



## *Cotton Insect Newsletter*

Volume 2, Issue #11

Edisto Research & Education Center in Blackville, SC

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### Crop Situation

The USDA NASS South Carolina Statistical Office had our progress at 66% squaring for 15 July 2007, behind the 5-yr average of 77%. As of the same date, 10% of the crop is setting bolls, behind the 5-yr average of 22%. About 6% of the state's cotton crop was reported to be in excellent condition. The remainder was reported as 57% good, 29% fair, 8% poor, and 0% very poor. These are observed/perceived state-wide averages.

### News from Above the Lakes

No news to report this week. This is your turn for input – email your comments and observations to me.

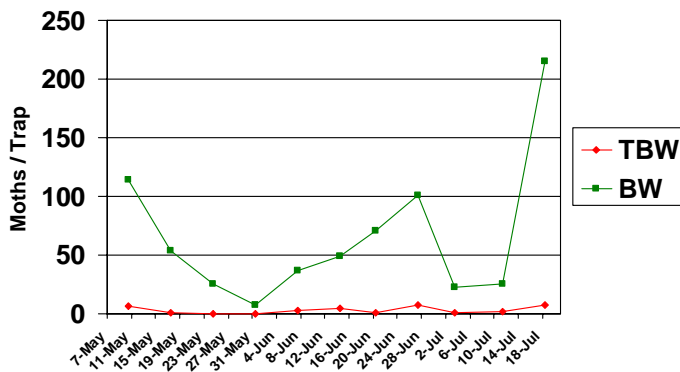
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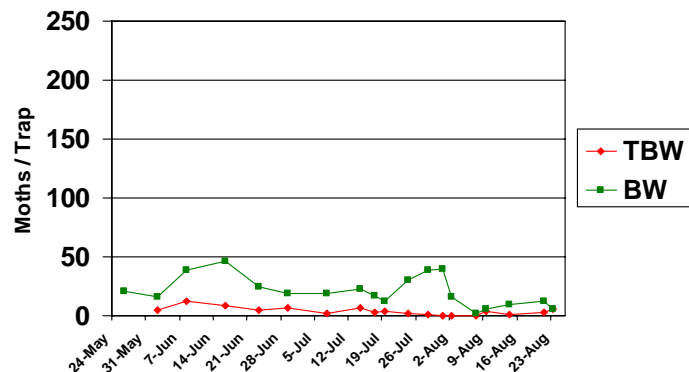
### Tobacco Budworm & Bollworm

Captures of adult tobacco budworm and bollworm in pheromone traps at EREC for this season and last season are pictured below. We detected an increase in tobacco budworm moths and large increases in bollworm moth captures this past week. The scales on the 2007 and 2006 charts are the same and demonstrate how much larger our bollworm numbers are this year compared with last year. The numbers from this past week are more than four times our highest weekly capture all of last year.

**Pheromone Trap Capture (EREC - 2007)**



**Pheromone Trap Capture (EREC - 2006)**



Bollworm eggs are becoming more numerous in cotton this week. I saw numerous eggs (ca. 20+ per 100 plants) and a few small bollworms in some cotton yesterday. This morning I observed almost an egg per plant in other cotton plots. Much non-Bt cotton will likely need a pyrethroid application this week, but check fields to be sure. Fields of Bollgard cotton (1<sup>st</sup> generation Bt) will likely be ok unless egg counts are approaching 75+

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per 100 plants. Bollgard 2 and WideStrike (2<sup>nd</sup> generation Bt) should be ok regardless of egg numbers. Check for square and boll injury from caterpillars and for larger escaped worms before treating Bollgard 2 and WideStrike for bollworm. Recommended thresholds for bollworm and tobacco budworm are shown below.

### Quick Thresholds for Bollworm and Tobacco Budworm in Cotton for South Carolina

Insect	Number per unit
Bollworm (BW) <i>1<sup>st</sup> generation Bt cotton</i>	>1 <sup>st</sup> bloom: 75 eggs, 30 small (<0.25 inch) or 3 larger (>0.25 inch) larvae per 100 plants, or 5% damaged bolls
Bollworm <i>2<sup>nd</sup> generation Bt cotton</i>	No threshold using eggs or small larvae; >1 <sup>st</sup> bloom: 3 or more larger (>0.25 inch) larvae per 100 plants or 5% damaged bolls
Bollworm <i>Non-Bt cotton</i>	>1 <sup>st</sup> bloom: 20 or more eggs or 3 small (<0.25 inch) larvae per 100 plants or 5% damaged squares
Tobacco budworm (TBW) <i>Non-Bt cotton only – not found in Bt cotton</i>	<1 <sup>st</sup> bloom: 15 small (<0.25 inch) larvae per 100 plants or 20% damaged squares; >1 <sup>st</sup> bloom: 20 eggs or 3 small larvae per 100 plants or 5% damaged squares

#### BOLLWORM INSECTICIDES

Product (pyrethroids)	Product/acre	Lb ai/acre	Acre/gal	REI	PHI	Comments
bifenthrin (R) Capture 2 EC Discipline 2 EC Brigade 2 EC Fanfare 2 EC	2.6-6.4 oz 2.6-6.4 oz 2.6-6.4 oz 2.6-6.4 oz	0.04-0.1	20-50 20-50 20-50 20-50	12 hr	14 d	Control of spider mites at high rates
cyfluthrin (R) Baythroid 2 EC	1.6-2.6 oz	0.025-0.04	49-80	12 hr	0 d	
beta-cyfluthrin (R) Baythroid XL 1 EC	1.6-2.6 oz	0.0125-0.02	49-80	12 hr	0 d	
lambda-cyhalothrin (R) Karate Z 2.08 CS Karate 1 EC Silencer 1 EC	1.6-2.56 oz 3.2-5.12 oz 3.2-5.12 oz	0.025-0.04	50-80 25-40 25-40	24 hr	21 d	
cypermethrin (R) Ammo 2.5 EC	2-5 oz	0.04-0.1	25-64	12 hr	14 d	
deltamethrin (R) Decis 1.5 EC	1.6-2.6 oz	0.019-0.03	50-80	12 hr	21 d	
esfenvalerate (R) Asana XL 0.66 EC	5.8-9.6 oz	0.03-0.05	13-22	12 hr	21 d	
gamma-cyhalothrin (R) Prolex 1.25 CS	1.28-2.05 oz	0.0125-0.02	63-100	24 hr	21 d	
zeta-cypermethrin (R) Mustang Max 0.8 EC	2.64-4.0 oz	0.0165-0.025	32-48	12 hr	14 d	

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**BOLLWORM INSECTICIDES (Cont.)**

Product (non-pyrethroids)	Product/acre	Lb ai/acre	Acre/gal	REI	PHI	Comments
novaluron Diamond 0.83 EC	12-14 oz	0.078-0.09	9.1-10.6	12 hr	30 d	Apply at egg hatch
thiodicarb (R) Larvin 3.2 F	1.75-2.25 pt	0.7-0.9	3.5-4.6	48 hr	28 d	Acts as ovicide also
indoxacarb Steward 1.25 EC or SC	11.3 oz	0.11	11.5	12 hr	14 d	
spinosad Tracer 4 SC	2.14-2.9 oz	0.067-0.09	44-60	4 hr	28 d	
emamectin benzoate (R) Denim 0.16 EC	8-12 oz	0.01-0.015	10.7-16	48 hr	21 d	Spider mite suppression
methomyl (R) Lannate 2.4 LV	1.5-2.25 pt	0.45-0.675	3.5-5.3	72 hr	15 d	May redden leaves
profenofos (R) Curacron 8 E	12-16 oz	0.75-1.0	8-10.7	48 hr	14 d	

To reduce selection pressure for resistance in tobacco budworm and bollworm, avoid using pyrethroid insecticides before 1 July, unless infestations are extremely high. In transgenic cotton varieties that contain the *Bt* endotoxin(s), an insecticide treatment should not be needed before first bloom. During July and AFTER FIRST BLOOM, in *Bt* cotton that has not been previously treated, apply an insecticide when 75 eggs or 30 small (<0.25 inch) worms are found per 100 plants. Transgenic varieties that have two endotoxins (BGII and WideStrike) have increased efficacies against bollworms, so there will be no need to use thresholds based on eggs or small worms. To control escaped worms in *Bt* cotton, an insecticide treatment should be applied when 3 or more larger (>0.25 inch) worms are found per 100 plants, or 5% of small bolls are damaged. Entire plants should be examined for eggs, and on each plant a scout should examine a white bloom, a pink bloom, and the two smallest bolls. If dried blooms (bloom tags) adhere to small bolls, remove them and look for larvae boring into the boll tips. AFTER FIRST BLOOM, in non-*Bt* cotton that has not been previously treated, apply an initial insecticide treatment when 20 eggs or 3 small larvae are found per 100 plants or at 5% damaged squares. Two treatments might be required to control bollworms following the initial moth flight in July. AFTER MID-AUGUST, consider the maturity of the crop in determining the need for a treatment. For example, 3 small worms or 5% damaged squares may still be an applicable threshold in late-maturing cotton (early- to mid-bloom stage of development), but this infestation level could be tolerated in cotton that is nearing cutout, where most bolls are too mature to be damaged by heliothines.

Varieties containing *Bt* endotoxin will provide excellent control of tobacco budworm. Insecticides listed for tobacco budworm will provide effective alternatives to the pyrethroids for early- to late-season control where there have been control failures, and for use in resistance management. Steward and Tracer will conserve beneficial insects and spiders. Larvin, Tracer and all of the pyrethroids have activity on eggs of bollworm/tobacco budworm. When treatments are applied using an egg threshold, some eggs will be killed prior to larval emergence. Steward has low ovicidal activity, but when applied to eggs in the blackhead stage, larvae may be killed soon after emergence from consuming the eggshells. BEFORE FIRST BLOOM, in cotton varieties that do not contain the *Bt* endotoxin(s), treat when 15 small (<0.25 inch) larvae are found per 100 plant terminals, or 20% of squares are damaged. AFTER FIRST BLOOM, in non-*Bt* cotton, insecticide should be applied at 20 or more eggs, 3 small larvae, or 5% damaged squares per 100 plants.



**BUDWORM (TOBACCO BUDWORM) INSECTICIDES**

Product	Product/acre	Lb ai/acre	Acre/gal	REI	PHI	Comments
<i>Bt</i> Cotton	-	-	-	-	-	
spinosad Tracer 4 SC	2.14-2.9 oz	0.067-0.09	44-60	4 hr	28 d	
indoxacarb Steward 1.25 EC or SC	11.3 oz	0.11	11.5	12 hr	14 d	
thiodicarb (R) Larvin 3.2 F	1.75-2.25 pt	0.7-0.9	3.5-4.6	48 hr	28 d	
novaluron Diamond 0.83 EC	12-14 oz	0.078-0.09	9.1-10.6	12 hr	30 d	Apply at egg hatch
methomyl (R) Lannate 2.4 LV	1.5-2.25 pt	0.45-0.675	3.5-5.3	72 hr	15 d	May redden leaves
profenofos (R) Curacron 8 E	12-16 oz	0.75-1.0	8-10.7	48 hr	14 d	
emamectin benzoate (R) Denim 0.16 EC	8-12 oz	0.01-0.015	10.7-16	48 hr	21 d	Spider mite suppression

**Stink Bugs**

We will cover stink bugs in more detail next week. As cotton approaches the 3<sup>rd</sup> through 5<sup>th</sup> weeks of bloom, we should be particularly concerned about injury from stink bugs.

**Printed Cotton Insect Recommendations**

Copies of “Cotton Insect Management” (IC 97) recommendations are available at your local county office. You can visit the following website for an electronic version of the recommendations:

<http://www.clemson.edu/psapublishing/pages/ENTOM/IC97.PDF>

**Need More Information?**

Log on to the following webpages to view important cotton management recommendations, data, and historical cotton insect newsletters:

<http://www.clemson.edu/edisto/cotton/cotton.htm>

<http://www.clemson.edu/scg/ipm/cotton.html>

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