

IPM NEWSLETTER

Update for Field Crops and Their Pests

No. 20

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Bookmarks: [Cotton situation](#) [Insect stuff](#) [Sudden death syndrome](#) [Soybean update](#) [Farm management](#) [Moth traps](#)

Announcement --- 2009 Cotton Research Tour and Wheat Production Conference

When: September 2nd, 2009 registration from 8:00 to 8:30, Tour starts at 8:30, Wheat Production Conference starts at 1:00 pm

Where: West Tennessee Research and Education Center, Jackson

Cotton Tour: Variety Performance - Insect Management - Glyphosate Resistant Weed Management Irrigation - Glytol + Liberty Link Cotton - Planting Date Effects on Cotton - Defoliation Programs

Wheat Production Conference: Wheat Variety Performance - Insect Control Issues - Weed Control Basics - Agronomic Considerations - Malting Barley Discussion

Announcement --- Look at Them Beans

UT Extension and The Research and Education Center at Milan will be hosting a really good soybean **disease, insect and weed** field at Milan, TN on **Wednesday, Sept. 9-09 starting at 8:00 AM till 12:00 noon. Registration begins at 7:30 AM (free).** This was last held in 2007 and was well attended. It is one of the best, unbiased, in-field, close-up and hands-on training sessions for producers, Extension agents, industry reps. and anyone interested in soybean production. All the UT soybean experts along with Dr. Cliff Coker from the University of Ark. will be there to show and discuss foliar fungicides, soybean rust, resistant varieties (100 varieties with and without fungicides), insect I.D. and control, resistant weed control and even the new equipment for bagging soybeans for storage will be there. Economics of soybean production will also be covered. There will be four tents with three presentations at each tent. In addition, there will be guided tours through the soybean plots with the experts. Box lunches will be available for those who need to eat and run at noon.

Cotton Situation (Dr. Chris Main, Extension Cotton Specialist)

The Tennessee Agricultural Statistics Service reports cotton condition as 21% excellent, 59% good, 18% fair, 2% poor, and 0% very poor. 87% of the crop is setting bolls compared to 75% last week, 94% last year and 96% for the five year average.

Variety and Planting Date Effects on Plant Parameters. In the 2009 version of our variety by planting date trial, six cotton varieties were planted over six different planting dates. Table 1 below lists the number of nodes currently on each variety for each planting date. Differences were noted for each variety across different planting dates. However, the numbers of nodes for different varieties were similar within each planting date. Each variety averaged over all six planting dates had 19 nodes.

Table 1. Total nodes of six cotton varieties planted on six different dates 2009.

	4/15	4/22	5/5	5/19	6/1	6/15	Average
VARIETY	Number of Nodes (8/12/2009)						
DP 0912 B2RF	21	21	17	19	17	17	19
DP 0935 B2RF	22	22	17	20	18	18	19
FM 1740 B2F	21	20	17	19	18	17	19
PHY 375 WRF	22	21	17	20	17	17	19
ST 5288 B2RF	22	21	20	17	18	17	19
ST 5327 B2RF	21	20	17	19	18	17	19
Average (LSD=1)	22	21	17	20	18	17	

Cotton height was affected by both variety and planting date (Table 2). DP 0935 B2RF was the tallest variety and FM 1740 B2F was the shortest. The greatest height was observed for cotton planted on May 19 and June 1.

Table 2. Height of six cotton varieties planted on six different dates 2009.

	4/15	4/22	5/5	5/19	6/1	6/15	Average
VARIETY	Height in Inches (8/12/2009)						(LSD=2)
DP 0912 B2RF	42	43	43	42	47	43	44
DP 0935 B2RF	45	46	46	46	49	47	47
FM 1740 B2F	39	41	39	45	46	44	42
PHY 375 WRF	45	42	44	48	48	45	45
ST 5288 B2RF	44	45	42	45	49	43	45
ST 5327 B2RF	44	43	45	47	49	43	45
Average (LSD=2)	43	44	43	46	48	44	

Since heights approached 4 feet, how well was the cop managed with mepiquat? Table 3 indicates the observed height to node (H:N) ratios of each variety by planting date combination. The earlier planted the crop the lower the H:N ratio. As with heights in Table 2, cotton planted in June had the greatest vigor during the growing season.

Table 3. Height to node ratio of six cotton varieties planted on six different dates 2009.

	4/15	4/22	5/5	5/19	6/1	6/15	Average
VARIETY	Height to Node Ratio (8/12/2009)						
DP 0912 B2RF	1.9	2.1	2.5	2.2	2.7	2.6	2.3
DP 0935 B2RF	2.1	2.2	2.7	2.4	2.8	2.7	2.5
FM 1740 B2F	1.9	2.0	2.4	2.3	2.6	2.6	2.3
PHY 375 WRF	2.0	2.0	2.6	2.4	2.8	2.7	2.4
ST 5288 B2RF	2.0	2.1	2.6	2.3	2.8	2.6	2.4
ST 5327 B2RF	2.1	2.2	2.8	2.5	2.8	2.7	2.5
Average (LSD=0.1)	2.0	2.1	2.6	2.3	2.7	2.6	

The most talked about issue with this year's crop is the placement of vegetative and reproductive branches on the stalk. Many consultants have noted higher than normal nodes for the first fruiting branch (FFB) in May 19-25 planted cotton. Others have noted plants that began having reproductive branches on node 5 through node 8 then have 1-2 vegetative branches and the return to normal reproductive growth. In a few locations across west Tennessee and north east Arkansas some fields have large numbers of plants that lost apical dominance around node 4-5 resulting in 'crazy cotton' growth. These plants do not have typical node stacking associated with insect damage, or scars from physical damage (animals, hail, etc.). This phenomenon is puzzling to say the least. It has been observed in the past with DP 444 BG/RR, but never to percentage of plants observed in some fields. Fields with plants that have lost apical dominance will be delayed in an already late maturing year. It is advisable to make note of these fields and develop reasonable expectations for which bolls will contribute to yield and defoliate accordingly

In our planting date trial there were no differences for the node of the FFB (Table 4) when averaged over 10 observations per plot. However, most plots had a FFB range from node 5 to node 9. A few plots had the FFB as high as node 10. Those plots with high FFB node numbers were observed with all planting dates. Less than 1% percent of the plants in this trial developed 'crazy cotton' symptoms which leads me to believe that the loss of apical dominance is strongly controlled by the environment. Most fields with 'crazy cotton' have increased incidences in the more robust areas of the field. Perhaps the high vegetative vigor from a stress free growing season lead to the break in apical dominance in the plants effort to maintain a vigorous growth rate.

Table 4. First Fruiting Branch node of six cotton varieties planted on six different dates 2009.

VARIETY	4/15	4/22	5/5	5/19	6/1	6/15	Average
Node of 1 st Fruiting Branch (8/12/2009)							
DP 0912 B2RF	7	6	7	7	7	7	7
DP 0935 B2RF	7	7	7	7	8	7	7
FM 1740 B2F	7	7	7	6	7	7	7
PHY 375 WRF	7	7	7	7	7	7	7
ST 5288 B2RF	7	7	7	7	7	7	7
ST 5327 B2RF	7	7	7	7	7	7	7
Average	7	7	7	7	7	7	

Insect Considerations (Scott Stewart, IPM Specialist)

Cotton. Plant bugs are showing up in force in some fields, especially those not recently treated with insecticide. I've been getting more complaints than usual about insecticide "failures." Some of this is caused by frequent rains. With a few exceptions, most insecticides are not very rain fast. It just comes down to whether the insecticide was sprayed far enough ahead of the rain. Rain within 6 hours of applications can greatly reduce efficacy, but I would be concerned anytime it rained within 12 hours of application. I've also had complaints about plant bug control following a straight application of a pyrethroid insecticide. In some cases the rates have been too low. However, some populations of tarnished plant bug in Tennessee have at least partial resistance to pyrethroid insecticides. This is one reason I almost always recommend a tank mixture with another class of insecticide when applying a pyrethroid. Reduced rates of Orthene, Bidrin, Diamond and some other insecticides are commonly tank mixed with Baythroid, Karate, Mustang Max, Brigade and other pyrethroid insecticides.

Moderate numbers of bollworm moths are being caught in pheromone traps. So far I've missed on my prediction of higher than normal bollworm problems. Current problems are spotty. However, we need to stay vigilant, especially with the significant amount of late planted cotton (and soybeans). Some treatments are being made in Bollgard and WideStrike cotton. I am seeing an increasing number of fall armyworm larvae. You must look inside pink blooms and behind the bracts of bolls to pinpoint fall armyworm populations.

What can you expect from Bollgard, Bollgard II and WideStrike cotton?

Bollgard cotton such as DP444 BR will not provide adequate protection against bollworm or fall armyworm infestations if pest pressure is moderate to high or continuous. I estimate an average of 65% control of bollworms in Bollgard varieties. Bollgard II is more in the neighborhood of 90% control of bollworms, and WideStrike is in the middle. How well these technologies work can vary considerably. It is necessary to scout all Bt technologies for bollworm infestations. WideStrike is the best of the Bt technologies in controlling fall armyworm, and treating WideStrike for this pest is very unlikely. Bollgard II may require treatment for fall armyworm under heavy or continuous pressure. This is more common to the south of Tennessee. Bollgard and non-Bt cotton should be monitored for fall armyworm, and fields should be treated if populations exceed 10-20 per 100 plants (or 4% infested blooms or bolls). Consider using 4-6 oz/acre of Diamond on non-Bt or Bollgard cotton, especially in late maturing fields. Diamond is a good tank mix partner when making an application for plant bugs and once applied pretty much takes fall armyworm out of the picture. *Pictured above - fall armyworm larva*



When can I quit worrying about insects? The answer to this question depends on whether your cotton is early or late. It takes about 350-400 DD60s for a boll to be relatively safe from injury by most fruit feeding pests. For an early/normally maturing crop the last effective blooms are typically those that are present at NAWF5 (= 5 or fewer nodes above the first position flower). 350-400 DD60 is usually around 18-21 days. So once you hit NAWF5, there are about 18-21 days where you should aggressively manage plant bugs, stink bugs, bollworm or tobacco budworm. Some early planted fields are already past NAWF5 + 350 DD60s. But what if your crop is late? You can use last effective blooms dates (based on historical frost dates) if your crop is late. For Tennessee, August 10-15 is roughly the 50% last effective bloom date for an average year. This means that a frost will prevent any bolls developed after this date from contributing to yield in one-half the years. If you use today as your last effective bloom date, you will still have to manage for fruit feeding until September 5-10 (depending upon the weather). If you're a gambler, you may be banking on a late frost and are hoping to harvest bolls from blooms present on September 1. This means you will be protecting your crop from insects through most of September.



Soybean. Stink bug populations are generally on the rise but few fields are close to treatment level. It appears the earliest beans will largely escape stink bugs. Don't fall asleep on stink bugs in later maturing soybean fields. Many of our late planted fields have good yield potential. These late fields are the most likely to be infested with stink bugs as other crops begin to mature. Spraying

wheat beans or Group V beans in September is very possible. Very few other pests are present in significant numbers. I've had some reports of increasing numbers of threecornered alfalfa hoppers (pictured above). Treatment is recommended when populations exceed 1 per sweep.

Regional Report (Hayden E. "Gene" Miles, Area Extension Specialist, Northwest Tennessee).
Adequate moisture in the area continues to keep crops looking good.

Cotton - Growth stages being reported by private consultants, producers and IPM scouts range from bloom to boll maturing stage. More mature cotton plants in the Delta are averaging 14 1st positions this week and have 76 percent 1st position fruit retention. Plant bug numbers being reported from producers, consultants and IPM scouts range up to 44/100 sweeps and/or 4 per 6 row feet. Stink bug numbers are being reported by private consultants at the threshold level (1 per 6 row feet). Also, fields are being treated for combinations of stink bugs and plant bugs. Fall armyworms are being reported by private consultants at 1 in 100 blooms (threshold 4 per 100 blooms). Spider mites are being reported at treatable levels in spots in cotton fields by consultants. Bollworm/budworm damage being reported through county IPM programs is 1% fruit damage in Bt cotton. Private consultants are reporting bollworm/budworm damage in conventional cotton to be 1 percent fruit damage and 2 worms per 100 terminals. Light infestations of aphids seem to be spreading in the area this week. Also, aphid "mummies", caused by a parasitic wasp (*Lysiphlebus testaceipes*) have been noted reducing aphid populations this week. Beneficial counts range up to 10.4 per 6 row feet.

Soybeans - Producers are reporting stink bug counts that range up to 2 per 25 sweeps (threshold 3/25 sweeps) in soybeans in the bloom to mid-podfill stage of growth. IPM scouts are reporting corn earworm and fall armyworm numbers to be 0.2 per 3 row feet (threshold 3 or 4 per row foot, or 9 per 25 sweeps).

Sudden Death Syndrome (Melvin Newman, Professor & Extension Plant Pathologist)

Sudden Death Syndrome (SDS) is now showing up in many soybean fields across the state. There is no control for it this season. Only planting resistant varieties will control this disease. It is caused by a soil-borne fungus call *Fusarium solani f. sp. glycines*. It lives in the soil and causes soybean leaves to become necrotic with only the veins remaining green. The leaves may then fall leaving the petioles attached. The roots become rotted and plants can be easily pulled out of the soil. The pith of the lower stems will remain white while the water-conducting tissue (xylem) will have a gray to brown color.

SDS is usually more severe during wet years, like this year. The disease favors soils that retain moisture along with good fertility and good organic matter. It can be more severe in soybean fields following corn. Many times the presence of the soybean cyst nematode will increase the severity. Yields will be reduce in fields with severe SDS (as much as 50 % or more), but it may not affect yields very much in field with only a low amount of plants affected. The symptoms may continue to increase from now on if favorable moisture continues. Dry weather may slow down the progression of SDS.

It has been several years since we have had this much SDS and ratings for this disease have been very light the last two years. However, I am sure we will have good ratings on about 100 commercial varieties at the Milan Station this year. This data along with other disease ratings will be posted on the web site: www.utcrops.com as soon as harvest is done. Below is a picture and description of SDS.



Soybean Update (Angela Thompson McClure, Extension Corn and Soybean Specialist)

Asian Soybean Rust - A very low level of soybean rust was reported in southeast Arkansas and northwest Mississippi this week. Because of the extremely low level and lack of widespread disease, **there is NO spray advisory in Tennessee this week.** Sentinel fields scouted in TN are not showing any signs of rust. We plan to scout additional locations along the Mississippi river over the next few weeks to monitor conditions. At this time, there is no reason to switch to a triazole fungicide from strobilurin products like Quadris or Headline. Strobilurin fungicides applied before disease onset provide good protection in the event rust tries to develop in the field. We encourage the use of a strobilurin fungicide or strobi-triazole combination for best control of Frogeye Leaf Spot and anthracnose on late planted soybeans. Strobilurin fungicides can be applied as late as 14 (Quadris) to 21 days (Headline) before harvest in the event of rust but are more effective on other foliar diseases if the last spray is made at R5. I think with the great yield potential of our late crop, we can justify spraying most of our wheat beans. This will definitely protect us from late season rust and also reduce anthracnose that is more likely in a year where we are having wet humid conditions during bloom and early pod development.

Yellow Beans - Agents and specialists are getting lots of calls this week about yellow soybeans. We have diagnosed several causes including: wet poorly drained soils, *Rhizoctonia*, rhizobium induced chlorosis (RIC), glyphosate “yellow flash”, potash deficiency and early Sudden Death syndrome. Often there is more than one cause of the yellowing. The photo to the left is suspected potash deficiency with rhizobium induced chlorosis in an unfertilized pasture field that was planted to soybeans in 2009. Some of these conditions look similar visually and it can be difficult to make a positive identification. Potash deficiency and early RIC involve leaf margins. Late RIC and ‘yellow

flash' affect the majority of leaf tissue on upper leaves. Usually a soil or tissue test can help positively diagnose nutrient deficiencies.



If the yellowing shows up soon after a foliar glyphosate application, it is generally attributed to “yellow flash” caused by a combination of variety sensitivity and a temporary manganese (possibly zinc) deficiency as the plants attempt to metabolize glyphosate. This year a lot of glyphosate was sprayed in recent weeks during rainy, cooler, cloudy weather causing a light yellow color in upper leaves. Some varieties will flash worse than others. Yellow flash is generally temporary (new trifoliates that weren't sprayed directly will develop normal green color). With some varieties, it is taking several days for the plants to recover and producer normal color in new trifoliates.

Rhizobium induced chlorosis (RIC) tends to be a catch all diagnosis when nutrient deficiencies aren't measurable, we can't point to disease or glyphosate and we simply don't know have a good answer for what we see. Recent work with RIC indicates the yellowing is caused by inefficient strains of nodule forming bacteria or “lazy rhizobium”. Some older work suggested rhizobium release a slightly toxic compound during the nodulation and N fixation process that causes chlorosis in young upper leaves. Aggravating factors include wet soils, poor fertility and low pH. This condition is usually temporary and disappears a week or two after it is observed as new growth emerges. An indirect cause of rhizobium chlorosis is when poorly drained soils (think about all the showers we have had over the past few weeks) become oxygen depleted, uptake of nutrients is affected, and activity of rhizobium bacteria declines. Nitrogen production slows down and certain leaves do not get adequate nitrogen to maintain chlorophyll production causing them to photobleach. These conditions require time and dry weather to improve.

A Word on Boron - I have had several calls in the past few weeks about adding boron to whatever fungicide/insecticide cocktail that is going on our late soybeans. Boron is a micronutrient needed by all plants for flower and seed development among other things. It is needed in very small amounts for plant health and most silt and clay loam soils provide adequate boron for crop needs. If you are planting soybeans in cotton ground that has had boron applications made to cotton in previous years you should have an abundance of this micronutrient. We do not recommend routinely adding boron to foliar sprays on soybean. First, we seldom have true deficiencies of this micronutrient therefore adding more is not necessary and second, too much boron can cause toxicity problems. Deficiencies can occur in sandy soils or soils where pH is very low (below 5) or very high (above 7). Some previous work done by UT in the late 1990's showed inconsistent yield increases with foliar boron sprays on silt loam soils. Other universities working with silt or clay loam soils also report inconsistencies in response. Again, sandy soils or farms where boron has been deficient in past years based on soil or tissue test results would be the place to add boron. **If the decision is made to include boron in a foliar spray, use the product rate equivalent to 0.25 lb/acre and not the higher rates that some products advertise.** Boron is one micronutrient where more is definitely not better. This will reduce the chance of boron toxicity caused by applying too high a dose to a plant that is already sufficient in boron.

Farm Management (Chuck Danehower, Area Specialist - Farm Management). USDA released the monthly Supply and Demand Report August 12. Comments by crop can be found at <http://economics.ag.utk.edu/outlook.html>. Weekly comments are updated Friday afternoons and posted at <http://economics.ag.utk.edu/cropcomm.html>.

To summarize, the report was neutral to bullish for corn and soybeans, neutral to bearish for cotton, and bearish for wheat. The resurvey of corn acreage was basically a non event as acreage was left alone. However, soybean acreage was raised 200,000 acres. Acreage certification at FSA will end August 14 and those numbers will probably be worked into the October report. Corn yields were increased a little higher than expected at 159.5 bu. /acre - Tennessee is estimated at **135** bu. /acre. Soybean yields nationwide were decreased a little more than expected at 41.7 bu. /ac with Tennessee yields estimated at **40** bu. /acre. Cotton yields were also increased nationwide to 816 lbs. /acre with Tennessee yields estimated at **916** lbs/acre. The Tennessee corn and cotton yields would be the 2nd highest on record with the soybean yield being the third highest. The market responded favorably after the report, but has not been able to sustain the momentum as of yet.

One of the sessions at the recent Mid-South Agricultural Finance Conference dealt with hedging and was conducted by Carl Babler, Hedge Specialist with First Capital Ag. Mr. Babler's discussion fits right in with today's volatile market. The market will continue its age old pattern of going up and down. This unprecedented commodity price volatility causes unprecedented revenue opportunity and risk. US producers must embrace this business change and put additional emphasis on commodity marketing, price risk and opportunity management. This may mean breaking some old habits as we make changes. Mr. Babler is a strong proponent of a hedging program utilizing options. More on First Capital Ag's hedging program can be found at <http://www.hedgebroker.com>.

Producers need to be proactive in marketing in today's ever changing markets and utilize sound price risk management strategies. This year's situation is one where normal weather could produce a big crop and drive prices down whereas an early frost with a late crop will drive prices up. Put options even this late in the production year have a place in a price risk management program. Put options give you the right, but not the obligation to take a sell position at a designated price. That right does have a cost and it is the option premium. Currently, a \$10.20 November put option would cost \$0.70 bushel and set a futures floor of \$9.50. If prices drop to \$9.00, then at expiration the put option would be worth \$1.20 and would have a net gain of \$.50 leaving your selling price at \$9.50 plus or minus the basis. If prices go to \$11.00, then the put option is worthless at expiration and the net selling price would be \$10.30 bushel plus or minus the basis. With a later crop, it may be more advantageous to look at the January 2010 put option in soybeans. The November option expires October 23 so a January put can extend your protection until the crop is harvested. Put options offer protection on the downside, but allow for price appreciation. There are many option strategies that can be employed. Producers need a good understanding of what the strategies involve before undertaking them. For additional information on options, visit the CME website at <http://www.cmegroup.com/> and click on education or contact your Extension Farm Management Specialist.

Tennessee Pheromone Moth Trapping Summary - Trapping efforts are funded in large part by the Tennessee Cotton Incorporated State Support Program. Thanks to the County Extension Agents who are also running southwestern corn borer traps.

Numbers of Moths per Week (Week 15, Ending 8-12-09)

Trap Location	Tobacco Budworm	Corn Earworm (Bollworm)	Beet Armyworm
Hardeman (Bolivar)	2	7	0
Fayette (Whiteville)	0	4	---
Fayette (Somerville)	1	3	0
Shelby (Millington)	0	68	0
Tipton (Covington)	0	64	---
Tipton (North)	0	32	0
Lauderdale (Goldust)	2	*	0
Haywood (West)	0	8	*
Haywood (Brownsville)	0	15	---
Madison (WTREC)	2	102	39
Madison (North)	0	32	0
Crockett (Alamo)	0	17	0
Crockett (Maury City)	0	78	*
Dyer (Dyersburg)	0	77	0
Dyer (Newbern)	3	26	0
Lake (Ridgley)	4	41	*
Gibson (Kenton)	0	42	0
Gibson (Milan REC)	0	0	*
Carroll (Coleman Farm)	*	*	0
Average per Trap	0.78	36	3

An asterisk (*) indicates the trap was missing, knocked down, or no report was received.

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Scott D. Stewart (editor)
Extension IPM Specialist

