The previously known distribution of the papaya mealybug (PMB)

The papaya mealybug, *Paracoccus marginatus* (Hemiptera: Pseudococcidae), is native to Central America. Although specimens of PMB were first collected in Mexico in 1955, the species was only described in 1992. Since then, it has been reported in the U.S. Virgin Islands, The Dominican Republic and Grenada in 1994; Antigua, Saint Martin and The British Virgin Islands in 1996; USA (Florida), Haiti, St. Kitts and Nevis, St Barthélemy and Guadeloupe in 1998; French Guyana, Cuba and Puerto Rico in 1999; Barbados, the Cayman Islands and Montserrat in 2000; the Bahamas and Guam in 2002; Palau in 2003; Hawaii (Maui and Oahu) in 2004, Hawaii in 2006; and the Northern Marianas (Tinian) in 2005.

A serious pest of papaya

*Paracoccus marginatus* is a polyphagous pest, with hosts recorded from 22 plant families. Infestations of PMB occur along the veins of older leaves and on all parts of young leaves and fruits. Honeydew excreted by this mealybug results in the development of sooty mold that covers leaves, fruits and stems, impeding photosynthesis and gaseous exchange. Papaya trees die within a few months after infestation. PMB infestation of *Plumeria* causes the leaves to become curly and new leaves to fail to expand fully. The infested leaves and flowers of the *Hibiscus* become distorted, and the shoots appear bunched.

Invasion of Papaya Mealybug in Asia

R. Muniappan, IPM CRSP, OIRED, Virginia Tech

In May 2008, a team of scientists from the Integrated Pest Management Collaborative Research Support Program (IPM CRSP) supported by USAID found PMB at the Bogor Botanical Gardens in Java, Indonesia. Subsequent surveys revealed it spread to Bali and Sulawesi islands.

In July 2008, IPM CRSP scientists visiting Coimbatore, India found PMB infesting papaya in the orchard at Tamil Nadu Agricultural University. It has since spread to three neighboring districts.

In September 2008, IPM CRSP scientists helped to identify PMB in Sri Lanka, and in November 2008, B. Mapompeth reported it in the northern part of Thailand. In May 2009, IPM CRSP scientists found PMB at Joydebpur in Bangladesh, and in August 2009, it was confirmed in Maldives.

It was identified in South and Southeast Asia in 2008 - 2009

Parasitoids are effective biological control agents for papaya mealybug.

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Classical biological control approach

*Paracoccus marginatus* is an exotic introduced pest in Asia. It is amenable for the classical biological control approach of releasing species-specific parasitoids. This approach has been successfully implemented against PMB in several countries in the Caribbean, some islands in the Pacific and in the states of Florida and Hawaii in the United States.

In May 2009, three parasitoids (*Anagyrus loeci*, *Acerophagous papayae* and *Pseudleptomastrix mexicana* (Hymenoptera: Encyrtidae)) from the USDA APHIS parasitoid rearing facility at Puerto Rico were released to Sri Lanka. By August 2009, there were reports of control of PMB up to 95 to 100% in some parts of the country and both India and Indonesia are planning to introduce these parasitoids from Sri Lanka. One or more of these parasitoids have fortuitously established in Maldives.

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