

**DAMAGE AND BEHAVIORAL PATTERNS
OF HELIOTHIS VIRESCENS AND
HELICOVERPA ZEA ON UPLAND COTTON**

**D. B. Shoemaker,
Graduate Research Assistant,
Mississippi State University
Mississippi State, MS
J. N. Jenkins, J. C. McCarty,
Jr. Research Geneticist, and Research Agronomist
USDA-ARS,
Mississippi State, MS**

considerably more damage to cotton than bollworm. Detailed studies are underway on glanded, glandless, transgenic, non-transgenic, and commercial cultivars to determine behavioral differences with respect to genotype.

Abstract

The bollworm, *Helicoverpa zea* Boddie, appears not to damage cotton as much as tobacco budworm, *Heliothis virescens* Fab. when we artificially infest our research cotton plots. To test this, we infested single row plots of 23 cultivars of cotton, *Gossypium hirsutum* L., offered for sale in Mississippi which were grown in our nursery in 1996. The cultivars were grown in single row plots without replication. Cultivars were analyzed as replications. Treatment I consisted of applying 6-8 first instar larvae of tobacco budworm per row foot in cotton plant terminals each week for four weeks beginning at pre-bloom stage on one half of each cultivar row. Treatment II consisted of applying 6-8 first instar larvae of bollworm per row foot in cotton plant terminals each week for four weeks beginning at pre-bloom stage on the remaining one half of each cultivar row. Detailed scouting data were collected weekly for four weeks beginning one week after infestation.. This scouting data showed that tobacco budworm caused significantly more damage to cultivars than bollworm. Plots were harvested when all bolls were open. In the 1996 experiment, the yield of seed cotton averaged over the 23 cultivars was 1207 lbs. per acre when infested by bollworm and 812 pounds per acre when infested with tobacco budworm. Similar damage differences were observed in the early part of 1995; however, a high natural infestation of tobacco budworm and a late season infestation of beet armyworm, *Spodoptera exigua* (Hubner) confounded the yield data in 1995. Field and laboratory studies are underway to determine how behavior of tobacco budworm and bollworm relates to these differences. Preliminary data indicate that bollworm tends to web off cotton terminals more readily than tobacco budworm when each was applied to plant terminals in water picks in the laboratory. Field observations agree with the laboratory data. When insects were applied to plants in the field, tobacco budworm tended to begin feeding immediately; whereas, bollworm tended to immediately disperse throughout the plant by crawling and webbing. This data confirms previous data that tobacco budworm does