TESTING RESISTANCE OF SELECTED COTTON GENOTYPES TO THE COTTON LEAF WORM *ALABAMA ARGILLACEA* (LEPIDOPTERA: NOCTUIDAE)

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Abstract

Antibiosis of ten cotton genotypes to the cotton leaf worm *Alabama argillacea*, was studied in laboratory. Antixenosis was determined releasing 50 moths inside field cages containing plants of each genotype potted individually. Larvae fed on genotypes 2 (Guazuncho 2 INTA) and 10 (Bulk population T94) showed the smallest numbers in larval weight, pupal weight and time to pupation. Genotypes 6 (nectariless), 5 (glabrous), 7 (glabrous and okra leaf) and 4 (glandless) were the least preferred for oviposition. These results represent preliminary studies toward a continuous characterization of future genotypes registrations in Argentina.

Introduction

Genetic resistance to pests is one of the oldest methods of control and its importance is critical in cotton production (El Zik & Thaxton 1989). There are numerous factors influencing the quantity and quality of the cotton production in Argentina. Numerous pests infest the plant throughout the season, some of them requiring chemical control to stay under the economic threshold (Barral & Zago 1983). Among the primary lepidopterous pests, the "cotton leaf worm" *Alabama argillacea* (Hübner) is of primary importance. Its defoliation action greatly reduces the plant photosynthetic ability, which translates ultimately in less yield and quality of lint and seeds.

To avoid excessive use of insecticides to control the pest, it is necessary to emphasize the development of non contaminant tactics, such as host plant resistance. The use of resistant cultivars is highly compatible with other control tactics.

The objective of the present research is to determine the type and degree of resistance of cotton genotypes to *A. argillacea*, as an initial step toward the development of resistant genotypes.

Materials and Methods

Genotypes

Three cultivars and seven advance lines were evaluated at the initial flowering stage of development:

1 - Cultivar Pora INTA
2 - Cultivar Guazuncho 2 INTA
3 - Line 97806 "okra leaf".
4 - Line 98671 "glandless"
5 - Line 97342 "glabrous"
6 - Line 97898 "nectariless"
7 - Line 352 "glabrous and okra leaf"
8 - Bulk of "frego bract" lines
9 - Cultivar Deltapine Acala 90
10 - Bulk population T94

Plants had an average of three to four squares and seven nodes at the time of the experiment performance.

Insects

A. argillacea larvae and adults used for the tests were obtained from the rearing facilities of the National Institute of Agricultural Technology, at Chaco, Argentina.

Antixenosis determination

A 6x6x6 m field cage covered with anti-aphid cloth was used. Individually potted plants (one pot per genotype and replication) were arranged inside in a 10x10 latin square design. Mated females were released into the cage at 1900 hr. Next morning eggs were counted and the oviposition place was also registered. The test was performed at five different dates (1-3-95; 2-20-95; 2-23-95; 3-6-95; 3-20-95).

Antibiosis determination

Leaves of each genotype were removed, disinfected and put individually into Petri dishes. Treatments were arranged in a completely randomized design with five replications. A neonate *A. argillacea* larva was included in each dish. The test was performed at three different dates (3-18-95; 4-10;95; 5-8-95).

Data analysis

Data were subject to analysis of variance, and the means were separated using Tukey test (α=0.05) (SAS Institute 1985).

Results and Discussion

Significant differences were detected among genotypes for "underleaf eggs" and "total eggs per plant". Genotypes 6 (nectariless), 5 (glabrous), 7 (glabrous and okra leaf), and 4 (glandless) showed the greatest antixenosis effect.

Significant genotype effect was observed for larval and pupal weight, and time to pupation. Genotypes 2 (Guazuncho 2 INTA) and 10 (Bulk population T94) showed the greatest antibiosis effect on the pest.

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