

Banana Scab Moth

Pests and Diseases of American Samoa

Number 6



American Samoa Community College
Community & Natural Resources
Cooperative Research & Extension 2005

Introduction. Banana scab moth, *Nacoleia octasema* (Meyrick), is a serious pest of bananas in the Samoan Islands and many other places in the southwest Pacific. In addition to bananas, it may also attack *Heliconia* spp. and *Pandanus* spp.

Damage. Banana scab moth females lay eggs on the outside of the banana flower bracts or on nearby leaves as the flower first emerges. Upon hatching, the larvae enter the flower and feed on the developing fruits within. Feeding results in irregular dark brown to black corky blotches on the fruit skin. Light damage may be superficial and confined to the upper end and outer side of the curved fingers. Heavier infestations can scar the entire fruit, cause deformed fingers, or penetrate into the flesh of the fruit.

Life Cycle. Eggs are laid singly or in small, flattened, almost transparent clusters of a few to over 20 eggs. The eggs hatch in 3-4 days and the larvae enter the banana flower where they feed and grow for another 11-19 days before forming pupae inside a loose silken cocoon. Pupation may occur between the banana fingers, in folds of the dead leaves still attached to the pseudostem, or in litter near



Banana scab moth damage



Damage on hand



Banana scab moth egg cluster (A), larva (B), pupa (C), and adult (D)

the base of the plant. Adult moths emerge from the pupae in 8-10 days and are short-lived, dying after about 3-10 days. Females lay approximately 80-120 eggs during their lifetime. The moths are rarely seen, because they hide among dead leaves and vegetation during the day and are active only during the early night.

Natural Enemies. Several kinds of natural enemies attack the banana scab moth, but in general they do not provide sufficient control to reduce damage to acceptable levels. Spiders and ants may prey on the immature stages of banana scab moth. Parasitic wasps may also help reduce banana scab moth numbers. In the Samoan Islands the most common parasitoid is *Chelonus* sp., which lays its egg inside the egg of the scab moth. The *Chelonus* larva then develops inside the scab moth egg and larva. It finally emerges from the nearly full grown scab moth larva to spin a cocoon nearby in which it pupates.

Management. The use of biological control, resistant varieties, or cultural controls have not proven effective for managing banana scab moth. Chemical control works well when used properly. Be-

cause larvae begin damaging the developing fruits when they are still enclosed inside the flower, the best control can be achieved by injecting an insecticide into the flower after it first becomes visible, but before it starts bending over from the vertical position. A single injection at this stage, applied about 1/3 of the way down from the flower tip, will percolate down to protect all the hands inside. This protection will last until the bracts begin to fall away and no more egg laying occurs.

Some growers prefer to lift or remove the flower bracts and dust or spray insecticide onto the fruits after the flower has bent over. This method can stop some of the damage, but not all of it, because by this stage feeding has already begun.

Flowering is more or less continuous in banana plantations in American Samoa, and the stage at which insecticide must be applied lasts only a few days for each plant. Therefore, it is important to check the plantation frequently to ensure that all emerging inflorescences are treated.

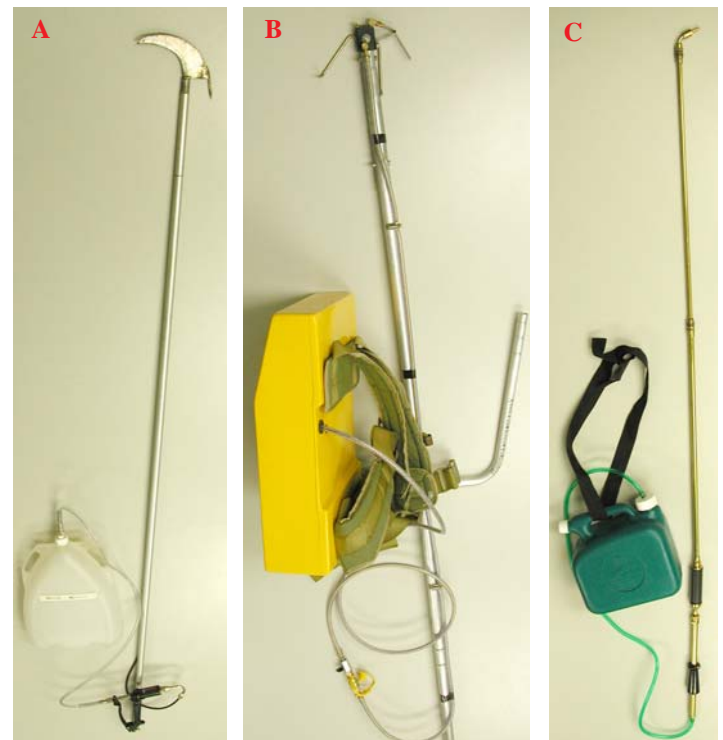
Some banana varieties appear to be less susceptible to scab moth damage. Left untreated, these varieties may produce a satisfactory product for markets that can tolerate some damage.

References

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Inflorescence emerging



Bell injectors (A) Scientific Advisory Services, Tully, Queensland; (B) Sidewinder Precision Tree Injectors, Noosaville, Queensland; (C) White Star Products, Auckland.

This work was funded by a grant from USDA CSREES Integrated Pest Management Program. Prepared by Mark Schmaedick. 2005. For more information contact ASCC CNR at 684-699-1575.