

**ON-FARM EXPERIENCES WITH *Bt* COTTON
IN SOUTH CAROLINA
M. E. Roof and J. A. DuRant
Clemson University Pee Dee Research and Education
Center
Florence, SC
J. T. Walker,
Clemson University
Ridgeland, SC**

both. Pyrethroids were often applied to control both stinkbugs and bollworms.

Abstract

In 1996 there were about 290,000 acres of cotton planted in South Carolina. Over 40,000 acres were planted to cotton varieties with Bollgard™, mostly DPL NuCOTN 33^B, with a smaller acreage of DPL NuCOTN 35^B. At 10 on-farm locations in three Pee Dee Area counties a variety with Bollgard was compared with a similar variety without Bollgard, generally, DPL NuCOTN 33^B and DPL 5415. Fields were scouted on a weekly basis for insect pests and insect damage. The 10 farmers involved in the study treated Bollgard cotton an average of 0.8 times for either bollworm or stinkbugs, while the conventional variety was treated 3.7 times for bollworms. Of the eight treatments applied to Bollgard cotton four were for stinkbugs and four were applied for bollworm. Bollworm numbers reached the economic threshold for damage (5% damaged, must be fully penetrated) on only two occasions in two separate fields. The large larvae threshold (3 larvae greater than 0.25 in. in length) was never reached. Stinkbug numbers never reached the threshold (one per six feet of row). There were no economic problems from plant bugs, or any other secondary insect pest. Beneficial arthropods numbers were slightly greater in Bollgard cotton.

In August and September, an insect damage survey was conducted at 29 locations in nine Coastal Plain counties. The highest bollworm damage occurred in Hampton County with 13.9% damaged bolls in Bollgard cotton and 11.7% in the conventional varieties. Bollworm larvae were collected later from two of these fields and placed on artificial diet. Tests conducted in the toxicology laboratory by Dr. Tom Brown showed that moths and F₁ larvae were pyrethroid resistant. Statewide we found 3% bollworm damaged bolls in Bollgard cotton and 3.5% in conventional varieties. Stinkbug damaged bolls were 1.4% in Bollgard cotton and 1.1% in conventional cotton. In a collection of 100 immature bolls collected from each field, bollworm damage was 4.6% in Bollgard and 5.5% in non *Bt* cotton, while stinkbug damage was 8.0% in Bollgard and 7.9% in non *Bt* cotton. An average of 1.2 insecticide applications were applied to the *Bt* cotton fields, while the conventional cotton fields were treated 4.8 times. In *Bt* cotton fields the insecticide targets were primarily stinkbug, bollworm or