

IPM NEWSLETTER

Update for Field Crops and Their Pests

No. 22

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

The Tennessee agricultural statistics agency reports that 93% of the crop is setting bolls compared to 88% last week, 94% last year, and ahead of the 5 year average of 88%. Cotton condition is rated as 1% very poor, 10% poor, 33% fair, 46% good and 10% excellent.

Extremely dry and extremely hot! Unless your cotton is under a pivot, it is most likely done for this year. Most dry-land cotton planted prior to May 5th does not have any white blooms showing and has dropped all the squares and small bolls that have developed over the past week. Even if rain comes in the next week, we are probably too far behind to set much of a top crop. If it rains and a square forms, it will take 300 to 350 heat units to produce a bloom (2-3 weeks) plus 850 heat units after the white bloom to develop a harvestable boll. For arguments sake let's say it takes 1200 heat units to get from pinhead square to a harvestable boll. Using today (August 9) as an example, we have good chance of receiving approximately 850 heat units between today and October 1st (using historical weather data). Consequently, August 10th is considered our last effective white bloom date, that is the day when a white bloom is still expected to make a harvestable boll. So if we can get a bloom in the next day or two we might get lint from it **if we get some rainfall**.

I have started calculating heat units past cutout in a table below. This will help determine when to terminate insecticide sprays and when to apply defoliant. Once a crop is 350 heat units past cutout we typically can stop insecticide sprays without suffering economic losses. Also, at 850 heat units past cutout we can begin to think about defoliation. I will include a discussion of defoliation strategies in next week's newsletter.

DD 60 Accumulation (TASS and NWS data).

For each location Accumulated DD60's are calculated starting with six different planting dates up to the date of the newsletter release. For example 4/20-8/1 would indicate DD60's accumulated for cotton planted on April 20 up to August 1.

DD60 Accumulation Since Planting.

Location	4/20-8/8	4/27-8/8	5/4-8/8	5/11-8/8	5/18-8/8	5/25-8/8
Brownsville	1750	1702	1650	1579	1477	1432
Dyersburg	1818	1769	1713	1608	1533	1474
Fayetteville	1858	1811	1748	1659	1581	1512
Memphis	2144	2104	2008	1887	1797	1712
Milan	1665	1618	1566	1464	1394	1352

DD60 Accumulation Since Cutout (NAWF=5).

Location	8/1-8/8	8/8-	8/15-	8/22-	8/29	9/5-
Brownsville	175					
Dyersburg	182					
Fayetteville	181					
Memphis	191					
Milan	167					

Corn and Soybean Updates (Angela Thompson, Extension Corn and Soybean Specialist) I think we all realized this week that we aren't going to get any crop saving rains in time to help us substantially in areas that have struggled with dry weather coupled with heat conditions this week.

Corn Quality and Drought Stress. Where corn held up remarkably well into July, those plants matured prematurely leaving concerns about quality of starch fill in kernels. We may see lower than optimal test weights in areas that were more drought stressed all season long compared to areas that got hit primarily by late season drought. Where moisture was more adequate, protein and other quality traits were determined earlier in the season and may not be affected significantly.

All of our non-irrigated corn was subjected to some level of drought stress during the season and overall we are looking at smaller ears, especially on hilly upland ground and 'lighter' corn where kernels did not fill to their potential. With first harvest a few weeks away, growers should be locating their operator's manual for suggestions on harvesting a 'light' crop. Some good reminders:

- 1) Harvest on time. Drought stress causes plants to rob moisture from stalks in an attempt to fill kernels often leading to weaker stalks at the end of season. Non-Bt corn fields in areas with significant corn borer pressure should be harvested timely to minimize lodging from stalk breakage.
- 2) Harvest carefully. Lighter grain may be more susceptible to fractures in the seed coat so use care when handling during harvest, drying and storage.

Harvesting Drought Stressed Corn for Grain. The following is some information about drought stressed corn harvest taken from the National Corn Handbook/NCH-58 Purdue University.

Because the ears on moisture-stressed plants will probably be small, some combine adjustments will be necessary. Consider making the following adjustments:

- With short or lodged corn, run the gathering snouts and chains low.
- Drive carefully and at normal or lower speeds to avoid excessive harvest loss and machine damage from uneven terrain.
- For small ears, set stalk rolls and snapping plates closer than normal to snap off a higher percentage of ears. Don't attempt to snap off barren cobs.
- If clean shelling is a problem, increase cylinder speed slightly and, if necessary, decrease cylinder-concave clearance. With a rotary machine, check rotary-concave clearance. Avoid excessive damage to kernels from good ears.
- If cleaning losses are high, open the chaffer and chaffer extension slightly.
- Initially decrease the amount of air from the cleaning fan. If cleaning becomes a problem, either increase the fan blast and close the lower sieve slightly, or clean the corn out of the combine as it is put in the bin.
- Be alert to changes in crop condition and make adjustments as necessary.

- Excessive fines can result from harvesting drought-damaged corn. These fines can build up in the center of a storage bin as it fills, attracting moisture and causing storage problems.

Drought Stress and the Soybean Crop. Early planted soybeans are managing to hold up better than our wheat beans, although some Group 3 fields started defoliating prematurely and I am seeing more flat seed and pods than I wanted to see this early. In past years, we have recommended the use of a harvest aid on limited acres of early season beans to dry up leaves and advance harvest time. I am not sure that a harvest aid will be necessary this year since the early crop looks to be defoliating naturally on its own and remaining leaves in the top canopy are low in moisture content. Also, weed pressure is lower since it has been too dry for weeds to germinate late in the season.

Asian Soybean Rust Update:

Thanks to our dry summer, we continue to have no soybean rust to report in Tennessee. All leaf samples submitted for PCR testing in Knoxville have been negative. There are other finds in states to the south and west of us that are of interest to note, but we are not anticipating any effect on our bean crop at this time. We will continue to sample our soybean sentinel plots through the month of August and our spore traps through the month of September when our soybean crop will be out of danger of possible yield effects from late season rust.

Recent ASR finds:

- Oklahoma - 3 counties (Atoka, Payne, Tulsa) reported rust in sentinel plots this week.
- Arkansas - this was actually reported in Lafayette and Miller (SW Arkansas) counties bordering Louisiana more than a week ago. No new reports recently for Arkansas.
- Louisiana - 6 new parishes confirmed this week for a total of thirteen positive for the state.
- Alabama - More finds in Baldwin County where rust was reported in late June.
- Florida - Escambia county in far western Panhandle near Baldwin county Alabama.

Insect Issues (Scott Stewart, IPM Specialist)

Cotton. The majority of fields are to the point where no further insecticide applications are needed for plant bugs, stink bugs or bollworm and budworm. We are accumulating 25⁺ heat units daily, and fields are maturing rapidly in this hot and dry weather. At this rate, it only takes about 14 days from NAWF=5 before a field accumulates 350DD60s. Given our recent round of spraying, only a few fields have treatable infestations of plant bugs or stink bugs. It has been a generally light insect year in many parts of the state. There are fields that have not required an insecticide treatment, other than for thrips, for the entire season. Many fields have only needed a single treatment. The bad news - it is obvious our potential for an above average cotton crop is slipping away.

Only a few Bt cotton fields have been treated specifically for bollworms. Bollworm moth catches are not impressive, yet we are currently seeing a fair number of eggs in some fields (10-30%). Oviposition usually varies considerably at this time of year, in part because differences in planting date, varieties, and other factors. The dry weather and early cutout is making these differences more extreme than usual. Moths are concentrating their eggs in less mature fields that still have ample squares, blooms and small bolls. These same fields are most susceptible and where we need to concentrate our scouting efforts.

Several control failures involving tobacco budworms were reported this week where a pyrethroid was used in non-Bt cotton. These reports came from the more southern counties of West Tennessee where

we have been consistently catching tobacco budworm moths much of the year. *Reminder:* unless you have high confidence that a population is bollworm, assume some tobacco budworms are in the mix in non-Bt cotton fields. This means that using products like Tracer, Steward and Denim are needed. Tank mixing these products with a low to mid-rate pyrethroid is best for mixed bollworm/budworm infestations. The higher the population, the more critical it is to use these budworm products and tank mixes. It is best to assume that tobacco budworms are present when pyrethroids fail to give adequate control, although other factors could be at play (e.g., poor coverage, timing, etc.). In “clean-up” situations, use higher or the highest labeled insecticide rates. Do not expect miracles. Large larvae are more difficult to control.

Soybean. It remains relatively quiet, with the drought being the major factor impacting our crop. There are isolated fields that have required treatment stink bugs. In early maturing beans (those past R5), continue to treat for stink bugs anytime that populations exceed an average of 9 per 25 sweeps. If stink bugs are present, they are feeding. There is really no time that plants become immune to stink bug injury.



Immature Stink Bugs (Green, left and center; Brown, right)

There are no reports of significant defoliation being caused by caterpillar larvae or other pests. However, soybean looper moths are currently present in many fields, and there are reports of treatable infestations in northern Mississippi and the southern parts of Arkansas. *Remember:* loopers have two pair of prolegs not counting the pair on the last abdominal segment (pictured right). Green cloverworms, our most common caterpillar pest, has three pair of prolegs. The other important difference between these two pests - pyrethroid insecticides only provide partial control of soybean loopers at best.



A list of recommended products and rates to control soybean loopers can be found at http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/InsectBook.htm. Intrepid (4 oz/acre) was somehow omitted from the list, but does a good job of controlling loopers. Even 2-3 oz per acre of Intrepid will often provide adequate control. Larvin, Steward and Tracer are also excellent choices. All of these looper products need “help” if stink bugs are present. Thus, tank mixes with acephate, methyl parathion or a pyrethroid are needed in this situation. Lannate (24 oz) and acephate (1 lb) sometimes do a good job of controlling both loopers and stink bugs, but results are not always consistent. In a demonstration done last year (below), Lannate performed adequately on loopers and stink bugs, acephate left some loopers in the field, and Larvin left some stink bugs.

Soybean Insecticide Demonstration in Crockett County (2006)

Treatment (rate per acre)	No./100 sweeps (% control)		
	Stink Bugs*	Loopers	Green CW
Lannate LV (24 oz)	6 (89%)	3 (94%)	0 (100%)
Acephate 90 (1 lb)	7 (90%)	29 (42%)	0 (100%)
Larvin - 16 oz	21 (60%)	0 (100%)	0 (100%)
Intrepid (2 oz) + Methyl parathion (16 oz)	2 (96%)	2 (96%)	0 (100%)
Check (average of two plots)	52.5	50	28

* Greater than 90% were green stink bugs

Area Report for Northwest Tennessee (Gene Miles, Area Crop Specialist, Week of August 5th).

Cotton: Hot dry weather continues to dominate the area this week. Cotton bolls in droughty areas of fields are popping open due to these weather conditions. Also, drought stressed areas of the field are showing potash deficiencies which can be noted by interveinal chlorosis (yellowing) on older leaves that can change to a bronze color. Selected, more mature plants this week are averaging 72 percent total fruit retention. As cotton producers continue to make management decisions that will affect the outcome of their crop, they need to remember that UT research has pointed out that a bloom on August 10 only has a 50 percent chance of making cotton because of available heat units.

All fields being monitored through county IPM associations this week have reached NAWF=5 or physiological cut out. Plant bug numbers being reported from county IPM scouts and private consultants range up to 4.8 per 6 row feet and/or 27/100 sweeps. Bollworm/budworm damage being reported this week includes 6 eggs and 2 worms per 100 plants (100 terminals). Also, one percent damage is being reported in Bt cotton and two percent damage is being noted in conventional cotton. Aphids are being reported below threshold, and the high beneficial count this week was 12.4 per 6 row feet.

Soybeans: Stink bug numbers being reported from private consultants and producers this week range from 0 to 5/25 sweeps in group IV soybeans in the bloom to mid-pod fill stage of growth. Also, charcoal rot is being observed in soybeans, which appears during hot and dry weather when unfavorable environmental conditions stress the plant.

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

The 6th Annual Mid-South Ag Finance Conference was held on the campus of UT Martin on August 8. As always, it was an excellent conference with good information. I would highly recommend for anyone involved in agriculture to attend in the future. This week and over the next few weeks, I would like to share with you some of the information from this year's conference. Dr. Dave Kohl made several points I thought were interesting that hopefully will get you thinking about your operation.

Dr. Kohl mentioned what he considered to be the characteristics of what he termed **Top Flight Performers**. These characteristics are:

- **natural resource managers** - producers who are able to adapt production and technology to their natural resource base, i.e. the type land and resources available on that land.
- **top line production managers** – not necessarily the highest yield, but the highest profitable yield.
- **harvest wins** – historically, there are only 2 years in 10 where yields and prices line up that most producers make money. The other 8 years, only the top producers make money. Take advantage of opportunities when they are given.
- **financials beyond tax compliance** – uses farm records for more than just tax preparation. Use your accountant/financial advisor for growth management. Have another set of eyes look over financials. The Tennessee MANAGE program is available to Tennessee producers to assist in farm planning and be another set of eyes to look over your operation. Contact your Extension office for more information.
- **people managers** – studies have shown that financial performance is tied to the ability to work with people. This is not just referring to farm labor, but suppliers, lenders, government agencies, and the public that farmers come in contact with.

Are you a **Top Flight Performer**? How do you fit in these characteristics? If we can assist you in accessing your operation, please call your Extension office.

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 14, Ending 8-8-07)

Trap Location	Tobacco Budworm	Corn Earworm (Bollworm)	Beet Armyworm	Southwestern Corn Borer
Hardeman (Bolivar)	0	2	0	---
Fayette (Whiteville)	1	1	0	---
Fayette (Somerville)	0	10	---	0
Shelby (Millington)	42	8		---
Tipton (Covington)	1	0	0	---
Tipton (North)	0	63	---	0
Haywood (West)	0	1	0	---
Haywood (Brownsville)	0	3	---	---
Madison (North)	0	12	---	---
Madison (Exp. Stn.)	6	46	4	98
Crockett (Alamo)	4	2	0	0
Crockett (Maury City)	4	14	---	---
Dyer (Bogota)	8	32	0	---
Dyer (Newbern)	0	0	---	3
Lake (Ridgley)	1	31	0	---
Gibson (Kenton)	3	26	---	---
Gibson (Milan Exp Stn.)	0	0	4	6
Carroll (West)	1	5	1	---
Lauderdale (Goldust)	9	10	45	---

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

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