

IPM NEWSLETTER

Update for Field Crops and Their Pests

No. 16

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

The Tennessee agricultural statistics agency reports that 65% of the crop is squaring compared to 40% last week and 56% last year, ahead of the 5 year average of 53%. Cotton condition is rated as 4% very poor, 13% poor, 34% fair, 45% good and 4% excellent with continued good to excellent square retention.

Widely scattered rain over the past few days has really helped cotton progress along with square development. In the places that have missed rain, cotton is still struggling to add new nodes of growth. For those who received rain, begin monitoring for excessive vegetative growth and manage as appropriate with growth regulators. For those who have not had rain, keep the growth regulators in the jug. Some fields are beginning to bloom. Start monitoring for budworm and bollworm especially in non-Bt varieties and refuges. Continue to pray for rain.

DD 60 Accumulation (TASS and NWS data).

Location	4/20-6/28	4/27-6/28	5/4-6/28	5/11-6/28	5/18-6/28	5/25-6/28
Brownsville	928	880	828	757	655	610
Dyersburg	992	943	887	782	707	648
Fayetteville	1032	985	922	833	755	686
Memphis	1191	1151	1055	934	844	759
Milan	895	848	796	694	624	582

Insect Issues (Scott Stewart, IPM Specialist)

Cotton. Spider mites remain the biggest concern as infested acres continue to expand. Some farmers that received a good shower this week were also fighting mites. Rain will alleviate stress and help plants cope with spider mite infestations. A hard rain will actually wash some mites off of plants. Although there is a fungus that sometimes “wipes out” mite populations and rain may trigger this fungus, don’t assume this will happen. The occurrence of this fungal epizootic is less predictable than the “aphid fungus” that often hits in mid July. *Fields heavily infested with mites should be treated regardless of the rain.* Where mite populations are more moderate, you can probably afford to watch them for 5-7 days before deciding if a treatment is necessary. However, exploding populations are more difficult to control, so don’t wait too long.

When can a \$5 spray cost you \$15? I wanted to share some data from a test plot in Lauderdale County (see table below). Different treatment thresholds for tarnished plant bugs are being evaluated in this study. It is obvious that we flared spider mite populations when neonicotinoid insecticides were sprayed repeatedly (Centric or Trimax Pro in this case). Indeed, plots treated three times for plant bugs

now require an application specifically for mites. As it happens, we've not had many plant bugs in this test. Making these unnecessary applications increased square retention by a whopping 1% compared to untreated plots. The point - applying insecticides can have unintended and negative consequences, and unneeded applications should be avoided. There are many people spraying for plant bugs on a schedule when populations are low and square retention is high. In the scenario above, we inadvertently increased pest control costs by at least \$10 per acre + application costs, not including the additional costs of spraying plant bugs when populations were below threshold.

Table 1. Spider mite infestation levels in prebloom cotton (6/25/07).

Plant Bug Threshold Used	Number of Applications	Spider Mite Hot Spots per Row 600 Ft
Schedule - pinhead, 7 and 14 days later	3	11.00 a
Low - 8 plant bugs/100 sweeps	1	1.25 b
High -16 plant bugs/100 sweeps	0	1.50 b
Untreated Check	0	1.50 b

Means followed by same letter do not significantly differ (P=0.05, LSD).

Stink bugs are showing up in a few of the earliest planted cotton fields. As a rule, do not worry about adult stink bugs until plants begin to flower. They are seed feeders and do little if any damage unless bolls are present. As with soybeans, the first flowering cotton fields in an area tends to attract stink bugs. I'll spend more time on stink bugs during the next several newsletters. However, treatment should be made if 1 or more stink bugs are found per drop cloth (or 5 stink bugs are found per 100 plants). Some folks may still be using a sweep net during early bloom. UT does not have a stink bug threshold for cotton using a sweep net, but catching 3 or 4 per 100 sweeps should certainly catch your attention. Seeing a few stink bugs while walking through a field should also trigger a closer look.



Tobacco budworms. I know most of our acres are Bt cotton, but for those with non-Bt cotton, tobacco budworms are occurring sporadically in the southwest part of the state. I've had several reports of 2-8% infestations from Hardeman, Haywood, Madison and Tipton counties, and fairly high numbers of tobacco budworm moths were caught in our trap near Millington. Most folks are letting these infestations slide in prebloom cotton (UT prebloom threshold = 8 larvae/100 plants). I don't disagree with this decision, especially since some larvae were relatively large and would be difficult to control, but be aware that the battle will probably continue over the next generations. Some plants are blooming, and we need to be more aggressive in these situations (UT blooming threshold = 4 larvae/100 plants). Tracer (2 oz/a) is considered the standard for tobacco budworm control. Steward (11.3 oz/a) and Denim (10 oz/a) are other options. At the risk of repeating myself, be sure to follow licensing guidelines if an infested field is a refuge for a nearby Bollgard field.



Boll Weevil Eradication Update. Thanks to Dr. Ron Seward (Tennessee Program Manager) for providing the information below. Almost all of the weevils being caught are in relatively small hot spots along the Mississippi River in the Brighton Work Unit. I see two good patterns: 1) a 43%

reduction in weevils compared to this time last year and 2) a seven fold increase in sprayed acres. This aggressive spraying will go a long way in knocking out the boll weevil in Tennessee.

2007			2006		
Trapping cycle	Weevils caught	Acres sprayed	Trapping cycle	Weevils caught	Acres sprayed
6	925	298	6	---	---
7	510	1584	7	1879	0
8	430	14939	8	1363	0
9	795	20288	9	1173	0
10	343	15738	10	527	2962
11	211	15000	11	732	6388
Total	3214	67847	Total	5674	9350

Soybean. There have been very few calls about stink bugs or other insect pests in soybean. But fields that are blooming need to be monitored for insect pests. Until R5 or R6, use a treatment threshold of 12 stink bugs per 100 sweeps, and treat with a pyrethroid insecticide or acephate. Acephate (0.50 - 0.75 lb ai/acre) is probably the best choice if many brown stink bugs are present, or you might use a higher than normal rate of a pyrethroid. *If you are planning to spray a fungicide, this is a good time to piggyback an insecticide application IF pests are present at treatable numbers.* The only way to be sure is to scout fields ahead of the spray boom. Stink bugs are by far the most likely pest we will encounter in group III and IV beans. Still, in many years, few soybean fields will have treatment-level infestations of stink bugs or other pests when fungicide applications are made. Do not expect more than 5-7 days residual control with a pyrethroid insecticide, and only 2-3 days with acephate. The point - time your insecticide applications based on insect populations. It is not smart to believe the best timing for an insecticide application is necessarily going to coincide with a fungicide application.

Another pest to watch for during bloom is corn earworm (a.k.a. bollworm). Treat with a pyrethroid insecticide if 12 -15 corn earworms are found per 25 sweeps. Corn earworm infestations are fairly uncommon in early maturing soybeans, but they can cause impressive damage when they do occur. Thus far, we have not had a significant corn earworm moth flight.

You may start seeing some soybean plants breaking over in some fields. This is often the result of girdling from three cornered alfalfa hoppers (right). Unfortunately, the main stem of these broken plants were girdled when plants were small (less than 10 in. tall). So, spraying now won't accomplish much. Once plants are larger, hoppers will girdle leaf and pod petioles (rather than the main stem). In blooming soybeans, you can use a treatment threshold of 1 three cornered alfalfa hopper per sweep (100 per 100 sweeps). It sounds like a lot, and it is, but these insects are much more damaging to small plants.



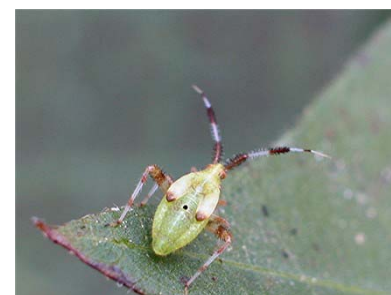
Corn. Southwestern corn borer (SWCB) moths are starting to show up in moth traps again, indicating an early start to the second generation. Our traps in Dyer and Madison counties show an increase in moth catches compared to last week. Some of the other traps being run independently in Haywood (Stanton area), Obion (Union City area), Weakley, Carroll and Gibson (Milan area) caught 274, 137, 124 and 70 moths, respectively. This moth flight will be considerably bigger and wider than the first generation flight. It is a little early to consider spraying non-Bt corn for corn borers. I know several folks who sprayed insecticide this or last week while applying a fungicide. I hate to be blunt, but odds are they wasted their money because SWCB moths are just now emerging. Larvae of SWCB typically do not start showing up until about 7-10 days after moths are first detected in traps. Often it will be another 7 days before moths catches begin to peak and larval numbers increase substantially. This peak in moth activity is usually a pretty good time to consider an insecticide application. In some areas, this peak will be relatively small (< 50 moths per week). In others, the peak will be several hundred moths per week. Obviously, non-Bt corn fields in areas with high moth catches and decent yield potential are most likely to benefit from an insecticide application. Relatively late maturing corn will be the most attractive and sensitive to SWCB. Based on the first generation, many non-Bt fields in the northern counties will require an insecticide application. *Best guess - a good time to spray SWCB in non-Bt corn will be in about 10-14 days, but use local traps and scouting to help guide your decision.*

Where treatment is needed and once tasseling begins, Intrepid at 4-6 oz/acre is the “standard” for control of corn borers. This product has better residual and rainfastness than other insecticides used for corn borers. You can realistically expect some control for 10⁺ days after application. The treatment threshold is 20-25% infested plants. Pyrethroid insecticides also have decent activity but do not provide as much residual control as Intrepid.

Area Report for Northwest Tennessee (Gene Miles, Area Crop Specialist, Week of June 25th).

Even though timely showers are occurring, rain continues to be very much needed for crops in the area. More mature cotton plants in the delta area are in the 14th node, and averaging 29 inches in height. These plants average 16 total fruiting positions with 97% fruit retention across all positions. Drought signs include cotton plants blooming in the upper half of the plant (NAWF=6 on selected plants) which is a definite sign that plants are running low on water.

Growth stages for cotton fields being monitored through county IPM programs in the area range from 7th node to 12th node. Square retention in these fields ranges from 88 to 97%. Plant bug numbers being reported from IPM scouts and private consultants are below threshold. Spider mites and stink bug infestations are light. Beneficial insect counts range up to 4.6 per 6 row feet. At first bloom, the eighty percent square retention rule does not necessarily apply because plants with often start shedding squares for physiological reasons, particularly when water or nutrients are in short supply. Also, after first bloom, clouded plant bugs become more important and should be counted as equivalent to 1.5 tarnished plant bugs. Clouded plant bugs are capable of damaging larger squares and cotton bolls. The adult clouded plant bug is 3/8 inch long with patches of white, yellow, reddish brown or black (top right). The immatures are yellowish green to green in color with maroon and white or black and white stripes around their antennae (bottom right).



Corn and Soybean Updates (Angela Thompson, Corn and Soybean Specialist)

Well, it wasn't as widespread as we would have liked, but several areas in west Tennessee finally received substantial rain this week - some areas getting over 2 inches at a time. Unfortunately, other areas missed rains entirely or folks could measure the rainfall received by counting droplet marks in the dust. Corn that is pollinating this week should benefit some from this late moisture. I have started checking some of the earliest pollinated corn and am cautiously optimistic at the results so far. In areas with moderate season-long drought stress, most ears have pollinated pretty well. For those evaluating pollination in your own fields, I would suggest waiting until kernels start filling. Only time will tell if those immature blisters that first form after pollination will make it or not. Fields where corn growth was irregular in-season will show more irregular ear development now. Light green silks will normally turn brown indicating that pollination has occurred. In cases where pollen isn't available, silks will stay green and continue to grow several inches until pollen is intercepted or until they dry out and die. I am finding some fields with long silks where the silks emerged right before the tassel instead of after which is more normal.



The ears in Fig. 1 (above) are from three different areas of the same field. The middle ear with lighter silks was from an area that was spot re-planted after the Easter freeze. Kernels are still at the blister stage but the ear appears to have pollinated. The ears with dark silks were from a stand that was salvaged from the freeze. I could find very short ears on about 20% of the field where soils were more droughty -- which obviously affected ear length but not pollination. Both the long and short ears had 16 rows of kernels (Fig. 2) which is pretty good for a dry year. The short ear has smaller sized kernels and about 10 fewer kernels per row than the longer ears which will impact yield of the field. With more fields filling out over the next 2 weeks, it will be interesting to see how some of our driest areas turn out.



Asian Soybean Rust Find. The following message was sent out by Ed Sikora, extension pathologist in Alabama. "Soybean rust was detected on leaves collected from a soybean sentinel plot on a Research Station in Fairhope in Baldwin County on June 25. Fairhope is located on the east side of Mobile Bay in southwest Alabama. This is the first report of soybean rust on soybeans in Alabama in 2007. Disease severity on infected plants was very low."

There has been no rust detected further north in the state of Alabama, and hot dry conditions across the southeast are not conducive to its spread from the Mobile Bay area. All states will continue to scout and sample sentinel plots on a weekly basis for rust. Tennessee samples continue to be negative for soybean rust according to the results of our PCR tests.

Our hot, mostly dry conditions are not conducive to rust development at this time. Growers who plan to apply a foliar fungicide in the near future for general foliar diseases are encouraged to use a strobilurin product (Quadris, Headline) or a strobilurin containing product for this type of application as this group of chemistry are more effective on the foliar diseases we treat for each year in our state.

Weed Control (Larry Steckel, Extension Weed Specialist)

The most common call the last 5 to 10 days is the overall poor weed control many have gotten with recent post-emergence applications. In most of these fields the weeds are not actively growing and have developed thick cuticles making it very tough for any herbicide to work well. The best way to overcome weeds that have hardened off is to use the higher end of the labeled rates. In the case of glyphosate in soybeans use 32 to 44 ozs/A of Roundup WeatherMax/Roundup Original Max or 32 to 40 ozs/A of Touchdown Total, etc. If the glyphosate product you are using does not have a surfactant or has a surfactant of unknown quality then it would be prudent to add a 0.25% NIS.

Some folks think they are experiencing glyphosate resistance when the weeds do not die. This could be the case in a field or two where Palmer amaranth has persisted after multiple glyphosate applications. We are conducting research in these cases to confirm if the Palmer in these fields is showing reduced sensitivity to glyphosate. In addition, we are trying to contain the problem and the growers are managing these fields as if they are resistant. However, in almost all the instances where weed control has been poor more than one species of weeds (often 4 or 5) are living which points the finger at drought stress.

The other question that has been common is how to control glyphosate-resistant (GR) horseweed in soybeans for little money. My answer has been that the time has passed to control GR horseweed economically. Due to both the size of much of the GR horseweed in soybean as well as the hardened off nature of the weed the standard 0.3 oz/A of FirstRate + 22 oz of Roundup Original Max will at best provide 30% control. The rates in research of 0.45 to 0.6 oz/A of FirstRate + 44 ozs/ Roundup Original Max has provided 60 to 70% GR horseweed control under this environment. That FirstRate/glyphosate combination will run about \$32.00/A. This is quite a bit more than the \$12.00/A cost of 8 oz/A of dicamba + a residual that could have been applied 21 days before planting.

New Post-Direct Option. In the last IPM newsletter I listed the wheat recropping interval behind commonly used layby herbicides. I left out Reflex which was labeled last summer for post-direct, shielded or hooded applications in cotton. The wheat recrop interval after a Reflex application is 4 months.

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

We are now at the mid-point of the calendar year. In Tennessee, July 1 is recognized as the notification date that producers and landowners use when a change will be made with respect to leasing or renting farmland. This applies more so to verbal agreements as written leases typically are specific as to the length of the lease and termination date. Written lease agreements are preferred to verbal agreements due to the intricacies involved in farming today. A good written lease will spell out the responsibilities of each party with regard to conservation practices, liming, and improvements made on the farm. Also spelled out should be provisions for what will happen when a lease is terminated. For improvements and practices that will last several years, a proration for that practice and for the number of years should be listed. Over time, memories get fuzzy as well as different interpretations of issues. A good written lease agreement can serve both parties – the landowner and the producer.

An example of a written lease can be found on the UT Agricultural website at <http://economics.ag.utk.edu/pubsfarm.html>. I have a few variations of this lease that I would be glad to share with you. I can easily email or mail you a copy. Drop me a note at scdanehower@utk.edu or call 731-635-9551.

The 6th Annual Mid-South Agricultural Finance Conference is again scheduled at UT Martin for August 8. It will start at 8 a.m. and adjourn at 3 p.m. The registration fee for producers is \$75. Speakers will be Dr David Kohl and Dr. Matthew Roberts. Registration information can be found at <http://www.utm.edu/staff/banking/agconference/>. I will detail more information as we get closer to the conference. This is an excellent conference which can give you valuable insight on your operation. Talk to your lender about sponsoring your registration fee.

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 8, Ending 6-26-07)

Trap Location	Tobacco Budworm	Corn Earworm (Bollworm)	Beet Armyworm	Southwestern Corn Borer
Hardeman (Bolivar)	1	0	0	---
Fayette (Whiteville)	6	0	0	---
Fayette (Somerville)	7	0	---	0
Shelby (Millington)	81	0	0	---
Tipton (Covington)	34	0	0	---
Tipton (North)	12	12	---	0
Haywood (West)	5	3	0	---
Haywood (Brownsville)	0	0	---	---
Madison (North)	0	16	---	---
Madison (Exp. Stn.)	17	5	8	29
Crockett (Alamo)	2	2	0	0
Crockett (Maury City)	36	0	---	---
Dyer (Bogota)	5	5	0	---
Dyer (Newbern)	0	9	---	38
Lake (Ridgley)	0	10	0	---
Gibson (Kenton)	3	0	---	---
Gibson (Milan Exp Stn.)	2	0	3	3
Carroll (West)	8	0	0	---
Lauderdale (Goldust)	1		0	---

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

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Scott D. Stewart (editor), Extension Cotton IPM Specialist

A handwritten signature in black ink, appearing to read "Scott D. Stewart". The signature is fluid and cursive, with a long horizontal stroke at the end.