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Brief Articles

OBSERVATIONS ON THE FEEDING PREFERENCE OF THE STRIPED BLISTER BEETLE, *Epicauta vitatta* (Fabricius), TO GLANDED AND GLANDLESS COTTONS[1]

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PLANT breeders have made considerable progress toward developing glandless varieties of cotton, *Gossypium hirsutum* L., in order to utilize the desirable properties of the oil and meal produced from glandless cotton seed.[3] However, since the gossypol contained in the pigment glands is toxic to certain animals, plant breeders are concerned that the glandless varieties might be more susceptible to insect damage. Indications of greater insect damage to glandless cottons have previously been reported.[4] On the other hand, Merkl and Meyer[5] found no indication of preference by the bool weevil, *Anthonomus grandis,* for glandless cotton. The observations reported here are from an experiment undertaken to compare damage from various insects to glandless and glanded strains. The results relate specifically to *Epicauta vittata* (Fabricius), which does not normally attack cotton.

A glandless strain and a closely related glanded check variety were seeded in 6-row plots which were 100 feet long. The test consisted of 6 replications arranged end to end; and the 2 entries were arranged alternately.

On July 18, 1964, a heavy infestation of blister beetles appeared on the end plants of the glandless entry in replication 1. In order to observe their preference for the glanded and glandless plants, the beetles were left undisturbed for two days. During this period, they fed down the glandless plot of replication 1 and damaged the plants in the manner shown in Figure 1. When the beetles reached the end of the glandless plot of replication 1, they passed through the glanded plants of the next replication and moved to the glandless plot to continue feeding (Figure 1). This pattern continued until the feeding had zig-zagged across three replications, at which time the beetles were destroyed with an insecticide. No feeding could be detected on the glanded plants.

Two days after the beetles first appeared in the test, populations of them were established in cages placed over 3-foot sections of the rows in order to observe more closely their preference for the glandless plants. Beetles confined to a cage spanning rows of both entries for 24 hours fed heavily on the glandless plants but fed very little on the glanded plants in the same cage (Figure 2). Beetles placed in a second cage containing only glanded plants had done no appreciable feeding even after 72 hours.

Figure 1. Glandleses cotton plant damaged by the striped blister beetle (left); and undamaged glanded plant (right).

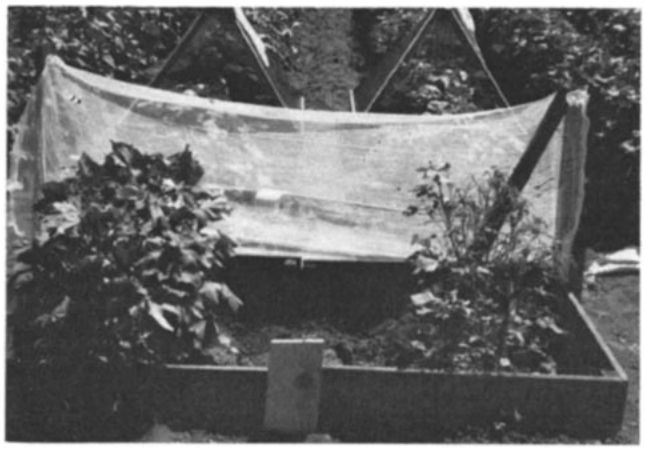

Figure 2. Differences in blister beetle damage on glanded cotton plants (left) and glandless cotton plants (right) after 24 hours of feeding in a cage.

Discussion

The observations reported here show clearly that while the striped blister beetles are reluctant to feed on the regular glanded plants, they readily attack the glandless plants. The preference of this blister beetle species for glandless plants in itself is probably not a serious hazard to the production of glandless varieties because damage to crops highly susceptible, such as tomato, is seldom seen due to the relative scarcity of outbreak populations of these insects. In addition, the blister beetles are highly gregarious and confine their damage to small areas which makes their control relatively easy.

These results do, however, suggest the possibility that other more damaging insects which, like the blister beetle, do not normally attack cotton may cause serious damage to wide-scale plantings of glandless cottons. In that case, the growing of glandless varieties could be more costly because of the necessity for added insect control. Additional research is being conducted to determine whether other insects also show a prefeernce for glandless strains. The economic significance of any such preference may be determined by appropriate appraisal of additional control measures which are necessary beyond those required in the production of glanded cottons.

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