more common as pests in commercial facilities. *D. repleta* and *D. hydei* are darker species of fruit flies, have dark red eyes, have narrower yellow bands on the abdomen and are slightly larger (3.5mm) than *D. melanogaster* (3mm), and have hairs or bristles on the middle section of the thorax that arise from dark spots which give the thorax a speckled or freckled appearance. *D. repleta* or the black fruit fly larvae feed on fungi, mold, yeast or bacteria on decaying matter and are a problem in confined poultry and swine production. *D. hydei* larvae prefer organic matter found in drains and sewers and are becoming more common in commercial food accounts.



**Figure 1. Fruit fly jars traps. From left to right, an old-timey glass trap; a new, inexpensive trap; and a homemade trap.**

### Sources:

Potter, M. 2006. Fruit Flies. Kentucky Pest News. No. 1105, August 14. University of Kentucky Cooperative Extension Service. <http://www.uky.edu/Agriculture/kpn/kpnhome.htm>

Potter, M. 1994. Fruit Flies. Ent-Fact 621. University of Kentucky Cooperative Extension Service. <http://www.uky.edu/Ag/Entomology/entfacts/struct/ef621.htm>

Anonymous. Small Fruit Flies. Whitmire Prescription Treatment Brand Pest Management Bulletin. Vol. 7. [http://www.wmmg.com/pdf/pmb/bulletin\\_vol7.pdf](http://www.wmmg.com/pdf/pmb/bulletin_vol7.pdf)

Hedges, S. 1995. PCT Field Guide for the Management of Structure-infesting Flies. Franzak and Foster, 151 pp.

## Avoiding Brown Recluse Bites and Actions to Take in the Event of a Bite

By Karen M. Vail

We recently discovered an immature brown recluse in our laboratory, and although we're probably the last building on the Ag Campus from which we have identified a brown recluse, this prompted me to write a reminder on how to avoid brown recluse bites at home and in the workplace.

### **Brown recluse bite description**

Should a bite occur, it is often initially painless. The bite wound starts with a central pimple and produces an irregular red reaction in 6-12 hours, followed by blister formation and/or skin death. The resultant skin ulcer heals slowly and may require skin grafts or flaps to reconstruct the defect. Tissue examination of the lesion demonstrates acute blood vessel injury and white cell infiltration. The initial bite is often asymptomatic and may be difficult to diagnose clinically unless the patient saw the spider. Wasp or bee stings, tick bites, allergic reactions or skin infections, such as that caused by methicillin-resistant *Staphylococcus aureus* (MRSA) or other bacteria, are often misidentified as brown recluse bites.

### **What is the likelihood of needing a skin graft or dying from a brown recluse bite?**

UC-Riverside's spider expert Rick Vetter provided a summary from an article by Phillip Anderson, a Missouri dermatologist who specialized in brown recluse bites for over 30 years, and several other authors.

- *Almost all brown recluse bites heal very nicely without medical intervention.*
- *Only 3% of brown recluse bites require skin grafts.*
- *Despite the fact that lots of people believe that brown recluses are deadly, there are only about 8 reported deaths from possible brown recluse bites in the medical literature. Philip Anderson states that there is still not one VERIFIED death from a brown recluse bite and none of the alleged fatal cases are convincing.*

### **Avoiding brown recluse bites around the home**

Most bites occur when the spider is pressed against the skin inside clothing or when rolled on in bed. To minimize bites in homes where brown recluse is present:

- store clothing in sealed plastic bags or storage boxes,
- store shoes in plastic shoe boxes,
- shake clothing and shoes before wearing,
- move beds away from walls or curtains,
- remove bed skirts from box springs,
- do not use bedspreads that touch or come close to the floor,
- inspect bedding before climbing into bed, and
- place glueboards under each bedpost.

### **Avoiding brown recluse bites in laboratories and other workplaces**

Because most bites occur when the spider is trapped against the skin, all containers should be observed for spiders before the containers are touched. Place glueboards where two surfaces intersect and under desk or table legs. Check glueboards regularly for spiders. Open drawers so materials are visible before reaching into the drawer. Never reach blindly into any voids. Lab coats, footwear and other materials should be shaken, as appropriate, to dislodge any spiders before using them. If footwear is removed while sitting at a desk, tap the shoe to dislodge spiders before inserting foot.

**Actions to be taken in the event of a bite:**

- Firmly place ice on wound and elevate wound.
- Seek medical assistance.
- Find cool place to rest until receiving medical assistance. Do not become excited or move about.

The treatment of brown recluse spider bites remains controversial. **Rest, Ice Compressions and Elevation (RICE)** have been useful in reducing redness and swelling. Antihistamines can be used for itching and analgesics, as appropriate, for pain control. Antibiotics used systemically seem to reduce the incidence of secondary infections. A baby aspirin taken the first day of the bite, if there are no contraindications, is helpful to reduce clotting within the blood vessels. Tetanus toxoid should be given as for a dirty wound. A drug called dapsone can be used in severe or progressing bites. Steroids should be reserved for patients with significant generalized symptoms such as rash and blood hemolysis. Excising the bite site acutely should be avoided since the inflammatory reaction produced by the venom will inhibit wound healing and produce inferior clinical results. Plastic surgical procedures can be helpful for reconstructing the wound site after the active phase of tissue damage has been completed. This may take up to 20 weeks.

More information of brown recluse identification and management can be found in the sources used for this article.

Vetter, Rick. UCR Research and Extension on Spiders and other Arachnids Website <http://spiders.ucr.edu/>

Vail, K.M., H.W. Williams and J.A. Watson. 2002. PB1191. The Brown Recluse Spider. The University of Tennessee Extension.

## Tobacco IPM Report

By Gene Burgess

Knox Co. – Amanda Maddux

Field 1. Many leaves showed budworm damage. Some parasitized budworms were present. Many plants had target spot. Black shank was in 75% of the plants scouted.

Field 2. Budworm damage was found. Aphids were on a few plants, but not at economic threshold level. Target spot was in many of the plants. Sixty percent of the plants scouted had black shank.

Jefferson Co. – Jennifer Lane

Field 1. The field had significant weed problems. One plant had black shank. Aphid populations were building up and needs to be monitored.

Field 2. There were some aphid colonies found, but they were not at economic threshold level. Overall, this field looked very good.

Polk Co. – Shenna Hair

A few grasshoppers were observed. A few plants had sun scald. Patches of horsenettle were found in the found.

ENTOMOLOGY AND PLANT  
PATHOLOGY EPP—#60

**OTHER UT NEWSLETTERS WITH PEST MANAGEMENT INFORMATION**

**Fruit Pest News**

<http://web.utk.edu/~extepp/fpn/fpn.htm>

**Tennessee Crop and Pest Management Newsletter**

[http://www.utextension.utk.edu/fieldCrops/cotton/cotton\\_insects/ipmnewsletters.htm](http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/ipmnewsletters.htm)

**Ornamental Pest and Disease Update**

<http://soilplantandpest.utk.edu/publications/ornamentalnwsltr.html>

**Tennessee Soybean Rust Hotline - 877-875-2326**

**USDA Soybean Rust Web Site**

<http://www.sbrusa.net>

**This and other "What's Happening" issues can be found at**

<http://eppserver.ag.utk.edu/Whats/whatshap.htm>

**Entomology and Plant Pathology Web Site**

<http://eppserver.ag.utk.edu>

**Precautionary Statement**

To protect people and the environment, pesticides should be used safely. This is everyone's responsibility, especially the user. Read and follow label directions carefully before you buy, mix, apply, store or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label.

**Disclaimer**

This publication contains pesticide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. The label always takes precedence over the recommendations found in this publication.

Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others that may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product. The author(s), the University of Tennessee Institute of Agriculture and University of Tennessee Extension assume no liability resulting from the use of these recommendations.

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