

# IPM NEWSLETTER

## Update for Field Crops and Their Pests

<i>No. 15</i>	<i>July 3, 2008</i>
---------------	---------------------

Past newsletters and other information can be found at [UTCrops.com](http://UTCrops.com)

Bookmarks: [Cotton progress](#) [Insect control](#) [Weed control](#) [Corn and soybean updates](#) [Moth traps](#)

### 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. 34% of the crop is squaring compared to 10% last week, 81% last year and 71% for the five year average. Cotton planted in April has begun to bloom early this week. Have your scouts begin to check for excessive vegetative growth (>2 inches between the most recently expanded internode) to determine the need for a plant growth regulator.

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

Location	4/20-7/3	4/27-7/3	5/4-7/3	5/11- 7/3	5/18-7/3	5/25-7/3	6/1-7/3
<b>Dyersburg</b>	944	899	876	839	820	740	628
<b>Fayetteville</b>	956	899	868	814	796	716	610
<b>Jackson</b>	885	837	815	772	752	683	579
<b>Memphis</b>	1084	1015	988	930	894	797	672

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

**Cotton.** I will be mostly unavailable from July 7 - July 17 so I am taking up more space this week. Tarnished plant bugs remain the only widespread problem in cotton, but clouded plant bugs are also showing up in spots. Plant bug pressure is still fast and furious in spots, and spider mite populations are being flared by all the applications for plant bugs in some areas. I hope and expect that our plant bug problems will taper off as blooming begins and we will go back to a more typical year. Don't forget to stay on top of stink bugs in cotton once bolls begin to develop. Once blooming begins, we should generally make the switch to our traditional chemistries (OPs, carbamates, pyrethroids). Products like Orthene/Acephate (0.5-0.67 lb/a), Bidrin (5-8 oz/a) and Vydate (12 oz/a) do a consistent job of controlling plant bugs and stink bugs. I also like to use these same products at somewhat lower rates in a tank mix with pyrethroid insecticides. Diamond (4 oz/a), Dimethoate (6 oz/a) and Lorsban (8-12 oz/a) are also potential tank mix partners with pyrethroid insecticides. These tank mixes are especially useful if bollworms are "in the mix". There are also some premix products that have a potential fit including Bidrin XP (5-6.4 oz/a), Brigadier (5.1-7.7 oz/a), Cobalt (24-38 oz/a), Endigo (4-5 oz/acre) and Leverage (3.8-5.0 oz/a). These products have a pyrethroid mixed with either an OP insecticide (e.g., Bidrin XP, Cobalt) or a neonicotinoid insecticide (e.g., Brigadier, Endigo, Leverage). We used neonic's (e.g., Trimax and Centric) extensively prior to bloom, so I have some misgivings about using the same chemistry as premixes in the form of Brigadier, Endigo and Leverage.

**Area Cotton Report for Northwest Tennessee (Gene Miles, Area Crop Specialist).** Lack of moisture is becoming a major production problem in the area. Cotton fields monitored through the Dyer and Lauderdale County IPM programs range from the 8<sup>th</sup> node to the 11<sup>th</sup> node growth stage. More mature plants in the Delta area this week have reached 30 inches in height, have 8 first position squares and 14 nodes. It normally takes approximately three days for squares to be added to a plant from a lower to a higher fruiting branch. It normally takes approximately 6 days to add a square from a 1<sup>st</sup> position to a 2<sup>nd</sup> position, etc on the same fruiting branch. Plant bug numbers this week range up to 0.4 per 6 row feet and/or 38/100 sweeps. Square retention ranges from 83-100% this week. Spider mites are being noted as heavy in spots and are being treated. White blooms have been observed this week in more mature cotton planted May 6. After first bloom, the plant bug threshold increases to 4 or more per 6 row feet or 16-20/100 sweeps. Also after first bloom, count clouded plant bugs as equivalent to 1.5 tarnished plant bugs when determining if plant bug populations are above treatment level. Beneficial counts this week range up to 6.0 per 6 row feet.

**Soybean Management With High Commodity Prices.** One of my colleagues interpreted the comments below as spray, spray, spray. Read closer if you are getting that message. With the bushel price of soybeans being two or more times higher than normal, it is obvious that we should be more concerned about insect damage, but the most important thing to be “aggressive” about is scouting. Keep in mind that expenses have increased along with the price of beans, and many insect treatment thresholds were set when expenses were relatively low. Many soybean fields will benefit by the application of at least one well-timed foliar insecticide application. Some fields may not require insecticide and others may require several applications. My observation is that many fields get these applications but they often miss the target. Timing applications is very important, so monitoring pest populations is necessary to maximize yield and profit. The most important factors in making a turning a 50-60 bushel crop is water, soil quality and fertility, and variety selection. Fungicides and insecticides only protect yield potential. Have realistic expectations. Below are some questions for consideration.

*How does maturity/planting date affect IPM?* Late maturing soybeans typically face the toughest insect pressure. There will be several generations of stink bugs by August and September and late maturing fields are an oasis for insects because alternative crops are maturing. This is also true for some other pests. Soybean loopers traditionally don't show up in treatable numbers until late August and early September. To make a long story short, be most aware of insect problems in late planted fields. (*soybean looper pictured right*)



*What are the most likely pests to affect yield?* The truth is there are many insects that may reduce yield. Fortunately, only a few species cause consistent and widespread losses. Stink bugs are the number one pest of soybeans in Tennessee. Defoliating caterpillars, especially in years when soybean loopers show up, are also a common problem in later maturing fields. Be aware that previous applications of pyrethroid insecticides can flare soybean looper populations (particularly on late maturing beans). Threecornered alfalfa hoppers (TCAH) are more common than usual this year. They cause problems on plants less than 8-10 inches tall by girdling the main stem, and lodging often occurs later in the season. TCAH girdle pod stems and leaf petioles in taller soybeans. They are difficult to scout in seedling beans but a sweep net works pretty well once plants get some



size. In beans larger than 10-12 inches, UT's current recommendation is to treat when you find an average of one TCAH per sweep (100 per 100 sweeps). With current prices, I would consider treating fields once they start blooming at populations as low as 60-70 TCAH per 100 sweeps in fields. Insecticides that work well for stink bugs also give decent control of hoppers with the exception of methyl parathion. (*threecornered alfalfa hopper pictured above right*)

*Should I reduce insect treatment thresholds?* Generally not, but it depends on the insect and the threshold. Many of our thresholds are conservative meaning it is unlikely you will improve yields by treating when populations are below the current threshold. However, it makes sense to be more aggressive in managing some pests when prices are better. The pod feeders come to mind. Corn earworm (i.e., bollworm) is not a common problem in Tennessee. They like wide row beans, and we don't have many of those. However, they can devastate a field. Most states recommend treating when you catch an average of 15 corn earworm larvae per 25 sweeps (which is equivalent to 4 per foot of row). Because this pest feeds directly on pods, it would be hard to argue with reducing this threshold to 10 larvae per 25 sweeps given the market prices. Our early threshold for stink bugs from R1-R5.5 is 12 per 100 sweeps. After R5.5, most states recommend treating for stink bugs when populations average 36 per 100 sweeps. Several states use this higher threshold the entire season (with supporting data). Do not "cut" the early season threshold for stink bugs because it, if anything, is too aggressive. If you reduce this already low threshold, there is a good chance you will make extra applications without reward. However, reducing the stink bug threshold after R5 is worth discussion. You still run the risk of making an unnecessary spray, but dropping the threshold to 28-32 stink bugs per 100 sweeps from R5-R6 is not unreasonable. (*immature brown stink bug pictured above right*)



*Should I "piggyback" insecticide applications with fungicide (or make scheduled applications based on growth stage)?* After stands are established, soybeans are most susceptible to insect pests from R3-R6, when pods are filling. So fungicide applications coincide with an insect-susceptible stage in plant development. But this does not mean insect pests will be present at treatable numbers. For example, my experience is that R3 is a generally poor time to spray for stink bugs. The right answer to this question is ... use reliable scouting data to determine if adding insecticide in the tank is justified. The point of scouting and IPM is to maintain yield potential with the lowest possible number of insecticide applications (= maximize profit). The first step in IPM is scouting at least every 7-10 days. Scouting should improve the timing and value of sprays. So what if you are not monitoring insect populations? You're asking for it, but having said that, maybe a blind shot in the dark is better than no shot at all.

New Insecticide Labels for Soybean. Bifenthrin in the form of Brigade 2EC has just received a label for use in soybean. This is a nice addition because bifenthrin tends to have a little more "bug" activity than other pyrethroids including better activity on brown stink bugs. I expect bifenthrin to become a big player in soybeans if the price is competitive. Some of the premixed insecticides labeled for cotton are also labeled on soybean. These include Brigadier, Cobalt and Leverage. Brigadier also contains bifenthrin. Another recently labeled premix of two pyrethroid insecticides is Hero containing bifenthrin (Brigade) and zeta-cypermethrin (Mustang Max).

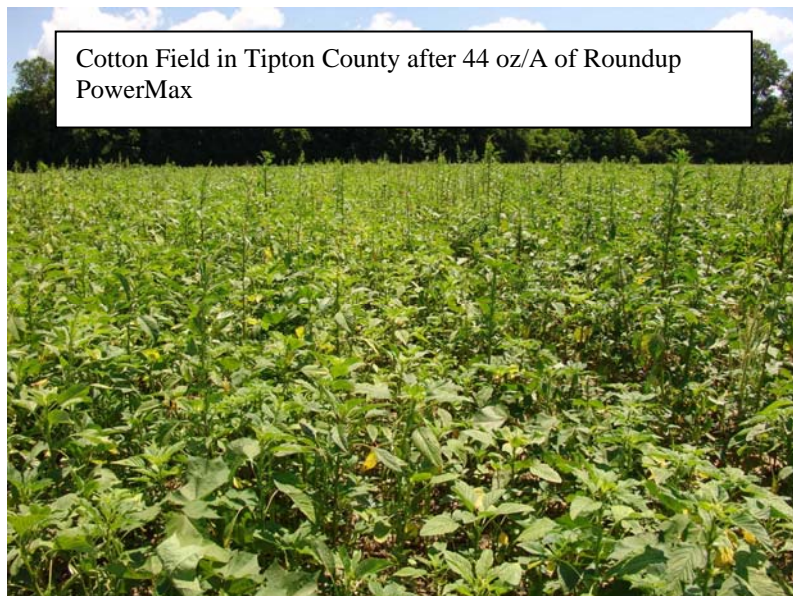
**Corn.** Based on previous experience and this year's moth traps, expect the second flight of southwestern corn borers (SWCB) to be starting to peak by July 10-15. This should be a good sized flight, particularly in areas with a fair amount of non-Bt corn. We are seeing indications that the second generation is already kicking off in some spots (see appended moth trap data). Watch the moth

trap catches in the next two weeks. I've discussed SWCB a lot in the previous weeks and years. Be advised that some fields will benefit from a well timed insecticide application timed to coincide with peaking trap catches. This is especially true for relatively late maturing non-Bt fields in areas where lots of moths were caught during the first generation. Pyrethroid insecticides provide decent short term control, but Intrepid (4-6 oz/a) provides considerably longer residual and is generally the material of choice. (SWCB eggs pictured right)

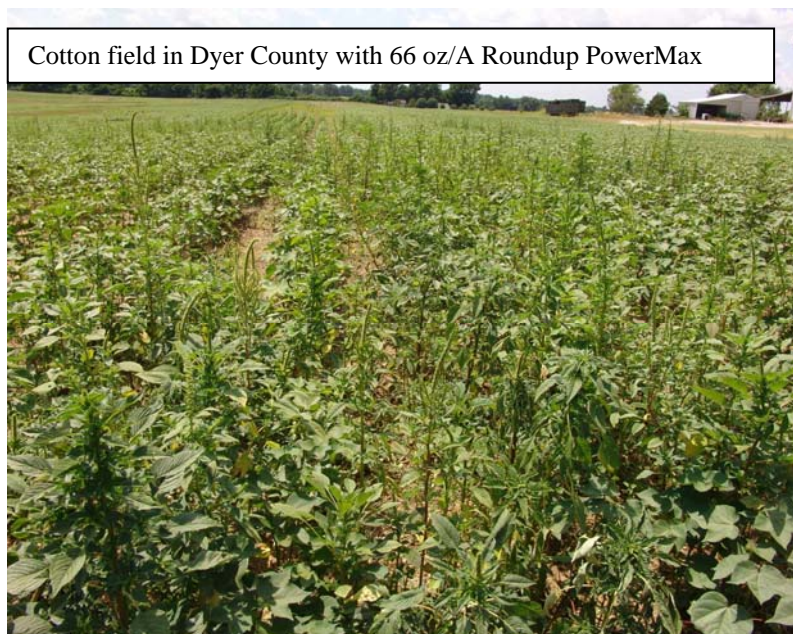


**Glyphosate Resistant Palmer Amaranth, Larry Steckel (Weed Specialist) and Lucas Owen (Graduate Research Assistant).**

By far and away the most frequent call of the last 20 days has been Palmer amaranth escapes of glyphosate. From field observations it appears that we have glyphosate-resistant (GR) Palmer amaranth becoming established in many fields in West Tennessee. We have found GR Palmer amaranth in Crockett, Lake, Lauderdale, Dyer, Tipton, Haywood, Gibson and Obion counties. Fortunately, in most cases the GR Palmer has been isolated to small pockets or scattered plants that will not be a big drawback on yield this year. On the other hand, GR Palmer has come close to completely over running a couple of fields this spring (pictured right). In order to limit the number of fields this happens to in 2009 we need to rethink our late weed control strategy, particularly in cotton.



**Post Direct and Layby Options.** It is evident that where the resistant pigweeds are they plan to stay. Therefore, we should re-examine our way of thinking. Many producers have merged into the Flex cotton varieties with hopes of never getting out the hooded sprayers again. The weeds, however, don't seem to be cooperating with that plan. Some fields have already seen the hoods this year, but frequently producers are using glyphosate alone. In cotton, there are many herbicides that we can utilize to make that hooded application more effective. It is a good idea to put something in the tank that will have good residual for those escaped glyphosate resistant weeds. Some things to consider are Valor @ 1.5 to 2 oz/ac, Dual @ 1pt/ac, Caparol @ 1 qt/ac, and Reflex @ 1 pt/ac.



In particular, the Reflex and Valor will take down Palmer pigweeds under the hood and provide you

with some residual to suppress subsequent flushes that we may get later on. We should advise you though that these products can be pretty hot, so you need at least 4 in. of bark on your cotton and drive carefully. The following are some thoughts on specific post direct applications:

**Reflex 16 oz/A or Valor 1.5 to 2 oz/A + MSMA 2.67 pt/A or Glyphosate 0.75 lbs ae/A** – Cotton should have 4” of bark to reduce chances of cotton stem injury.

- Advantages: Good residual pigweed control. Reflex and Valor can burndown pigweeds less than 6” tall.
- Considerations: MSMA should be the tank-mix of choice with either Reflex or Valor in fields where GR Palmer is present. Sloppy post-direct of Reflex or Valor will burn cotton leaves.

**Suprend 1.25 lbs/A** – Equivalent to 32 oz/A of Caparol + 0.15 oz/A Envoke. Add 1% crop oil for better control.

- Advantages: Good control of many grasses and broadleaves including pigweeds and morningglories. Caparol is one of the better residual herbicides for pigweeds. This premix in our research has controlled small horseweeds.
- Considerations: This premix can be weak on grasses. The addition of MSMA 2.67 pt/A of 6L formulation or glyphosate at 0.75 lb ae/A will control grasses.

**Caparol 32 oz/A + MSMA 2.67 pt/A or Glyphosate 0.75 lbs ae/A** – Cotton must be at least 6” tall.

- Advantages: Economical. The Caparol + MSMA mixture has taken out some GR Palmer this year. Caparol will provide good residual control of pigweed and horseweed.
- Considerations: Caparol and MSMA or glyphosate tank mixtures need good agitation to stay in suspension.

**Ignite 280 29 oz/A** – Cotton must be at least 6” tall.

- Advantages: Ignite can control tall horseweed and giant ragweed. Good control of many broadleaf weeds including morningglories.
- Considerations: Some regrowth of large Palmer pigweeds can happen. Aim may be tank mixed with Ignite to improve burndown of large pigweeds. Ignite will offer no residual control. Caparol may be tank mixed with Ignite to provide residual pigweed control.

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

- Advantages: Good control of many grasses and broadleaves including pigweeds and morningglories. This premix will provide some residual pigweed control.
- Considerations: This premix can be weak on grasses. The addition of MSMA 2.67 pt/A of 6L formulation or glyphosate at 0.75 lb ae/A will control grasses.

**Direx 12 oz/A + MSMA 2.67 pt/A or Glyphosate 0.75 lbs ae/A** – Direx + glyphosate has been the most popular post direct application in Tennessee.

- Advantages: Economical.
- Considerations: MSMA should be substituted for glyphosate when the field is infested with GR Palmer amaranth. Direx will provide only limited residual control of Palmer amaranth and horseweed.

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

The planted acreage estimates are out for corn and soybeans showing that we are about where expected on corn while soybean acres increased compared to previous years. We still have a few soybean fields to plant, but June planting reports show about 640,000 acres of corn were planted for grain and about 1.4 million acres of soybeans (increase of about 200,000 acres from previous highest production). Almost 45% of our soybean crop was double cropped and probably another 20% of our full season beans were planted in June.

**Corn irrigation.** Roughly 40% of the corn crop is tasseling/silking right now- almost 10 days behind the development we had in 2007. With the dry weather and winds we have had for the past few weeks, weak areas in fields are showing up and rolling leaves is a pretty common sight after mid morning. As a protective measure, corn plants will roll their leaves during high heat and/or soil moisture stress in order to slow down moisture loss from leaf surfaces. But, it is a visible reminder that the corn crop needs water, particularly in weaker fields. Irrigation rigs are running around the clock right now. To be successful, corn should be irrigated on time with adequate amounts of water needed for specific growth stages in order to maximize yield. Water use is highest at tasseling and pollination into the milk stage of kernel development. To be effective in a dry year, irrigation must be maintained until physiological maturity or 'black layer' formation (**about 55-65 days after silking**).

<b>Stage of Corn Development</b>	<b>Approximate Time at Growth Stage</b>	<b>Water Use Rate (inches per day)</b>
<b>Vegetative</b>		<b>0.1</b>
<b>Tassel Emergence</b>		<b>0.25</b>
<b>Silking; Pollen shed</b>	<b>7-10 days</b>	<b>0.33</b>
<b>Blister</b>	<b>10-14 days after silking</b>	<b>0.25</b>
<b>Milk</b>	<b>18-22 days after silking</b>	<b>0.20 to 0.25</b>
<b>Dent</b>	<b>32-45 days after silking</b>	<b>0.20</b>
<b>Full Dent</b>		<b>&lt;0.1</b>

**Corn fungicides.** With the dry weather, disease development has been very slow with Gray Leaf Spot either nonexistent or generally at very low levels. Some corn has been sprayed with a fungicide and more may go this week. With the dry conditions, it is more critical to question whether a fungicide application is needed or will pay for itself. The prevailing feeling in industry is that we will not have enough fungicide to treat every acre of corn and soybeans due to increased demand in other crops. Unfortunately, UT does not have the capacity to screen all County Standardized corn entries for response to fungicide as we do in soybeans and our data on non-irrigated corn is limited to 2007. Results were less than exciting over 22 early hybrids that were planted after corn. We averaged about 3 bushels/acre more with a fungicide where drought stress was moderate before tassel emergence and during ear fill. Where conditions were even drier, hybrid yields were not increased on average. My best advice is to spray where you are most likely to get a return on your investment. Even with attractive corn prices, pricier inputs have eroded good profits and I would hate to nickel and dime away my profit chasing after an additional bushel of yield.

- Spray corn that is fully tasseled vs. too early
- Target corn after corn
- Treat irrigated corn vs. dryland
- Target hybrids susceptible to Gray Leaf Spot or ones that seed company data indicates will respond to a fungicide application under dryland conditions

- DO NOT add insecticide to fungicide applications made right now!! Moth counts are too low (Scott suspects about July11-15th for another SWCB peak).

**Table 1. Strobilurin containing fungicides labeled for Use in Both Corn and Soybeans.**

<b>Product</b>	<b>Suggested Rate</b>	<b>Additives??</b>	<b>UT Comments on Use</b>
<b><u>Quilt</u></b> (apply to tasseling corn) (21 day PHI soybean)	<b>14 oz/Acre</b>	Performance improves with NIS at 1 Qt/100 gal OR Crop Oil at 1 gallon/100 gal; caution on EC pesticide tank mixes	15-20 GPA on corn by ground; at least 10 GPA on soybean by ground; 5 GPA by air
<b><u>Quadris</u></b> (apply to tasseling corn) (14 day PHI soybean)	<b>6.0 oz/Acre</b>	Performance improves with NIS at 1 Qt/100 gal OR Crop Oil at 1 gallon/100 gal; caution on EC pesticide tank mixes	15-20 GPA on corn by ground; at least 10 GPA on soybean by ground; 5 GPA by air
<b><u>Headline</u></b> (apply at full tassel up to blister corn) (21 day PHI soybean)	<b>6.0 oz/Acre</b>	Enhance performance with NIS at 1 Qt/100 gal or 0.5 pt/acre Crop Oil; for <5 GPA aerial use Crop Oil at 0.5 to 1 pint/acre	15-20 GPA on corn by ground; at least 10 GPA on soybean by ground; 5 GPA by air
<b><u>Stratego</u></b> (apply at tasseling through silking corn) (21 day PHI soybean)	<b>10 oz/Acre</b>	Performance can improve with NIS at 1 Qt/100 gal; Do not use Crop Oil adjuvant	15-20 GPA on corn by ground; at least 10 GPA on soybean by ground; 5 GPA by air

**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 9, Ending 7-03-08)**

Trap Location	Tobacco Budworm	Corn Earworm (Bollworm)	Beet Armyworm	Trap Location	Southwestern Corn Borer
Hardeman (Bolivar)	0	1	0	Fayette (Whiteville)	0
Fayette (Whiteville)	2	0	---	Tipton (Covington)	0
Fayette (Somerville)	0	0	0	Madison (Exp. Stn.)	0
Shelby (Millington)	8	0	0	Gibson (Exp. Stn.)	0
Tipton (Covington)	5	3	---	Dyer (Newbern)	0
Tipton (North)	4	0	0	Dyer (Samaria Rd)	87
Haywood (West)	6	2	0	Dyer (Fuller Rd)	1
Haywood (Brownsville)	0	1	0	Dyer (Welch Rd)	0
Madison (North)	2	25	0	Obion (Central)	7
Madison (Exp. Stn.)	8	8	---	Obion (Northeast)	2
Crockett (Alamo)	0	1	0	Gibson (Sims north)	1
Crockett (Maury City)	8	7	---	Gibson (Sims south)	7
Dyer (Bogota)	0	0	0	Gibson (King)	0
Dyer (Newbern)	0	0	---	Gibson (Idlewild)	0
Lake (Ridgley)	3	73	5	Gibson (Race Track)	38
Gibson (Kenton)	0	3	0	Gibson (Gibson)	93
Gibson (Exp. Stn.)	2	0	0	Lake (Hoecke)	1
Carroll (West)	*	2	0	Lake (Isom)	2
Lauderdale (Goldust)	3	1	5	Weakley (South)	86
				Weakley (North)	9
				Haywood (Hwy 19)	4

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

The Agricultural Extension Service offers its programs to all eligible persons regardless of race, color, national origin, sex religion, disability or veteran status and is an Equal Opportunity Employer. COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS. The University of Tennessee Institute of Agriculture, U.S. Department of Agriculture and county governments cooperating in furtherance of Acts of May 8 and June 30, 1914. Agricultural Extension Service, Charles Goan, Acting Dean.

**DISCLAIMER STATEMENT**

This publication contains pesticide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. The label takes precedence over the recommendations found in this publication. Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others which may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product. The author(s), The University of Tennessee, The Institute of Agriculture and the University of Tennessee Extension assume no liability resulting from the use of these recommendations.

Scott D. Stewart (editor)  
Extension IPM Specialist

