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THRESHOLD DEVELOPMENT FOR THE SUCKING BUG COMPLEX IN BOLLGARD II COTTON IN SOUTH CAROLINA

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Abstract

The piercing/sucking bug complex has become the major enemy of cotton in South Carolina due to increased acreage of Bollgard cotton varieties which resulted in a decline of pyrethroid insecticides used to control cotton bollworm and secondarily, piercing/sucking bugs. Boll weevil eradication has also eliminated early season insecticide applications which also secondarily controlled piercing/sucking bugs. The introduction of Bollgard II cotton varieties will further reduce early/mid season "worm" sprays, thus causing more pressure from the bug complex.

Current stink bug thresholds in the southeast cotton production area range from 15-20% boll damage and stink bugs present; another threshold is 1 stink bug per 6 row feet. Most consultants are using a boll damage threshold. Other insects cause boll damage similar to stink bugs, most often plant bugs. Present static stink bug thresholds need to be replaced by dynamic thresholds that may change with each piercing/sucking bug species and from early to late boll set and development.

Three tests were conducted in 2003 using DPL 468BGIIRR cotton. Three treatment levels were utilized: 1) treated weekly beginning at first bloom, 2) treated based on current boll damage threshold (20%), and 3) untreated. All treatments were the organophosphate, Bidrin (0.5 lb. AI/Ac). Plot size was 24 rows (38 inch) X 75 feet with a trap crop of soybean and field peas to increase piercing/sucking bug numbers. There were 5 replications in each field. No treatments were necessary for lepidopterous caterpillars in the Bollgard II cotton. In fields 1 & 2 (planted May 1), treatment 1 was treated 6X beginning July 14 and ending August 25. Treatment 2 was treated 2X, July 25 and August 15. In field 3 (planted June 5), treatment one was treated 3X (August 11,15,& 25) and treatment 2 was treated 2X (August 15 & 27). Major piercing/sucking bugs were tarnished plant bugs, *Lygus lineolaris,* stink bugs, *Acrosternum hilare, Nezara viridula, Euschistus servus,* and the red plant bug, *Ceratocapsus punctulatus.* Tarnished plant bugs were prevalent in early July to mid-August, stink bugs mid-August to mid- September, and the red plant bug was prevalent throughout August.

Plots were harvested with a 2 row spindle picker. Significant differences were shown in all three fields between all three treatments. In field one, the lint yield was 1459 lbs. in treatment 1 (6X), 1155 lbs. in treatment 2 (2X), and 968 lbs. in treatment 3 (0X). In field two, treatment 1 (6X) produced 1447 lbs. lint, treatment 2 (2X) 1132 lbs., and treatment 3 (0X) 909 lbs. lint. Late planted field three produced 1303 lbs. lint in treatment 1 (3X), 1162 lbs. in treatment 2 (2X), and 1014 lbs. in treatment 3 (0X). In the two early-planted fields, lint yields were increased 187 lbs. and 224 lbs. respectively, from no treatment to the threshold treatment (trts. 2 & 3). An additional increase of 304 and 315 lbs. lint were shown when we increased sprays from 2 to 6. Lint yield differences were not as great in the late-planted field; 186 lb. Increase from 0 to 2 applications and a 253 lb. increase from 2 to 3 applications. These treatment regimes and subsequent yield data support the need for change from static to dynamic thresholds.