Today's growers are faced with many challenges. These days it takes a detective to solve ever-increasing pest problems. One such pest problem that takes good detective work is the banana moth (Opogona sacchari). Often thought a thing of the past, it has been chewing its way through the ornamental industry once again. It is a difficult, but not impossible problem for growers to manage.

**Difficult To ID**

What makes this insect pest so difficult is finding it at all. Banana moths are very cryptic — often the adults hide in corners and tight places. The symptoms of banana moth infestation look very similar to those of plant diseases. Unfortunately, by the time the grower notices a decline in the crop, the plants are usually severely infected or beyond saving. As a grower inspects the declining plants, he/she may pull it out of the pot to find no root system. Normally this would lead the grower to believe that there was a pathogenic or physiological problem. It is not always necessary to find the banana moth larvae, because it is possible that the larvae have already completed their life cycle and exited the plant. At this point, the plant is sent to a lab for testing and often comes up with secondary pathogens. The grower will then drench with an array of fungicides and root stimulators without any success. Once the plant has been

**continued on page 88**

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continued from page 86

stressed it is a beacon for more banana moths, and by pushing root growth, it is just providing more food for the destructive moth larva. Because this pest is so difficult to identify, it is a cycle that is east to fallen into.

Biology

The small size of the adult moth, around 10 mm in length, makes it difficult to find. The markings on the wings are brown with gold flecking. Eggs are light yellow and very small, and can be laid singly or in large groups in plant crevasses. Within five to six days, small caterpillars emerge to begin feeding on plant tissue. The larvae are cream colored with a burgundy head capsule. They are never found outside the plant tissue.

Depending on the crop, the larva will feed on different parts of the plant. The roots are preferred on the areca and bamboo palms, while on cane crops the cane stalk is preferred. On other palms, such as pygmy dates, they can be found feeding in the crown on newly emerging foliage. With white birds-of-paradise, the larva eat the roots then work their way up into the base of the plant.

In the last larval stage, the caterpillar will be 26 to 32 mm in length. At this point the larva stops feeding and spins a white silken cocoon, which is covered with plant debris and frass, making it dark in color. In cane crops, these can be easily found by pulling the bark off infected cane. Once in the pupal case, it takes 21 to 26 days for the developing larvae to emerge as an adult.

The moth can complete its life cycle in 50 days. This means that there can be eight generations per year in greenhouse conditions.

Scouting For The Problem

One of the very obvious symptoms of banana moth infestation is plants falling out the containers due to loss of a root system. Cane that is very

Some of the host plants of Opogona sacchari

- Arecaceae – Palms
  - Caryota mitis (Fishtail)
  - Chamaedorea
  - Chrysalidocarpus lutescens (Areca)
  - Cordyline fruticosa (coconut)
  - Phoenix roebelenii
  - Ravenea (Majesty)
  - Palm leaf

- Agavaceae – Cane crops
  - Dracaena fragrans
  - Dracaena marginata
  - Dracaena reflexa
  - Yucca elata
  - Yucca sp.
  - Cordyline terminalis

- Araliaceae – Aralia
  - Polyscias sp.

- Bromeliaceae –
  - Bromeliads
  - Ananas comosus
  - Guitania lingua
  - Nidularium thirctor

- Cactaceae –
  - Cerezo miliari

- Musaceae –
  - Mekne sp.

- Orchidaceae – Orchids
  - Strelitzia reginae
  - Birds of paradise
  - Strelitzia nicolai
soft and bark that easily peels off may also suggest an *Opogona* problem. Piles of frass on the tops of cane or on the soil line are also good indicators. Exit holes are good indicators to look for as well. They are a little larger then the size of a pencil lead and often brown pupal shell can be seen poking out of holes where moths have emerged.

**Control Methods**

Education is the key in controlling banana moth. Know the host plants and learn the symptoms so they can be easily recognized before the crop is unsaleable. Be sure to inspect incoming cane to keep from infecting the nursery. Keep your plants stress-free with proper fertilization, irrigation, and lighting.

Once a crop is infected with banana moth, an assessment must be done to decide if it is economically feasible to treat the crop. Crops like cane are difficult to treat because the larvae are protected inside the cane. On the other hand, crops infected with larvae in the soil or roots can be easily treated.

For a soil treatment, either beneficial nematodes or chemical controls can be used. Beneficial nematodes have many advantages – there is no worker re-entry time, and they provide residual control for several weeks. They can be applied many different ways – chemigation, blow spraying, drenching, and even backpack spraying.

Beneficial nematodes enjoy an additional advantage over traditional chemicals in that banana moth larvae cannot build resistance to nematodes. Growers have also found as a side benefit that their fungus gnat population is greatly reduced as well. Studies done by J.E. Pena, R Duncan, and V. Torres of the Tropical Research and Education Center, University of Florida, IFAS, in Homestead have shown 100% mortality of banana moth larvae in trials.

Chemical control is another alternative. In trials by J.E. Pena, R Duncan and V. Torres, several chemicals were tested. Carbaryl offered control of larvae as a drench, but only when the product came in direct contact with the caterpillar. Chlorpyrifos behaved similarly, while Dipel only offered some marginal control. As with any chemicals, be sure the product you choose is labeled for your application site.

The best control is a combination program – applying beneficial nematodes to the soil for larva control in conjunction with spraying an adulticide. Simple practices like closing nursery doors to exclude adult moths and removing severely infested plants from the property will help. Be sure to scout! Control early or do a preventive program if the crop has a history of banana moth.

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