

IPM NEWSLETTER

Update for Field Crops and Their Pests

No. 12	June 12, 2008
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Bookmarks: [Cotton progress](#) [Insect control](#) [Weed control](#) [Corn and soybean updates](#) [Farm management](#) [Moth traps](#)

Soybean Scout Schools are scheduled for June 25 and June 26 (see below). These programs are designed to provide basic information about plant development and crop and pest management. These schools will include in-field training as weather allows and last about 1.5-2 hours. This effort is partially supported by the Tennessee Soybean Promotion Board. No registration fee or pre-registration is required. CCA and Pesticide recertification points will be available. Detailed directions will be sent in a later message and will also be available on-line at http://www.utextension.utk.edu/fieldCrops/upcoming_events.html.

- June 25, 9:00 AM, Dyer Co. -- Joe Smith's farm, Chic Road past Pugh's shop (Pugh's shed is rain out location).
- June 25, 1:30 PM, Obion Co. -- Cheatham Farms, Union City area, south on Oakshire Road from Hwy 431, Road dead ends at shop.
- June 26, 9:00 AM, Haywood Co. -- Hwy. 70/79 in Brownsville (North Washington Ave.), Behind American Motors used car business. From court square in Brownsville, follow signs to the Hospital. The field will be about 1 mile north on the left.
- June 26, 1:30 PM, Gibson Co. -- Milan Research and Education Center, Ag Museum, Hwy 70/79, E. Van Hook St.

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

The Tennessee Agricultural Statistics Service reports that 98% of the cotton crop was planted as of June 6th, this is about 2% behind 2007 and about 1% behind the five-year average of 99%. The crop is rate as 7% excellent, 74% good, 17% fair, and 2% poor.

What a difference a few days of warm, sunny weather makes. For the most part cotton has started to grow and the new leaves really make the crop look much better. Cotton that was planted on time is beginning to square and even the later planted cotton is taking advantage of the conditions and making good progress. The recent warm temperatures have resulted in the addition of new nodes every 2-3 days. Because this crop is advancing rapidly, I will reiterate the importance of timely applications of glyphosate herbicide to Roundup Ready varieties. Square initiation can begin as early as the unfolding of the 2nd true leaf (initiation, not visible squares). This is one reason that off label or poorly timed glyphosate applications may cause fruit loss. It appears that the majority of our acres are planted to Roundup Ready Flex varieties this year. While fields with Flex varieties can receive glyphosate past the 4th leaf stage, remember that early season weed pressure will rob the crop of yield and earliness potential.

I fully expect the phone to start ringing in the next week about plant growth regulator (PGR) applications. See Table 1 below from the University of Georgia regarding crop status during different growth stages. Remember that a PGR **will NOT** shrink the crop, the PGR will only control elongation of cells associated with new growth. As a general rule I like to make an application of PGR (mepiquat product) at 16 oz/ac at first bloom or about 60 days after planting. This application works well in all my variety trials. In a trial

conducted at 12 locations across the cotton belt last year by myself and colleagues from other Universities we did not see a difference in PGR products. Furthermore, the only statistically lower yielding treatment was one that did not receive a PGR application. I strongly encourage the use of a rate high enough to control growth with the first application. The most expensive treatment to make is the one that does not work. What we really want to do with a PGR is to improve earliness and harvest efficiency. Missing with a low rate on that first application reduces the chance of making both of those goals.

Table 1. Height to node (HNR) ratios for cotton PGR decisions (Jost et al. 2005).

Growth Stage	Normal	Stressed HNR (inches/node)	Vegetative
Seedling	0.5-0.75	-	-
Early Squaring	0.75-1.2	0.7	>1.3
Large Square - First Flower	1.2-1.7	<1.2	>1.9
Early Bloom	1.7-2.0	<1.6	>2.5
Early Bloom + 2 weeks	2.0-2.2	<1.8	>2.5

Jost, P., S. M. Brown, S. Culpepper, G. Harris, B Kermerait, P. Roberts, D. Shurley, and J. Williams. 2005. 2005 Georgia Cotton production guide p 37-39.

DD60 Accumulation (TASS and NWS data)

Location	4/20- 6/12	4/27- 6/12	5/4- 6/12	5/11- 6/12	5/18- 6/12	5/25- 6/12	6/1- 6/12
Dyersburg	572	527	505	468	448	369	257
Fayetteville	601	544	513	459	441	361	255
Jackson	549	502	480	437	416	348	243
Memphis	676	607	581	522	486	390	264

Insect Management (Scott Stewart, IPM Specialist)

Cotton. It is pretty quiet right now. Thrips applications are winding up, but there has been a lot of pressure in some areas and low, wet spots have taken a beating. Spider mites are being found in low to moderate numbers in our traditional early season hot spots. I know of fields in Shelby, Carroll and Gibson Counties that have already been treated and reports suggest more treatments will be made next week. I've suggested switching to Dimethoate (6 oz/a) or Bidrin (3.2 oz/a) for thrips control in these mite spots because they may not flare spider mite populations as much as Orthene/Acephate. However, you may give up a little efficacy on thrips with these products.

Spider mite treatment is recommended when 30-50% of plants are affected and mites are still present. My experience with early season mites is that populations tend to persist for several weeks, and the most effective treatments are those made before populations really begin to rock-n-roll. Dicofol 4E (32 oz/acre) is a preferred treatment during early season based on price and consistency. However, other products such as abamectin (e.g., Zephyr, Abba, Zoro at 4-6 oz/a), Zeal (0.75 - 1 oz/a), Oberon (4-6 oz/a) and Acramite (16 oz/a) are options that also provide consistent control.

Plant Bug control during the first two weeks of squaring should be made when populations are 8⁺ per 100 sweeps. Should square retention drop below 80%, treatment should be made for even lower populations. If you are using a sweep net properly, you should almost feel guilty about the amount of plant material in your net when you finish. Take a minimum of four sets of 25 sweeps per field.



At this time of year, plant bugs are often concentrated in the first squaring fields. The earliest cotton here at the station already has treatment level numbers of tarnished plant bugs. Recent data from a regional project across the Midsouth clearly indicates that using “automatic” sprays or very aggressive treatment thresholds for plant bugs does not increase yield compared with using currently recommended treatment thresholds. As part of a resistance management plan, UT recommends avoiding the use of organophosphate (e.g., Orthene, Bidrin, Dimethoate) and pyrethroid insecticides until after first bloom. The neonicotinoid insecticides (e.g., Centric, Trimax Pro, Intruder) and Carbine are primarily recommended for plant bugs prior to first bloom. Some folks are using Vydate as part of an early season nematode/insect control program. That is OK by me, but I suggest a minimum rate of 12 oz/acre for more reliable control.

Area Cotton Report for Northwest Tennessee (Gene Miles, Area Crop Specialist). Recent showers have improved crop growing conditions in the area. Cotton fields being monitored by the UT Extension County IPM programs ranged from 2nd to 5th node. More mature cotton plants observed in the Delta area this week were in the 7th to 8th node compared to more mature plants in the 11th node at this time last year. Cotton plants should put on a new node about every 2.7 days under adequate growing conditions. Thrips counts by county IPM scouts range from 0 to 1.2 per plant. Private consultants in the area are reporting thrips counts as high as 3 per plant on susceptible cotton. Private consultants also have reported false chinch bugs reaching threshold levels in at least one field in the area.

Squares are being observed on more mature plants this week. Once cotton reaches the 5th node, scouts and other individuals checking cotton should observe larger plants for squares and plant bugs. Once a square is clearly detected in the field, the field can be noted as the first week squaring. Plant bug thresholds change depending on what week squaring you are in. Therefore, it is important to know what week squaring you are in to use the proper threshold. Cotton plants normally should be producing squares by the time they are in the 7th node. The first occurring squares can usually be detected on the 5th or 6th node.

Corn and Southwestern Corn Borer (SWCB). We are still catching a fair number of first generation moths in some areas (see appended pheromone trap data). Infestations were already evident in some fields at the Milan Research and Education Center. Scouting in non-Bt corn should concentrate on SWCB. Given a choice, moths will avoid ovipositing on plants until they are at the 7-8th leaf stage. The larvae will be in the whorl, but feeding signs will be evident on leaves as they emerge. Whorls with feeding symptoms can be pulled and unfurled to confirm whether or not larvae are present, but treatment should be based on whether 20% or more of randomly selected plants are infested with SWCB larvae or eggs. I seldom look for eggs in whorl stage corn because the larvae are relatively easy to pinpoint. I would not bother counting larvae if they are already tunneling in stalks because they can not be effectively controlled. Once again, I prefer mid rate pyrethroid insecticides when treating whorl stage corn. Increase volume and direct sprays into the whorls as much as feasible.



Egg Masses (left and center) and Small Larvae of SWCB

Heads Up -- Based on the size and duration of the current SWCB moth flight, there will be a substantial second generation in the northern corn counties of West Tennessee. This flight will probably be occurring in earnest during mid July. Be prepared to treat any relatively late planted non-Bt corn (particularly in areas where first generation moths are already being found in high numbers). I'm hoping most of the very late planted corn is Bt protected. Intrepid is a preferred insecticide treatment for second generation SWCB, so plan ahead and make sure your dealer has some in stock.

Weed Control (Larry Steckel, Weed Specialist)

Soybean Weed Control. There was a popular movie that came out in the 1980's that was titled "Back to the Future". That is a good title for our soybean weed control this year. With most soybean acres getting a PRE applied herbicide, and in many cases showing some injury from the PRE application, our soybeans look like they did in the early springs of the 1980's or early 1990's. The question comes up now, like it did 20 years ago, "Is that visual injury causing yield loss?" The answer from many years of research back then as well as today is NO. Soybeans have a tremendous ability to compensate for a slow start and even as much as 20% visual injury in the early growth stages typically results in no yield difference.

Cotton Weed Control. Talking some county agents and crop consultants that last 10 days or so it appears that there is more non-Flex cotton planted than what I had anticipated. The cotton has progressed very quickly over the last week and the common question is should I spray glyphosate over-the-top on non-Flex cotton that is beyond the 5th leaf. The first answer is that spraying non-Flex cotton after the 5th leaf is not illegal. However, there is no guarantee that the cotton will not sustain injury and you take all the risk. Loss of early fruit could delay maturity which is a real concern this year. That being said if weed pressure is severe then an over-the-top glyphosate application is probably warranted.

We do have other tools for weed control in cotton and glyphosate can be post-directed under the cotton. Be careful about placement of those early post-direct glyphosate applications. I have walked a field or two over the years that I thought the cotton would have had less injury if it had been sprayed over the top at the 6th leaf stage then the sloppy post direct that was applied at the 7th or 8th node.

Post-direct Mixtures for Cotton. Some post-direct applications will start next week. A typical post-direct application often contains glyphosate plus another herbicide to provide a residual component and/or to help control weeds that are not readily controlled by glyphosate. There are several newer herbicides that can be used post-directed or under a hood with or without glyphosate. Below are some of our thoughts on several post-direct options.

Aim 1 oz/A + Glyphosate 0.75 lbs ae/A.

Advantages: Very economical. Aim can provide excellent control of pigweeds and large running morningglories. Glyphosate mixes well with Aim.

Considerations: Applications to cotton with less than 5 to 6 nodes may be made with hooded sprayers. Layby applications of Aim tank mixtures may be made when cotton has achieved a height of 12 inches or more with sufficient bark development. Expect some speckling of upper cotton leaves if post-directed. Sloppy post-direct of Aim can severely burn green cotton stems and leaves. This mixture will not control emerged horseweed or provide any residual weed control.

Reflex 16 ozs/A or Valor 2 oz/A + Glyphosate 0.75 lbs ae/A – Reflex was just labeled last summer as a post direct application. Cotton must be at least 6" tall. Surfactant is not needed if the glyphosate used has a surfactant included.

Advantages: Good residual pigweed control. A Reflex or Valor + glyphosate mixture will control pigweeds including Palmer pigweed. Reflex and Valor can provide excellent residual control of horseweed.

Considerations: Sloppy post-direct of Reflex or Valor will burn cotton leaves. There is a 10 month plant back restriction for corn following a Reflex application.

Direx 12 ozs/A + Glyphosate 0.75 lbs ae/A – The most commonly used post-directed tank mix in Tennessee. Cotton must be at least 6” tall. Surfactant is not needed if the glyphosate used has a surfactant included.

Advantages: Economical. The Direx + glyphosate mixture will control pigweeds including Palmer pigweed. Direx can provide limited residual control of horseweed.

Considerations: The Direx + glyphosate mixture will not control emerged glyphosate-resistant horseweed. Direx will settle out in the tank when mixed with many formulations of glyphosate, so aggressive tank agitation is necessary. Sloppy post-direct of Direx will burn cotton leaves.

Caparol 24 ozs/A or Cotoran 32 ozs/A + Glyphosate 0.75 lbs ae/A - Cotton must be at least 6” tall.

Advantages: Economical. This mixture can control most morningglory species up to 4” tall. Caparol will provide very good residual control of Palmer pigweed and horseweed.

Considerations: Cotoran is weak on Palmer pigweed. Caparol and glyphosate mixtures need good agitation to stay in suspension. Will not control emerged horseweed. Sloppy post-direct of Caparol or Cotoran will burn cotton leaves and stems.

Ignite 280 at 29 ozs/A - Cotton must be at least 6” tall.

Advantages: It will control horseweed up to 6” in height. Oftentimes, Ignite can control taller horseweed under high temperatures and humidity. Good control of many broadleaf weeds including the morningglory species.

Considerations: Ignite is weak on grasses and Palmer pigweed. Herbicides that will help control pigweeds would be Caparol at 24 ozs/A, Direx at 12 ozs/A or Cotoran at 32 ozs/A.

Premixes for Cotton.

Layby Pro 1 qt/A - Equivalent to 16 oz of Direx + 16 oz of Linex. Add one percent crop oil for better control.

Advantages: Good control of many grasses and broadleaf weeds including pigweeds and morningglories. Direx and Linex provide good residual control of pigweeds.

Considerations: Refer to label for rates on coarse soils. This premix will not control grasses. The addition of MSMA 2.67pts/A of 6L formulation or glyphosate at 0.75 lbs ae/A will control grasses.

Suprend 1.25 lbs/A – Equivalent to 32 ozs of Caparol + 0.15 ozs of Envoke/A. Add one percent crop oil for better control.

Advantages: Good control of many grasses and broadleaf weeds including pigweeds and morningglories. Caparol is one of the better residual herbicides for pigweed control. This premix in our research has controlled small horseweed in our studies.

Considerations: Fields with heavy grass pressure would benefit from the addition of MSMA 2.67pts/A of 6L formulation or glyphosate at 0.75 lbs ae/A will control grasses.

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

Corn. The corn crop is finally off and running and the warm (hot) temperatures and abundant soil moisture have really kicked the corn crop into high gear. Corn that was a puny yellow to striped looking in mid May has finally had enough dry and warm weather to develop a root system to access the fertilizer in the soil. Most fields look pretty good with some lighter colored corn showing up on hillsides and ponded areas that lost some nitrogen earlier. With the flooding and generally terrible conditions in certain parts of the Midwest, corn prices have jumped again, and I have had several calls about adding supplemental nitrogen to push the yield of our local crop.

How do I know if I need to add more nitrogen? Supplemental nitrogen can be added to corn up to the time of tassel emergence and can increase yield in corn that is growing in a deficient soil. Where aerial application is an option, it may be tempting to throw on a little more fertilizer “just in case” with potentially better yields and more revenue as the end result. However, dryland fields that have received 200 lbs or more of N and have not had ‘loss’ conditions (ex. poorly drained soils) are not likely to be deficient. Water is critical to wash the fertilizer down into the soil and without irrigation or a guaranteed rainfall event it is pointless to add extra nitrogen if it is unlikely to be utilized by the plant. This is especially true where a nitrogen application is being considered for corn that is close to tasseling.

The most obvious situation where a supplement would pay are where lower amounts of N were applied initially (< 150 units N/acre) and where deficiency symptoms are visible. Nitrogen deficient plants have a lighter yellow-green color (vs. the healthy dark black-green of well fed plants) and the bottom leaves may be firing up (note the inverted ‘V’ in a nitrogen deficient corn leaf below). Young corn that is a healthy dark black/green color with no firing leaves at the bottom of the plant has adequate N at this point in time.



How much do I need to supplement if I am adding more N? Unfortunately we don’t have a precise measurement for this one. A corn leaf nitrogen tissue test can tell us whether the crop is deficient at the time the sample is collected but doesn’t tell us exactly how much we are deficient in the soil. Unless a field has a severe deficiency where N rates were inadequate at planting, a typical supplemental amount would range from 30 to 50 units of N per acre.

Tips for Supplementing with Granular forms of N.

- Apply when the corn whorls and leaf surfaces are dry or prepare to look at really burnt corn for a few weeks. Fertilizer granules are less likely to stick to and dissolve on dry leaves. Some desiccation is normal, but damage is less severe where dry corn is treated.
- Apply nitrogen before a rain or irrigate it in (at least one half inch of water) especially if you are applying a granular urea product. The only way to move the fertilizer material off the soil surface is

with water. The closer you are to pollination, the quicker you need to move that fertilizer down to the roots after application.

- Ammonium nitrate is preferred over urea because it is more stable as a surface applied broadcast material. Consider a urea stabilizer such as Agrotain for urea spread in non-irrigated fields where rain is not in the forecast.

Soybean. Similar to the corn crop, “early” is not in our vocabulary with respect to planting soybeans this year. We had virtually no April planted crop and will have more single crop soybeans planted in June (and July in flood prone fields along the Mississippi river) than we have had in some years.

Soybeans planted in May suffered through cool, wet weather and with seed quality somewhat lower than normal, final stands were thinner than we like to see. Packing rains probably caused more replant situations than anything else in worked ground or where surface residue was light. Several fields planted in May had final populations of 50 to 60% of the original seeding rate. We kept a number of fields of Group IV and Group V beans where populations were running 80-90,000 plants per acre where beans were healthy and stands were pretty uniform (it is tough to tear up non-irrigated May beans in early June when moisture is becoming a concern). So far it looks like seed is being found where it is needed for replanting. June planted beans are emerging quickly and we will be evaluating stands over the next few weeks. Some areas in west Tennessee caught a good shower this week that will really help move those plants out of the ground. Larry Steckel noted some late May planted beans in Haywood/Lauderdale counties showing some glyphosate yellow flash on new trifoliates, particularly on end rows or where the sprayer may have slowed down in the field and the rate may have doubled up. New trifoliates that are being produced now should grow out with their normal green color.



June Soybean Considerations: As we move into wheat harvest and planting soybeans in later June, we really need to plant maturity groups and use seeding rates that will help optimize yields in these more limiting situations. Unless you can irrigate, a Maturity Group III bean is not a good choice for a June planting. With a shorter growing season, it is very difficult to get the height we need for decent yields and our experience with these varieties is that heat and drought stress can take a real toll on productivity particularly where soils tend to be droughty. A late Group 4 or early to mid Group 5 variety would be a better choice with the hope that we catch some July and August rains to benefit the crop. Seeding rates should be bumped up past 160,000 seeds per acre to improve the chance of decent final stands particularly if seed germination is on the low end at 75%. In wheat straw or with drilled beans (especially if soil is dry at planting), fields should be seeded at or above 180,000 seeds per acre.

July Soybean Considerations: An extension agent with many years experience with soybean production in Tennessee told me “Once you get into a July planting it doesn’t much matter what maturity group you plant. You are in a race to get anything planted and out of the ground.” Dr. Eric Walker, USDA/ARS, has conducted some recent late planting experiments with non-irrigated soybeans in a well drained silt loam soil at Milan (Table 1). I would avoid any mid to late Group V beans with this very short growing season but based on our limited data, all other groups were affected similarly with this very late planting.

Table 1. 2005-2006 USDA/ARS soybean planting date X Maturity Group data, Milan, TN. Non-irrigated, well drained silt loam soil.

	Late MG III	Late MG IV	Early MG V
Planting Date	(Bushels Decrease in Yield Compared to mid May Planting)		
June 1-7	-9	-4	-4
June 16-23	-20	-23	-14
July 14-20	-36	-28	-32

Farm Management (Chuck Danehower, Area Specialist - Farm Management), Wheat harvest is upon us and with the acreage of wheat, there is a lot of wheat to combine and most likely plant back into double crop soybeans. In order to get the double crop soybeans planted on a timely basis, there have been some questions on whether to have some wheat acreage custom combined which might allow for soybeans to be planted back quicker. Generally speaking, soybeans planted after June 15-20 will suffer some yield loss from their potential. However, it depends on the production year as well as the fall weather at harvest.

In looking at custom rates, I first look at what the cost in the UT Budgets. In doing that, I updated farm diesel to \$4.50 which I hope is on the high side. The variable (fuel, repairs) cost and fixed (equipment depreciation & interest) cost, and labor is \$28.64 acre for a combine. A grain cart would add another \$15.00 acre for a total cost of \$43.64 acre. Our budgets assume that the grain cart and tractor hooked up to it are running the same amount of time that the combine is. If it is only running half the time then that cost is reduced and the total cost is \$36.14 acre. So there is some variance in the grain cart cost. Other considerations in the cost approach include age of equipment, and efficiency of the operator.

There is not a Tennessee Custom Rate Guide, but there is one from Kentucky that examines custom rates from several states. Using that guide and from one Iowa, can give a reasonable rate as to what custom rates should be. The rates from these guides have to be adjusted for the increase in farm diesel. After that is done, the custom rate for just the combine is \$28 - \$30 acre and if a grain cart is included it would be \$37 acre.

Using the cost approach and adjusted custom rates from other areas gives us a range of \$36 - \$44 acre depending on grain cart use. I tend to give more weight to the custom rate numbers since they are an indication of current market rates. With that, a reasonable amount would be in the \$37 – \$40 acre range, again depending on the grain cart. This does not include hauling as that is usually figured separately and is dependent on distance.

A reminder about the Farm Bill Informational meetings next week. The ones in our area are scheduled as follows:

- June 17, 10:00 a.m. Portageville, MO, Delta Center
- June 17, 10:30 a.m. Jackson, TN, Experiment Station
- June 17, 2:00 p.m. Keiser, AR, Experiment Station
- June 18, 10:00 a.m. Memphis, TN, Agricenter International

Tennessee Pheromone Moth Trapping Summary - Trapping efforts are funded in large part by the Tennessee Cotton Incorporated State Support Program. Some County Extension Agents are also reporting additional trap counts for SWCB moths at corn variety test locations. Thanks to them and Bob Williams for these data.

Numbers of Moths per Week (Week 6, Ending 6-10-08)

Trap Location	Tobacco Budworm	Corn Earworm (Bollworm)	Beet Armyworm	Trap Location	Southwestern Corn Borer
Hardeman (Bolivar)	0	0	0	Fayette (Whiteville)	2
Fayette (Whiteville)	0	0	---	Tipton (Covington)	0
Fayette (Somerville)	0	0	0	Madison (Exp. Stn.)	0
Shelby (Millington)	0	5	0	Gibson (Exp. Stn.)	0
Tipton (Covington)	2	11	---	Dyer (Newbern)	0
Tipton (North)	2	0	0	Dyer (Samaria Rd)	76
Haywood (West)	0	0	0	Dyer (Fuller Rd)	22
Haywood (Brownsville)	3	4		Dyer (Welch Rd)	2
Madison (North)	0	6	0	Obion (Central)	7
Madison (Exp. Stn.)	2	3	---	Obion (Northeast)	54
Crockett (Alamo)	0	0	0	Gibson (Sims north)	30
Crockett (Maury City)	4	0	---	Gibson (Sims south)	28
Dyer (Bogota)	3	4	0	Gibson (King)	24
Dyer (Newbern)	0	0	---	Gibson (Idlewild)	63
Lake (Ridgley)	0	6	2	Gibson (Race Track)	59
Gibson (Kenton)	1	43	0	Lake (Hoecke)	63
Gibson (Exp. Stn.)	5	7	*	Lake (Isom)	7
Carroll (West)	0	7	0	Weakley (South)	280
Lauderdale (Goldust)	0	0	2	Weakley (North)	23
				Haywood (Hwy 19)	6

An asterisk (*) indicates trap was missing or knocked down.

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Scott D. Stewart (editor)
Extension Cotton IPM Specialist

