

## IMPORTATION AND ESTABLISHMENT OF *TETRASTICHUS BRONTISPAE*, A PARASITOID OF THE COCONUT BEETLE, IN TAIWAN

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The coconut palm, *Cocos nucifera* Linn. is grown in the tropical and subtropical regions of the world. In Taiwan, it can be found on the east coast and in areas south of Taichung. The number of coconut trees planted in 1960 was estimated to be about 12,000 trees, but it was gradually increased to a total of about 600,000 trees. The trees were planted along highways and around fish ponds.

The coconut beetle, *Brontispa longissima* Gestro, a serious pest of the coconut palm, was first found in Pingtung in July, 1975. Since then, it has spread north- and eastward to Hualien and Taitung. Because coconut trees are tall and planted mostly around fish ponds, it is unsuitable for chemical control because of the danger to fish. Therefore, the biological control approach of this pest is the most practical one.

A number of parasitoids of *Brontispa* beetle are known to occur in Austro-Malayan Region, however, only the larval and pupal parasitoid, *Tetrastichus brontispae* (Ferriere) has been widely used for biological control in the Pacific Region. In Indonesia, for example 60-90% parasitism was recorded.

The first and second shipments of *T. brontispae* were received on 3rd and 5th of November in 1983 through the cooperative efforts of Dr. R. Muniappan, University of Guam. The parasitoids from these two shipments were held in the quarantine laboratory at TARI upon arrival. About 2 weeks later, numerous adults emerged. Since then, the subsequent propagation of this parasitoid was carried out without any problems.

Field releases of *T. brontispae* were made at Chenchinhu (Kaohsiung) and Linbien (Pingtung). Ten releases of 11,456 adults were released at Chenchinhu in January–November, 1984, and 7 releases of 4,881 adults were released at Linbien in February–November, 1984. The percent parasitism recorded from Chenchinhu and Linbien averaged 21.2–79.9% and 9.3–63.4%, respectively (Table 1).

**Table 1. Percentage of pupal parasitism by *T. brontispae* on *B. longissima*  
at releasing sites (1984)**

Month	% of pupal parasitism	
	Chenchinhu	Linbien
Feb.	21.2	9.3
Mar.	78.1	17.6
Apr.	49.5	22.5
May	61.1	36.2
Jun.	79.2	46.6
Aug.	26.4	63.4
Nov.	79.9	58.0

In cooperation with the National Pingtung Agricultural Institute, the studies on field populations of *B. longissima* on the coconut palm prior to, or after parasitoid releases were investigated regularly at the released sites of Kaohsiung and Pingtung. Results showed that the population density of the coconut beetle on the released trees are greatly decreased in Chenchinhu and less in Linbien. However, it is evidently that the introduced parasitoid has already established in this island and hence to perform as a good biological control agent of the coconut beetle in Taiwan.