II INTRODUCTION AND REVIEW OF LITERATURE

A field experiment on the use of insecticides in the growing of patchoi (Brassica chinensis communis) was conducted at the St. Augustine Nurseries in the latter part of the wet season (November and December) 1964.

It was felt that such an experiment would be beneficial to those who would grow green vegetables in the tropics and especially to the Government of Trinidad and Tobago, to whom the results of the experiment will be made known.

Vegetables provide protein, vitamins and minerals often found lacking in other foods and form an important part of agricultural production. As with most other intensively produced crops, vegetables tend to be attacked by a large number of insect pests. These pests are capable of greatly reducing the yields from the vegetables.

Specifically, in Trinidad, there is a problem of pests attacking Patchoi wherever it is intensively produced. There are three main pests involved. These are the Mole Cricket (Scapteriscus vicinus. Orthoptera: Gryllotalpidae), the Cabbage Budworm (Hellula Phidilealis. Lepidoptera: Pyralididae), and the Cutworm larvae of the genus Laphygma (Lepidoptera: Noctuidae).

The Mole Cricket (Scapteriscus vicinus)is a pest of seedlings and young plants. The adults and the larger nymphs eat through the base of young plants and can cause very serious losses to Patchoi seedlings in the field. The adult demale lays its eggs in a cavity several inches

/deep in the soil.

deep in the soil. After two to three weeks the larvae hatch and start to feed on young plants or their roots. The larvae pass through eight moults in about ten months to become adults. The adult female lays eggs at intervals during her life of several months. The larvae and adults remain hidden in cavities in the soil during the day and only come out to feed at night. Often the insect will drag young plants into the soil with them so that the plants have disappeared by the next morning.

The cabbage Bud-worm (Hellula Phidilealis)is primarily a pest of maturing plants, rather than of seedlings. The larvae bores into the growing point or into the axils of the leaves of Patchoi with the resultantdeath or retarded growth of the plant. The adult female moth lays eggs singly near the midrib of young leaves. The eggs hatch after a few days and the larvae feed for a short time on the leaf surface before burrowing into the midrib or axil of a leaf or growing point of the plant. The larvae eat downwards into the stalk, pushing their frass out of the entrance hole. After about two weeks, when fully fed, the larvae spins a coccoon and after two days pupates. Pupation can also occur in the soil. After a further ten days, the adult emerges.

Cutworm larvae of the genus Laphygma (several species involved) are pests of both the seedling and maturing Patchoi plant. They are predominantly night-feeders and stay hidden in cavities in the soil by day. At night

/they crawl out....

they crawl out and climb up plants and eat the leaves. The seedlings can often be killed by them. More mature plants suffer from defoliation and leaf cutting which often, in spite of the relatively small areas of lamina removed renders part or whole of the plant unsaleable. The life cycle of the moth Laphygma frugiperda is described as an example of a Laphygma species life cycle. The eggs are laid in a cluster on the upper or lower surface of a leaf. The clusters are covered with scales from the body of the parent. The eggs hatch in five to six days. The larvae then proceed to eat holes in leaves and when a little larger start to feed on the younger leaves. However when abundant the larvae strip leaves of all ages. After five moults in twelve days, the larvae migrate into the soil and pupate. After a fortnight the adults emerge.

Little work has been done on the insecticidal control of these pests. Ballou (1912) suggested that the best method of control of the Mole Cricket was by the use of poison baits. Urich (1918) also recommended the use of poison baits against Mole Crickets. A 3% concentration of Paris Green dry flour applied a week before transplanting was indicated and it was considered that the best results were obtained by putting the bait in a ring of an inch depth and six inches diameter around each plant. Urich recommended the use of lead arsenate at the concentration of 1 lb. per 12 gallons of water with a soap sticker solution against the Cabbage Bud-worm. He also recommended the use of Pyrethrum powder.

/Wolcott (1933)