

## **COTTON INSECT PHEROMONE TRAPLINES IN MISSISSIPPI - 1999**

**Michael R. Williams**

**Mississippi State University Extension Service  
Mississippi State, MS**

### **Abstract**

Boll weevils and 5 Lepidoptera species were pheromone trapped along major east/west highways in the cotton region of Mississippi in 1999. Weevil numbers were highest in the non-eradicated area and along the edges to it. Moth numbers were highest in the Delta region without regard to eradication areas. The South Delta traps averaged twice the bollworm and budworm moths as North Delta traps which averaged twice that of the Hill region. All insect numbers were extremely low in all regions of the state for the year.

### **Introduction**

Since 1995 Mississippi State University Extension Service has maintained a pheromone trapping program along major highways throughout the cotton growing region of Mississippi. Boll weevil traps were placed in groups of three at 5 mile intervals along five north/south highways from 1995 to 1998 (Williams, 1998), and along 6 east/west highways in 1999. Hartstack wire pheromone traps, utilized for heliothine, fall armyworm and looper moths, and green bucket traps for beet armyworm, were placed in each county near cotton fields along the trapping routes. The traps were serviced weekly and counts reported to farmers via the Mississippi cotton insect newsletter.

### **Discussion**

#### **Boll Weevil Trap Captures**

Boll weevil trap captures indicated a peak of emergence in the North Delta in mid-May (17.3 weevils per trap - 12 May) and another smaller peak in Mid June (10.0 weevils per trap 10 June). These same peaks occurred in the other 3 eradication areas, but averaged 1 weevil per trap per week or less during the entire period (Figure 1). Weevil numbers remained fairly low in the entire state until mid to late August when another peak occurred on August 19 (4.5 weevils) in the North Delta followed by a second larger peak on September 1 (9.6 weevils). Fall weevil trap captures never exceeded 10 weevils per trap in any of the areas. Weevil trap captures exceeded 0.5 weevils per trap on July 8 (0.56), July 22 (0.56), August 26 (0.61), September 1 (0.66) and September 23 (0.57) in the Eastern Hill (eradication area 4). The highest of these counts were reported from the 3 northern counties bordering Tennessee. This area has been 'near

weevil free' for 2 years and no in-season applications or losses have been attributed to weevils since 1997 (Williams 1998, 1999, 2000). The Central Hill traps captured more weevils during the season than the South Delta region but they only exceeded 1.0 weevils per trap on September 1 (1.18), September 9 (1.18), and September 16 (1.10). South Delta high trap averages were early with 0.9 weevils on April 26, 1.10 weevils on 5 May, 0.66 on 12 May and 1.3 on 20 May (Figure 1). Figure 2 shows the average trap captures for the 4 eradication areas in Mississippi. Eastern and Central Hill have been under eradication since 1997, South Delta since 1998 and the North Delta entered August of 1999.

#### **Budworm Moth Captures in 1999**

Moth captures were down for all traps and areas in 1999. Tobacco budworm trap captures averaged 27.4 moths per trap per week in the South Delta and only 1 week, September 23 exceeded 100 moths per trap at 104. The South Delta captures showed only a slight increase in early June and then had a peak of moth captures in late July. Moth captures only exceeded 20 moths per trap once in the North Delta on August 5 when 22 moths per trap were captured. The Eastern Hills was the only other area to exceed 20 moths per trap and that occurred on September 16 with 27 moths per trap. Figure 3 shows each of the eradication areas of Mississippi and the weekly average tobacco budworm moth capture. These numbers do not represent a significant threat to the cotton grown in these areas.

#### **Bollworm Moth Captures in 1999**

Bollworm moth captures were also 'low' during the entire season in 1999, but they were more sustained across the Delta areas. Figure 4 shows the average number of moths per trap per week for the 4 eradication areas. During the growing season moth captures exceeded 30 per trap only in the South Delta on 2 June, 15 July and then in both the North and South Delta on September 1.

Neither of the Hill regions exceeded 15 moths per trap for the entire year. Boll- worm pressure was extremely low in 1999.

#### **Beet Armyworm Moth Captures in 1999**

No beet armyworm moth trap averaged capturing more than 20 moths until August 12 when the South Delta traps averaged 23 moths per trap. After that time most other trap capture numbers increased. The North Delta traps nearly averaged 350 moths per trap on October 21. Beet armyworm did not pose a threat during the growing season in any of the areas in Mississippi. Figure 5 shows that the 'eradication zones' - South Delta, Central and Eastern Hills, actually averaged many less than the North Delta.

**Fall Armyworm and Soybean Looper Moth Captures in 1999**

Fall armyworms were almost non-existent in pheromone traps in 1999. Figure 6 shows only one weekly peak in the Central Hills where an average of 30 moths were captured on June 17. The same traps 2 weeks later had 12.5 moths. The Eastern Hill traps averaged more moths (4.3 per trap per week) than any of the other regions.

Soybean loopers (Figure 7) were fairly high all year in pheromone traps. The North Delta averaged 164 moths per trap per week, the Eastern Hills was second with 89, followed by the Central Hills with 77, and the south Delta with 59 per trap per week.

**Conclusion**

Interpretation of pheromone trap captures for insect pests of cotton still remains an inexact science. Weevil traps are currently being used both as a trigger and as a management tool in the boll weevil eradication. Moth captures are not as easily explained, for often captures do not reflect in-field insect activity. Traps spread over large areas do tend to show a larger more complete picture of presence of insect pest species in an area. The Mississippi pheromone trapline concept has been able to demonstrate that knowledge of the presence of pest species in an area serves as a warning to be on the lookout for in-field populations. Too few traps in an area may give a false reading in either direction because of placement or other physical factors which affect the efficiency of the traps.

**Acknowledgments**

Running traps week after week is never easy and sometimes it is even dangerous, when the snakes get active, but Ira Jones, Ed LaMastus and Tommy Wall stayed with us through nonpayment, electronic glitches and numerous other problems. Thank you, men! The Mississippi Boll Weevil Management Corporation is a major supporter of this effort as is the Mississippi State University Extension Service.

**References**

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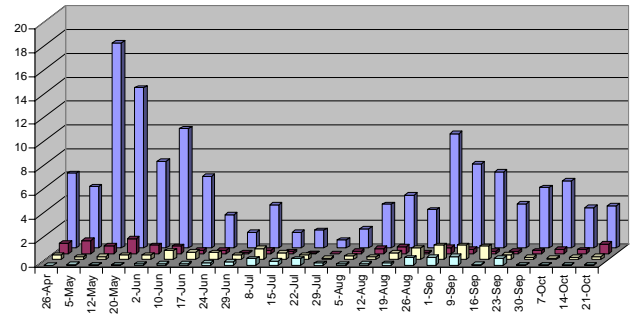


Figure 1. Average number boll weevils per trap in pheromone traps in Mississippi - 1999.

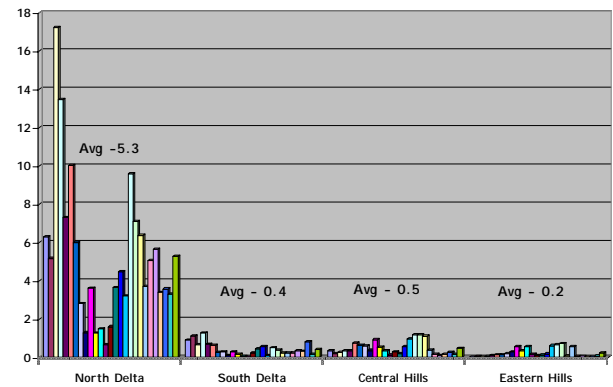


Figure 2. Average weevil pheromone trap captures from Mississippi by area from May through October - 1999.

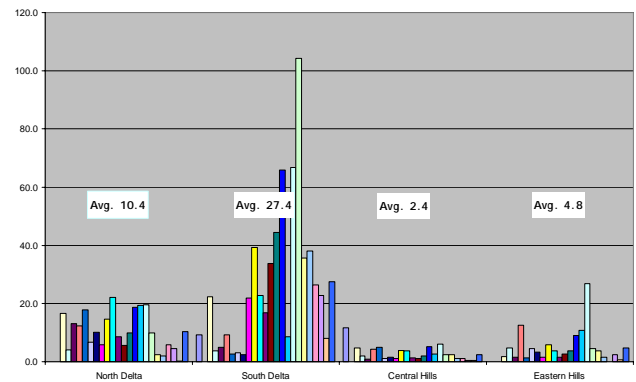


Figure 3. Average number of Tobacco Budworm moths in trapline May through October - 1999.

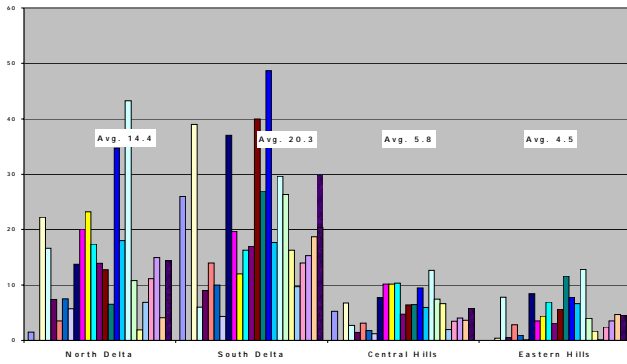


Figure 4. Average number Bullworm moths per trap in Mississippi pheromone traplines May through October - 1999.

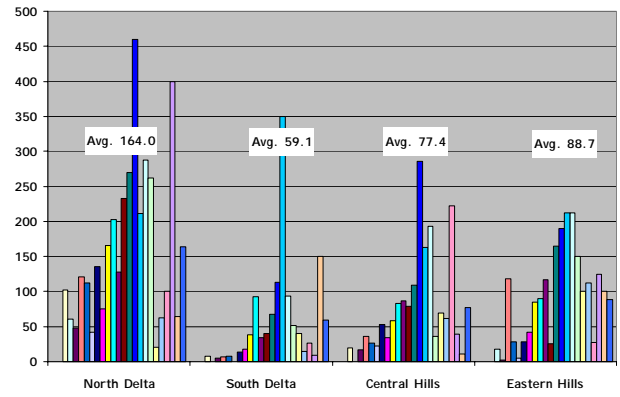


Figure 7. Average Number Soybean Looper moths in Mississippi pheromone traplines May through October - 1999.

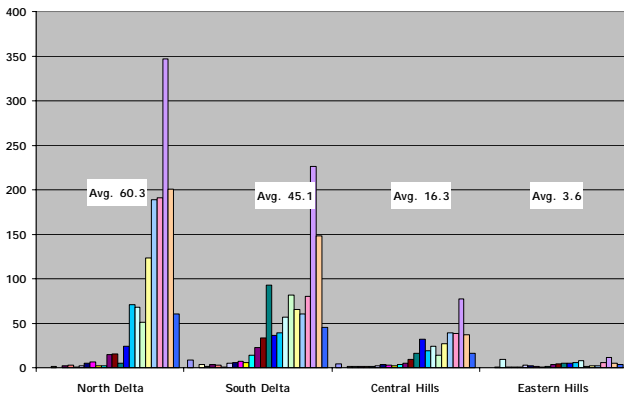


Figure 5. Average number Beet Armyworms per trap in Mississippi pheromone traplines May through October - 1999.

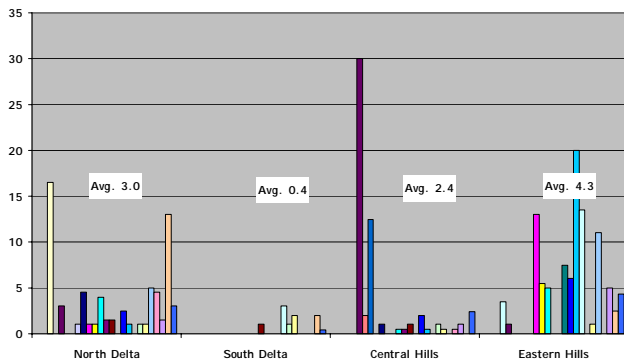


Figure 6. Average number Fall Armyworms in Mississippi pheromone traplines May through October - 1999.