## COMPARATIVE BENEFIT OF BT AND NON-BT COTTON UNDER DIFFERENT INSECT MANAGEMENT STRATEGIES R. E. Jackson K. C. Allen R. G. Luttrell USDA-ARS-SIMRU Stoneville, MS

## Abstract

Transgenic cotton varieties expressing insecticidal proteins from the soil bacterium, *Bacillus thuringiensis*, have revolutionized caterpillar control, particularly for tobacco budworm. However, these transgenic cottons have never produced a high dose of toxin for control of bollworm. Even second generation Bt cottons that produce two Bt proteins often sustain economic damage from this pest. Thus, supplemental insecticide applications for bollworm control in Bt cotton are commonly made, particularly in the mid-South. Five field studies were conducted across the Mississippi Delta to evaluate the need for supplemental bollworm control in pyramided-gene Bt cottons, as well as to determine whether non-Bt cotton varieties would be competitive from a yield standpoint. Each variety was scouted independently, and insecticide applications of lambda-cyhalothrin or chlorantraniliprole were made when a larval threshold of 4 larvae per 100 plants was met. Forty percent of field sites had very low heliothine densities, such that a larval threshold was never met, even in the non-Bt varieties. Studies with significant heliothine pressure demonstrated a yield benefit from spraying both non-Bt and Bt cottons with either insecticide applications. These preliminary data suggest that non-Bt cottons can be produced competitively compared to Bt cottons in the mid-South and also confirm the benefit of supplemental insecticide applications to Bt cotton under significant infestation from bollworm.