

STATUS OF THE PINK BOLLWORM IN PUERTO RICO DURING 1935-36

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INTRODUCTION

The production of Sea Island cotton in Puerto Rico, once an important industry, has been largely discontinued in recent years, partly because of the damage caused by the pink bollworm (*Pectinophora gossypiella* Saund.). In the year 1931 cotton plantings of the Sea Island variety covered an area of about 20,000 acres, Puerto Rico at that time being the world's largest producer. During the next three years no cotton was grown in Puerto Rico except 100 acres planted on the southern coast in September 1934 for seed. In 1935 approximately 2,000 acres and in 1936 about 3,000 acres were planted on the Island, the major part of these plantings occurring along the northern coast between Aguadilla and Arecibo.

In 1934 the Agricultural Division of the Puerto Rico Emergency Relief Administration started a project to assist in the rehabilitation of cotton-growing on the island. In view of the fact that the pink bollworm was one of the most important factors limiting the production of Sea Island cotton in Puerto Rico, this organization undertook a project to eradicate this pest. Wild cotton that grew abundantly in waste places and was the most important reservoir for the carry-over of the worms was almost eradicated by this organization in 1934-35. During that period 7,896,986 wild cotton plants were reported as having been destroyed.

DISTRIBUTION

During 1935-36 the pink bollworm occurred throughout the commercial cotton-growing region along the northern coast, i. e., from Aguadilla to Arecibo. On the southern coast cultivated cotton was found infested only at Boquerón (La Costa) and at Sabana Grande, on the extreme southwestern part of the Island. Although small plantings of cotton were made also at Ponce, Juana Díaz, Villalba,

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Lajas, and Peñuelas they were not infested. A rather heavy infestation was found on wild cotton along the coast at Fajardo, Yabucoa, and Naguabo, on the extreme eastern part of the Island, and at Arroyo on the southeastern coast. Wild cotton was found infested also at Lajas and at Mayagüez. It appears that the pest's presence on the east and southeast coasts represents a separate infestation, probably from moths carried by air currents from adjacent islands on the east. The pink bollworm was not found on cotton in the interior of the Island. However, no commercial cotton plantings occur in the interior and very few wild cotton plants can be found in that part.

INFESTATION

Since the pink bollworm infestation in 1935 was rather low and occurred late in the season, the damage to cultivated cotton by this pest was negligible. At the time of the highest infestation of that year (December), the boll infestation per field averaged 30.2 percent and ranged from 3 to 95 percent. The principal reasons for this low infestation were as follows: (1) No cultivated cotton had been grown commercially in Puerto Rico during the previous 3 years; (2) wild cotton had been almost eradicated from the island in 1934-35; (3) no other favorable or preferred host plants occur in sufficient numbers to maintain a high population density of the pink bollworm in the absence of commercial cotton plantings over a period of 3 years.

In 1936 the pink bollworm infestation was unusually high throughout the commercial cotton-growing regions of the northern coast, except at Arecibo. As early as April of that year the boll infestation per field averaged 21.6 percent and ranged from no infestation at Arecibo to 63 percent at Isabela. A few fields in the latter locality, including an area of about 30 acres, were completely destroyed by June and the plants in several other fields were so badly damaged that they were pulled up before many bolls had opened. In August 27 fields were examined between Aguadilla and Arecibo. At that time the boll infestation per field averaged 24.3 percent and ranged from no infestation in two fields at Camuy to 100 percent in three fields at Isabela. Although no infestation counts were made in October, it was obvious that all fields were heavily infested at that time. Not less than 50 percent of the crop was destroyed in the district of Isabela and at least 30 percent over the entire cotton-growing area. The following were the principal reasons for this high infestation: (1) A very short dead season, if

any, was provided between the 1935 and 1936 crops, this permitting the pink bollworm to build up a dense population late in the season, thereby increasing the total number of long-cycle larvae to infest the 1936 crop; (2) fields were not thoroughly and immediately cleaned up after the harvest; (3) a high proportion (at least 65 percent) of the larvae in open cotton bolls were of the long-cycle type and the duration of this inactive stage for a maximum period of 172 days resulted in a very high carry-over; (4) although the seed capsules of Maga (*Montezuma speciosissima*) and Clamor (*Thespesia populnea*) were not heavily infested, these plants were factors in maintaining this pest during the dead season; (5) a considerable quantity of infested planting seed was used.

In 1935-36 the pink bollworm infestation on the southern coast was rather low. On cultivated cotton, infestation was found only at Boquerón and Sabana Grande. On eight fields examined in May, the boll infestation per field averaged 12.9 percent, and ranged from no infestation to 37 percent. In one field examined at Boquerón on June 4, however, the boll infestation was found to be 86 percent.

The geographic position of Puerto Rico is such that climatic conditions favor the development of the pink bollworm throughout the year. The long growing period is favorable to the increase of this species and is the most important factor affecting the abundance of this pest on cultivated cotton from year to year.