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RECOMMENDATIONS FOR THE CONTROL OF *PANTORHYTES* IN COCOA

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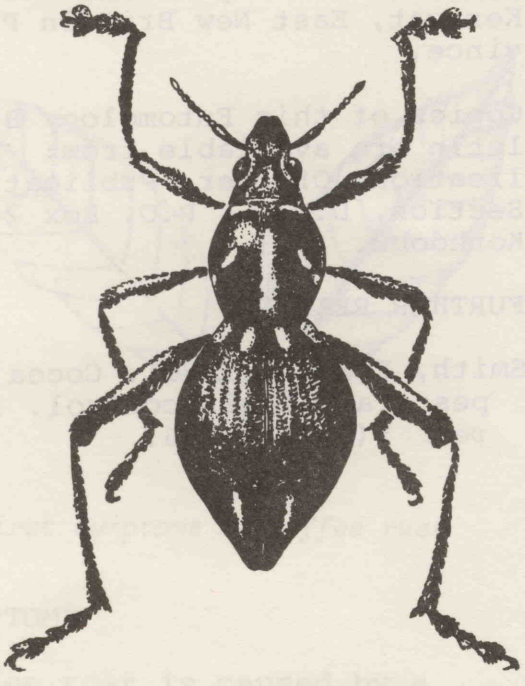
Pantorhytes weevils are the most damaging insect pests of cocoa in Papua New Guinea. The larvae or grubs bore into the trunk, jorquette or main branches of cocoa trees, permanently weakening and frequently killing the trees. Adults feed on the bark of shoots and can occasionally cause severe damage and distortion of seedlings.

Phytophthora bark canker is very often associated with sites of *Pantorhytes* larval damage. In advanced cases, this disease frequently kills trees, especially those older than 12-15 years.



Pantorhytes *cocoa weevil shown four times its natural size*

CONTROL OF *PANTORHYTES*

Many control measures have been tried against *Pantorhytes* but most have met with little success. However, investigations over the past few years have shown that certain conditions in cocoa blocks are unfavourable to the weevils. These findings, which have led to new control recommendations, are:

1. Populations of *Pantorhytes* on cocoa under coconut shade are much less damaging than those on unshaded cocoa or in sole planted blocks under *Leucaena* shade. In interplanted cocoa, there are fewer *Pantorhytes* and they rarely cause an economic level of damage.

2. Where crazy ants occur in large numbers in the cocoa, *Pantorhytes* is never a serious problem.

3. Where *Pantorhytes* have only recently invaded a block, or populations are low, hand picking and destruction of adults together with painting insecticide on larval channels can keep numbers at a low level.

RECOMMENDATIONS

D.P.I. policy has been to develop an approach to *Pantorhytes*

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control using many methods, in the hope of achieving low and stable pest populations. The current recommendations for *Pantorhytes* control are:

1. Reduce or eliminate the spread of *Pantorhytes* into newly established plantings by removing alternative host plants and establishing a vegetative barrier between uncleared regrowth or primary bush and cocoa blocks. Because the adults cannot fly, they must walk across these barriers which they cannot eat and which are difficult to cross. It is therefore recommended that *Pipturus argenteus, Melochia odorata* and *Schuurmansia* sp. be removed, and a barrier strip 15m wide of *Pueraria, Mimosa* and kunai be planted or allowed to grow.

2. In areas of the country where *Pantorhytes* are likely to be damaging, all new cocoa blocks should be interplanted, if possible, under coconuts which are at least 4 years old. Interplanted cocoa is usually much less severely attacked by *Pantorhytes*. Palms should be at least 4 years old so that they can provide enough shade, and not be 'overtaken' by the growth of the young cocoa.

3. In blocks of sole planted cocoa already heavily infested with *Pantorhytes*, colonies of crazy ants should be introduced. It has been shown many times that crazy ants and *Pantorhytes* cannot live together in cocoa. Where crazy ants occur in large numbers, *Pantorhytes* are never a significant pest. It has also been demonstrated that if crazy ants move into cocoa then *Pantorhytes* will be forced out. However, the active introduction and establishment of crazy ants may not be easy and may often be unsuccessful.

The way in which crazy ants drive out *Pantorhytes* and a suggested method of introducing the ants to infested cocoa is described in Entomology Bulletin No. 4 (HARVEST 5(3)).

4. In blocks of cocoa which are only lightly infested with *Pantorhytes*, the hand collection and destruction of adults, plus the painting of larval channels with a 1.5% solution of dichlorvos or fenthion in 25% white oil will give adequate control. Larval channel painting should be carried out about every 2 weeks. The method of making the insecticide mixture and applying it to the channels is described in L.A.E.S. Information Bulletin No. 18.

For further information on *Pantorhytes* or any other insect pests on cocoa contact the Agronomist-in-Charge, Lowlands Agricultural Experiment Station, Keravat, East New Britain Province.

Copies of this Entomology Bulletin are available from: Publications Officer, Publication Section, D.P.I., P.O. Box 2417, Konedobu.

FURTHER READING

Smith, E.S.C. (1979). Cocoa pests and their control. *Harvest* 5(3):186-196.