Banana Moth *Opogona sacchari* (Bojer) (LEPIDOPTERA:TINEIDAE)

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Introduction

In Hawaii, banana moth has become a serious pest of potted foliage and other nursery plants as well as bananas. It has also been observed attacking anthurium and orchid plants. The larvae feed voraciously on damaged plant tissue but often bore into healthy tissue and devour healthy phloem, or the plant tissue through which nutrients are transported, causing weakening of the plant structure and stunted growth.

Distribution

In the late 19th century the banana moth was first reported on banana plants in the Canary Islands as well as on sugarcane in the Mauritius and Seychelle Islands in the Indian Ocean. The banana moth is found in tropical to sub-tropic humid regions around the world. It has been reported in the islands off the coast of Africa, the Canary Islands, West Africa, Madeira Islands, Europe, Central America to South America, and the United States, predominately Florida and Hawaii. The first reported introduction of the banana moth into the United States was in 1957. Miami USDA inspection officials intercepted an infested shipment of bananas arriving from Cuba. The banana moth was first observed in Hawaii on rotting coconut treetops in Kaneohe, Oahu in 1982. Subsequently, banana moth was recorded on the Big Island in 1990, on Maui and Kauai in 1991, and on Molokai in 1994.

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Hosts

Though a major pest of bananas and sugarcane, the banana moth has also been found on many different host plants. In Florida, the banana moth has been established on various nursery stocks including *Dracaena* spp., bamboo palms (*Chamaedorea sp.*), aralias (*Polyscias sp.*) and *ti* (*Cordyline terminalis* (L.) Kunth). In Hawaii, the banana moth has been observed on *Dracaena* spp., coconut, rhapis and fishtail palms, anthuriums, orchids, and ginger root. *O. sacchari* seems to be opportunistic and has been observed feeding on a wide range of plant species.

Damage

Banana moths are scavengers, feeding on decaying or dying plant debris. Damage is caused by the larval stages that feed on injured stem, leaf and root tissue and oftentimes on adjoining healthy tissue. The buildup of feeding residue bonded with silky secretions, or frass (Fig. 1), that indicate the larvae's presence is often not readily evident until the damage is extensive.

On palms, the banana moth larvae infiltrate the aerial roots above the media and feed upon any damaged tissue. Its presence is usually detected only after the fronds of the palm have fallen or the stump has deteriorated and weakened. On banana, the larvae attack all parts except the roots and leaf blades. On dracaena, the larvae hatch and feed beneath the bark of the plant, thus weakening the structure of the plant. On anthurium, the larvae burrow into the stems and feed on healthy tissue, causing leaves to dry and drop off (Fig 2).

Life Cycle

Under field conditions, the banana moth's life cycle ranges from 44-53 days. Under laboratory conditions, the cycle may take as long as 70 days, primarily due to lower ambient temperatures and humidity.

Eggs

The female banana moth deposits several egg masses onto a host plant. Eggs hatch in 5-6 days.

Larvae, or caterpillars

Larvae, or caterpillars (Fig. 3), go through several instars, and start off about 1/3-1/2" in length. As they mature through 7 instars, spanning 21-26 days, their color changes to dark brown. During the last instar, the caterpillars will grow to 1 –1¼" with upturned spikes at the end of their abdomens.

Pupae

The last larval instar spins a cocoon out of white silk for pupation. The pupa is concealed under plant debris and frass and ranges from ½-3/4" long and 1/5" in diameter (Fig 4). The pupal stage lasts 13-14 days.

Adults

The adult banana moth (Fig. 5) is a relatively large member of the *Opogona* genus ranging in size from 3/10 – ½". It is predominately dark, grayish brown and has a sub-apical black spot on both the forewing and anal fold. Adults live 5-7 days.

Control

Often, by the time banana moth larvae are detected, it is too late for pesticide treatment. As a result, many plants suffer extensive damage and become unmarketable.

Cultural

Since banana moth damage is not evident for 4-6 weeks following infestation, diligent monitoring for banana moth larvae is critical. Orchid growers have observed that banana moth are attracted to organic potting media (orchid bark, coconut chips), begin feeding on the media, then migrate to the plant and feed on live tissue (Fig. 6). Replacing organic potting media with inorganic substrate may discourage banana moth larvae.

Biological

Studies in Florida with the application of an entomogenous nematode (NOW LEGAL IN HAWAII) to the soil have shown significant reduction in banana moth populations in commercial ornamental greenhouses.

Non-chemical

Hot air treatment (111° F, 30 minutes) of infested plants has been effective in killing banana moth eggs and larvae with little or no thermal damage to the plants.

Chemical

Studies have investigated weekly spray treatments of carbaryl (Sevin), chlorpyrifos (Dursban), pyrethroids (Decathlon, Talstar, etc.), *Bacillus thuringiensis* (Dipel, etc.), among nursery stocks. Presently, no definite prevention or eradication practices have been established; however, studies are ongoing.

References

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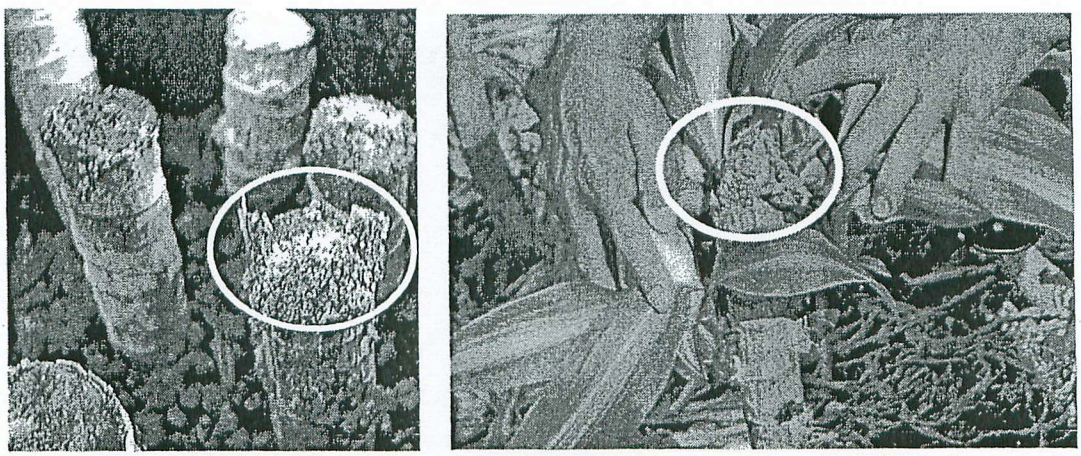

Figure 1. Frass (a mixture of digested plant material and silky secretions) from banana moth larvae feeding on dracaena stems.

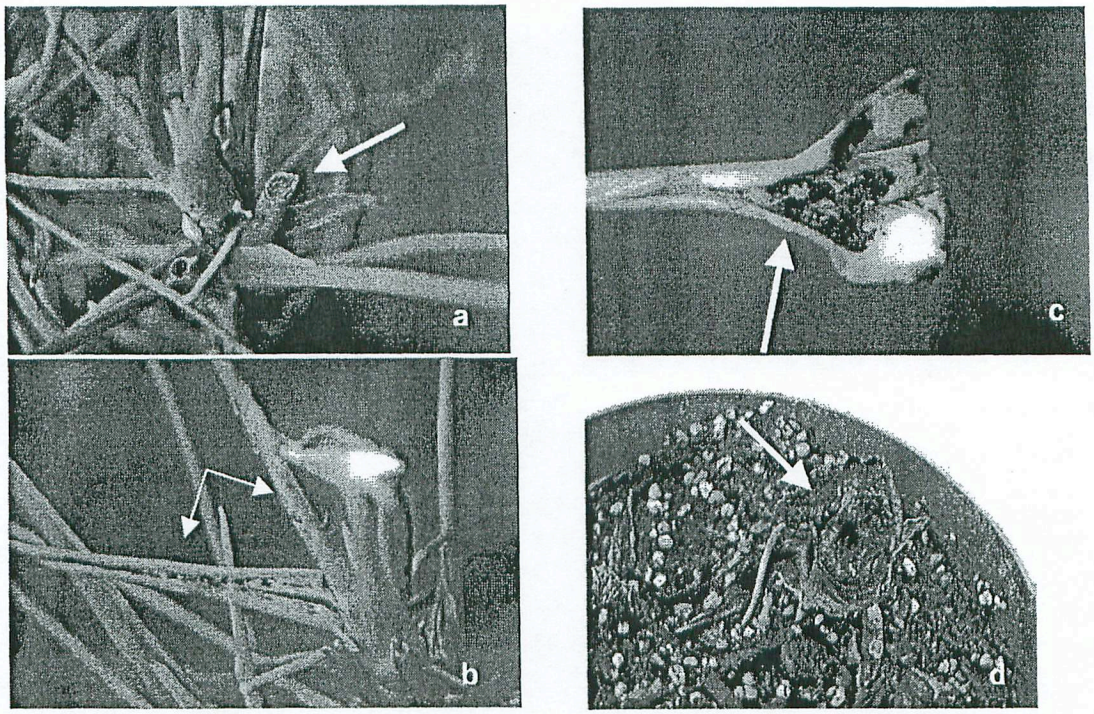

Figure 2. Banana moth feeding damage on anthurium: a) entry hole into stem by larva, b) frass left by larvae, c) damage on base of leaf, and d) damage on base of plant

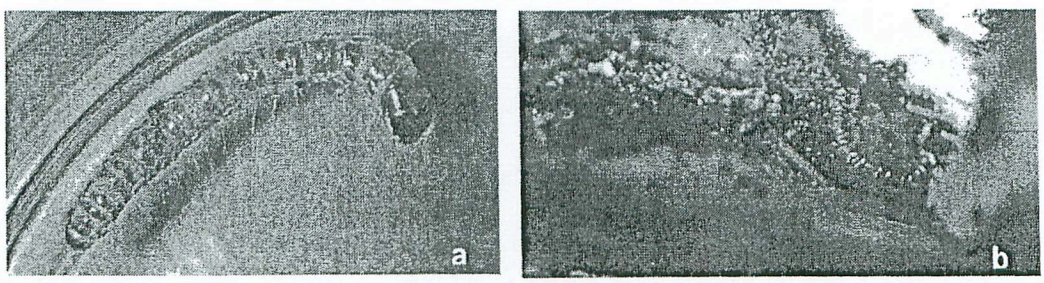

Figure 3. Banana moth larvae (caterpillars). a) actual size ranges from 1/3" for first instar to 1-1/2" for final instar, and b) feeding on decaying anthurium plant tissue.

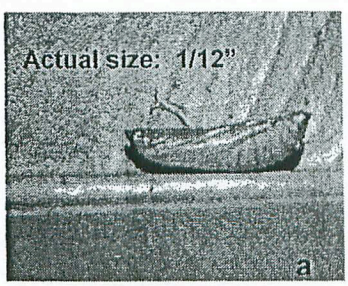

Figure 4. Banana moth pupa

Figure 5. Banana moth adult (photo: Davis & Pena 1990)

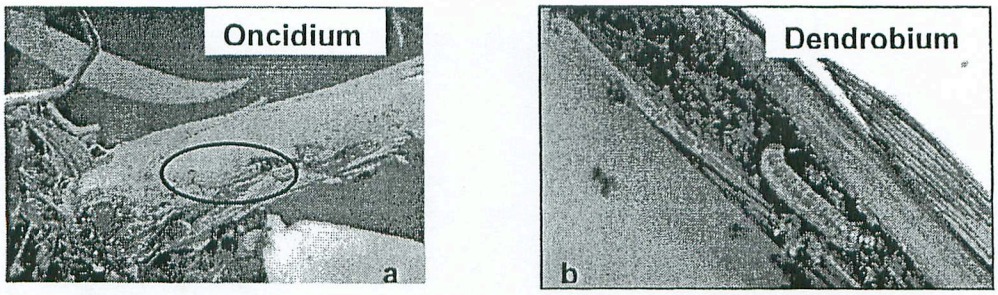

Figure 6. Banana moth larvae feeding on pseudostem of orchids.
(photos: Brian Bushe, UH CTAHR, ADSC)