

## **IPM NEWSLETTER**

### **Update for Field Crops and Their Pests**

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#### **Cotton Progress Report (Chris Main, Extension Cotton and Small Grains Specialist)**

The Tennessee agricultural statistics agency reports that 88% of the crop is squaring compared to 65% last week and 78% last year, ahead of the 5 year average of 74%. Cotton condition is rated as 3% very poor, 14% poor, 33% fair, 45% good and 5% excellent with continued good to excellent square and small boll retention.

The phone has been very quite this week. Most calls have been about nutrient deficiencies beginning to appear since cotton has started rapid growth following last weekend's rain. The following is some information I have picked up in regards to nutrient deficiencies.

**Potassium deficiency:** <http://www.ext.vt.edu/pubs/rowcrop/418-025/418-025.html>

The K deficiency symptoms appear as yellowish-white mottling of the older foliage that changes the leaf color to light yellowish-green. Yellowish spots begin to appear between the veins, then the center of these spots die and numerous brown specks occur at the leaf tips, around margins and between veins. The tips and margins break down first and begin to curl. These symptoms occur at the bottom of the plant on the lower, older or mature leaves. As the physiological breakdown progresses, the whole leaf becomes reddish-brown, dries, and finally becomes rust colored and brittle. Many leaves are prematurely shed, bolls fail to develop properly and may fail to open or only partially open, and the fiber is of poor quality. In the 1960's in Arkansas and in the 1980's in Alabama, K deficiency symptoms were found on young cotton leaves at the top of the plant. While the K deficiency symptoms are similar to the traditional symptoms, they occur first at the top of the heavily fruiting plants and progress from younger to older leaves.

Foliar fertilization is not meant to take the place of a sound soil fertilization program. Foliar K applications under certain conditions, however, can supplement soil applied K to increase yield and improve fiber quality of fast-fruiting cotton varieties. Foliar K applications offer the opportunity to correct the deficiency more quickly (within 20 hours) and efficiently, especially late in the season when soil application of K may not be effective. The timing of any foliar spray, especially during the growth stage, is critical to the optimum efficiency of the foliar treatment. The recommended growth stages in cotton for foliar-applied K are at square



initiation, at flower initiation, and at peak boll development. It is important to recognize that it is generally cheaper to supply K from soil-applied potash than it is to make supplemental, foliar-application.

Foliar applications have the advantage of allowing producers to add the necessary K when: tissue analysis indicates a pending shortage, large fruit load is expected, or deficiency symptoms appear. Three to four foliar applications of K should be made during peak boll development at 7 to 10 day intervals beginning about 2 weeks after flowering begins. A minimum rate of approximately 3 lb/acre of K should be used at each application. The recommended source of K for foliar fertilization is potassium nitrate (KNO<sub>3</sub>), although other sources such as potassium sulphate have been used.

**Sulfur deficiency:** Sulfur deficiencies sometimes are seen in cotton on sandy soils formed from parent material low in sulfur with low organic matter levels. Sulfur deficiencies look much like nitrogen deficiencies, pale-green leaves on the upper part of the plant. Sulfur deficiency appears on new growth first; whereas nitrogen deficiency appears on older leaves first.

Some common sources of sulfur are granulated fertilizers containing sulfur, ammonium sulfate, ammonium thiosulfate (12-0-0-26), liquid nitrogen with sulfur (28-0-0-4 or 28-0-0-5), and gypsum. Use the source that is cheapest and most convenient since all are sulfate forms and equally available to the plant.

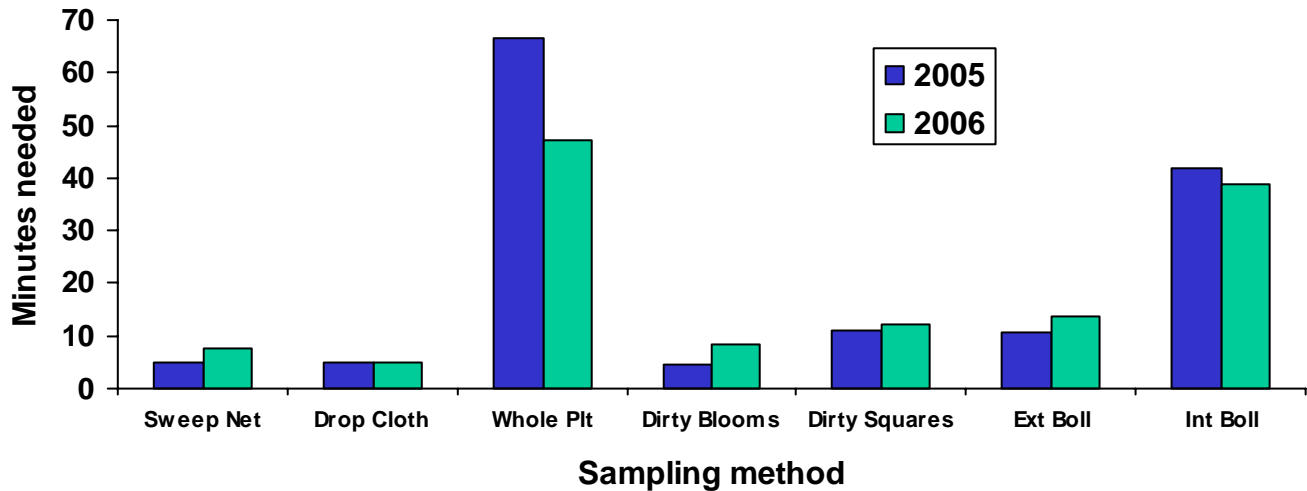
**DD 60 Accumulation (TASS and NWS data).**

<b>Location</b>	<b>4/20-7/05</b>	<b>4/27-7/05</b>	<b>5/4-7/05</b>	<b>5/11-7/06</b>	<b>5/18-7/05</b>	<b>5/25-7/05</b>
Brownsville	1063	1015	963	892	790	745
Dyersburg	1124	1075	1019	914	839	780
Fayetteville	1178	1131	1068	979	901	832
Memphis	1357	1317	1221	1100	1010	925
Milan	1022	975	923	821	751	709

**Insect Issues (Scott Stewart, IPM Specialist)**

**Cotton.** There often is a lull in insect problems at this time of year, and this year appears to be no exception. Aphids populations are non-existent, and it appears that spider mite problems have somewhat subsided. Current plant bug populations are also generally low. However, now is also the time we typically start seeing slowly increasing populations of plant bugs and stink bugs in fields. It is usually later in the month that we routinely find treatment level infestations of one or several pests, but we certainly can't assume we are safe until then. Once cotton begins to bloom, it is even more critical to scout for insect pests. The big players are tarnished plant bug, clouded plant bug, stink bugs, bollworm and tobacco budworm. Recent research has demonstrated the value of drop cloths and sweep nets in monitoring plant bugs and stink bugs. Figure 1 shows the relative efficiency of different sampling methods for plant bugs. These data were collected by several universities in the Midsouth (including UT). I still prefer the drop cloth in blooming cotton, but there are other methods that were also relatively efficient, including the sweep net and counting percent damaged (or dirty) squares or blooms. Visual (whole plant) inspection of plants was reliable but very inefficient. UT does not currently have threshold recommendations for plant bugs using the dirty square or dirty bloom techniques. We are further testing these this year.

**Figure 1.** For each sampling method, the time needed to make a correct treatment decision (excluding walking time) with 80% accuracy when plant bug populations were 20% above threshold.



The plant bug threshold for blooming cotton is 4 insects per 6 feet of row (about 3.33 bugs if using the shorter 2.5 ft-long drop cloths). You may also use a threshold 15 tarnished plant bugs per 100 sweeps or 15 per 100 plants if using a modified, whole plant counts. Remember: count clouded plant bugs as equivalent to 1.5 tarnished plant bugs.

The stink bug threshold is one or more per drop cloth or when 15% or more of thumb-sized bolls have internal signs of feeding (stained lint or warts, pictured). Plant bugs may also cause similar feeding sign, but don't worry too much about confusing the two. Recent data suggests that if plant bugs are causing this level of internal feeding sign, they are likely at or close to threshold anyhow.



So what if you have stink bugs and plant bugs? This is a common scenario in Tennessee. I have a rule of thumb that we are trying to further validate with research. To be conservative, you can count 1 stink bug as equivalent to 3 tarnished plant bugs. Thus, if you find an average of 2.5 tarnished plant bugs and 0.5 stink bugs per drop cloth, this is equivalent of 4 tarnished plant bugs per drop cloth (= 2.5 + 1.5). You can use the same approach if using a sweep net or whole plant sampling. Once blooming begins, UT recommends shifting to products such as Bidrin (5-8 oz/a), acephate (0.5 lb/a), and Vydate (10-12 oz/a) for plant bug or stink bug control. There are other insecticide options listed in UT's *Insect Control Recommendations for Field Crops* ([http://www.utextension.utk.edu/fieldCrops/cotton/cotton\\_insects/InsectBook.htm](http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/InsectBook.htm)).

“Worms” are present in treatable numbers in some blooming, non-Bt cotton. I have had reports of 4-8% infestations in several southern counties. It is almost certain these are TOBACCO BUDWORMS (not bollworms) based on the time of season, lack of infestations in Bt cotton, and the low bollworm numbers in moth traps. A pyrethroid insecticide will NOT provide effective control.

Boll weevil eradication assessment fees for 2007 have been set at \$10 per acre for West Tennessee and \$3 per acre for Middle Tennessee. As in past years, payment is due by November 15<sup>th</sup>.

**Soybean.** I received a total of about two phone calls about soybean insects this week, and our sampling is not showing anything exciting. However, there are threshold level populations of stink bugs in a few early maturing fields. At this time of year, it is important to concentrate your scouting efforts on the most mature fields because stink bugs tend to find these first. *Remember:* UT's treatment threshold from first bloom to mid podfill (R5-R6) is 12 or more stink bugs per 100 sweeps. This threshold is plenty aggressive to prevent economic damage.

**Corn.** Southwestern corn borer (SWCB) moth catches are blowing up in many areas, especially those where moths were common during the first generation. Our moth traps indicate this growing moth flight at a couple of locations, but many of our moth traps are in cotton intensive areas. Other peoples' traps are catching much large numbers of SWCB. This past week, 100 - 500 moths were commonly being caught in traps located in northern one-half of West Tennessee. Infestation levels can vary dramatically from one area to another, and it is just a guess whether or not you have a potential problem unless you have 1 or 2 traps on or near your farm. However, SWCB tend to be most common in areas where lots of corn was grown the previous year. We also know that high populations are present in many parts of our biggest corn counties (Lake, Dyer, Obion, Gibson, Weakley, Henry and Carroll). *Next week will be an excellent time to consider spraying for SWCB in non-Bt corn, especially in the above counties.*

Of course, whether you spray should be dependent on local populations, yield potential and the maturity of the corn. Most fields are currently susceptible to infestation, and relatively late fields are really at risk because they are more attractive and susceptible. "Relatively late" is just that -- moths are good at picking out small differences in maturity that may only be a few days -- and a field that is 7-10 days later than most surrounding fields can get hammered. A good time for application is 3-5 days after the first eggs or small larvae are detected in fields. Again, my first choice of insecticide is Intrepid at 4-6 oz/acre. The pyrethroid insecticides are my second choice (e.g., Asana XL, Baythroid XL, Mustang Max and Warrior). Most experts agree that spraying corn for SWCB once it reaches the dent stage is not necessary.

**Area Report for Northwest Tennessee (Gene Miles, Area Crop Specialist, Week of July 2<sup>nd</sup>).**

Much needed rain has helped relieve the drought situation in the area. Some areas have received as much as 5.5 inches of rain this week. Selected cotton plants of more mature fields in the area (planted April 21) remained at NAWF=6 for the 2<sup>nd</sup> consecutive week. These same plants averaged 15 nodes, 22 total fruiting positions and maintained 99 percent fruit retention for all positions.

Square retention in non-blooming cotton being reported from private consultants and Dyer and Lauderdale County IPM scouts ranged from 90 to 100 percent. Immature clouded plant bugs are being observed this week. Plant bug numbers reported ranged from 0 to 1.0 per 6 row feet and/or 24 per 100 sweeps. Although some fields have been treated for spider mites with recommended insecticides, recent rains have helped the overall spider mite problem. Bollworm/Budworm pressure remains light. IPM scout reports have noted 1.0 bollworm/budworm greater than 1/4 inch long per 100 plants in Bt cotton that is in the bloom growth stage. The threshold is considered 4 small larvae present per 100 plants (after first bloom). Other insects being noted this week include yellowstriped armyworm and grape colaspis. Beneficial insect counts being reported this week range up to 7.4 per 6 row feet.

**Weed Control (Larry Steckel, Extension Weed Specialist; Angela Thompson, Corn and Soybean Specialist).**

The call of the week has been morningglory control in cotton and soybeans. Many post direct options exist that will do a good job in cotton but the question has been how to control these weeds over the top of Flex cotton thereby avoiding the hoods. Glyphosate alone has not provided good control in many cases. The reasons for this lack of control include the morningglories being too large and running at the time of application and hardened off from drought stress. Also, glyphosate at the typical use rate will only provide 70% control under good conditions. On cotton that is not drought stressed, one option is Envoke at 0.15 oz/A followed with glyphosate a few days later as needed. Do not tank mix Envoke and glyphosate on drought stressed cotton due to potential injury. The second option is 1.2 oz/A of Staple LX or 0.6 oz/A of the old Staple 85 SP added to the glyphosate.

In soybeans there are several options including Reflex, Blazer or Aim over the top. Another option is to add 0.25 to 0.3 oz/A of Classic to a glyphosate application. Ideally, most consistent control is achieved when applications are made to morningglories before they start to run. One last tip to help control these morningglories would be to bump up the rate of glyphosate from 22 to 32 oz/A (RoundUp OMax) or 24 to 34 oz/A (Touchdown Total) in the tank mixes mentioned above.

**Farm Management Update (Chuck Danehower, Area Specialist – Farm Management)**

The USDA Crop Acreage Report was released on Friday, June 29 with some surprising results. In general, corn acreage in Tennessee and nationwide is higher than expected while soybean acreage nationwide was less than expected. With a somewhat switch to corn, cotton acreage also declined. In Tennessee, cotton acreage will be the lowest in 9 years while corn will be the highest since 1986. The following table outlines the crop report acreages in Tennessee and the U.S.

Planted Acres – June 29, 2007 USDA Report (1,000 acres)						
	Tennessee			United States		
	2006	2007	% Change	2006	2007	% Change
Corn	550	840	+53%	78327	92888	+19%
Cotton	700	480	- 31%	15274	11058	-28%
Soybeans	1160	1100	+43%	75522	64081	-15%
Sorghum	14	20	+ 5%	6522	7765	+19%
Wheat	280	450	+61%	40575	45136	+11%

The initial response was bearish for corn, and bullish for soybeans and cotton. Soybeans have replaced corn as the market leader. Although the report was bearish for corn, it will find support following the soybean market. Now that the acreage numbers are out, the market will focus on weather conditions and yield prospects for the crops.

It is possible we will see at least one last weather rally within the next few weeks. Depending on how your corn crop looks and what is currently priced, consider pricing on that rally. With the drop in acres, soybeans should have some strength into harvest. Granted, if crop conditions are good to excellent nationwide, soybean prices will not stay at recent levels. However, the acreage prospects for the 2008 production year, will give strength to this year's market. The lower cotton acreage has given support to the cotton price. We are still heavily dependent on the export market to pick the price up. It remains to be seen whether we will see the cotton price rally that is needed. Most likely, it will be 2008 before we see higher cotton prices. For more information on cotton prices, tune in to the Ag Market Network Special Cotton Meeting on July 13 at 7:30 a.m. either on [www.nybot.com](http://www.nybot.com) or [www.kflp.net](http://www.kflp.net). A distinguished Panel of cotton experts will discuss today's cotton market including: crop conditions, domestic demand, exports and farm policy.

For weekly updates on marketing, go to Dr. Delton Gerloff's website at <http://web.utk.edu/~quince/>. If I can assist you with your marketing plan, please give me a call at 731-635-9551 or email at [scdanehower@utk.edu](mailto:scdanehower@utk.edu).

**Tennessee Pheromone Moth Trapping Summary** - Trapping efforts are funded in large part by the Tennessee Cotton Incorporated State Support Program.

**Numbers of Moths per Week (Week 9, Ending 7-03-07)**

Trap Location	Tobacco Budworm	Corn Earworm (Bollworm)	Beet Armyworm	Southwestern Corn Borer
Hardeman (Bolivar)	0	0	0	---
Fayette (Whiteville)	0	1	0	---
Fayette (Somerville)	0	0	---	0
Shelby (Millington)	48	0	0	---
Tipton (Covington)	38	0	0	---
Tipton (North)	4	0	---	0
Haywood (West)	0	0	0	---
Haywood (Brownsville)	0	0	---	---
Madison (North)	0	0	---	---
Madison (Exp. Stn.)	12	2	11	34
Crockett (Alamo)	10	0	0	0
Crockett (Maury City)	2	0	---	---
Dyer (Bogota)	0	0	0	---
Dyer (Newbern)	1	0	---	0
Lake (Ridgley)	0	0	0	---
Gibson (Kenton)	0	1	---	---
Gibson (Milan Exp Stn.)	0	0	0	38
Carroll (West)	0	0	0	---
Lauderdale (Goldust)	6	0	6	---

An asterisk (\*) indicates trap was missing, knocked down or not run.

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