

**EXPERIENCES WITH BT COTTON UNDER
LIGHT TO MEDIUM BOLLWORM
INFESTATIONS IN SOUTH CAROLINA**

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Abstract

In 1997 cotton growers in South Carolina planted about 30% of their 291,000 acres to Bollgard varieties (*Bt* varieties), mostly DPL NUCOTN 33B. Statewide field surveys and grower comments in 1996 showed that the *Bt* varieties had provided good control of bollworms, but farmers still treated them with pyrethroids, an average of more than one application per season. Furthermore in 1996 a number of researchers, extension workers and consultants in different states, voiced the opinion that one or two pyrethroid applications to *Bt* cotton increased yields over untreated *Bt* cotton. This study was conducted in 1997 at 10 different on-farm locations to compare DPL 33B treated with one or two pyrethroid applications, with DPL 33B that was untreated, and with DPL 5415 treated conventionally.

Cotton fields in this study were scouted by examining 100 whole plants per treatment, twice a week, and monitoring beneficial insects weekly. No large larvae (greater than 1/4 in. in length) were found in a treated *Bt* cotton field at any time during the season. A few large larvae were found at only one location in untreated *Bt* cotton. Large larvae were found at nine locations in 5415, and the seasonal average was 0.74 large larvae/100 plants. In general, there were more bollworm damaged squares, more damaged blooms and bloom tags, and more damaged bolls in the 5415 cotton treated conventionally than in either the *Bt* treated or the *Bt* untreated.

DPL 33B plots were all treated at least once with a pyrethroid starting between July 19 and July 28, in response to the presence of both eggs and small F₃ bollworms. An average of 1.4 pyrethroid applications were made to *Bt* cotton fields, compared with 3.4 applications to 5415. Yield differences were not statistically significant, but treated *Bt* cotton produced an average of 69 lbs more lint than the untreated *Bt* and 5415 produced 61 more lbs lint than the untreated *Bt* cotton. Beneficials numbers were greater in the untreated *Bt* than in either the treated *Bt* cotton or in 5415. In early August, numbers of *Geocoris* and *Orius*, two beneficials considered to be among the most important predators in South Carolina cotton fields, were about 3X greater in the untreated *Bt* than in 5415, and more than 2X greater than in the treated *Bt*.