

I N T R O D U C T I O N.

The Frog hopper - Aeneolamia varia saccharina, Distant (Homoptera : Cercopidae), formerly known as Tomaspis saccharina, Distant, is by far the worst pest of sugar cane (Saccharum officinarum L.) in Trinidad. Damage is principally caused by the adult Frog hoppers sucking the leaves of the plants, which then develop large necrotic areas, a condition known as "blight". This blight may be so severe that it reduces yields of plant cane but generally the effect of frog hopper attacks is most marked on ratoon cane. The frequent replanting of cane is costly and since it has hitherto proved impossible to eliminate the pest, which has alternative host plants in the form of many grass species, profitable sugar crops can only be grown if control measures are regularly carried out. While permitting ratooning these control measures, which mainly comprise the direct application of insecticides, are still very expensive and not fully effective, the latter point being exemplified by the fact that Caroni Ltd., who produced 75,686 tons of sugar in 1958/59 or 41.1% of the crop in Trinidad, spent £250,000 on the control of frog hopper during the same period. Pickles (1937), reckons that frog hopper may be regarded as the second worst insect pest in the world, he states ... "the frog hopper is responsible in certain years for the loss of a greater proportion of a single country's production of a particular commodity than any other insect, with the exception of the Cotton Boll Weevil, Anthonomus grandis." Consequently it is important that research aimed at finding cheaper and more effective control measures should continue.

The damage done by this pest at the college farms during the past few years has also been considerable and hence it was felt appropriate that further research work should be carried out on its control and incidence, in view of the fact

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that sugar cane has been and will ⁱⁿ future be the main cash crop on the commercial New Farm. ~~parts of Trinidad.~~

These studies included in this report have been divided into three parts :

Part I. An up-to-date critical review of the literature on Aeneclamia varia saccharina, Dist. with particular reference to its chemical control.

Part II. An analysis and discussion of a number of field experiments carried out during the 1960 frogopper season. These included :

(a) A stool dusting insecticidal trial using the most effective and up-to-date insecticides. This experiment was replicated on a field scale.

(b) An assessment of the incidence of frogopper in pasture grasses close to sugar cane.

Part III. An analysis and discussion of a number of field experiments carried out during the 1961 frogopper season and including :

(a) A follow-on of the insecticidal trial of the previous year with particular attention being paid to size of sample and cultural operations before the application of the insecticides.

(b) Further studies on the assessment of frogopper in pasture grasses.

It should be noted that the insecticides used in these studies have already been used on an extensive scale on estates; however the college farms have not got a long history of intensive insecticidal control and therefore frogopper susceptibilities might be different.

Briefly, it might be said that the primary object of this work is to find better means of controlling the pest on the college farms, and results will naturally apply strictly to the

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conditions of these farms, but it is hoped that they will be found applicable to other parts of Trinidad.

THE HISTORY OF PROGRESSIVE IN TRINIDAD

The first reports of blight on sugar cane in Trinidad were made in the nineteenth century (Burt, 1894), and it was not until the early part of the twentieth century that the first outbreak of blight was reported to be due to a fungus (Williams, 1941). During 1907-12, losses due to blight were estimated to be as high as 10% of the crop, which at that time meant a loss of 150,000 per annum on the total island production (1913). In 1914, a year almost free of blight, the export of sugar from Trinidad was approximately 75,000 tons, but in the following year it had fallen to 46,000 tons. Nearly 50% of this drop was considered due to the incidence of blight and it was estimated that the loss was 1300,000.

In 1905, the Board of Agriculture appointed a committee to investigate the cause of blight, and in 1907, following a year of severe blight, a "Frog-hopper Investigation Committee" was appointed to study the problem. Their initial aim was to determine the cause of blight, but even up to 1909 no complete method of control had been devised, though modern insecticides had reduced losses. The Frog-hopper Investigation Committee conducted their studies on biological work and the investigation of soil characteristics in relation to frog-hopper problems, but the more recent work of the past twenty years has been concentrated on the control of frog-hoppers by chemical means. A series of experiments have been conducted to determine the effect of various insecticides on the control of frog-hoppers.

The present investigation is a continuation of the work of the Frog-hopper Investigation Committee, and is intended to determine the effect of various insecticides on the control of frog-hoppers. The results of this investigation will be published in a separate report.