# EFFICACY OF DUAL GENE COTTON AND THE IMPACT OF NEW TECHNOLOGY FOR CONTROL OF HELIOTHINES IN COTTON

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## Abstract

Transgenic Bt cotton has been commercially available since 1996. Additionally, the first dual-gene cottons were released in 2004 and 2005. Bt cotton has continued to provide near absolute control of tobacco budworm, *Heliothis virescens* (F.), but insecticide oversprays are often needed to control bollworm, *Helicoverpa zea* (Boddie). In general, sprayed Bt cottons have yielded from 100 to over 300 pounds of lint per acre over unsprayed Bt cottons when significant bollworm pressure occurs. Little benefit has been observed from oversprays when bollworm pressure is light. The current experiment was conducted in MS, AR, LA, and TN to determine the benefit of insecticide applications on non-Bt, WideStrike, WideStrike 3, and Bollgard II cottons. In general, injury from bollworms was reduced in all technologies that received foliar sprays compared to those that were not sprayed. Yield responses between sprayed and unsprayed plots were highly variable across locations. Yields sprayed non-Bt cotton were significantly higher than unsprayed plots at all locations. Yields of sprayed WideStrike cotton were significantly higher than the unsprayed plots at 3 of the five locations. For Bollgard II and WideStrike 3, yields of the sprayed plots were significantly higher than the unsprayed plots at two of the five locations. These data demonstrate that foliar insecticide sprays are often needed to prevent significant yield losses in all Bt technologies when significant bollworm pressure occurs. All Bt cottons should be scouted on a regular basis, and sprays should be triggered when larval densities exceed the recommended thresholds.