

# IPM NEWSLETTER

## Update for Field Crops and Their Pests

No. 14

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### Cotton Situation and Outlook (Chris Main, Extension Cotton and Small Grains Specialist)

The Tennessee Agricultural Statistics Service reports cotton condition as 11% excellent, 72% good, 16% fair, and 1% poor. 10% of the crop is squaring compared to 58% last year and 51% for the five year average. Other than being behind in development, this year's crop is in good condition. Only fields that were planted prior to a packing rain or were subject to water over-wash have thin stands. Most decisions on keeping these fields have already been made. With the increase in plant bug pressure this year please remember to scout and treat accordingly to help manage for an early crop.

#### DD60 Accumulation (TASS and NWS data)

Location	4/20- 6/26	4/27- 6/26	5/4- 6/26	5/11- 6/26	5/18- 6/26	5/25- 6/26	6/1- 6/26
Dyersburg	821	776	754	717	697	618	506
Fayetteville	838	781	750	696	678	598	492
Jackson	771	724	702	659	638	570	465
Memphis	951	882	855	797	761	664	539

### Insect Management (Scott Stewart, IPM Specialist)

**Cotton.** Tarnished plant bugs are the only widespread problem, but they are in full swing. As usual, pressure varies widely from area to area, but there have been reports of 2-5 fold threshold numbers in many fields. Some treated fields are back above threshold in 5-7 days. This is a sure sign of migration and follow-up applications will be necessary. In this situation, you will find out pretty quickly that no plant bug insecticides provide effective residual control beyond 4-5 days. When pressure is high, tighten up the application interval to five days and avoid low-end insecticide rates.

Most fields are in their second week of squaring. The treatment threshold for tarnished plant bugs increases to 15 or more per 100 sweeps once fields begin the third week of squaring. You should back this threshold down to 10-12 per 100 sweeps if square retention is approaching or already below 80%. Minimum insecticide rates are Carbine (2.6 oz/a), Centric (1.5 oz/a), Intruder (1.1 oz/a) or Trimax Pro (1.35 oz/a). Until flowering begins, UT's standard recommendation is to avoid applications of pyrethroid and OP insecticides. I'm confident in our treatment thresholds for plant bugs, so use the scout and spray approach (not the spray and scout method).

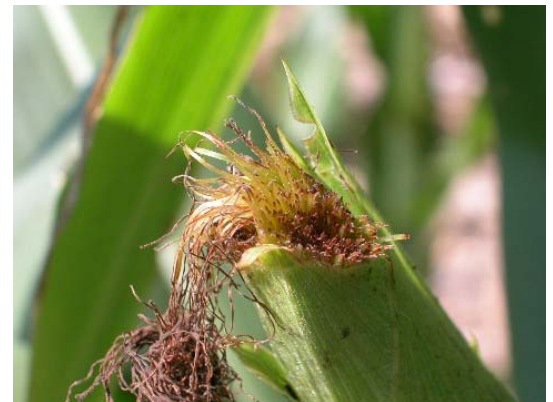
There is some confusion about the new Bidrin label. You can use a maximum of 0.2 lb ai/a (3.2 oz) in pre-squaring cotton and no more than 1.0 lb ai/a (16 oz) after first bloom. *You can not use Bidrin*

*between first square and first bloom, and there must be a 14-day interval between Bidrin applications (this includes Bidrin XP).*

**Area Report for Northwest Tennessee (Gene Miles, Area Crop Specialist).** Cotton - Parts of the area this week are in need of rain and center pivot irrigation systems are being used to supply moisture to crops where available. Data taken from older more mature cotton fields this week have some plants in the 12<sup>th</sup> node with seven 1<sup>st</sup> position squares and 14 total positions. Cotton fields being monitored by the Dyer and Lauderdale County IPM Program were in the 1<sup>st</sup> and 2<sup>nd</sup> week squaring with plant bug numbers ranging up to 0.8 per 6 row feet. Private consultants are reporting plant bug numbers ranging up to 11/100 sweeps in 1<sup>st</sup> week squaring and 17/100 sweeps in 2<sup>nd</sup> week squaring cotton. Square retention for the week ranges from 88 to 100 %. When monitoring for plant bugs a standard 15 inch sweep net should be used and 100 sweeps per field used to determine plant bug numbers. When using the drop cloth, the individual taking the counts should slide the drop cloth between rows as quietly as possible so that insects are not disturbed. Approximately three row feet of cotton plants should be vigorously shaken from each side onto the drop cloth where adult and immature plant bugs can be observed. When using the drop cloth, it is a good practice to observe approximately 30 row feet in fields 75 acres or less, 48 row feet in fields 75-100 acres and 60 row feet in 100 plus acres. Immature (primarily green) stink bugs are being reported this week. Beneficial counts range up to 4.2 per 6 row feet.

Wheat - wheat yields being reported from Dyersburg Elevator Company range from 55-90 bushels with an average yield of 65-70 bushels per acre. The average test weight being reported is 59.

**Corn.** Japanese beetles are coming out in numbers now, and I am fielding calls about whether controlling silk clipping is important. Several insects including Japanese beetles, rootworm adults, grape colaspis beetles and corn earworm larvae will clip the silks of ears. If clipping occurs before pollination, some kernels *may* not be pollinated. However, even kernels with partially clipped silks often pollinate. Pollination usually occurs within 24 hours of silk emergence, and silks will emerge over a period of 3-5 days. Of course, not all plants and ears are silking in field at one time. Illinois Extension recommendations suggest treating for Japanese beetles when an average three or more are found per ear and pollination is not complete. Consider an application of a pyrethroid insecticide if you have large numbers of Japanese beetles present during the first 7-10 days of silking. I've seen ears with every silk clipped but the ear developed without any problems. So this boils down to timing and numbers.



As expected, the southwestern corn borer moth flight has subsided. We are currently between generations. Moth traps will let us know when the next flight begins in earnest, but probably not for 2-3 weeks. *There are a lot of questions about whether an insecticide, usually a pyrethroid, should be tank mixed with fungicide applications.* UT does not recommend this as a common practice because there is little data supporting whether it actually improves yield. This is something we are working on, but right now, there is more hype than reliable and independent data. Here are some things to consider. A single insecticide application will not control corn earworm. To keep commercial sweet corn free of corn earworm, fields are sprayed on a schedule over a period of about three weeks (2-3 applications weekly to daily in some cases). One pyrethroid application to field corn won't make a

noticeable dent in the corn earworm population. It is also a good way to select for pyrethroid resistance in corn earworm (i.e., bollworm) populations.

I would expect a pyrethroid application to at least suppress populations of silk clipping insects and stink bug populations, but that doesn't mean it will improve yields. An application will also help to control corn borers if they are present. Of course, YieldGard and Herculex corn with the Bt corn borer traits are safe from corn borer attack. Fungicides are usually applied at first tassel and unfortunately this typically occurs well before second generation of southwestern corn borers shows up. On non-Bt corn, consider applying an insecticide if SWCB traps are indicating a significant moth flight in your area. The higher the moth count, the more inclined I would be to use insecticide. Also, late maturing corn will be more sensitive to corn borer infestations. A few to a few dozen SWCB moths per trap per week indicates a pretty modest population by second generation standards; 100+ moths per week indicates at least the potential for significant infestations in some non-Bt fields; 200+ moths per week suggests that treatment level infestations are likely in many fields. Intrepid (4-6 oz/a) is often suggested for control of corn borers in tasseling corn because it provides longer residual control than the pyrethroid insecticides. Intrepid has little or no activity on silk clipping beetles or stink bugs.

The best approach is to use a combination of scouting and moth trapping to determine whether insecticides are justified, but fair warning that scouting for corn borers requires time and training. Another suggestion ... do some on-farm testing to determine the value of both insecticide and fungicide applications. Split several fields and make fair comparisons of fungicide treated vs. untreated, or insecticide treated vs. untreated, or fungicide + insecticides vs. fungicide only. Yield monitors have made on-farm testing easier. Don't just compare fungicide + insecticide vs. untreated ... you won't be able to tell which component did the work (assuming a yield increase is observed).

**Soybeans.** Stink bugs will often congregate in the earliest maturing fields, so pay attention to any soybeans developing pods in the next couple of weeks. I'm aware of a few fields that have already been treated. Treatment is recommended prior to mid pod-fill (R5.5) when 12 or more stink bugs are present per 100 sweeps. This is a very aggressive threshold, and I would not shave it even though bean prices are high. R3 - R6 is the most critical window for managing stink bugs.



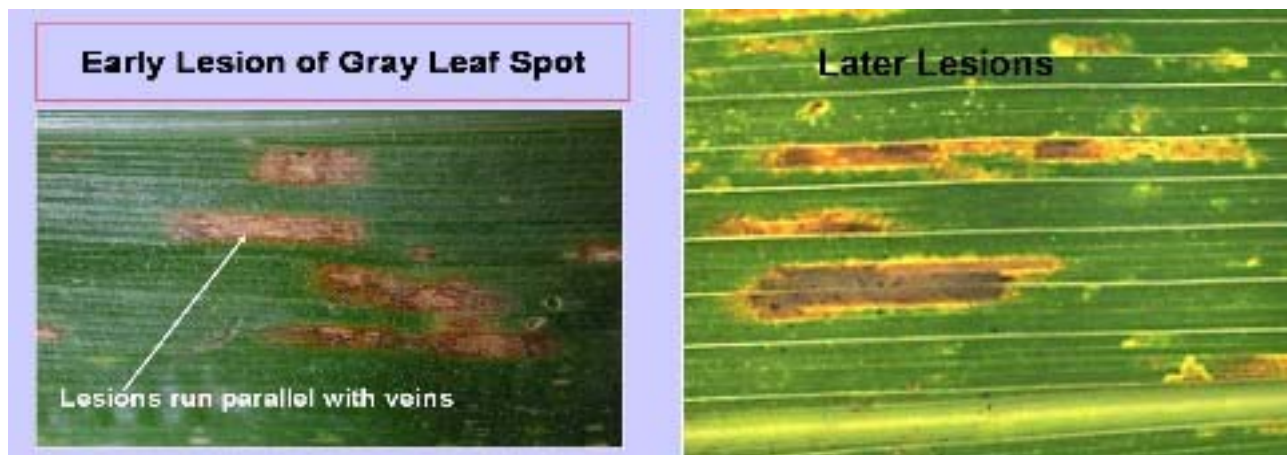
Japanese beetles are also feeding on the foliage of soybean (and cotton). This is generating some phone calls. They are quite noticeable when you jump a "covey" of beetles. Normally, these critters cause more concern than harm. Prior to bloom, use a defoliation threshold of 30% to decide if treatment for this pest is necessary in soybeans. During pod fill, reduce this threshold to 20%. As in corn, pyrethroid insecticides will provide good control. I'll be surprised if you hit these thresholds

**Tips for Using Foliar Fungicides on Corn (Melvin Newman, UT Extension).** Many corn producers are considering spraying their corn with a fungicide to control diseases. This interest has been spurred by higher corn prices, increase in gray leaf spot disease and favorable research at the Research and Education Center at Milan. Of course, not every corn field should be sprayed. If there is no disease or very little disease, the response will not be very great. On the other hand, if the disease potential is

high, more increase can be expected compared to untreated corn. The more disease causing-factors that are present, the more likely a fungicide will increase yields. There is no solid guarantee

The following are some important factors to consider:

- The higher the susceptibility of the corn Hybrid to gray leaf spot (none are totally resistant to all leaf diseases) the greater the disease potential.
- Continuous corn increases disease potential.
- Tillage practices (no-till) that leave corn residues on the surface of the ground will increase disease potential. However, conventional tillage may also promote foliar disease, especially if fields are not rotated with other crops.
- Later plantings tend to have more disease.
- Irrigation will provide essential moisture for diseases to develop.
- Dry weather before and after tassel will reduce disease development.
- Periods of rainy weather during the season will increase the likelihood and severity of disease.
- Severe gray leaf spot will weaken the stalks and may result in increased lodging.



*Which fungicides should producers use?* The strobilurin fungicides have given the best yield increases in research plots. Headline (pyraclostrobin), Quadris (azoxystrobin) and Quilt (azoxystrobin + propiconazole) have been tested and have given significant disease control and higher yields. Stratego (trifloxystrobin + propiconazole) is cleared for corn disease control, but we have not yet put it in our tests. A tank mix combination of a strobilurin fungicide and a triazole fungicide or a pre-mix (Quilt or Stratego) would be recommended when Southern Rust is expected to be a problem.

*When is the most effective time to spray a fungicide?* For several years, research has demonstrated that corn should be sprayed just at the tasseling stage. If sprayed before tassel or later, when corn is in full silk, disease control and potential yield response tends to drop off. If silks have turned brown, very little increase in yield may result.

*How should the fungicide be applied?* Most corn is too tall at tassel to be sprayed with a high cycle sprayer, so many will use aerial application. However, some ground sprayers are big enough and may cause very little damage. For best disease control aerial applicators should use at least 5 gallons of water per acre with a fungicide adjuvant or COC. Ground applicators should use 15-20 gallons of water per acre with a fungicide adjuvant or COC. Nozzles that give smaller droplets in the range of 300 microns will give better coverage.

## Weed Control Update (Larry Steckel, Weed Specialist)

### **Glyphosate-Resistant Palmer Amaranth.**

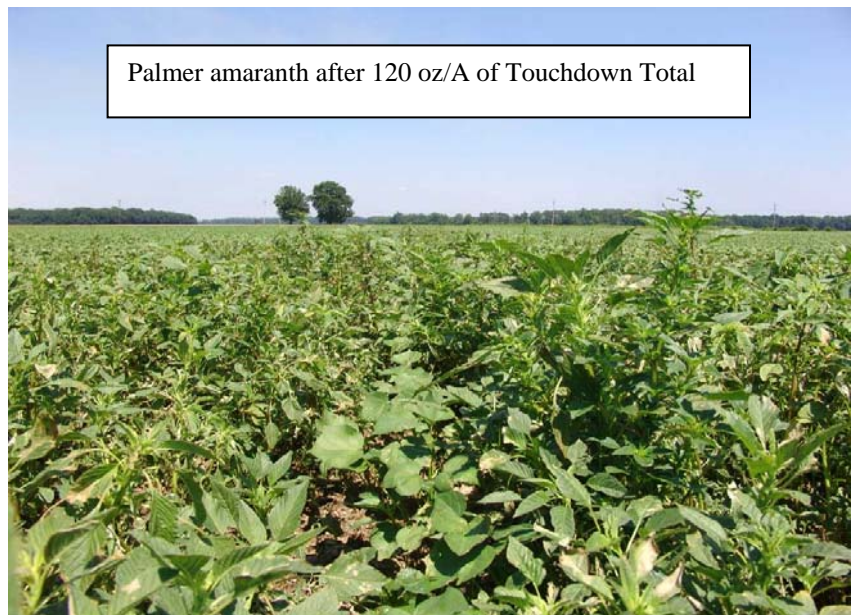
We have fielded a number of calls since last Wednesday on glyphosate control failures of Palmer amaranth. These calls have come from crop consultants, county agents and growers primarily in Lake, Lauderdale, Haywood and Dyer counties. In a couple fields, we are seeing thick patches of glyphosate resistant (GR) Palmer that have survived multiple applications of glyphosate. In other fields we are seeing Palmer amaranth scattered throughout the field that has lived through a glyphosate application or two. It appears that the flooding early this spring has helped spread GR Palmer amaranth seed. Some of the GR Palmer seed may have also been spread in gin trash. Bob Scott and Ken Smith, my colleagues in Arkansas, have reported more calls to date on glyphosate failures than what we have experienced here. It appears that the flood this spring has moved GR Palmer amaranth seed in that state as well.

The level of glyphosate resistance in some of these Palmer amaranths is very concerning. In previous years, we have seen glyphosate resistance levels of about 2 - 3x. The Palmer in those fields would at least show some symptoms 5 to 10 days after application (DAA) from a 0.75 lb ae/A (22 oz/A Roundup WeatherMax) application. Some Palmer amaranth in fields we have observed this past week are showing no symptoms at all 7 to 10 DAA even after being sprayed with rates ranging from 1.5 - 3.75 lb ae/A of glyphosate (44 - 110 oz/A Roundup WeatherMax).

I can not emphasize enough that we need to get around to all our fields, particularly the ones that were flooded, and scout them for Palmer control failures. Crop scouts have, for the most part, identified many of these Palmer control failures. This service is very valuable. Early identification before the Palmer is too big is critical. Palmer can



Thick patch of GR Palmer running with last years combine pattern



Palmer amaranth after 120 oz/A of Touchdown Total



Palmer in soybeans after 44 oz/A of Roundup PowerMax

grow 2 - 4" a day when it is warm and has good soil moisture. So a 4" Palmer today can be a foot tall in four days. Palmer that is much over 8" tall is often too large for PPO inhibitors like Flexstar, Blazer or Resource to control over the top in soybeans. In cotton, if we can determine early enough that the Palmer is showing some glyphosate-resistance, we may be able to apply a post direct application of Direx + MSMA early enough to at least get control in the row middles. Do not forget to scout the corn fields as well for escaped Palmer. A couple of the fields where GR Palmer amaranth has been observed this spring were in corn last year.

**Recrop Intervals for Post Direct and Layby Applications.** Please keep in mind that there are just a few commonly used layby herbicides that have a recrop interval short enough where sowing wheat this fall is still on label. The herbicides are glyphosate (anytime), Aim (anytime), Envoke (3 months), Ignite (70 days), Suprend (3 months), and Valor (30 days). Listed below are the recrop intervals for some of the more popular post direct and 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	3 months
Reflex	4 months
Valor	30 days

**Label Change** - The label for Valor XLT, a premix of Valor and Classic, has now been changed in respect to recropping back to cotton. It was 18 months and now has been reduced to 10 months for soils less than 7.0 pH.

**Farm Management (Chuck Danehower, Area Specialist - Farm Management).**

Irrigation time has arrived! As I traveled around this week, I saw several center pivots running. As those with irrigation know, it is difficult to catch up irrigating with a center pivot once the peak demand starts. Those who have been irrigating for many years have probably developed a good feel on when to turn the pivots on. The rest of us sometimes need tools to help make that decision. One tool available is MOIST, Management of Irrigation Systems in Tennessee. It is an Excel spreadsheet developed by Dr. Brian Leib, UT Extension Irrigation Specialist. It is fairly easy to use and can be entered in on a weekly basis. It updates water use data daily so it can be looked at daily or every how often you need to. The basic information to get started is the crop, planting date, estimated harvest date, & soil type. On a weekly basis, you will enter in rainfall and/or irrigation. The amount of crop water use is generated along with the soil moisture depletion. Generally when the soil moisture depletion starts to get higher than 2 – 2.5 inches, irrigation is needed. This does depend on soil type. If you have access to the internet, the temperature conditions can be updated from the Haywood County weather station. Otherwise, you would have to enter in high, average, or low. The Haywood County weather station data is also on line at <http://bioengr.ag.utk.edu/weather/>. Click on the daily or half-hour under West Tennessee. Depending on your location, this website may be helpful to look at when trying

to decide when it rained last and how much. If you need assistance with this spreadsheet, contact your County Extension office or give me a call at 731-635-9551.

**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 8, Ending 6-26-08)**

Trap Location	Tobacco Budworm	Corn Earworm (Bollworm)	Beet Armyworm	Trap Location	Southwestern Corn Borer
Hardeman (Bolivar)	3	0	0	Fayette (Whiteville)	0
Fayette (Whiteville)	0	0	---	Tipton (Covington)	0
Fayette (Somerville)	6	0	0	Madison (Exp. Stn.)	0
Shelby (Millington)	0	0	0	Gibson (Exp. Stn.)	0
Tipton (Covington)	2	6	---	Dyer (Newbern)	1
Tipton (North)	7	0	0	Dyer (Samaria Rd)	2
Haywood (West)	11	1	0	Dyer (Fuller Rd)	15
Haywood (Brownsville)	0	0		Dyer (Welch Rd)	2
Madison (North)	0	19	0	Obion (Central)	3
Madison (Exp. Stn.)	12	2	---	Obion (Northeast)	0
Crockett (Alamo)	0	0	0	Gibson (Sims north)	9
Crockett (Maury City)	23	0	---	Gibson (Sims south)	0
Dyer (Bogota)	2	1	4	Gibson (King)	4
Dyer (Newbern)	5	2	---	Gibson (Idlewild)	0
Lake (Ridgley)	16	118	4	Gibson (Race Track)	3
Gibson (Kenton)	2	0	0	Gibson (Gibson)	0
Gibson (Exp. Stn.)	2	1	0	Lake (Hoecke)	6
Carroll (West)	3	2	0	Lake (Isom)	1
Lauderdale (Goldust)	3	0	5	Weakley (South)	5
				Weakley (North)	0
				Haywood (Hwy 19)	1

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

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Scott D. Stewart (editor)  
Extension Cotton IPM Specialist

