Cotton Insect Newsletter

Letter #16 **Edisto Research & Education Center in Blackville, SC** **18 August 2006**

Newsletter Archives

Previous newsletters for 2006 are archived at http://www.clemson.edu/edisto/cotton/cotton.htm. Please distribute hard copies or electronic newsletter files to all interested, and please provide weekly input for the newsletter. Your observations and local knowledge are important – email or phone in your comments to me!

Jeremy Greene
greene4@clemson.edu
803-284-3343

Crop Situation

On 13 August 2006, the USDA NASS South Carolina Statistical Office reported our progress as 99% squared, equal to the 5-yr average of 99%. About 79% of the crop is setting bolls, just ahead of the 5-yr average of 77%. About 2% of the crop has open bolls, behind the 5-yr average of 4%. About 2% of the state's cotton crop was reported to be in excellent condition. The remainder was reported as 37% good (up from 28% last week), 43% fair, 17% poor, and 1% very poor. These are observed/perceived state-wide averages.

Many areas received good rain last weekend, especially in the southern part of the state. Most of Aiken and Barnwell Counties had inches of rain! We had 3.5 inches of rain here at EREC last weekend.

News from Above the Lakes

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

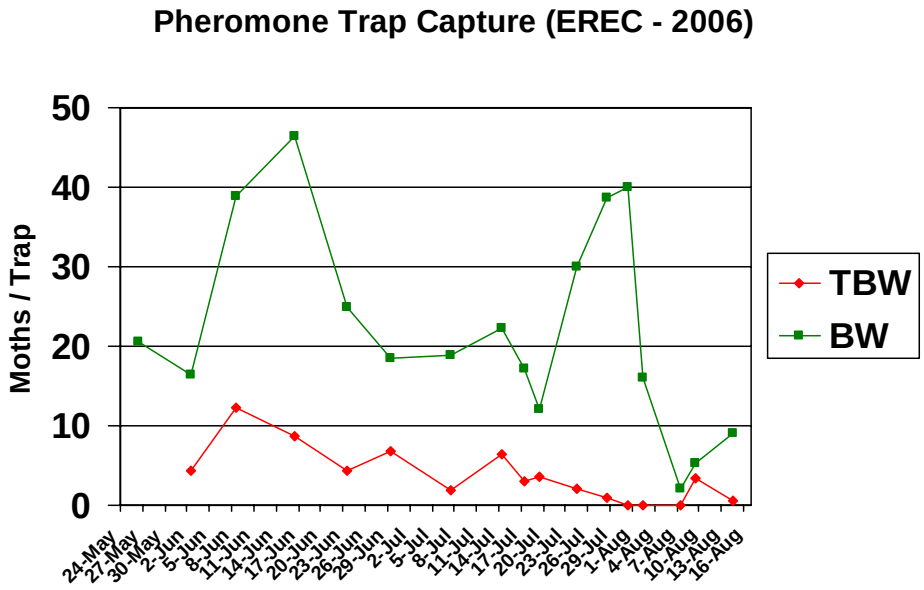
News from Below the Lakes

Dr. Mike Sullivan reported that it remains quiet in cotton he is checking. He is going to check again next week to determine if his cotton needs a final application for insects (primarily sucking bugs).

Carl Sanders, consultant, reported that he is seeing reduced numbers of bollworm eggs but that aphids are building again and spider mites continue to be a problem in spots. He did report that he was getting good control of spider mites with a pint of chlorpyrifos (Lorsban 4E, Nufos 4E, and Chlorpyrifos 4E). If he has to treat again next week for bollworms and stink bugs with a little spider mites in the mix, he will likely use a pyrethroid plus the chlorpyrifos.

Tobacco Budworm & Bollworm

Trap captures at the Edisto Research & Education Center (EREC) near Blackville, SC, are shown below through 14 August 2006. Sustained pressure from bollworm for most of July at EREC is depicted in the chart. After the peak near the end of July and beginning of August, our captures dropped off. Our latest captures indicate increasing moth activity.



Terminating Insecticide Sprays

When is it appropriate to quit spraying for insects in cotton? What "rules" do you use to make that decision? The decision to terminate insecticide use in cotton fields can be made differently by almost everyone. Some might use numbers; some might use experience. Many folks with years of experience "know" when the crop has had enough poison for insects. They might quit when they see pink/red blooms "in the tops", or they might quit when bolls reach a certain size in the upper canopy. Some might even look for open bolls on the bottom. If you would rather use numbers to make this decision, you might use heat unit accumulation after physiological cut-out to terminate insecticide use. Physiological cut-out has been defined as the point when the last harvestable bolls are white blooms. In the Mid-South, that has been defined as five nodes above the highest first position white flower (5NAWF). Here in South Carolina, that number might be five, or it might be four, depending on the year, etc. To determine that, count the nodes above the highest node with a first position white bloom. Do this on various plants in a field and average your results to determine where plants are in relation to cut-out. When you get down to 5NAWF, the last bolls you are going to harvest are now your blooms. Those are the last developing bolls to protect because bolls above that historically do not contribute

significantly to yield (remember this was developed in the Mid-South). At the point you reach 5NAWF, you start accumulating heat units (HU). To calculate HU, you average the high and low temperatures (Fahrenheit) for the day and subtract 60. For example, the high for a day was 97 degrees, and the low was 73 degrees. Do a little math and find that the average temperature for the day was 85 degrees. Subtract 60, and you get 25 HU for the day. You add up your HU everyday until you reach a predetermined level for terminating insecticide use for various pests. So, if you want to use numbers for terminating inputs for insects, consider the following researched recommendations. Most of the following was conducted in the Mid-South and is older research, but much of it will likely apply to our region as well. However, also keep in mind that it seems in recent years we have picked more cotton at the top of the plant. Nevertheless, these are just guidelines to help you make a decision. It is probably too late to determine NAWF=4 or 5 for much of our crop, but some of it might be young enough to use this approach. Basically, once you get to 5NAWF + 350 HU the crop becomes significantly more tolerant of insect injury.

Pest	Yield Loss Until NAWF=5 +_____HU	Literature References
Boll weevil	350	Bagwell 1994
Tarnished plant bug	330-350	Russell et al. 2004
Tobacco budworm	350	
Bollworm	300 (Bt) 350-400 (non-Bt)	Bagwell 1994; Gore 2000
Beet armyworm	360-390 350 (Defoliation)	Adamczyk et al. 1998; Mascarenhas et al. 1999; Leonard (LA)
Fall armyworm	360-860	Adamczyk et al. 1998
Stink bug	450-550	Greene and Herzog 1999; Greene et al. 2000, 2001a,b; Willrich et al. 2003
Cotton fleahopper	Probably same as tarnished plant bug?	
Leaffooted bugs	Probably upper range of stink bug rule?	

References for insecticide termination guidelines:

Adamczyk, J. J., V. J. Mascarenhas, G. E. Church, B. R. Leonard, and J. B. Graves. 1998. Susceptibility of conventional and transgenic cotton bolls expressing the *Bacillus thuringiensis* CryIA(c) δ-endotoxin to fall armyworm (Lepidoptera: Noctuidae) and beet armyworm (Lepidoptera: Noctuidae) injury. J. Agric. Entomol. 15(3): 163-171.

Bagwell. 1994. Monitoring the cotton plant for insecticide effects and late-season insecticide use termination. Ph.D. dissertation, University of Arkansas, Fayetteville.

Gore, J., B. R. Leonard, G. E. Church, J. S. Russell, and T. S. Hall. 2000. Cotton boll abscission and yield losses associated with first-instar bollworm (Lepidoptera: Noctuidae) injury to nontransgenic and transgenic Bt cotton. J. Econ. Entomol. 93(3): 690-696.

Greene, J. K. and G. A. Herzog. 1999. Management of stink bugs using symptoms of boll injury as a monitoring tool. 1999 Proceedings of the Beltwide Cotton Conferences 2: 1041-1045.

Greene, J. K., G. A. Herzog, and P. M. Roberts. 2001a. Management decisions for stink bugs. 2001 Proceedings of the Beltwide Cotton Conferences 2: 913-917.

Greene, J. K., S. G. Turnipseed, M. J. Sullivan, and O. L. May. 2001b. Treatment thresholds for stink bugs (Hemiptera: Pentatomidae) in cotton. J. Econ. Entomol. 94(2): 403-409.

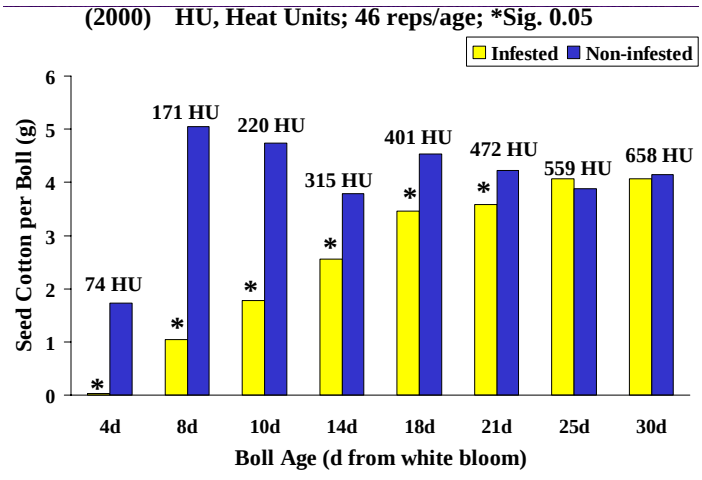
Mascarenhas, V. J., D. Cook, B. R. Leonard, E. Burris, and J. B. Graves. 1999. Late season beet armyworm (Lepidoptera: Noctuidae) infestations on cotton: defoliation, fruit damage, and yield loss. Florida Entomol. 82(2): 218-229.

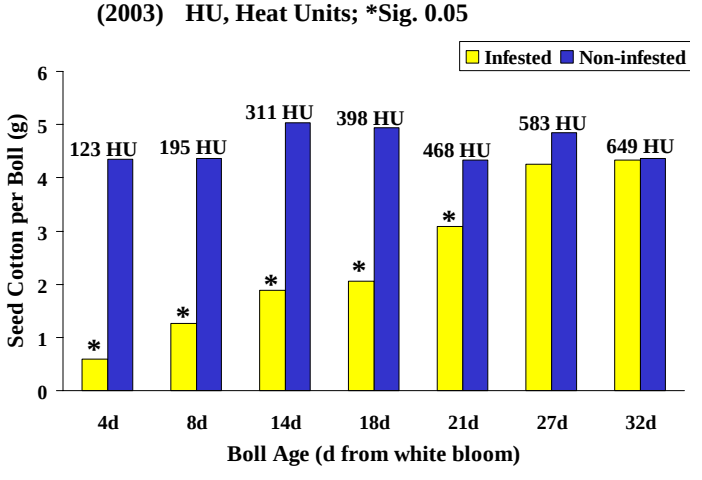
Russell, J. S., B. R. Leonard, G. E. Church, J. Gore, and J. H. Fife. 2004. Effects of tarnished plant bug density, duration of feeding, and boll maturity on cotton boll abscission and yield.

Willrich, M. M., D. R. Cook, J. Gore, J. H. Temple, and B. R. Leonard. 2003. When does brown stink bug, Euschistus servus (Say) begin to injure cotton? 2003 Proceedings of the Beltwide Cotton Conferences.

Sucking Bugs

We probably have another two maybe three weeks remaining in our susceptible window for stink bugs in much of our crop. Stay vigilant with the boll examinations until bolls are too hard to open by hand. Research has shown that bolls that have accumulated about 500-550 heat units are safe from significant yield loss caused by stink bugs. Bolls in that category are about 21-25 days old. See some of my research below where individual bugs were caged on individual bolls of different ages. The research conducted in 2000 was from Tifton, GA, using southern green stink bugs, and the research in 2003 was completed in Monticello, AR, using green stink bugs.





Need More Information?

Log on to the following webpage to view important cotton management recommendations, data, and historical cotton insect newsletters: http://www.clemson.edu/scg/ipm/cotton.html

To see cotton insect newsletters for this year, go to the following webpage to view the cotton page at the Edisto Research & Education Center. http://www.clemson.edu/edisto/cotton/cotton.htm

Sincerely,

Jeremy K. Greene, Ph.D.
Cotton Entomologist

Visit our website at:
http://www.clemson.edu