

**IMPACT OF AN INTERNET INFORMATION DELIVERY SYSTEM FOR REPORTING  
HELIOTHINE MOTH TRAP CATCHES IN AR, MS, AND LA**

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**Abstract**

Entomologists and computer specialists from the University of Arkansas have begun a multi-state on-line effort to coordinate the detection of pests on cotton crops throughout the Southern region of the United States. With the cooperation of B. Roger Leonard, Northeast Research Station, Louisiana State University Ag Center, and Michael R. Williams, Extension Entomologist, Mississippi State University, data was reported during the 2001 cotton season using an Internet database system developed at the University of Arkansas. Thirteen Arkansas counties and the states of Louisiana and Mississippi participated in the second year of the program reporting 10652 total observations. The focus of the program continues to be the tobacco budworm, *Heliothis virescens* and the cotton bollworm, *Helicoverpa zea*, although additional species scouted include the Armyworm (*Pseudaletia unipuncta*), the Fall armyworm (*Spodoptera frugiperda*), the Beet armyworm (*Spodoptera exigua*), the Southwestern Corn Borer, and the European Corn Borer.

**Introduction**

Bollworm and budworm infestations have been taking their toll on Arkansas' cotton crop, being the most expensive pest to control the past four years and claiming a 3.3% loss to Arkansas producers in 2000. (Williams, 2000).

Increased resistance to insecticides has made control of these pests more difficult (Allen et al., 1999). The early detection of any pest is of prime importance in controlling the pests' effect on the host crop, and being able to accurately estimate the current population level is most beneficial to cotton producers. The placement of traps, the number of traps used and continuous sampling of adult moth activity during the growing season are critical components in the Arkansas Integrated Pest Management program (Lorenz et al., 1999). The Trap and Survey Summary System hosted by the University of Arkansas Cooperative Extension Service provides this information as close as the nearest computer with Internet access.

The on-line concept of the program continues to provide an easy way to retrieve county and state summaries and comparisons, while enabling quick program updates because of the central location of the main program.

**Methods**

This system consists of cooperator enrollment screen, trap enrollment screen, and daily scout screens to allow for daily entry of trap counts on seven types of species: tobacco budworm (*Heliothis virescens*), cotton bollworm (*Helicoverpa zea*), boll weevil (*Anthonomus grandis*), Armyworm (*Pseudaletia unipuncta*), fall armyworm (*Spodoptera frugiperda*), beet armyworm (*Spodoptera exigua*), Southwestern corn borer, and European corn borer. Counts for tobacco budworm and cotton bollworm were entered daily, or as scouted. Data is entered on an actual count-per-trap basis. These actual counts are then calculated into a daily average per trap. Graphs are created using calculated average (Figures 1 through 6). Data could be accumulated immediately to provide the user with a graph reflecting trap counts and averages with a user-specified range from one to seven days. Once the initial graph is created and displayed on the screen, the user can select to display the data in a different graph types. Using the browser, the graph image can be saved and used in other applications as needed by the user.

The Texas cone pheromone trap designed by Hartstack et al (1979) is used throughout Arkansas for most moth species. The total trapping system involves around 500 traps distributed throughout the counties that are involved with crop production. Traps are monitored each week from 1 to 5 times depending on the species. Typically, the armyworm traps are monitored weekly and others from 2 to 5 weekly. The monitoring is coordinated by County Extension Agents with the University of

Arkansas Cooperative Extension Service. Scouts, county agents, cooperating consultants and agri-business personnel conduct monitoring. Pheromone is purchased from Hercon Inc. and Great Lakes IPM Inc.

Data entry began in June 2001, by designated users in the cotton producing counties of Arkansas, Ashley, Craighead, Crittenden, Desha, Lafayette, Lincoln, Lonoke, Monroe, Prairie, St. Francis, and White counties in Arkansas and the participating border states of Louisiana and Mississippi. Daily trap count data recorded included beginning date of scouting period (usually the previous day), ending date (the day the count was made), the actual count and whether or not the trap was actually scouted. Traps that were not scouted were not included in the daily trap average so as not to skew the data.

### **Discussion**

The Trap and Survey Summary System provides an easy method to summarize pheromone trap data collected throughout the state. Data is collected on several species of pests that commonly occur in Arkansas. The most commonly surveyed insect species are the tobacco budworm and cotton bollworm. These species are economically important to cotton in Arkansas and the data collected is used to aid cotton producers in the selection of insecticides.

Tobacco budworm and cotton bollworm graphs from Mississippi, Louisiana, and Ashley County (Arkansas) indicate a typical trend showing the 27 – 30 day life cycle of the species (Figures 1 through 6).

The Trap and Survey Summary System is hosted on a Gateway 7210 server running Windows NT with 1 gigabyte of RAM. The system consists of two access points, the first being [http://www.aragriculture.org/computer/TrapPublic/Trap\\_Home2001.asp](http://www.aragriculture.org/computer/TrapPublic/Trap_Home2001.asp) and allows for public access so that anyone can review a graph for a particular species. This page is also accessible from the IPM home page at <http://ipm.uaex.edu>.

The second access point is used only by registered users of the system. Users are required to obtain a login and password, and may then enter information as needed into the system. Users only have direct access to data that they have entered, although they can see graphs of any and all information entered into the system.

Entomologists from surrounding states who are interested in participating in our program are encouraged to contact us for additional information, or visit our home page of the University of Arkansas Cooperative Extension Service at <http://www.uaex.edu>.

### **References**

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Hartstack, A. W., J. A. Witz, and D. R. Buck. 1979. Moth Traps for the Tobacco Budworm. *J. Econ. Entomol.* 72:519-22.

Lorenz, Gus, Donald R. Johnson, Charles Allen, Glenn Studebaker, 1999. Using Moth Traps in Cotton IPM Programs. FSA 7050. University of Arkansas Cooperative Extension Service.

Williams, M.R. 2001. Cotton Insect Losses 1999. *Proceedings Beltwide Cotton Conferences.* pp. 774-777.

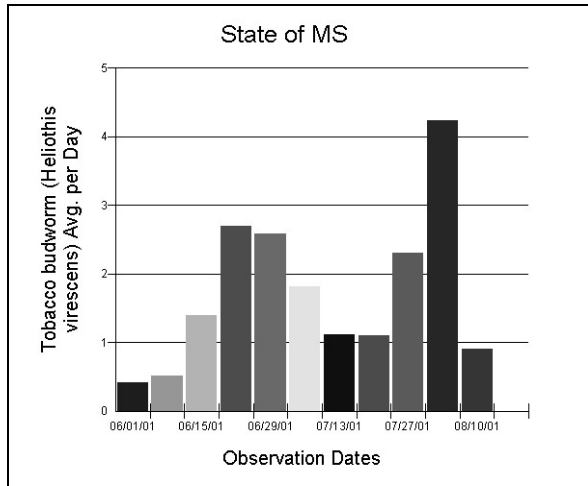


Figure 1. Seven-day tobacco budworm levels for Mississippi beginning 6/1/01.

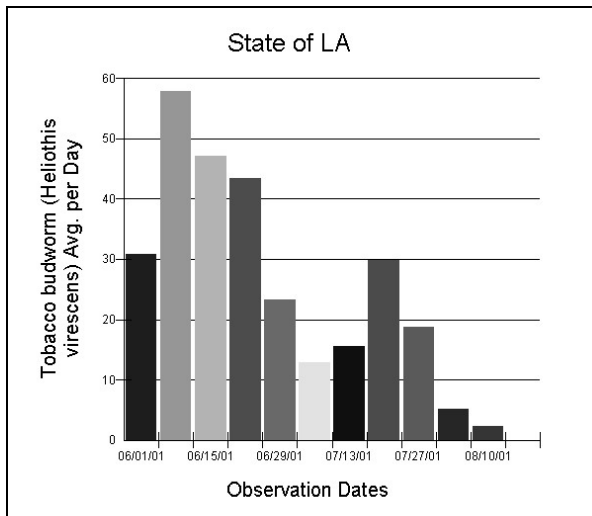


Figure 2. Seven-day tobacco budworm levels for Louisiana beginning 6/1/01.

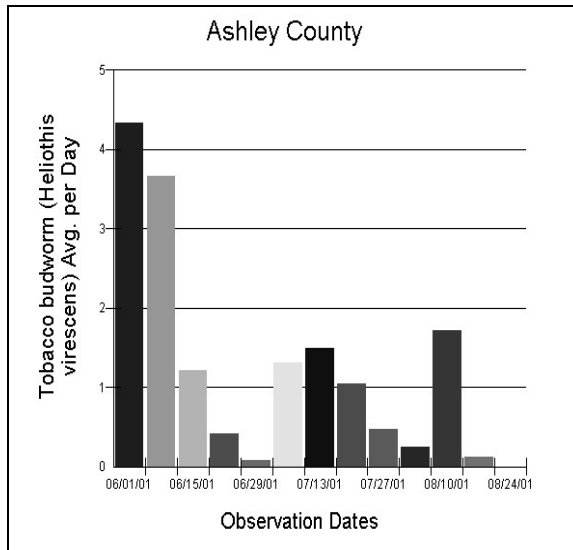


Figure 3. Seven-day tobacco budworm levels for Ashley County in Arkansas beginning 6/1/01.

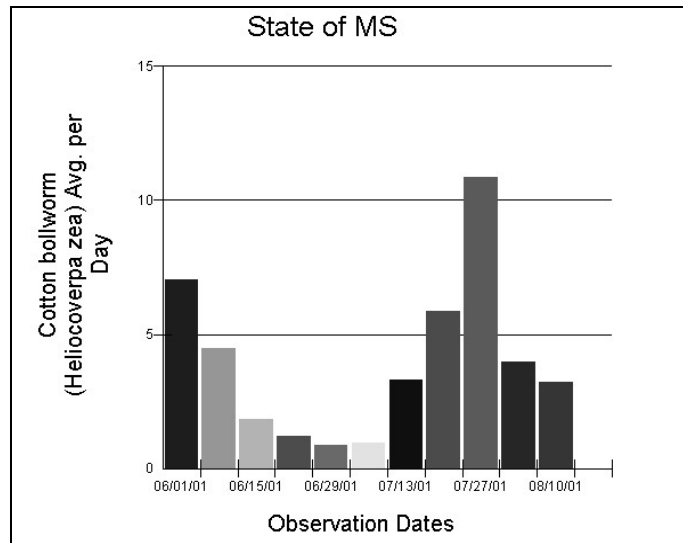


Figure 4. Seven-day cotton bollworm levels for Mississippi beginning 6/1/01.

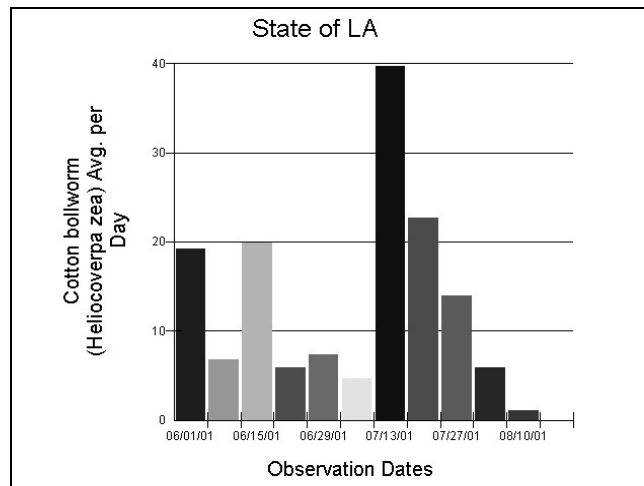


Figure 5. Seven-day cotton bollworm levels for Louisiana beginning 6/1/01.

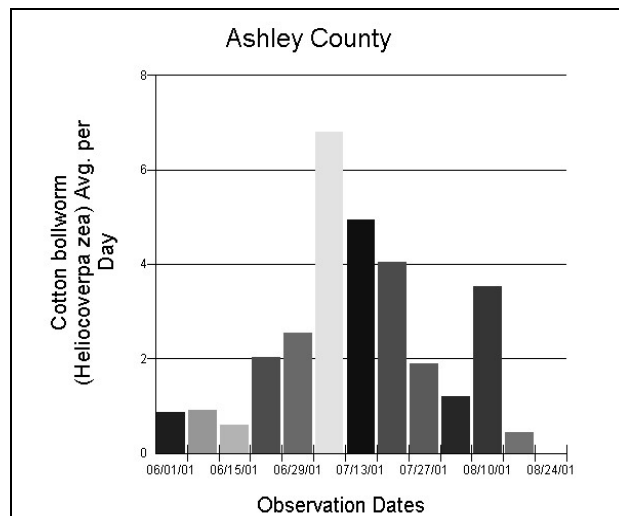


Figure 6. Seven-day cotton bollworm levels for Ashley County, Arkansas, beginning 6/1/01.