State of Hawaii
DEPARTMENT OF AGRICULTURE

New Pest Advisory
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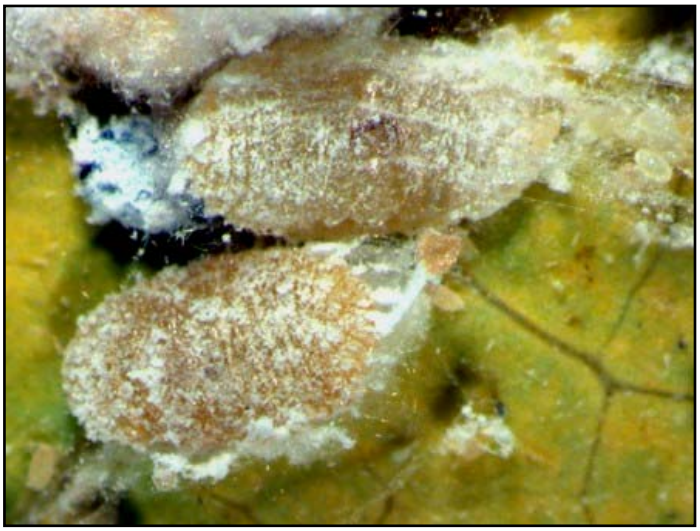

M. Fukada photo

Papaya Mealybug

Paracoccus marginatus
Williams and Granara de Willink

(Hemiptera: Pseudococcidae)

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Introduction. Specimens suspected to be the papaya mealybug, *Paracoccus marginatus* Williams and Granara de Willink, were first observed infesting papaya in the central (Kahului) area of the island of Maui in early May 2004, by staff of the Cooperative Extension Service (CES) and Hawaii Department of Agriculture (HDOA). In June 2004, specimens were determined to be the papaya mealybug by the USDA, Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ) in Honolulu and confirmed by coccidologist, Dr. Gregory Evans, at the USDA Communication and Taxonomic Services Unit in Beltsville, Maryland. In September 2005, this mealybug was collected on Oahu. In August 2006 it was found on Kauai. In October 2006 it was found to be established on the Big Island.

The papaya mealybug is found on leaves and fruits of host plants. Adult females are yellowish with short waxy filaments around the margin and measure 3 mm in length (Figure 1). The dispersal stage is the first instar crawler. When individuals of the mealybug genus *Paracoccus* are placed in alcohol, a bluish-black color appears within a couple days.

Figure 2 (left). Heavy infestation of papaya mealybug on papaya stem.

Figure 3 (bottom). Deformed plumeria leaves caused by the papaya mealybug.

Photos by M. Fukada

Figure 4. Heavy infestation of papaya mealybug on hibiscus.

Hosts. In Hawaii, infestations of the papaya mealybug have been observed on papaya (Figure 2), plumeria, (Figure 3), hibiscus (Figure 4), and jatropha. Elsewhere, the mealybug is also recorded to feed on avocado, citrus, tomato, eggplant, peppers, beans, peas, sweet potato, mango, and others.

Distribution. The mealybug is native to Mexico and Central America. It spread to the Caribbean in the early 1990's and is now found throughout the Caribbean Islands, as well as in Florida. In 2002, the mealybug was found on Guam where it was presumably introduced via shipments of produce from Mexico.

Papaya mealybug infestations are widespread throughout the islands of Maui and Oahu. On Hawaii Island, mealybug infestations have been found on the west-side of the island and, in March 2007, were found on the east-side of the island at Pohoiki in lower Puna. On Kauai, infestations have been found on the southern part of the island.

Damage. The mealybug injects a toxin as it feeds on leaves and fruit which results in chlorosis (yellowing), stunting, deformation, early leaf and fruit drop, and buildup of honeydew. Sooty mold growing on honeydew excreted by the mealybugs interferes with photosynthesis. Heavy mealybug infestations may kill plants.

Biological Control. The tiny parasitic wasps, *Anagyrus loecki, Pseudleptomastix mexicana* and *Acerophagous papayae* have provided excellent biological control of the papaya mealybug in Guam. These natural enemies were introduced from Puerto Rico to Guam in 2002. A year after introduction, a reduction of over 99% of papaya mealybug due to the parasitoids was observed (Meyerdirk et al. 2004). Another tiny wasp, *Anagyrus loecki* Noyes, has been found parasitizing the papaya mealybug on Oahu and the Big Island (K. Murai, pers. comm.).

In the HDOA Quarantine Facility, the parasitic wasp, *P. mexicana*, is being tested for host specificity (K. Murai, pers. comm.). It will be field released after testing is complete and approval for its release from quarantine is obtained. This wasp will parasitize only the mealybug and will not harm plants or people.

Predaceous ladybugs such as *Nephus bilucernarius* (Mulsant), *Scymnus taiwanus* (Ohta), *Hyperaspis silvestrii* Weise, *Cryptolaemus montrouzieri* Mulsant and *Curinus coeruleus* Mulsant have been found in association with the papaya mealybug and is providing some level of control.

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References.

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