

IPM NEWSLETTER

Update for Field Crops and Their Pests

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Cotton Crop Update (Larry Steckel, Assistant Professor)

The Tennessee Ag-Statistics Service reports that 92% of the cotton is squaring and 18% is setting bolls. The cotton has made up a lot of ground in a hurry considering our five year average for boll set at this time is 21%. The early planted cotton is now in full bloom. Most all the cotton is now flowering except for the very late May to early June planted crop. It has been said that in Tennessee we are never more than a week away from a drought. That is the case in many areas that missed the spotty showers this week. Particularly for the early planted cotton we are quickly entering the time when water demand increases greatly.

The agronomic call of the week has been on squares that appear to be trying to grow a small 4th bract that is attached to the bloom (calyx). They can be pretty easily found as the 4th bract exposes the bloom in most cases. Many of these squares with this syndrome appear to be falling off. Even for the squares with this syndrome that stick until flower, most will likely not produce a boll. From time to time in past years one could find a square or two like this in fields, but this year they can be found in large numbers in quite a few fields. Malformed squares are being reported in cotton from Louisiana and Mississippi to here in Tennessee. No one is really sure what the cause is. It can be found across different cotton varieties and technologies. It does not appear to be related to insect feeding or herbicide application. There has been some speculation that some environmental trigger is causing it.



Malformed square

DD-60 Accumulation (TASS and NWS data)

<u>Location</u>	<u>4/17/06- 6/11/06</u>	<u>4/23/06- 6/11/06</u>	<u>5/1/06- 6/11/06</u>	<u>5/8/06- 6/11/06</u>	<u>5/15/06 6/11/06</u>	<u>5/22/06 6/11/06</u>	<u>5/28/06 6/11/06</u>
Ames Plantation	1076	989	950	901	859	841	716
Brownsville	1142	1055	1011	962	935	885	759
Covington	1047	968	935	891	869	822	699
Dyersburg	1168	1082	1037	985	963	907	782
Huntingdon	984	909	868	834	819	790	685
Jackson	1059	979	936	892	870	830	716
Memphis	1182	1086	1045	987	959	913	772
Milan	992	918	881	842	826	789	678

Insect Issues (Scott Stewart, IPM Specialist)

Cotton: There was relatively light insect action this week. Most of the cotton fields in the state now have blooms, and overall, the crop appears to have decent potential. The next 4-5 weeks are crunch time for managing insects. With so much Bt cotton in the state, the bug complex (plant bugs and stink bugs) should be a priority on our watch list. Fortunately, numbers are generally low right now.

Although I'm starting to see a few fresh bollworm moths, there is little indication that we are having a significant bollworm flight that would impact Bt acres. However, we always need to be very aware of the bollworm and tobacco budworm complex in non-Bt cotton fields. I've had a report of 4-5% small worms and eggs in Non-Bt cotton in Fayette County. I suspect this is bollworm. Expect the heavier bollworm action to begin in 7-10 days. In non-Bt cotton, there is 0-5% tobacco budworm larvae present in some fields. Most the budworms are too large or too few to justify treatment. It looks like we are between tobacco budworm flights and hopefully will remain that way for a couple of weeks. One thing is clear -- there have been many more tobacco budworms around this year than in the previous few years (at least in the southern counties). It may be a tough year for those with much non-Bt cotton.

Dirty blooms are a tip off of plant bug infestations, either clouded or tarnished plant bugs. Injured anthers (pictured right) are usually the result of plant bug feeding on squares before they flowered. There is not a treatment threshold based specifically on dirty blooms, but their presence should trigger more intense scouting. The drop cloth is my preferred method of sampling plant bugs and stink bugs in blooming cotton. Data were collected across the Midsouth last year on the efficiency of various plant bug sampling methods once cotton begins to bloom. Most sampling methods provided similarly reliable information, but the drop cloth was the quickest sampling method. The sweep net surprised me by also being relatively fast and effective in blooming cotton. However, the drop cloth (especially the black ones) was excellent for detecting immature plant bugs. *Remember:* In flowering cotton, count each clouded plant bug as equivalent to 1.5 tarnished plant bugs.

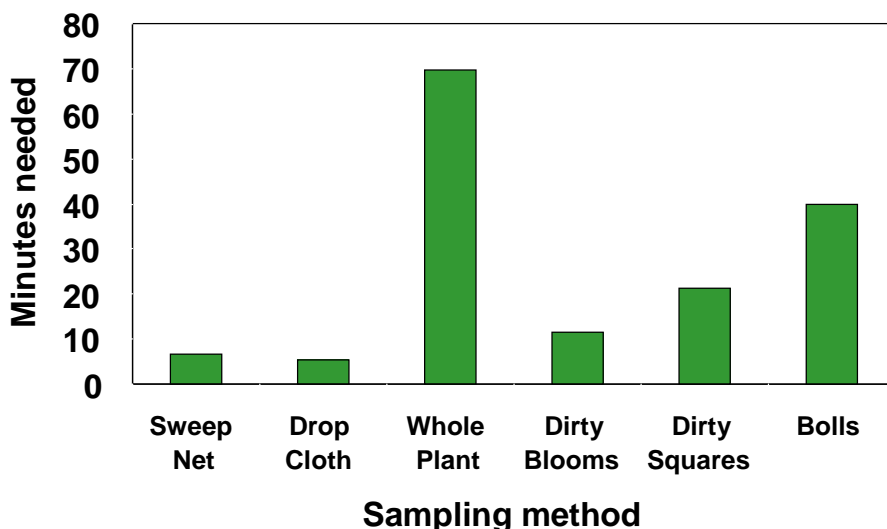


"Catfacing" on small bolls is another symptom of stink bug or plant bug infestation. During early bloom, catfacing is often caused by stink bug feeding because plant bugs will concentrate their feeding on squares. We have a threshold of 20% thumb-sized bolls with internal signs of feeding. This includes warts on the internal walls of bolls or staining of the lint. This should be used in conjunction with a drop cloth, using a treatment threshold of 1.0 stink bug/6 row feet. If you find one or more stink bugs per drop cloth, treat whether or not feeding injury is present. *Hint:* I often suggest counting each stink bug as equivalent to 3.0 tarnished plant bugs when determining if insecticide treatment is justified. This comes in handy when dealing with a complex of plant bugs and stink bugs in the same field.



I've included some data (below) from the previously mentioned sampling study. These data are intended to show the efficiency of various sampling techniques for plant bugs (based on their precision and the amount of time necessary to take a sample). I used the data to calculate equivalent thresholds for other sampling methods when a population was at the UT drop cloth threshold (= 0.67 plant bugs per foot of row, or 4 bugs per 6 row feet).

Plant Bug Sampling Efficiency
Minutes needed to make correct decision 90% of time
when population 20% > threshold



Calculated, equivalent thresholds for various sampling methods in blooming cotton when plant bug populations are at the recommended drop cloth threshold (= 0.67 bugs/row ft). This information is based on data collected by several universities in the Midsouth during 2005.

Type	Sampling Methods for Plant Bugs	Equivalent
Direct	Bugs / 100 sweeps	17.98 *
Direct	Bugs / 0.67 row ft (with drop cloth)	0.67
Direct	Bugs / 100 plants (mod. whole plant)	13.02 *
Direct	Bugs / 100 squares	4.86
Direct	Bugs / 100 bolls	5.59
Indirect	Damage / 100 Blooms (dirty blooms)	20.92
Indirect	External Damage / 100 Bolls	18.20
Indirect	Internal Damage / 100 Bolls	12.65
Indirect	External Damage / 100 Squares	11.38
Indirect	Internal Damage / 100 Squares	10.94

* Thresholds: Currently recommended thresholds are 0.67 insects per foot or row (drop cloth), 20 per 100 sweeps, or 15 insects per 100 plants using a modified whole-plant visual sample method. A direct sample is where insects are counted. Indirect samples are those where insect injury is counted.

The long and short of these data -- there are many ways to sample for plant bugs, but some techniques are much faster and consequently much more efficient. The data also indicate that, regardless of the method, it takes 6-7 subsamples to get the necessary precision for the scenario above (e.g., a field with a pest population slightly above threshold). This means 6-7 drop cloths, 6-7 sets of 25 sweeps, 6-7 sets of 25 plants using a modified whole-plant sample, 6-7 sets of 25 squares, or so on. Of course, if pest populations are way above or below threshold, fewer samples are needed to make the correct decision with confidence. What would you rather do, spend 10 minutes with a drop cloth or 70 minutes visually looking for plant bugs to make the same decision with equal confidence?

Spider mite reports are coming in from scattered fields across West Tennessee. For the most part, it appears these infestations are not quite at treatment level but are worrisome. With Kelthane in short supply, the obvious question has been what else to use. There are several options of true miticides including Comite II (20-32 oz), Zephyr (4-6 oz), Acramite (12-24 oz), Oberon 4 (4-8 oz), Zeal (0.75 - 1.0 oz) and Denim (8-12 oz). All these products generally provide good but not perfect mite control. Unfortunately, they are relatively expensive and not all will be locally available. I would avoid products like Capture/Brigade, dimethoate or Curacron. There will likely be some time when these products start working this year, but they have not performed well yet. They may be worth a try where plant bugs require treatment, possibly in a tank mix, but don't be surprised if they fail to control mites. The UT threshold for spider mites is when 30-50% of plants are affected and mites are still present. Frankly, the need to control mites depends on environmental conditions, the distribution of mites in the field, and other factors. Decisions require case-by-case judgment. There is the potential for spot treatments to hot spots and field borders.



A few aphid calls are coming in, but there are not any widespread problems. The "aphid fungus" often sweeps through sometime in July and wipes out populations in a short time. However, there are no reports of this fungus in Tennessee. *Please report any fields with a uniform infestation of aphids.* I'm interested in looking at various insecticides for aphid control, particularly considering the problems in Louisiana, Mississippi and Arkansas with aphids that appear to have developed resistance to neonicotinoid insecticides (Trimax Pro, Centric and Intruder). Our populations have been too low to notice a problem thus far.

Soybean: Not much new here, but keep your eyes open for stink bugs. It is a sure bet that at least some fields currently require treatment for this pest. The sweep net is the easiest method of sampling. Threshold numbers are 3/25 sweeps prior to R6 and 9/25 sweeps after R6.

Corn: Southwestern corn borers (SWCB) continue to be the most significant pest of concern, but there is every reason to be worried about non-Bt corn fields. As predicted, trap catches indicate a major flight in the northern counties of West Tennessee. We've caught 117 moths in our trap located in near Newbern. Kevin Knop (Royster Clark) has caught even more moths. In an 11 day period ending July 11, he caught 386, 256, 844 and 251 moths in traps across Obion and northern Dyer Counties. Traps in Weakley and Carroll counties caught 64 and 73 moths respectively. I expect the peak next week. These moth catches are pretty high, and treatment of relatively late non-Bt fields will almost surely be justified by next week in much of Obion, Dyer, and Lake counties (and parts of Weakley Gibson and Carroll counties).

Area Cotton Report for Northwest Tennessee (Gene Miles, Area Crop Specialist, Week of 7/10)

Cotton: Hopefully, all of the area has received enough rainfall this week to provide adequate growing conditions for row crops. Parts of the delta area have received four plus inches of rain this week. Cotton being monitored ranges in maturity from the 11th node to plants in the 3rd week of bloom with as many as 40 total fruiting positions.

Square retention in pre-bloom cotton ranged from 91 to 98 percent. Plant bug numbers for the week range up to 1.5 per 6 row feet and/or 16 per 100 sweeps in blooming cotton. Bollworm/tobacco budworm percent damage was observed at the one percent level in conventional cotton. The threshold is considered to be 5 percent damaged squares (or 4+ larvae per 100 in blooming cotton). When checking for percent damage in Bt and conventional cotton, 100 fruiting bodies (squares, blooms and bolls) should be observed from top, middle and lower areas of the plant per 20 to 40 acres. Also, number of bollworm/tobacco budworms should be determined by looking at squares in the top twelve inches of plant (terminals) for 100 plants per field. Stink bug numbers ranged up to 0.8 per 6 row feet. Aphids and spider mite infestations remain light. Lacewing eggs were observed in cotton fields this week. Beneficial counts range up to 9.6 per 6 row feet.

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

The Mid-South Agricultural Finance Conference will be Wednesday, August 2 at the UT Martin University Center. It starts with registration at 8:00 a.m. and will end around 3:15 p.m. Registration fee for producers is \$75.00. It is sponsored by UT Martin, Farm Bureau, and the local banking community. The morning session will be conducted by Dr. Dave Kohl covering topics such as the future of land values, the seven business models of agriculture, and risks facing producers and lenders. Dr. Kohl will also discuss transition management, profits, communication, and growth. Dr. Kohl is a very dynamic speaker who keeps it interesting and brings pertinent issues to the table. After lunch, a panel of experts will discuss the 2007 Farm Bill. The panel consists of Bob Young, Chief Economist, American Farm Bureau; Dr. Daryll Ray, UT Chair of Excellence in Ag Policy; and Dr. Gary Adams, VP, National Cotton Council. The panel will be moderated by Dr. Kohl. This interactive session will include questions from the audience. Whether you are a producer, work in agribusiness, or loan money in the ag sector, you have a vital interest in the 2007 Farm Bill.

Seating is limited so please register as soon as possible. Registration fees include all sessions, continental breakfast, refreshments throughout the day, and lunch. This has been an excellent conference in the past and well worth the registration fee. I would encourage producers as well as ag lenders to attend. For registration information, please contact Dr. Tom Payne with UT Martin at (731) 881-7324 or check their website at www.utm.edu/~banking/agconference.

Boll Weevil Eradication Update (Dr. Ron Seward, Tennessee Program Manager)

Trapping information is included for the period June 29 to July 5 (cycle 12). A total of 524 boll weevils were trapped. This is a 28% decrease from last week and a 5% decrease from this cycle last year. Ninety-three percent of the capture was from Shelby-Tipton counties. The percent of fields with zero weevil captures ranged from 88% in Brighton work unit, 98% in both Brownsville and Dyersburg units to 100% in Alamo work unit. Year to date capture is down 54% from 2005.

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 11, ending 7-12-06)

Trap location	Tobacco Budworm	Corn Earworm (Bollworm)	Beet Armyworm	Southwest. Corn Borer
Hardeman (Bolivar)	0	0	0	---
Fayette (Whiteville)	0	0	0	---
Fayette (Somerville)	0	1	---	0
Shelby (Millington)	12	15	0	---
Tipton (Covington)	0	0	0	---
Tipton (West)	0	1	---	0
Haywood (West)	1	0	0	---
Haywood (Brownsville)	0	3	---	---
Madison (Exp. Stn.)	3	5	0	6
Madison (North)	0	1	---	---
Crockett (Alamo)	0	3	1	---
Crockett (Maury City)	4	0	---	---
Dyer (Dyersburg)	0	0	0	---
Dyer (Newbern)	0	0	---	117
Lake (Ridgley)	4	30	5	---
Gibson (Kenton)	1	1	---	---
Gibson (Milan Exp Stn.)	0	1	0	6
Carroll (West)	0	1	0	---
Lauderdale (Goldust)	6	21	13	---

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

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