

INSECT BOLL DAMAGE SURVEY: GEORGIA 2001
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Abstract

A field survey was conducted to quantify insect damaged bolls and insecticide use in Georgia cotton. A total of 82 fields which had entered cutout, 39 Bt and 43 non-Bt, were sampled in early September. Eight counties, Appling, Brooks, Bulloch, Burke, Colquitt, Decatur, Dooly, and Terrell, were included in the survey. Ten fields were sampled in each county. Percent boll damage was determined by sampling approximately 100 bolls per field, taken as 50 consecutive bolls from two sites per field. All harvestable bolls were collected from individual plants. All bolls were examined for the presence of larval or bug injury. Green bolls were crushed with pliers and examined internally. Bolls were considered damaged if at least one lock exhibited significant discoloration or rot. Damaged induced by larval pests was identified by the presence of a larval entry or exit hole in the boll wall. Bolls were considered damaged by bugs if no evidence of larval feeding was present and callous growths were present on the inner surface of the boll wall or external symptoms of bug injury were present (sunken purple spots on the external surface of the boll wall). Boll damage as defined may be caused by various species. Larval damage most likely resulted from bollworm, *Helicoverpa zea*, and tobacco budworm, *Heliothis virescens*, feeding. Bug damage most likely resulted from feeding by southern green stink bug, *Nezara viridula*, brown stink bug, *Euschistus servus*, and tarnished plant bug, *Lygus lineolaris*. Cooperating growers provided insecticide use records for fields and were asked to identify the target pest for each application. Data were analyzed using a t-test with the probability level set at 0.01. Larval damaged bolls were significantly greater in non-Bt cotton compared with Bt cotton, 3.87% vs. 1.44%. Non-Bt cotton also required significantly more insecticide applications for larval pests, 2.48 vs. 0.24 applications in Bt cotton. Eighty-six percent of non-Bt fields were treated for larval pests compared with only 14 percent of Bt fields. No significant differences were observed in the percent of bug damaged bolls in non-Bt and Bt fields, 2.7% vs. 3.21%. However, significantly more insecticide applications targeting bug pests were made in Bt cotton compared with non-Bt cotton, 1.16 vs. 0.31. Seventy-eight percent of Bt fields were treated for bug pests compared with only 19 percent of non-Bt fields. The reduced number of applications targeting bugs in non-Bt cotton is most likely due to the use of pyrethroids for larval pests which has activity on bugs and coincidentally suppressed populations.