

IPM NEWSLETTER

Update for Field Crops and Their Pests

No. 15

June 22, 2007

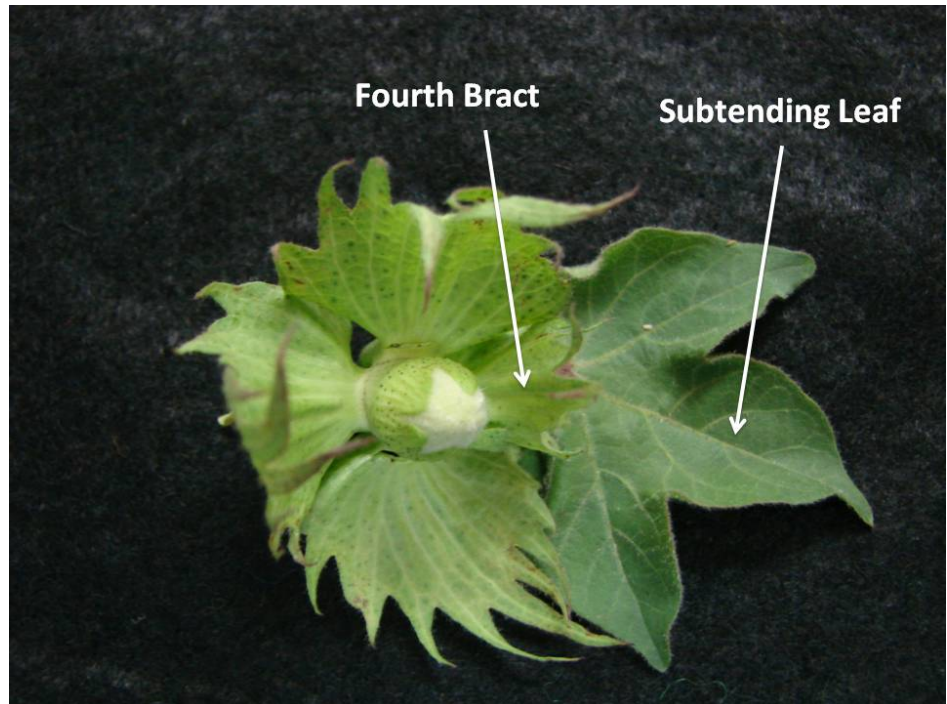
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Cotton Progress Report (Chris Main, Extension Cotton and Small Grains Specialist)

The Tennessee agricultural statistics agency reports that 40% of the crop is squaring compared to 13% last week and 35% last year, ahead of the 5 year average of 29%. Cotton condition is rated as 31% fair, 47% good and 7% excellent with continued good square retention.

Questions this week have concerned malformed squares (extra bracts and extruding reproductive structures) and plant growth regulator (PGR) applications. Many malformed squares are caused by physical damage from insects (possibly due to heavy thrips infestations this year), but can also occur because of adverse weather conditions affecting meristems. Typically, the lower fruiting branches are where most four-bract squares occur. Four-bract squares are more susceptible to shedding from thrips damage from the fourth bract providing an opening for thrips to enter a young square. While there may be more four-bract squares this season due to the drought conditions, I have had to



examine several hundred squares to find only three four-bract squares. If plants currently have adequate squaring, finding a few four-bract squares should not cause concern.

Square number and retention is a nice introduction for a PGR discussion. In conversations with our cotton physiologist, Owen Gwathmey, the following comments should prove successful for PGR applications in a drought year. With flowering beginning to occur in April planted cotton we need to think about utilizing PGR's to retain fruiting sites. A good approach is to apply 1/4 to 1/3 of your typical seasonal total of PGR at first bloom. This will promote retention of early fruiting sites. Then monitor the crop for later square shedding. If the drought persists, plants will drop squares in response to stress. As squares shed, the plant will re-direct photosynthates to vegetative growth. Additional PGR applications should begin as this new vegetative growth begins. Please be cautious and do not apply high rates of PGR's at first bloom unless you have irrigation. In dry land situations a heavy PGR dose

at first bloom has the potential to cut the crop out early without adequate fruiting sites. As a side note, drought stressed cotton (in sandy areas) at the West Tennessee Research and Education Center began to bloom on June 21. Be aware that this situation maybe occurring in producer fields as well.

DD 60 Accumulation (TASS and NWS data).

Location	4/20-6/14	4/27-6/14	5/4-6/14	5/11-6/14	5/18-6/14	5/25-6/14
Brownsville	792	744	692	621	519	474
Dyersburg	847	798	742	637	562	503
Fayetteville	881	834	771	682	604	535
Memphis	1024	984	888	767	677	592
Milan	764	717	665	563	493	451

Insect Issues (Scott Stewart, IPM Specialist)

Cotton. Spider mites are spreading into many counties, with spotty and light infestations in many areas but moderate to heavy infestations in other fields. I've included the results of two different spider mite trials that were recently rated. Both were in Carroll County and both were treated using a backpack sprayer, 30 psi, 80015 flat fan nozzles and 11 GPA. Keep in mind that products like Zephyr, Zeal and Oberon are slowing acting and can not be fully evaluated until 7-8 days after treatment. I'll let the data speak for itself, but pay attention to the rates. Kelthane at 32 oz/a performed well in both tests, and for the money, is probably the best choice in most circumstances. Products which are not true miticides (e.g., dimethoate, Discipline or Brigade, Denim) have not been very consistent during the early season. Single applications were not especially effective in these tests either.

Site A (Carroll County). Spider mite numbers 4, 8 and 12 days after treatment.

Description				Spider mites	Spider mites	Spider mites
Rating Date				11-Jun-07	15-Jun-07	19-Jun-07
Sample Size				5 Leaves	5 Leaves	5 Leaves
No.	Treatment	Formulation	Rate/acre	4 DAT	8 DAT	12 DAT
1	Comite II	6 EC	24 oz	10.3 cd	29.1 cd	81.0 bc
2	Zephyr	0.15 EC	4 oz	15.4 cd	5.8 e	80.5 bc
3	Zeal	72 WP	0.8 oz	19.6 c	19.4 cde	74.3 bc
4	Oberon	4 SC	4 oz	26.0 bc	37.5 bc	106.8 b
5	Oberon	4 SC	6 oz	9.6 cd	9.4 de	39.5 bc
6	Dimethoate	4 EC	8 oz	40.0 ab	57.1 b	199.3 a
7	Discipline	2 EC	5 oz	11.5 cd	40.1 bc	97.5 b
8	Brigade	2 EC	5 oz	13.7 cd	52.5 b	104.8 b
9	Denim	0.16 EC	10 oz	23.4 bc	13.8 de	51.8 bc
10	Kelthane	4 F	32 oz	0.5 d	8.6 de	10.0 c
11	Untreated			51.7 a	99.0 a	209.0 a
LSD (P=.05)				17.2	20.8	84.8
Treatment Prob(F)				0.0001	0.0001	0.0009

In the first test, we sprayed while spider mite populations were increasing. In the second test (below), mite populations were already very high, and we appeared to get worse control in this scenario. This is typical for spider mites. If you wait until populations are rocking and rolling, you run more risk of crop injury and reduced control. Another point - you may hear that some products will provide 4-6 weeks residual control. However, none of these products are systemic, and new plant tissue will not be protected. In the first test, most products providing good control at 8 DAT were “slipping” at 12 DAT. This indicates that mite populations were rebounding from treatment, and the miticides are no longer providing effective residual control. I’ve seen this same response in multiple trials over several years. Benefits from treatment may last several weeks, but this is primarily the result of good initial control of mite populations within 7-8 days (not residual control beyond this time).

Site B (Carroll County). Spider mite numbers 4 and 8 days after treatment.

Description					Spider mites	Spider mites
Rating Date					15-Jun-07	19-Jun-07
Sample Size					5 Leaves	5 Leaves
No.	Treatment	Formulation	Rate/acre		4 DAT	8 DAT
1	Zephyr	0.15 EC	4 oz		97.7 cd	38.0 bc
2	Zeal	72 WP	0.67 oz		142.3 bc	76.7 bc
3	Oberon	4 SC	3 oz		113.0 cd	34.0 bc
4	Oberon	4 SC	5 oz		85.3 cd	65.7 bc
5	Dimethoate	4 EC	8 oz		191.3 ab	81.7 b
6	Discipline	2 EC	5 oz		101.7 cd	70.0 bc
7	Denim	0.16 EC	10 oz		98.7 cd	60.0 bc
8	Kelthane	4 EC	32 oz		62.3 d	25.7 c
9	Untreated				224.3 a	169.7 a
LSD (P=.05)					73.1	51.4
Treatment Prob(F)					0.0043	0.001

Tarnished plant bug numbers vary considerably depending on location, crop maturity, etc. More mature fields are reaching threshold in some areas, exceeding 8 plant bugs per 100 sweeps. Once cotton reaches the third week of squaring, consider increasing the threshold to 12-15 plant bugs per 100 sweeps in fields with good square retention. Most reports are indicating good square retention. A few folks are reporting more square loss than expected considering the numbers of plant bugs being found. Pre-bloom square loss is most often related to insect injury. Plants are pretty tenacious at holding onto squares until at least early bloom unless those squares are injured. Some square loss is probably related to the “malformed-bract syndrome” discussed earlier in this newsletter. These squares are sometimes “ruptured” and survive poorly. Some loss may be related to weather or other non-insect factors. Regardless of the cause of this square loss, you should be more aggressive treating for plant bug infestations if retention has dropped below 80%.

Tobacco budworm larvae are being found in some non-Bt cotton fields, particularly as you go south and west of Jackson. This matches up pretty well with trap catches in this part of the state. I’ve not heard of any treatment level infestations (= 8+ percent infested plants prior to bloom). However, because of resistance, *do not* use a pyrethroid insecticide if control is needed. Tracer at 1.75-2.0 oz per acre has become the standard for early-season tobacco budworm infestations in non-Bt cotton. Other options include Steward and Denim. These products are more expensive than a pyrethroid but less

expensive than a control failure. Remember, it is critical to time an application against small larvae (< ¼-inch long) to achieve good control. If this cotton is your non-Bt refuge, make sure you follow the treatment guidelines in the licensing agreement.

Corn. As expected, traps catches of southwestern corn borer moths have dropped considerably, including those being run independently in Obion, Weakley, Henry and Carroll counties. However, I did have one report of about 60⁺ moths being caught near Stanton (Haywood County). We are clearly between generations in most places. We will not know when the next generation kicks off until the moth traps rise again. My best guess is this will be at least two weeks from now, but this may vary from one part of the state to the next. Until the second generation arrives, spraying for corn borers in non-Bt corn is probably not justified. Don't get too caught up in the hype about spraying silk clipping pests (Japanese beetles, grape colaspis beetles, etc.). Except in unusual circumstances, there is little data suggesting this improves yields.

Soybean. Nothing too exciting is happening in soybean. It appears stink bug populations are off to a slow start. I am having trouble finding many stink bugs in the early beans, but fields that are beginning to produce pods should be checked weekly. Early maturing soybeans tend to be a sink for stink bugs at this time of year. Other than a few bean leaf beetles, grape colaspis adults, and a smattering of green cloverworms, most fields are pretty devoid of insect pests. We are also starting to pick up adult Dectes stem borers in some fields (pictured right). They also tend to pick on early maturing beans at this time of year. Although this insect can be a serious problem, there are no treatment thresholds that have been proven effective. Adults lay eggs in leaf petioles and the larvae tunnel to and down the main stem. Thus, the immature stages can not be controlled with foliar insecticide applications. Unfortunately, adults are mobile, long-lived and good at re-infesting treated fields. My recently retired colleague, Dr. Gary Lentz, had poor luck trying to prevent larval infestations with insecticide applications targeting adults.



Area Report for Northwest Tennessee (Gene Miles, Area Crop Specialist, Week of June 18th).

Parts of the area have gotten some rain this week but the area still remains dry. Some of the more mature April cotton that is being monitored (12th node) has only grown 1 node since last week which is due to dry weather conditions. All fields being reported this week are past the susceptible growth stage for thrips. Plant bug numbers being reported from the Dyer and Lauderdale County IPM programs are below threshold levels. Plant bug numbers being reported by private consultants range up to 16 per 100 sweeps. Insecticides are being applied where plant bug numbers are above threshold. Square retention ranges from 84 to 100% in 3rd week squaring cotton. White blooms are being reported by private consultants in the area this week. Beneficial insect counts range up to 4.0 per 6 row feet.

The sweep net can be a very effective tool for monitoring adult plant bugs. A standardized 15 inch sweep net should be used to determine plant bug populations. A minimum of 100 sweeps in a field (four subsamples of 25 sweeps) should be used to determine an accurate count of plant bugs per field. When taking sweeps, the net should be angled downward at about a 45 degree angle, depending on the height of vegetation to be sampled. The sweep net can give a quick and reliable indication of some pest and beneficial populations in a field.

Weed Control (Larry Steckel, Extension Weed Specialist)

I have followed up on a few calls where the herbicide Prefix (co-pack of Dual and Reflex) is being sold as a postemergence product for soybeans. The problem is there is no label for the mix of these two products postemergence in soybean. The co-pack can be used only as a preemergence herbicide at this time.

The great market prices for wheat have many again this year planning to plant wheat behind cotton this fall. Please keep in mind there are just a few commonly used layby herbicides that have a recrop interval short enough where sowing wheat this fall would still be on label. The herbicides are glyphosate (anytime), Aim (anytime), Envoke (3 months), Ignite (70 days), Suprend (3 months) and Valor (30 days). Two of these herbicides come in just under the wire as most growers like to have their wheat planted by early October. Listed below is the wheat recrop intervals for most of the popular layby herbicides.

<u>Herbicide</u>	<u>Wheat Recrop</u>
Aim	anytime
Caparol	no fall recrop (wheat grown for grain)
Direx	1 year
Dual Magnum	4.5 months
Envoke	3 months
Glyphosate	anytime
Goal	10 months
Ignite	70 days
Layby Pro (Direx + Linex)	4 months (provided no Direx was used pre)
Staple	4 months
Suprend (Envoke + Caparol)	3 months
Valor	30 days

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

Corn Fungicides On Drought Stressed Corn? There is some industry data being circulated showing impressive (20+ bushel/A) yield increases from spraying droughty corn with an at tassel spray of Headline. Mississippi State has a limited amount of data on drought stressed corn where this fungicide did not improve yields enough to pay for the cost of the application. UT foliar fungicide data that supports the use of a fungicide was collected under conditions ideal for disease (good general moisture, some disease pressure, good yield potential, etc). Keep in mind that if drought stressed corn does not receive adequate rain in the two weeks following pollination, it is doubtful that any fungicide will repair the damage caused by moisture stress. With no clear answers at this time, it is not a suggested practice to spray severely drought stressed corn.

The much needed rainfall didn't happen for us this week which puts our corn that is tasseling or silking at even greater likelihood for reduced yields. Probably one third of our state corn crop is at this critical period, and we will simply have to wait and see how successfully corn pollinates under the conditions we are in. Gray leaf spot is being picked up in research plots near Milan in corn following corn.

Soybean. Group III soybeans planted in mid to late April are mostly at R3 to R4 and short (8-10 nodes). Early Group IV varieties are slightly behind the III's and growing slowly due to the drought.

Remember that indeterminate varieties can produce additional nodes with rainfall, and our target for fungicide sprays is 12 to 15 nodes on the main stem if possible and an R3 development stage. Allowing this additional vegetative growth helps us protect more of the vegetative growth when a fungicide is applied. We continue to find Septoria brown spot on lower leaves in several fields. A very small amount of Frogeye leaf spot was located in a few fields this week- only a few lesions per plant and not at treatment levels. Hot, dry weather should slow down the progression of these diseases at this time.

Reports of yellow soybeans are coming in this week. Causes range from glyphosate sprayed on drought stressed beans to temporary nutrient deficiencies caused when plant roots are unable to access needed nutrients in dry soil.

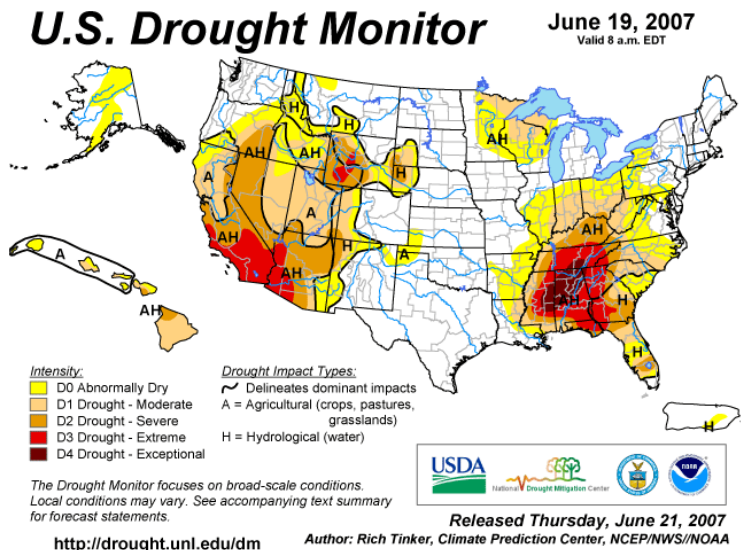
Soybean Rust Update (Melvin Newman, Extension Plant Pathologist)

Below is a message from Dr. Clayton Hollier (Extension Soybean Plant Pathologist in LA). As you can see Soybean Rust has made a major move up in LA. What this means to us in Tennessee is that we need to keep up with the situation. There is no need to spray for soybean rust at this time. Until we start getting some really good rain soybean rust will have a hard time getting started. Two really good places to keep up with soybean rust are the web site (www.sbrusa.net) and the Tennessee Soybean Hot Line (1-877-875-2326).

"Asian soybean rust was observed yesterday (6/21/07) in the soybean sentinel plots in both Avoyelles and Rapides Parishes and confirmed today. These parishes are in the central portion of the state approximately 80 miles north of the positive ASR kudzu sites in the coastal parishes of Iberia and St. Mary. This is the first report of ASR in soybeans in Louisiana during 2007. The soybeans are Group V's in the R4 growth stage. In Avoyelles, the incidence and severity levels are at 2%. In Rapides Parish, the incidence is 50% with a severity of 1%."

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

With the advances in crop technology, the majority of the crop production investment is spent on the front end. How do your actual expenses compare with what you projected? Have you been monitoring your production expenses compared to your budget and borrowed operating money? Where do you stand financially? I would estimate that producers have invested the majority of their variable expenses (out of pocket cash costs) in their crop at this time. It will vary among crops, but producers should have about 91% of their variable costs in their corn crop, 61% in the soybean crop (full season), and 66% in the cotton crop. Although this is a busy time production wise, do some calculations to determine whether you are on budget. With the uncertainty of the weather, this can prevent problems or at least surprises later on. If we can assist with budgeting, marketing or whole farm planning, please contact your local UT County Extension office or call the MANAGEMENT Information line at 1-800-345-0561.



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Although we know it is dry, keep an eye on the U.S. Drought Monitor for

marketing implications. It continues to show that the drought is creeping north into the eastern Mid-West. If this continues, corn and soybean ratings/ yield prospects will continue to get worse. Markets will continue to be volatile. Expect more limit up and down days.

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 7, Ending 6-20-07)

Trap Location	Tobacco Budworm	Corn Earworm (Bollworm)	Beet Armyworm	Southwestern Corn Borer
Hardeman (Bolivar)	0	0	0	---
Fayette (Whiteville)	0	0	0	---
Fayette (Somerville)	0	0	---	0
Shelby (Millington)	24	0	0	---
Tipton (Covington)	21	0	0	---
Tipton (North)	0	0	---	0
Haywood (West)	0	0	0	---
Haywood (Brownsville)	0	1	---	---
Madison (Exp. Stn.)	0	0	0	2
Madison (North)	6	2	---	---
Crockett (Alamo)	0	3	---	---
Crockett (Maury City)	13	0	---	---
Dyer (Bogota)	0	0	0	---
Dyer (Newbern)	0	3	---	0
Lake (Ridgley)	0	17	0	---
Gibson (Kenton)	0	2	---	---
Gibson (Milan Exp Stn.)	13	0	0	2
Carroll (West)	0	0	0	---
Lauderdale (Goldust)	0	5	0	---

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

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

