

Response of Nectaried and Nectariless Pima Cotton to Pink Bollworm

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Abstract

Four Pima cotton entries were grown in large plots at MAC, not treated with insecticide, to determine their response to attack of pink bollworm. P62, an early-maturing germplasm line, sustained significantly less seed damage caused by pink bollworm than did 'Pima S-6', Pima S-6 nectariless, and P62 nectariless. The nectariless trait did not reduce seed damage significantly.

Introduction

The nectariless trait in upland cotton, *Gossypium hirsutum* L., significantly reduces the amount of seed damage caused by pink bollworm. Nectariless strains of Pima cotton, *G. barbadense* L., have become available recently. The objective of the experiment described in this paper was to determine whether the nectariless trait also reduced pink bollworm damage in Pima cotton.

Materials and Methods

In 1991, at the MAC Farm, we grew four Pima cotton entries, as follows: 'Pima S-6' (the current cultivar), Pima S-6 nectariless, P62 (an early maturing germplasm line), and P62 nectariless. The experiment was planted 3 April 1991. Plot size was 36 rows \times 165 m (540 ft). Experimental design was a randomized complete block with six replicates. One center row of each plot was selected and hand-thinned. A 4-m section of each row was tagged and hand-harvested every 2 wk, beginning when bolls began to open, and continuing until all open bolls had been harvested. First harvest was 4 September, and fifth (last) harvest was 8 November. Seedcotton samples were ginned and seed samples were x-rayed to provide an estimate of seed damage caused by pink bollworm. Seed damage percentages were transformed (square root) before analyses were performed. A split-plot analysis of variance was used, with cotton entries as whole plots and harvest dates as split plots. The FLSD test was used to separate means.

Results and Discussion

P62 had significantly less seasonal seed damage (12.1%) than the other three entries, Pima S-6 (16.5%), Pima S-6 nectariless (14.8%), and P62 nectariless (14.2%) ($LSD_{0.05} = 2.4\%$). The P62 germplasm had significantly less seed damage (13.1%) than did the Pima S-6 germplasm (15.6%). This result is attributed to the early maturity of the P62 lines, allowing them to escape some late-season pink bollworm damage. The nectariless lines did not have less seed damage (14.5%) than did the nectaried lines (14.2%). Seed damage increased significantly with each harvest except for the fifth harvest (1st = 4.1%, 2nd = 11.2%; 3 = 15.5%; 4 = 22.0%; 5 = 24.7%; $LSD_{0.05} = 3.1\%$). The entry \times harvest date interaction was not significant.

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