PEST CONTROL IN COCONUT CULTIVATION

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The science and practise of pest control in coconut cultivation has received greater emphasis since recent times. The study and control of pests and diseases is a necessary adjunct to other agronomic principles and practices that are adopted to make all the best in coconut planting. From the volume of inquiries received, it is evident that the need for crop protection is now being realised with increasing interest by planters.

Among the pests of the coconut palm, in this country, the most destructive is the Red Weevil, entomologically termed, *Rhyncophorus ferrugineus*. The weevil is a reddish brown insect about $1\frac{1}{2}$ inches long. It bears a snout on its head. The female lays eggs on open fresh wounds on the palms. The grubs that hatch out bore into the tree, wherein, they breed through into pupae in cocoons and emerge as adult weevils. The palm usually succumbs to the damage caused when the pest develops into a heavy infestation within the tree.

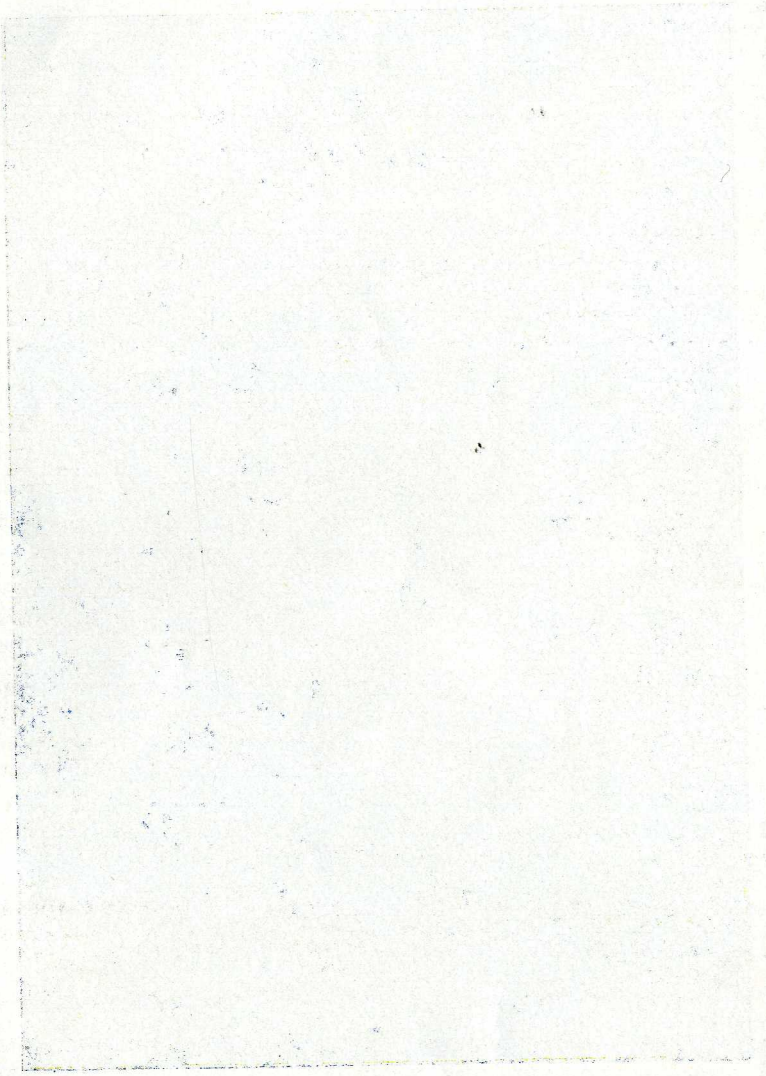
Three contributory conditions for out-breaks of this pest are (1) the increase of young plantations with the replanting scheme in progress, (2) neglect in the practise of phytosanitation and (3) ineffective preventive treatment.

Vigilence, is the first step in the control of this pest, particularly, in areas where it is known to occur in abundance. Frequent inspection of young palms is necessary to treat wounds with tar or a wound dressing. Infested palms are given an injection of the insecticide Metasystox, to kill the insects within the tree and prevent scooping and removal of the pest material which has to be done if the chemical treatment is not given. Palms which are infested beyond recovery, should be cut and burnt thoroughly.

In the course of carrying out control programmes, it has been observed that the pest is tending to increase but it has its own limitations also, which checks the spread. With lack of attention, there should be no surprise, if this pest becomes a greater menace in the future. In spite of advice and warnings for the exercise of adequate attention with respect to prevention as mentioned earlier, there appears to be insufficient cooperation, especially from caretakers of small holdings. Recommendations for the control of the Red Weevil pest are described in the C.R.I. Leaflet No. 37.

There are a number of leaf eating caterpillars that are pests on the coconut palm. The most important of them is commonly known as the 'Coconut Caterpillar' and entomologically-termed *Nephantis serinopa*.

A palm affected by "Leaf Scorch Decline."



The caterpillars feed on the underside of the coconut leaf and consequent to this damage the leaf turns brown never to regain its green colour or its utility to the palm.

A biological control project was begun in 1960. An Entomologist under the Colombo Plan reorganised the work already begun and established a Parasite Breeding Station near Batticaloa, as the pest is endemic in that region. A parasite breeding unit is also attached to the Headquarters at Lunuwila. At both these insectaries, selected parasites of the pest, both indigenous and exotic ones are being mass bred. They are sent out by post, free of charge, to plantations that require them, with instructions regarding liberation. In the study made in this project, parasites specially suited to two climatic zones have been determined. Selective liberation is the method now applied in this project.

Of the five parasites now being bred, three effective ones are *Spoggosia (Stomatomyia) bezziana*, *Perisierola nephantidis* both larval parasites, and *Trichospilus pupivora* a pupal parasite. Two imported parasites, *Microbracon brevicornis* and *Tetrastichus israeli* do not appear to be getting colonized. Information on this pest and its control is given in C.R.I., Leaflet No. 34.

The Coconut Scale pest is one that causes leaves to grow yellow as a result of tiny scale insects feeding on the underside of the leaves. After 1959, out-breaks began to increase steadily for 4 years but in the last year a favourable drop has been recorded. This pest is being naturally controlled by a predator insect commonly known as the Lady Bird beetle and entomologically termed *Chilochorus nigritis*. However, infestations can get wide spread. A spraying of kerosene oil emulsion will successfully control it.

To spray tall palms, the CRI, maintains a crop protection unit equipped with power sprayers and manned by trained personnel. The spraying operations carried out by this unit is free of charge to the planters.

The Nettle grub is a leaf eating caterpillar which can destroy the whole leaf material up to the ekel. Small infestations develop into out-breaks, rapidly, during spells of dry weather. There are several natural enemies of this pest, mostly predator insects but these agents of control have not yet been captured and studied.

At present, out-breaks are brought under control by spraying DDT at 0.1% dilution.

Termites commonly known as 'white-ants' also cause considerable damage to coconut seedlings. Two species of *Odontotermes* have been associated with affected seedlings.

Control is effected by a soil application of Aldrin or Chlordane insecticides.

Among the diseases of the coconut palms in this country, Bud Rot is the most destructive. Isolations of micro organisms from affected buds have yielded two parasitic fungi, *Phytophthora palmivora* and *Phytophthora nicotianae* var. *parasitica*.

The control of this disease remains a problem for two formidable obstacles. Firstly, the difficulty of early detection and secondly, the nature of the disease is such that infection is scattered and preventive treatment has to cover large areas that make such operations costly and prohibitive.

However, for protection, two fungicides recommended are Bordeaux mixture and Copper oxychloride, which has to be applied into the bud region of the crown of the palm.

Leaf blights appear as lesions on the leaves. Seedlings can suffer severe damage. The two fungi associated are *Helminthosporium incurvatum* and *Pestalotiopsis palmarum*.

As imbalanced nutrition is a predisposing factor for infection of these parasitic fungi, the application of a fertilizer with less nitrogen in a mixture with phosphates and potassium, is recommended for control of this disease. For chemical control Copper oxichloride is used.

Of recent origin is the Leaf Scorch decline of coconut palms which was first recorded, prevailing in the Galle district. The cause of this decline remains unknown inspite of investigations so far carried out. A nematologist under the Colombo Plan concluded a study recently, which conclusively indicated that plant parasitic nematodes or eelworms is not a possible cause of this decline. The problem has been lifted to international recognition at the Coconut Conference held last year in Colombo and in a survey conducted by the FAO. Further investigations on the nutritional and mycological aspects of the problem are in progress. Until the cause is known, no remedical measures could be worked out. As an interim measure, the removal of declining palms as they reach uneconomic bearing, and the replanting of good seedlings is now recommended.