



Betel Nut Palm Bud Rot (*Phytophthora sp.*) reported from Guam

On the island of Saipan in the Commonwealth of the Northern Mariana Islands there were unconfirmed reports of an outbreak of betel nut palm bud rot in 1997 but no identifications were officially reported. In July 2003 growers in Merizo, Guam, reported the first cases of a disease in their betel nut palms. Professor George Wall from the University of Guam identified the causal agent as a species of *Phytophthora*.

Dr André Drenth of the Cooperative Research Centre for Tropical Plant Protection, Queensland, Australia, visited both Guam and Saipan in April 2004. During the course of this field visit it became apparent that betel nut production is under threat from bud rot caused by *Phytophthora* in Guam. Based on photographs and on discussions with scientists and growers, it was established that bud rot caused by *Phytophthora* was present on Saipan around 1997/1998 but swift action and weather conditions unsuitable for rapid disease development have led to no more reports since 1998. The present survey did not reveal any evidence for the presence of bud rot in betel nut palms on Saipan. Further survey work is continuing.

DNA analysis and host specificity testing is underway to determine if the causal agent is *Phytophthora palmivora* or *Phytophthora arecae*.

The first symptoms on infected nuts are the presence of water soaked lesions at the surface of the nut and the flowering stalks. These lesions spread over the entire nut, giving the nut a dark green colour. Infected stalks often turn black. The first visible symptom of bud rot infection in the crowns is wilting of the spear leaf, which then turns yellow before turning brown. The spear leaf is rotted at the base and can easily be removed or may drop off naturally. By the time this has occurred, the growing point is dead and the palm will not recover, and should be cut down and burned to prevent further spread. Another symptom of the same disease is crown rot, which may start at the base of the leaf sheath of the outer whorl of leaves and then spread towards the centre to the growing bud (Figures 1 and 2). Young seedlings and volunteer seedlings under mature palms are quite susceptible to seedling blight caused by *Phytophthora*. Infection can take place both on the aboveground and underground parts of these young plants, which will wilt and die within a few days. Infected host tissue such as nuts, stalks and leaf sheaths may produce large numbers of spores which spread effectively during periods of wind driven rain such as experienced during tropical storms. *P. arecae* and *P. palmivora* are soil borne pathogens and can infect the roots of palms, particularly of seedlings grown under infected palms. Movement of such seedlings with their soil is another avenue for spread of these pathogens. Because infected betel nuts are the main method for movement between countries, it is recommended that quarantine officers in countries with flights connecting with the infected areas inspect cargo and personal luggage carefully and incinerate any betel nut found. To minimise yield losses and the spread of the disease to other countries, the Guam Department of Agriculture and the University of Guam are undertaking a management and public awareness campaign.



Figure 1. Infected betel nut palm (middle tree)



Figure 2. Leaf sheaths from infected tree

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Communications of pest and disease incidents of interest to the Pacific region should be sent to: **Plant Protection Service, Secretariat of the Pacific Community, Private Mail Bag, Suva, Fiji Islands. Tel:(+679) 3370733; Fax: (+679) 3386326; E-mail:pps@spc.int**