

The yield records of the tree planted in the field in 1947 are as follows:

| Age of tree (Years) | No. of fruit | Weight (lbs.) | Season          |
|---------------------|--------------|---------------|-----------------|
| 3                   | 31           | 28            | June 10-July 9  |
| 4                   | 37           | 26            | June 20-July 20 |
| 5***                |              |               |                 |
| 6                   | 53           | 48            | June 10-July 9  |
| 7                   | 142          | 97            | June 21-July 19 |

\*\*\* No yield records taken as the crop was very light.

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## THE GUAVA FRUIT MOTH, ARGYRESTHIA EUGENIELLA BUSCK.

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An insect infesting guava fruit was first recognized as an important pest early in 1945. There were severe infestations at this time and many fruit contained two or more larvae of a small moth having the scientific name of *Argyresthia eugeniella* Busck. Guava fruit moth is a name used locally and is the common name hereby suggested for this insect. Moths were originally obtained by E. A. Schwarz from the fruits of a native plant, the Spanish Stopper, *Eugenia myrtiloides* Poir., in Key West, Florida, in March 1912. A description of the species was given by Busck in 1916 (*Proc. Ent. Soc. Washington XVIII* (3): 153).

The insect has been taken in guava fruit near Stuart, Auburndale, and throughout Dade County. It is, therefore, widely, if not universally, distributed in southern Florida wherever guava plants grow. It is not known, however, to exist in Mexico, or in the West Indies.

Infested fruit are sometimes flattened on one side but many fruit that contain larvae are not deformed, nor do they give any external evidence of infestation. Wherever there is an abundance of infested fruit, however, many fruits will have many external scars symptomatic of insect attacks. These scars occur in and about depressions or burrows in the outer part of the fruit, Fig. 1.

Larvae at first make such narrow burrows in the fruit that the burrows are practically invisible. As the larvae increase in size, the burrows they make become larger. In addition to the larger burrows there is more frass and discolored flesh and the discoloration becomes more prominent. The fruit becomes distinctly "wormy," Fig. 2. Some larvae evidently perish in attempting to burrow into guava fruit. Other larvae appear to have perished inside the fruit in their attempts to develop. More extensive feeding is done among the seeds than elsewhere, Fig. 2.

The smallest larvae are whitish in color with a black head. As the larvae approach maturity a pink color develops and increases until mature larvae are sometimes almost ruby red

in color. Larvae attain a length of nearly one-fourth inch, Fig. 3.

Mature larvae leave the fruit and pupate under objects, such as leaves and stones, on,

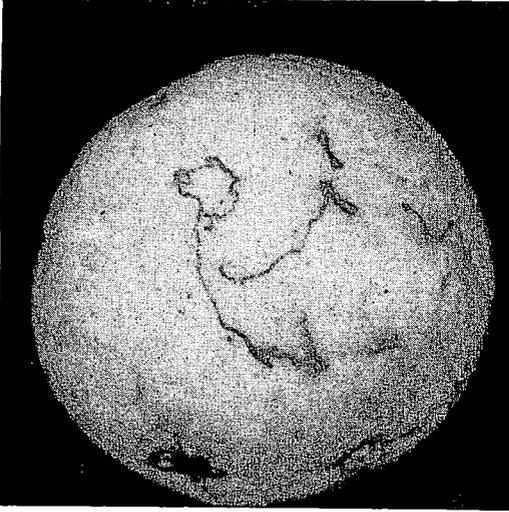


Fig. 1. Scars about wounds made by insects in guava fruit.

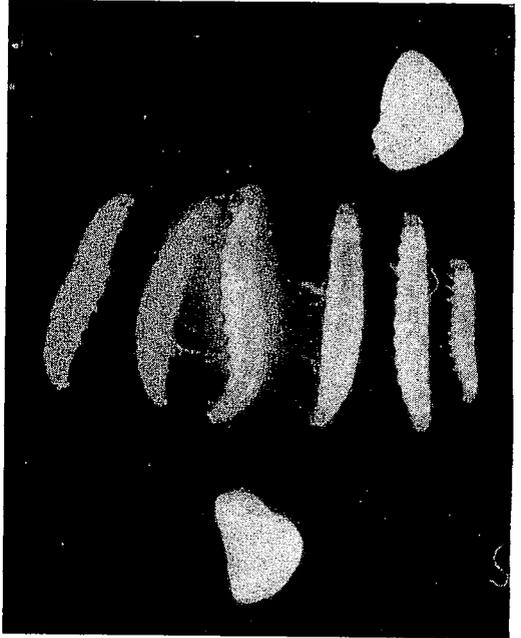


Fig. 3. Larvae of the guava fruit moth. Comparative sizes. (Magnification about 10x.)

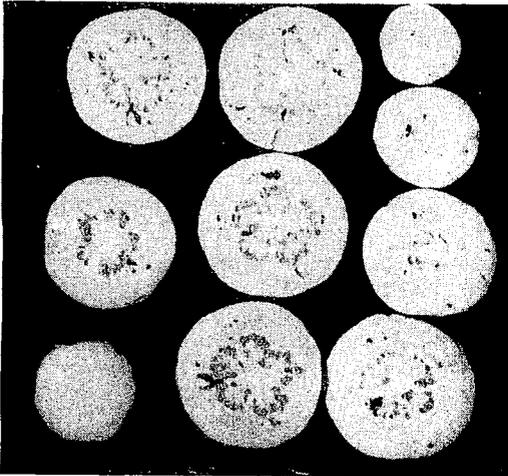


Fig. 2. Guava fruit moth larval feeding in guava fruit.

and just beneath the soil surface. Some larvae emerge from the fruit before it falls; others after the fruit drops or is harvested. Larvae pupate in a double cocoon. The outer part is made with an open network of widely spaced meshes supporting the inner cocoon of closely woven silken material, Fig. 4.



Fig. 4. Cocoon of guava fruit moth. (Magnification about 5x.)

Adult moths are approximately  $\frac{1}{2}$  inch long. Fig. 5. These insects have a general light brown color above and are whitish beneath. Moths rest during daylight hours in shade under leaves. If the insects are disturbed, they dart about and seek hiding places. As the moths come to rest they fold their wings and appear to stand on end, with the body at right angles to the leaf stem, or other surface on which they are located.

Different colors, sizes and kinds of guavas have been found equally infested. Fruit in the tree tops is infested about equal to that nearest the ground.

In a given "crop," fruit which ripens first is less likely to be infested than that which ripens later. This has been observed on repeated occasions in different locations. At the

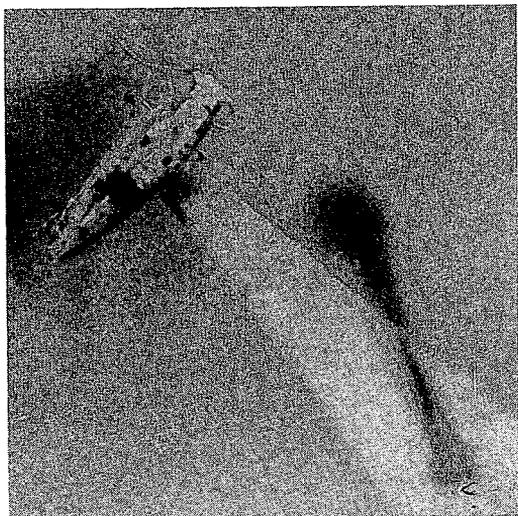


Fig. 5. Adult of the guava fruit moth. (Magnification about 7x.)

beginning of fruit ripening there are only a few insects to deposit eggs. As the amount of fruit increases, there is an increase in material for egg deposition. Although the number of moths increase as the amount of fruit

increases, there is a period of time required for the insect population to increase and to infest the abundance of available fruit. Since there are not enough moths at first to utilize the fruit available for egg deposition, the early part of a crop is not as "wormy" as the last of a crop. Moths increase in abundance, however, so that the last fruit which ripens may be infested with many larvae.

Infested fruit are found every week in the year or whenever fruit may be found. Sometimes at the beginning of a "crop," however, the infestation will be so low in most parts of a grove that many fruit must be examined in order to locate a larva. This variable but continual infestation would be considered in any control effort made.

Infestations are strongly localized in a grove at the beginning of a crop but become more general toward the end of the fruiting season. In two locations the infestations were found localized near the processing plant. In one field among "wild" plants the localized infestation was nearest a dense clump or thicket of some guava, citrus, womans tongue (*Albizia lebbek* (Willd.) Benth.) and other plants. It appears that favorable situations were present near the processing plants and in the thicket for carrying over the insect population between fruit "crops." Marked differences in infestations have been observed within 200 feet of apparent sources of infestations.

Control Efforts.—Efforts to control the guava fruit moth have been meager and the results obtained are lacking in decisiveness. Applications of DDT, 2 lbs. 50% w. p. per 100 gals. water, appear to have reduced the amount of infested fruit. Before any control is recommended, however, more information must be obtained. Factors affecting control include the following: Species of wild plants that are hosts of the insect, continuous infestations, life history, stage of fruit development in which egg deposition occurs, and an almost continuous succession of ripening fruit.