

I. INTRODUCTION

The stem-boring larvae of the two Pyralid moths Rupela albinella (Cramer) and Diatraea saccharalis (Fabricius) are known to attack cultivated rice in Trinidad and on the South American mainland, but little is known of their life histories or of the nature of the damage done to the rice crop.

The present research project was therefore designed to obtain basic knowledge of the life histories of Rupela and Diatraea on rice; to determine the relationship of both insects to the agricultural practices of rice cultivation, with a view to possible methods of control, and, in addition, to estimate the individual and overall economic damage caused by the two borers.

Previous records of Rupela and Diatraea on rice are confined to certain reports of the Department of Agriculture in British Guiana (1912 - 1951).

In 1913 R. albinella was recorded as occasionally attacking rice in British Guiana, and an outbreak of D. saccharalis in 1925-26 caused appreciable damage.

Both insects attacked rice in 1931. Rupela appeared on rice at the Demerara Experimental Station and the outbreak was kept under observation. It was concluded that Rupela does little damage, being controlled by egg and larval parasites. This Rupela outbreak continued in 1932 when it was noted that 'This pest exhibits a marked periodicity, occurring in vast numbers generally at the commencement of the rainy seasons. Fortunately the attack usually fizzles out, and but little damage is done'.

In 1935, a mildly infested experimental plot showed 14% of the stems bored by Rupela and 2.8% by Diatraea. It is noted that Diatraea is capable of causing 25% loss of crop while Rupela may inflict greater damage than this.

The latest recorded outbreak of Rupela was in 1945 but no observations were made.

The Annual Reports of the Department of Agriculture for Trinidad and Tobago (1918-53) contain no record of either borer damaging rice, but persons connected with agriculture in the colony have expressed the opinion that stem-borers, especially Rupela, are often responsible for marked reductions in yield.

In November 1952 a 75% loss of crop sustained by farmers in the Oropouche lagoon area was attributed to borers. Samples submitted to I.C.T.A. showed that Rupela and Diatraea larvae were present in the rice, and that Rupela was more abundant in the pure-bred varieties issued by the Department of Agriculture.

In the same year, the rice fields at Centeno Experimental Station were attacked, thirteen acres sustaining an estimated loss of 60% of the crop. Mr. Breese, of the Department of Entomology, I.C.T.A., made brief observations on Rupela during the 1952-53 rice season and his results have been made available to the present author.

Damage to rice by D. saccharalis was recorded by Ingram and Bynum (1941) and is stated to be partly the cause of "whitehead" formation, in which the head sets no grain; but mainly results in a weakening of the stem followed by lodging. The annual losses in Louisiana and Texas are put at \$500,000.

There is no reliable account of the nature of damage done by Rupela but it is generally assumed that it is similar to that caused by Diatraea.