

## IPM NEWSLETTER

### Update for Field Crops and Their Pests

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

The rain was good while it lasted, but most areas are once again in a dry to severely dry situation. I have found a few fields and more reports are circulating of pollination problems in corn. Replanted corn may have fared better, but pollination problems can be found both in March planted and in replanted fields. In some areas, these are linked to specific hybrids in selected locations and in other areas it is due to generally dry conditions that seemed to have affected everybody in the vicinity. Combined moisture and temperature stress during the corn reproductive period can substantially reduce grain yield. Within a few days of tassel emergence, silks start emerging from the base of the cob to the tip of the cob (base of ear pollinates first and tip pollinates last). Pollen shed lasts over a period of 7-10 days which is normally adequate to pollinate most silks on the ear. Dry weather can slow down silk emergence which increases the length of time required for pollination of all silks on the cob. The result is that sometimes pollen is shed before silks have emerged. In severe cases, the 'nick' is completely missed and ears have little or no grain. As you would suspect with the widespread dry conditions this year, most of our pollination problems are the result of environmental conditions during reproduction, with poor hybrid stress performance found only in limited situations. Fields that did not pollinate can be chopped for silage or baled for hay as long as nitrate levels are not a concern.



Photo courtesy of Jeff Lannom

Soybeans are handling the dry weather pretty well although rain is definitely needed. Late planted beans that have put on some growth and are not yet in full pod fill stage look better than early planted fields in dry areas where plants are struggling to fill seed. We are also continuing to scout yellow, wilted or stunted spots in fields. Where disease is the culprit, diagnosis is a little easier than it was a few weeks ago as the diseases have progressed enough to produce key visual symptoms. Sudden Death Syndrome was identified 2 weeks ago in a few soybean fields that had been in a corn rotation, occurring earlier than we normally find this disease. I am running calls on what appear to be nutrient deficiencies due to drought, stunting due to soybean cyst nematode combined with drought and the dreaded Charcoal Rot.

Charcoal Rot is a soil-borne disease that attacks susceptible plants as an infection through the roots following hot and dry soil conditions. This disease is often a ‘me too’ following on the heels of other diseases or where nematodes have already weakened host plants. Charcoal rot is difficult to diagnose early on, often plants just appear yellow and less vigorous in droughty areas in the field. With time, plants weaken and die in the worst infected areas and remain yellow and often produce no pods or flat, seedless pods in lesser infected locations. On dead, dried plants, charcoal gray fungal structures can be found just below the epidermis or skin of lower plant stems close to the soil line and inside taproots. There is no preventative treatment for this disease and rotation may not help since corn, cotton and grain sorghum are also host plants for charcoal rot. In years with adequate rainfall, charcoal rot will have little impact on the crop growing in the field. (Photo below courtesy of Jeff Via)



**Estimating Corn Yields:** It may be a little early, but I am including a simple method for estimating corn yields in the field. I would caution those who use formulas like this to use it only as an estimation of potential yield. One weakness of these estimates is that it is difficult to adjust for varying levels of drought stress and these formulas may not be as useful in a dry year.

$$\text{Yield (Bu/A)} = (\# \text{ of ears in } 1/1000^{\text{th}} \text{ of an acre}) \times (\text{Avg. \# of kernel rows/ear}) \\ \times (\text{Avg. \# of kernels/row}) \times (\text{Seed Weight Constant})$$

Tips: When counting total ears, count only harvestable ears that you are sure the combine can retrieve in 1/1000<sup>th</sup> of an acre, avoiding lodged ears. When estimating average number of kernel rows or kernels per row, don’t sample nubbins unless they truly represent what is in the field. Don’t count extreme tip end kernels. Count where there are complete rings of kernels around the cob. If kernel numbers per row are uneven, estimate an average value.

Length of row which represents 1/1000<sup>th</sup> of an acre:

20 inch rows: 26’2”

30 inch rows: 17’5”

36 inch rows: 14’6”

38 inch rows: 13’9”

(For other row spacings, divide 522.72 by distance in inches between rows)

Seed Weight Constant:

0.013= Good irrigated corn exposed to little stress

0.01116= Average standard value

0.009= Dryland corn subjected to greater stress

**Asian Soybean Rust Update.** Scattered reports are circulating about new ASR finds in the southeast. With the more abundant rainfall in Texas and Louisiana, pathologists continue to monitor the situation for increase in incidence or rate of spread. Louisiana has reported new finds in a sentinel plot in the SW part of the state (Acadia Parish) and in Rapides Parish (central state location) in a commercial field. Mississippi reported a rust find on kudzu in the SW corner of the state bordering Louisiana. Louisiana and parts of Mississippi and Texas continue to receive rainfall which improves the likelihood of disease spread to soybeans. Other states including Tennessee with dry conditions continue to scout soybean sentinel plots and monitor spore traps. At this time, all PCR results for soybeans in Tennessee have been negative for soybean rust. We will continue to scout and sample fields through August in the 17 locations across our state.

**Insect Issues (Scott Stewart, IPM Specialist)**

**Cotton.** The numbers of plant bugs and stink bugs being found can generally be characterized as low but slowly building. However, a few isolated fields have one or both at treatment levels. Tarnished plant bug populations in some fields along the Mississippi River are well over threshold and 1 or 2 applications have already been made in these hot spots.

Spider mite problems are still lingering. The test below was rated only four days after application so keep in mind that some treatments such as Acramite, Oberon and Zephyr will likely improve by the next rating. Kelthane has provided disappointing control in this trial thus far, and there have been recent reports of excellent to poor control with this product. Over the past few years, the performance of Kelthane becomes less consistent as the season progresses, even though it is usually the best early season miticide. The take home message is that Brigade (bifenthrin) is currently leading the test. There have also been other reports of good control with Brigade, Discipline, Fanfare or other bifenthrin products. I’ve also heard reports that dimethoate is performing “OK”, although it did not perform well in this trial. Thus, it appears we have hit the time of season when these insecticides begin working better (they often work poorly during early season). Because we are entering our primary stink bug, plant bug and bollworm window, bifenthrin will be an obvious choice when trying to control spider mites if these other pests are also present.

**Spider mite numbers four days after treatment (10 GPA, 30 PSI, FF 80015).**

Insecticide (rate per acre)	Mites per 5 leaves (10 square inches)
Brigade 2E (5 oz)	24.3 c
Acramite 4SC (16 oz)	34.8 c
Oberon 4SC (4 oz)	40.5 c
Kelthane 4E (32 oz)	55.5 bc
Zephyr 0.16E (4 oz)	56.3 bc
Dimethoate 4E (8 oz)	76.5 ab
Untreated check	107.8 a

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

Oversprays on Bt Cotton? I don't like the terminology because it is a sneaky way of saying automatic applications. Besides, every spray is an overspray. However, during late July and early August, many fields will require at least one insecticide application during a typical year. There may be several different pests in one field at the same time. This may include tobacco budworm in non-Bt cotton. But in Bollgard cotton --- bollworm, stink bugs (brown and green), tarnished plant bug and clouded plants bugs are the most common. Because pyrethroid insecticides are "so-so" on tarnished plant bugs and brown stink bugs, I often recommend a tank mix at this time of year. The key for maximizing profits is to time your "overspray(s)" based on scouting. Don't just spray because it is "that time of year". If you are too early or too late, you will not get the best bang for your buck.

Some of my favorite tank mix options for Bt cotton are listed below.

- Mid rate pyrethroid insecticide + 0.33 - 0.5 lb of Orthene or acephate
- Mid rate pyrethroid insecticide + 3 - 4 oz of Bidrin
- Mid rate pyrethroid insecticide + 6 - 8 oz of Dimethoate
- Mid rate pyrethroid insecticide + 6 - 8 oz of Vydate

Examples of mid pyrethroid rates are: Ammo (4 - 5 oz/a), Asana XL (8 oz/a), Baythroid (2 oz/a), Brigade or Discipline (4 - 5 oz/a), Karate (1.8 - 2.0 oz/a) and Mustang Max (3 - 3.25 oz/a). Other tank mix options include Diamond (4 - 6 oz/a) or Lorsban (12-16 oz/a).

AMVAC will also be introducing Bidrin XP during the next few weeks, which is a premix of dicotophos (Bidrin) and bifenthrin (Discipline). Bidrin XP at 4 oz per acre contains 0.25 lbs ai of Bidrin (= 4 oz) and 0.0625 lb ai of Discipline (= 4 oz). This is a good tank mix combination, and depending on the price, will get some use in Tennessee.

**Soybean.** There are a few fields with treatment level numbers of stink bugs (threshold = an average of 3<sup>+</sup> stink bugs per 25 sweeps in beans less than R6 in development). However, this is the exception and not the rule. Thus far, it has been a light stink bug year. Growers are encouraged NOT to automatically include an insecticide in with their fungicide application unless stink bugs or other pests are at treatment level. Save the insecticide for when it may be needed later in the season. Japanese beetles appear to be "cycling out" and no other insect problems are currently being reported.

White-Fringed Beetles? Yeah, I didn't know what they were either. However, we have been catching a few adults in many soybean fields. One field in Wayne County is heavily infested with adults and is suffering significant defoliation (thanks to Ken Burress and the University of Florida for the photos below).

This insect, particularly the larval stage, is famous as a sweet potato pest. The legless, grub-like larvae feed below ground on the roots on many plants. We were finding some larvae when digging up grape colaspis larvae earlier this year. It is now clear that larvae of the white-fringed beetle and grape colaspis were contributing to the stand loss being seen in some soybeans fields earlier this year. White-fringed beetles are difficult to control. If you have a problem with this pest, contact your local extension office for insecticide recommendations. You may find adults in other crops as well.



**White fringed beetle adult, larva and defoliation from adult feeding**

**Corn.** Southwestern corn borers (SWCB) are present at pretty high numbers in many fields, particularly in the northern counties. However, not all fields are equally affected. Our UT gang has been in fields with eggs and/or larvae on most plants. A few miles away, you have to look hard to find just a few SWCB despite relatively high moth catches. Many of the bigger larvae being found are beginning to tunnel into stalks, and most corn fields are approaching the dent stage. What does this mean? If you have not sprayed your non-Bt corn yet, you missed your best opportunity. An exception may be any unusually late corn that will remain susceptible as this egg lay continues. The good news - not all non-Bt fields are heavily infested.

It will be important to identify any fields with significant infestations of SWCB. These fields should be harvested as quickly as possible to minimize lodging problems and “ear drop” that may happen when ear shanks are tunneled.

**Area Report for Northwest Tennessee (Gene Miles, Area Crop Specialist, Week of July 16<sup>th</sup>).**

Most areas observed this week have some moisture remaining but rain is needed to keep crops in good growing conditions. More mature fields with selected plants that were at NAWF (nodes above white flower) = 6 for the past 3 consecutive weeks are at NAWF = 7 this week pointing out that sufficient moisture was available for plant growth. These same plants are averaging 17 nodes, 32 fruiting positions, with 87 percent total fruit retention.

Growth stages of cotton being monitored this week through Dyer and Lauderdale county IPM associations range from fields that are not yet blooming to NAWF = 5. NAWF equals five can be calculated by selecting twenty five representative plants and counting from the top node (with quarter size leaf) down till you reach the first position white flower. When the number of nodes averages 5 across the field, you have reached physiological cut out. Current research and demonstrations suggest that accumulating 350-450 heat units (DD60's) (approximately 21 days) is enough time for bolls to be protected against economic loss from bollworm/budworm, tarnished plant bugs and stink bugs.

Plant bugs are increasing this week with plant bug numbers ranging up to 10 per 6 row feet and/or 42/100 sweeps. Where stink bugs are also occurring, the rule of 1 stink bug is equal to 3 tarnished plant bugs is pushing some fields above the threshold level. Immature clouded plant bugs are also being noted. Stink bug numbers range up to 0.7 per 6 row feet. Some fields are being treated for combinations of stink bug, plant bugs and spider mites this week with recommended insecticides. Bollworm/budworm pressure is being observed at 1% damaged fruit in Bt cotton. Beneficial counts range up to 9.0 per 6 row feet.

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

The annual Ag Market Network Cotton Forum was held last week at the New York Board of Trade. A recording of the forum can be accessed at <http://www.agmarketnetwork.net/>. Click on [Recording of AMNCC - July 13, 2007](#). It is currently available.

The consensus of the speakers was that the December 07 cotton futures would find weakness and that the December 08 cotton futures would need to increase in order for 2008 cotton acreage to increase. Corn and soybeans for 2008 will be competing heavily for cotton ground. The cotton market according to one speaker would be based on the corn market.

The 2007 cotton market has been pushed higher by aggressive speculators over the last 2 months. During this time period, the world cotton fundamentals have changed very little. Speakers at the Forum concluded that the speculative bubble in the December 2007 cotton contract will burst; it is just a question of when. The panel agreed that current conditions strongly suggest fixing the 2007 market price in either the cash market or the options market.

With December 07 cotton trading around 66 cents/lb, a December 07 Put at a strike price of 66 cents (at the money) would cost 3.70 cents/lb. Out of the money strike prices would be cheaper. It would depend on the level of price protection you desired. Using the above 66 cent strike price and assuming a 6 cent basis would set a floor of 56.30 cents/lb (66 cent strike price – 3.70 cent put premium – 6 cent basis). Using a put option will allow you to set a floor and still keep the upside open. There are other strategies that will allow you to cheapen up the cost of the put option. However, producers should have a firm understanding of options before implementing any advance strategies. Please discuss the strategies with your broker and have a full understanding of the risks involved. Options have a place in most marketing plans, but should be understood before being used. The current market conditions appear to be set up for the use of put options. If prices decline, then the put option will increase in value allowing the purchaser to make money on the put which can be added to the cash price at harvest. If prices increase, then the put will expire worthless, but cash prices at harvest will be higher. When employing the basic strategy of purchasing a put option, the cost (premium) is known up front. This is also the maximum amount of money the producer would be out. If I can provide you with additional information on options, please give me a call at (731) 635 – 9551 or drop me an email at [scdanehower@utk.edu](mailto:scdanehower@utk.edu).

**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 7-18-07)**

<b>Trap Location</b>	<b>Tobacco Budworm</b>	<b>Corn Earworm (Bollworm)</b>	<b>Beet Armyworm</b>	<b>Southwestern Corn Borer</b>
Hardeman (Bolivar)	0	0	0	---
Fayette (Whiteville)	1	0	0	---
Fayette (Somerville)	0	0	---	0
Shelby (Millington)	7	50	5	---
Tipton (Covington)	0	0	0	---
Tipton (North)	28	0	---	0
Haywood (West)	0	0	0	---
Haywood (Brownsville)	4	0	---	---
Madison (North)	0	7	---	---
Madison (Exp. Stn.)	0	34	0	22
Crockett (Alamo)	0	2	0	0
Crockett (Maury City)	2	4	---	---
Dyer (Bogota)	0	0	0	---
Dyer (Newbern)	0	8	---	0
Lake (Ridgley)	0	6	0	---
Gibson (Kenton)	0	0	---	---
Gibson (Milan Exp Stn.)	1	0	0	24
Carroll (West)	0	0	0	---
Lauderdale (Goldust)	5	10	*	---

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

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

