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THE BIOLOGY OF THE CACAO POD BORER, ACROERCOPS
CRAMERELLA EM. (LEPIDOPTERA : GRACILLARIIDAE)
WITH EMPHASIS ON ITS DISTRIBUTION IN DAVAO
PROVINCE AND SOUTH COTABATO
AND ITS NATURAL ENEMIES

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*The Biology of the cacao pod borer,
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ABSTRACT

BERNARDINO, FE CANDELARIO, University of the Philippines at Los Baños, October, 1983. Biology of the Cacao Pod Borer, *Acrocercops cramerella* Sn. (Lepidoptera: Gracillariidae) with Emphasis on its Distribution in Davao Provinces and South Cotabato and its Natural Enemies.

Major Professor: Dr. Clare R. Baltazar

The life history, longevity, description, seasonal abundance of *Acrocercops cramerella* Sn. and its parasitoids, and the degree of infestation of two cacao varieties were investigated under Davao conditions.

The total developmental period of the cacao pod borer from egg laying up to adult emergence was observed to be 28.78 on the average. The average duration of incubation, larval and pupal periods was observed to be 4.0, 16.92 and 7.86 days, respectively.

The cacao pod borer was found to be widely distributed in cacao growing areas in Mindanao.

The assessed bean damage ranged from 5 to 98%.

Three parasitoids namely, Paraphylax sp., Goryphus sp. and Goryphus mesoxanthus Brulle were recorded from the pupae of the cacao pod borer, A. cramerella Sn., the latter from rambutan and the other two were from cacao trees. Preliminary observation made on Paraphylax sp., showed low percentage parasitism ranging from 0 to 8.6%. Some ant predators identified as Monomorium sp. were also observed preying on the pod borer pupae. These are new records for the Philippines.

Rambutan, Nephelium lappaceum Linn., was observed to be an alternate host of the cacao pod borer.

Eggs were first noticed on the 8 week-old pods of the two cacao varieties studied, namely: the mixed Malaysian hybrid and Trinitario, with a pod size of 7 to 8 cm long and 2 to 3 cm wide. The age of the pod most preferred for oviposition in mixed Malaysian hybrid is at 17 to 18 weeks and 14 to 16 weeks in Trinitario.

This study showed that egg deposition on cacao pods may be attributed to three factors,

namely: age, length and width of the pod. In mixed Malaysian hybrid, 43% of the egg deposited on the pods were influenced by these three factors and only 55% in Trinitario. This means that the remaining 57% and 45% of egg deposition on the pods of the mixed Malaysian hybrid and Trinitario, respectively, may be influenced by factors other than age, length and width of the pods.

The highest number of exit holes occurred in April and that the population build-up commenced in March and reached its peak around May and June but it started to decline in May. It was also found out that the presence of larvae on dissected pods cannot be a measure of the degree of infestation.

The percentage infestation was found to be slightly affected by rainfall and relative humidity; as the average rainfall decreased, the percentage infestation also decreased.

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INTRODUCTION

Information on the biology and ecology of insect pests are the bases for an effective control program. Because of the paucity of current information concerning the biology, ecology and control of the cacao pod borer, this study was undertaken to obtain additional information which could serve as guidelines in the formulation of an effective control program.

Importance of Cacao

Cacao has so many uses such as chocolate, beverage and flavor for candies, ice cream and in the manufacture of cosmetics and pharmaceuticals. The major concern of processors of cacao and chocolate products depend mainly on imported cacao beans for raw materials since local supply is very inadequate. It is estimated that processors and manufacturers import 98% of their annual requirements (Rubio, 1981). The imposition of the Import Law in the Philippines in the 1950's resulted in efforts to revive the industry. Efforts of government agencies through a linkage program were aimed to create a self-sufficient cacao industry.