

# WHAT'S HAPPENING

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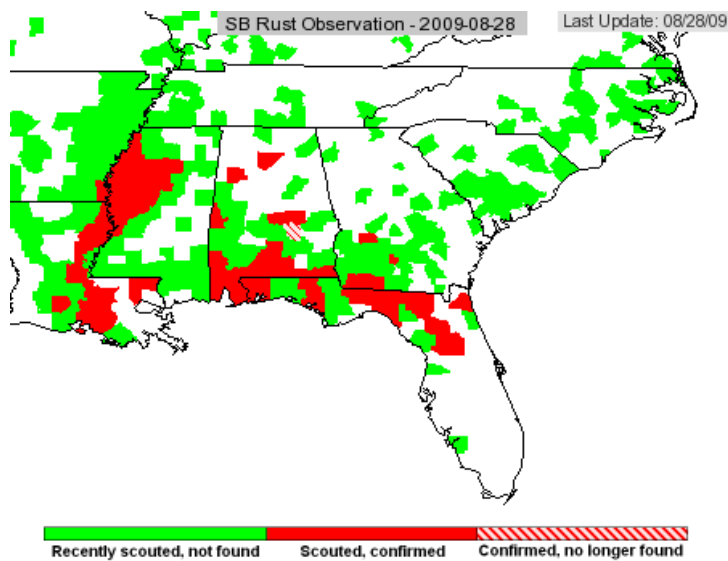
August 28, 2009

ENTOMOLOGY AND PLANT PATHOLOGY—EPP#60

## Soybean Rust Update

By Beth Long and Melvin Newman

All of Tennessee's sentinel plot samples that have been sent in for testing have been negative for soybean rust. Soybean leaves are being checked microscopically after incubation.



On Thursday, August 27th, soybean rust was reported at low levels in soybean sentinel plots in Autauga, Cullman, and Fayette counties in Alabama, as well as commercial soybean fields in Tunica County, Mississippi, Sumter County, Georgia, and on kudzu in Thomas County, Georgia. No soybean rust has been found in Tennessee during 2009.

The total number of counties reporting soybean rust in 2009 is nearly double the number that reported rust on the same date in 2008.

Thus far in 2009, soybean rust has been found in seven states (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi and Texas) in 73 counties in the United States.

This is not considered to be a major threat to soybean production in Mississippi or Tennessee at this time. However, if producers are still spraying for other late season diseases, they could include a Triazole fungicide or a pre-mix that has a Triazole in it. But, we are not recommending spraying for soybean rust specifically.

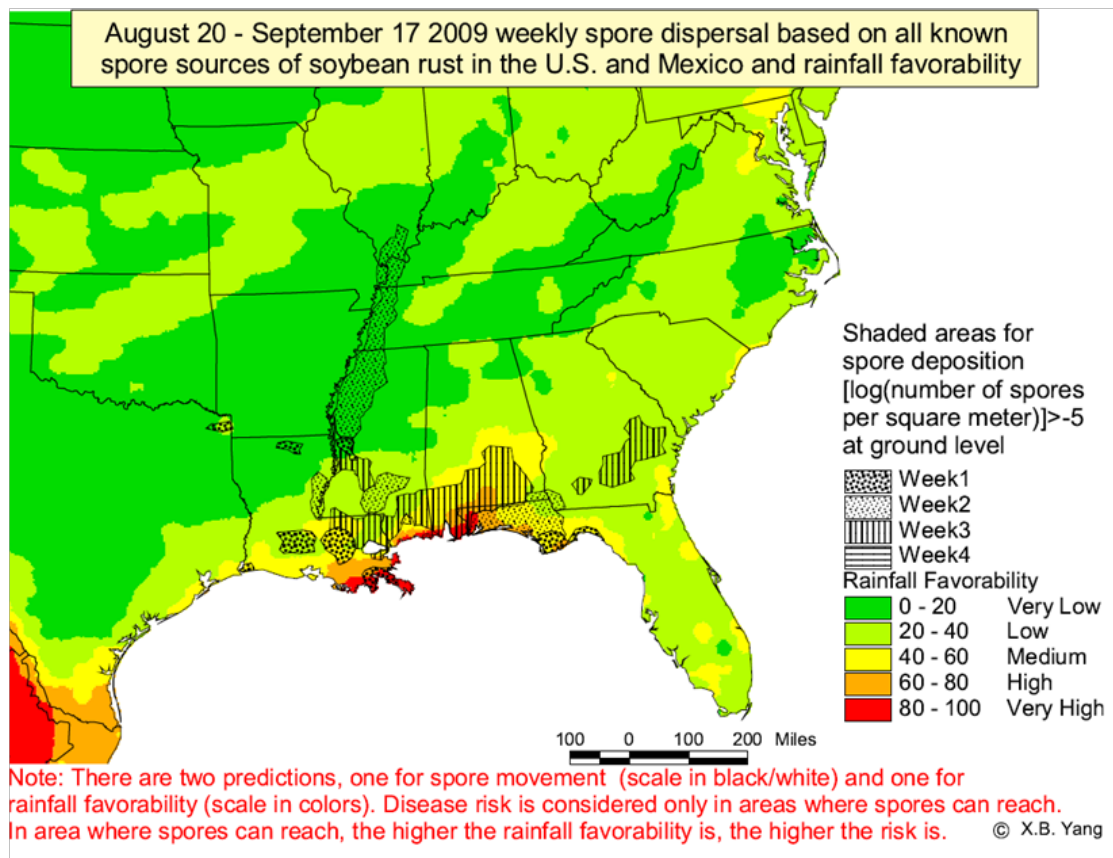
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Below is the risk map of soybean rust for the period of August 20 to September 17 developed by X.B. Yang, Iowa State University. Interpretation of the risk map is given on the map. The inoculum sources from recent findings in Mississippi and Arkansas have been included. Spores are predicted to move northward at great distance but the establishment conditions for this period are low.

Note that the risk to Tennessee is low to very low over the next three weeks. By then most of our soybeans will be at a growth stage where they will not be affected by soybean rust disease.



Continue to monitor the USDA Soybean Rust web site for any additional finds or new information. This is located on the web at: <http://www.sbr.ipmPIPE.net> or call the UT Soybean Rust HOTLINE Number which is 1-877-875-2326.

## Informational Resource

**By Darrell Hensley**

Corn ear abnormalities which may be caused by a variety of conditions such as diseases, insects, and weather stress. These can be some of the major limiting factors of yield and grain quality in corn production. Knowing what disorders affect the ear can lead to better management and greatly improve crop production for producers. Ohio State University Extension's Agronomics Crop Team has recently developed a poster and a Web site which provides supporting materials to aid growers in diagnosing abnormal corn ear disorders and other related conditions.

Peter Thomison and Allen Geyer developed an "Abnormal Corn Ears" poster that highlights various corn ear abnormality symptoms and causes, and includes color photos and detailed text. Their poster covers several corn ear abnormalities and includes: ear pinching, blunt ear syndrome, multiple ear syndrome, drought damaged ears, Diplodia ear rot, poor pollination at the ear tip, poor or incomplete kernel set, tip dieback, chaffy ears, bird damage, Western bean cutworm ear injury, tassel ears, zipper ears and kernel red streak.

The Web site, "Troubleshooting Abnormal Corn Ears and Related Disorders" may be viewed at [agcrops.osu.edu/corn/EarAbnormalities.php](http://agcrops.osu.edu/corn/EarAbnormalities.php). This Web site provides supplemental information originally included in Thomison's and Geyer's poster. A 11- x 14-inch version of the "Abnormal Corn Ears" poster is available online at [agcrops.osu.edu/corn/documents/AbnormalCornEarsPoster\\_000.pdf](http://agcrops.osu.edu/corn/documents/AbnormalCornEarsPoster_000.pdf) and a 26- x 33-inch copy of the poster is available for \$10 plus shipping. The poster is printed on plasticized-coated paper for durability. To order a poster, log on to [estore.osu-extension.org](http://estore.osu-extension.org), or contact the Ohio State University Communications and Technology Media Distribution office at (614) 292-1607 or e-mail [pubs@ag.osu.edu](mailto:pubs@ag.osu.edu). Ask for "Abnormal Corn Ears" poster ACE.

## Pesticide Testing and Assessment Approaches

**By Darrell Hensley**

The Environmental Protection Agency (EPA) has launched a new Web page that explains the development and evaluation of new technologies in molecular, cellular, and computational sciences to supplement or replace more traditional methods of toxicity testing and risk assessment. This was developed to aid in the protection of human health and the environment.

This Web page details the approach EPA's Pesticide Program is using to pursue new technologies that predict and characterize potential human health and environmental hazards and exposures from pesticides. It describes the current status as well as future plans for this rapidly changing area of research and regulatory science. The Web page also includes links to a glossary of key terms, information concerning pesticides and the ToxCast(TM) Research Program, and a matrix of tools used for pesticide testing.

You can access EPA's new Web page at: <http://www.epa.gov/pesticides/science/testing-assessment.html>.

## Stored Grain

By Russ Patrick

If you plan to store grain this fall, you should follow some rules prior to and during storage. Keep the bin clean. Clean out all old grain. Yes, that means remove last year's grain. Remove or scrape off the sides of any old grain which may be caked on the bin walls. Caked grain provides a perfect breeding ground for several stored grain insects including weevils. It also promotes corrosion. Depending on your bin type, it may be beneficial to purchase some Insecto® (diatomaceous earth). This product may be purchased on-line from several stored grain supply vendors. This product should be applied under the flooring. Remember, not to place this material on the grain. Diatomaceous earth is non-toxic to humans or mammals, but is deadly to insects. Actually, when insects crawl through the dust, it will desiccate them by cutting into the cuticle. Always use a pre-binning insecticide treatment such as Tempo SC Ultra. A pre-binning treatment will kill most insects that may be present at treatment or kill them soon thereafter. Tempo SC Ultra has a fairly long residual and will provide excellent control, if applied as directed by the label. Treat the flooring, walls, doors, and perimeter areas approximately 10 feet from the bin, especially if the bin is sitting on a concrete slab. Weeds and grasses surrounding the bin serve as staging areas for many grain pests, so remove these if located in close proximity to the bin. As grain is augured into the bin, treat the grain stream with Actellic 5E or Pyrenone with Diacon II. Pyrenon and Diacon II may be mixed and provide two modes of action. Pyrenon is a pyrethrum and is not a synthetic pyrethroid. Pyrenon does not last very long however it provides more effective control when mixed with Diacon II.



Grain needs to be leveled

Do not fill the bin above capacity and do not allow the grain to peak within the bin. Make the top of the grain mass level, and the top of the mass should be just above the last band of the bin. Remember to monitor stored grain regularly during the storage period.

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For grain stored in bags: Bags can hold up to 8,000 bushels of grain and may be left in the field for later retrieval. It would be wise to treat grain as it goes into the bags. We had several producers who did this and had great success keeping insects out. I would recommend not to hold the grain in the bags for more than 3 to 4 months. The earlier you move the grain from bags to the buyer will provide you the best returns. On September 9<sup>th</sup>, a Soybean Field Day is planned and we will have a Grain Bag Loader setup for observation. A representative will be there to talk with interested parties after the field day. I recommend anyone interested in storing grain in bags, to attend the field day.



Temperature and moisture monitoring



Grain bag loader

## Spending Time In Uncut Fields and Overgrown Areas? Time for a Lesson in Tick Bite Prevention!

**By Karen Vail, Reid Gerhardt, Carl Jones and Michelle Rosen**

If you've been out and about in uncut fields and areas with overgrown vegetation, or just outdoors around a house, then you are aware ticks are very active right now. In the last several weeks, lone star 'seed' ticks (the larval life-stage) were the most common tick submitted for identification in the UT Urban IPM lab. Here's a quick review of tick-borne diseases and a few tips to prevent bites, remove attached ticks and control them in a yard.

### **Tick-borne diseases**

Rocky Mountain spotted fever (RMFS) is caused by a rickettsia that is the most common tick transmitted disease agent present in Tennessee. Two hundred and sixty-five and 155 Tennessee cases were reported in 2006 and 2007, respectively. Rocky Mountain spotted fever is characterized by fever, headaches, muscle aches, malaise and a rash that starts on the hands and feet.

*Dermacentor variabilis*, the American dog tick, is the main vector in Tennessee. RMFS can be a very serious disease and requires rapid antibiotic treatment.

Human Monocytic Ehrlichiosis, or HME, is a new disease that is probably transmitted by *Amblyomma americanum*, the lone star tick. Twenty-nine and 23 Tennessee cases were reported in 2006 and 2007, respectively. HME has many of the same symptoms as Rocky Mountain Spotted Fever, but usually not the spots or rash. One other Ehrlichial disease has been reported in the United States, Human Granulocytic Ehrlichiosis (HGE), which is transmitted by the lone star tick, dog tick, and black legged tick. Generally cases of Ehrlichiosis are treated with antibiotics.

Lyme disease is caused by a spirochete that is transmitted by the blacklegged tick (*Ixodes scapularis*, also known as the deer tick). The risk of Lyme disease in Tennessee is much lower than in northern states because the vector tick is less abundant here, because these ticks rarely bite humans in this state, and because the ticks here are unlikely to be carrying the Lyme disease pathogen. Blacklegged ticks reach moderate densities in some forests, particularly in middle Tennessee counties, and they do seem to be spreading into new areas. *I. scapularis* is still the least likely tick to bite humans in the state (less than 1% of tick bites, in one recent study). Furthermore, the agent for Lyme disease - *Borrelia burgdorferi*, (*Bb*) – is presently rare and perhaps even absent from Tennessee tick populations. *Bb* was not detected in over 1000 blacklegged ticks sampled from across the state in a recent study.

Fifteen and 50 Lyme disease cases were reported from Tennessee in 2006 and 2007, however these cases are reported as 'county of residence,' do not consider travel history, and should be interpreted with caution. Typical Lyme disease symptoms include fever, headache, fatigue, and a characteristic skin rash. The typical circular skin rash occurs in 70 – 80% of human infections. Lyme disease is usually successfully treated with antibiotics if diagnosed early, but if left untreated infection can spread to joints, the heart, and the nervous system.

Southern tick-associated rash illness, or STARI, symptoms include an expanding, bulls-eye rash similar to that of Lyme disease and occurs following the bite of a lone star tick. The causative agent is not known. Symptoms may also include fatigue, fever, headache, and muscle and joint pain. Thus far, no chronic, arthritic or neurological symptoms have been attributed to the disease. For up-to-date information on tick-borne diseases, see the Centers for Disease Control and Prevention at

[www.cdc.gov](http://www.cdc.gov).

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### Avoiding Tick Bites

1. The best way to avoid tick bites is to avoid areas where ticks are plentiful. If possible, stay away from wooded and bushy areas with high grass and a lot of leaf litter. If you do enter a tick-infested area, walk in the center of trails to avoid contact with overgrown grass, brush, and leaf litter. Ticks which transmit most of the diseases described above have previously fed on wild animals which have natural infections of the bacteria.
2. Use repellent on clothing. Repellents containing ingredients such as DEET or permethrin (Permanone) applied according to the label instructions to boots, shoes and pants before venturing outdoors will provide some protection. Do not apply permethrin to skin! Pants should be tucked into socks or boots to prevent ticks from crawling under the pants and up the leg.
3. Use repellent on exposed skin. DEET may also be applied to skin. Avoid eyes, nose, lips, cuts and scratches and other sensitive areas when using repellents and always apply the repellent according to the label. If repellents are to be used on young children, use products containing up to 30 percent DEET. Use DEET only on children older than 2 months. If an allergic reaction is suspected from a repellent, wash the area with soap and water and seek medical attention. Other repellents are available but may not be as persistent as DEET. CDC has added new compounds to their list of suggested repellents. This (<http://www.cdc.gov/ncidod/dvbid/westnile/RepellentUpdates.htm>) and additional information on repellents can be found at [www.cdc.gov](http://www.cdc.gov).
4. Treat the dog. Consult a veterinarian for products to kill ticks on pets. Products containing fipronil (Frontline) are available from veterinarians to kill ticks on pets. Some are applied as a spot on the pet between the shoulder blades or as a spray. Permethrin sprays and spot-ons also have good activity against ticks. Collars containing amitraz (Preventic® Tick Collar) are another option for tick control on dogs. Insecticides are impregnated into the collar and are spread throughout the pet's hair by grooming. Check the label for the prescribed treatment time. Prolonged use of a tick collar can cause dermatitis under the collar, so check this area for rashes. Discontinue use of a collar if a rash occurs. The number of on-animal, over-the-counter insect control products has increased tremendously in the past few years. Products containing pyrethrin, permethrin and others are available in sprays, and spot-ons. Most of these products are also labeled to treat the dogs' resting areas.

### Removal of ticks

The only effective way to remove a tick attached to a person is with a pair of tweezers. Grasp the head region of the tick as close to the skin as possible. Apply firm, steady pressure to remove the embedded mouthparts. Treat as you would any other type of skin wound. Do not crush the removed ticks with either fingers or thumbnails. Do not attempt to remove ticks with nail polish, alcohol or lighted cigarettes. Be sure to inform your physician of any tick bite history in the event of illness within one month of a known tick bite. The only practical way to avoid contracting a disease from ticks is to avoid the tick or to remove the tick as soon as possible.

### Inspection

People living in or visiting tick-infested areas should inspect themselves, their children and their pets for ticks once or twice a day. Special attention should be given to the hairy parts of the human body as well as areas where clothing fits snugly. The sooner a tick is removed, the smaller the chances for transmitting a disease causing organism.

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### Control

Overall, a tick control program should include:

- avoidance of infested areas,
- application of repellent before entering environments that harbor ticks,
- inspection for ticks,
- modification of the environment so it is less conducive to tick survival, and
- if necessary, application of pesticides to pets and areas frequented by pets.

Severe infestations should be treated by a pest control professional.

**Modifying the environment around homes:** Nonchemical methods for reducing tick problems include mowing the lawn and controlling weeds. These actions provide three advantages: (1) lowers the moisture in the grass microclimate and allows sunlight to penetrate, which tends to cause ticks to dry out; (2) discourages rodents (which may serve as hosts) from nesting; and (3) because there is less plant matter, less pesticide may be needed if a treatment is necessary. Removing debris, wood piles or clutter from around house also discourages rodents from nesting. Repair entry points into the house to discourage possible tick the hosts from entering. Cracks and crevices, both indoors and out, can be sealed to reduce hiding places for the tick. Inspect and clean pets and their bedding frequently. If bedding is infested, it should be cleaned or destroyed.

**Outdoors:** Insecticides should be applied only when ticks are present. In the spring, survey suspected areas by dragging a 3-foot by 3-foot white flannel cloth along the ground. If ticks are found, use a single insecticide application in late April or May to effectively control nymphal and adult lone star ticks and adult American dog ticks. Survey again in August or September for newly-hatched lone star seed ticks and apply an insecticide to appropriate areas.

Where tick populations are high, outdoor areas that may need treatment include vegetation along borders, areas between woods and lawn, around ornamental plantings, fence lines, etc. Make sure the plants to be treated are listed on the label to prevent plant injury. Ticks avoid direct sunlight, so treating the entire lawn is not usually needed. Insecticides used for tick control include bifenthrin, cyfluthrin, lambda-cyhalothrin, fluralinate, permethrin and others. Areas that dogs frequent should also be treated. Products labeled for outdoor use are NOT usually labeled for treating pets!

**For specific pesticide suggestions, see UT Extension PB1690 Insect and Plant Disease Control Manual at <http://eppserver.ag.utk.edu/redbook/sections/structural.htm>**

### Modified from:

CDC. 2008. Learn about Lyme disease. <http://www.cdc.gov/ncidod/dvbid/lyme/index.htm>

CDC. 2008. Use These Simple Measures to Prevent Tick Bites.

[http://www.cdc.gov/ncidod/dvbid/lyme/Prevention/ld\\_Prevention\\_Avoid.htm](http://www.cdc.gov/ncidod/dvbid/lyme/Prevention/ld_Prevention_Avoid.htm)

CDC. 2008. Summary of Notifiable Diseases --- United States, 2006.

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5553a1.htm>

CDC. 2009. Summary of Notifiable Diseases --- United States, 2007. Weekly Morbidity and Mortality Report. 56(53): 1-94. <http://www.cdc.gov/mmwr/PDF/wk/mm5653.pdf>

Gerhardt, R.R., K. M. Vail, H. E. Williams, and J. New. 2006. PB726 Common Ticks of Tennessee and Their Control. UT Extension. <http://www.utextension.utk.edu/publications/pbfiles/PB726.pdf>

Rosen, M. 2009. Investigating the maintenance of the Lyme disease pathogen, *Borrelia burgdorferi*, and its vector, *Ixodes scapularis*, in Tennessee. University of Tennessee, Knoxville. Master of Science Thesis.

## 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>

### School IPM Newsletter

<http://schoolipm.utk.edu>

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

### USDA Soybean Rust Web Site

<http://www.sbrusa.net>

### Pesticide Safety Education Program, PSEP

<http://PSEP.utk.edu>

### IPM & Pest Management

<http://eppserver.ag.utk.edu/Extension/TN-PMIN/FYI/FYI.html>

### Entomology and Plant Pathology Web Site

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

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

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

## 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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