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PLANT GROWTH AND YIELD RESPONSE TO TRIMAX INSECTICIDE IN GEORGIA

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Abstract

Trimax, containing imidacloprid 4 lb. a.i./gal, was evaluated for yield and growth response from 3 sequential applications beginning at pin-head square. Trimax was applied to Stoneville 4892BR cotton at 1.5 fl. oz./A using commercial application equipment. Two 4-acre blocks (40 rows x approx. 1340') were treated within a 52 acre irrigated field. The first application was made at pin-head square with subsequent applications at 14 and 26 days. COTMAN evaluations were made twice weekly from first application until cut-out. Forty plants were evaluated from each 4-acre Trimax block and from an adjacent area in cotton not treated with Trimax. After harvest delays due to weather, yield was taken from four adjacent paired 4-row picker passes the length of the field at the four borders between Trimax and untreated areas. COTMAN target development curves indicated that 10 days after the second application, Trimax treated areas had a growth response unobserved in the untreated areas. The Trimax curve peaked at 8.7 nodes above white flower (NAWF) while the untreated peak occurred at 7.8 NAWF. Although distinctly different curves, both treatments reached physiological cut-out on August 5, 2002. From the third Trimax application through cut-out, height of Trimax treated plants increased until reaching 10% taller than the none treated. After the second Trimax application, there was an increase in number of squares per acre in Trimax treated over the untreated. During water stress during the boll-fill period, cavitation was observed in the untreated portions of the field but not in the Trimax treated areas. Boll set began 3 days earlier in the Trimax field portion. The number of bolls/acre as calculated by COTMAN in the Trimax treated was 18.6% greater by cut-out. Excessive late season rains at the time of physiological cut-out initiated additional fruiting in both treatments requiring an August 29, 2002 Pix application. The resulting top-crop and lower boll rot negated the observed boll increase and yields were uniform across the field at 1140 lbs. lint/A based on analysis of the four replications.