A NOTE TO COCONUT GROWERS ON RED WEEVIL

(Rhynchophorus ferrugineus)

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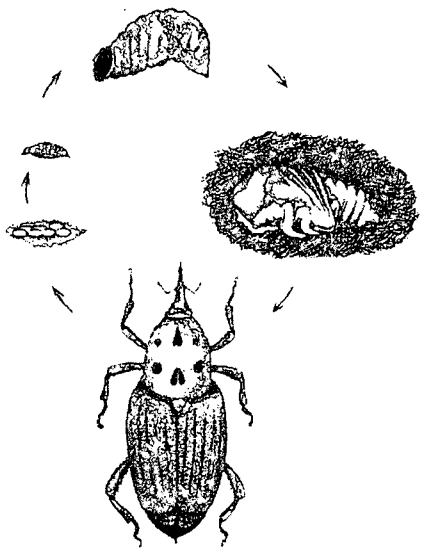
With ever-increasing incidence of the pest damage, Red Palm Weevil is the most devastating pest of coconut that every grower should be aware and distinguish from black beetle damage. Therefore, a list of symptoms that could be seen on the affected palm is very much needed in identifying this particular pest damage at an early stage.

Red weevil, as the name itself denominates, is reddish brown in colour with a long curved snout. Male



and female weevils are distinguishable, with the male having a tuft of hair on the snout and on its front pair of legs. In addition to coconut, date palm, royal palm, toddy palm etc. are the other palms that are prone to Red Palm Weevil damage.

Damage: The female beetle lays eggs in fresh wounds or injured parts of the coconut palm. Very often, young palms of age 4-20 years are susceptible to the pest attack but there are instances where even the older palms are damaged. In most cases these are palms, which are tapped for toddy, having injured inflorescences and trampled petioles. Generally, the Red Weevil does not concentrate on one particular region of the palm as in the case of the Black Beetle, where only the bud region is damaged. The damage could occur in the bole region, trunk or the bud region of the palm.

In the bole and trunk damages, the eggs are laid on cuts or injuries as mentioned earlier. The injuries to the trunk or the leaf bases could happen in many ways.

1. mechanical injuries by knives and mammoties to the trunk .
2. drooping of fronds due to drought may cause injuries to the leaf bases.
3. where there are under plantations, falling of nuts and fronds from tall palms

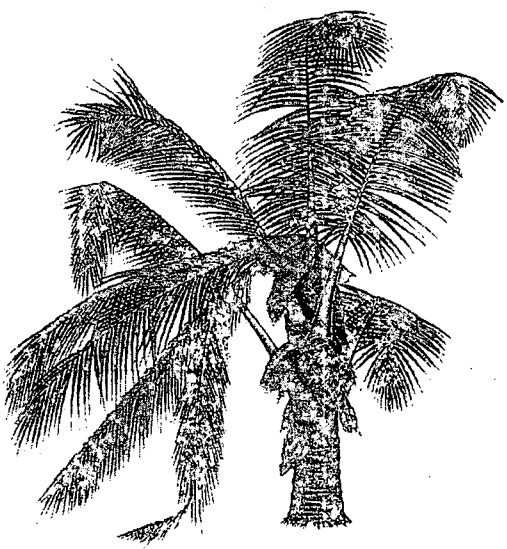
may cause injuries to the younger palms.

4. tying of cattle to the palms would cause injuries to the leaf bases sometimes, as the cattle tend to pull fronds downwards thereby damaging the base of fronds.

Usually splits or cracks on the bole region of healthy young palms are excellent places for the adult females to lay eggs. The light yellowish grubs with a red head, which hatch out from the eggs tunnel its way deeper into the trunk and feed on softer tissues in the trunk. As the grubs become older they construct cocoons with fibres of the tissues of the trunk which is oval in shape. The grub spends its pupal stage inside the cocoon and the pupa becomes an adult in about 12-15 days. The adult weevil, which spends about 7-10 days of its adult life in the cocoon itself, comes out by cutting its way through the cocoon and making a hole on the trunk. Sometimes, the emerging female weevils may opt to start the second generation in the same palm itself, provided that there is sufficient nutrition for its offspring.

But in the case of crown damage, the Black beetle very often causes the injuries on the crown, or bud rot disease, which is caused by a fungus, called *Phytophthora palmivora.* Subsequently, the tiny larvae hatching out of eggs, laid on the injuries find their way directly to the growing point or the heart tissue of the palm. Usually a damage caused to the growing point of coconut palm is fatal, it being a monocot.

Symptoms: Usually the Red Weevil damage is not visible until in the advanced stages. There are instances where the death of a palm could occur within a short spell of time even without exhibiting a single damage symptom. But there are certain indications of the presence of the pest, if closely examined. The yellowing or the wilting of the leaves in the upper and middle whorls of the crown is a first symptom that could be noted. This is due to the feeding of internal tissues by larvae. As the larvae bore into the tissues, the vascular bundles get damaged thereby obstructing the



upward movement of water. As a consequence, the leaves turn yellow as if in drought affected palms.

Also on closer examination, small circular holes with a brownish viscous liquid oozing out with a rotting smell could be noted on the trunk. In the advanced stages of the attack, emergence holes of the weevils could be seen on the crown and on leaf bases. There are instances, where chewed up fibres protrude out of these holes. If these symptoms are clearly shown, the gnawing sound inside the trunk could be heard sometimes by keeping one's ear on the trunk. This

sound is due to the grubs feeding inside the trunk.

Pest Management

Sanitation: As mentioned in the text, Black Beetle is of prime importance in combating Red Weevil. Since injuries inflicted to the palm by Black Beetle may be excellent sites for the Red Weevil to lay eggs, Black Beetle should be kept under check in the plantation. This could be achieved by disposing of cowdung, coir dust heaps and decaying coconut logs which are main breeding sites of the Black Beetle. Also utmost care must be taken not to inflict any mechanical injuries on the palm, such as those with mammoties and knives. Therefore, all injuries on the trunk should be dressed with tar as a precautionary measure. It is important that the growers should have their young plantations inspected (palm by palm) at least once a week for any signs of Red Weevil attack. Any wounds visible should be dressed with used engine oil or coal tar and dried up fronds have to be cut from the very base with a sharp knife and tar has to be applied to the cut surface of the trunk. Especially during drought periods, ensure that all drooping fronds are cut from the very base as described above and the cut end treated with tar. So it is apparent that where there are no crevices or wounds in the palm, there would be no red weevil damages.

Control: If the presence of the pest is detected, administration of a systemic insecticide is the most effective method of control and 10 ml of the chemical, Monocrotophos 60%, is recommended to administer by trunk injection. This is usually done by making a hole through the fresh tissues on the trunk with the aid of a power or hand drill and injecting the chemical with a syringe. In order to avoid water seeping into the trunk, it is important that the hole is sealed with a cement mortar mixture 2-3 days after the chemical injection.

A new technology has also been developed for reducing the Red Weevil population in the field. This is by way of chemical, a synthetic analogue of the aggregation pheromone produced by male weevils to attract weevils of both sexes. In this particular method, a trap with the pheromone is kept in the field to attract and trap the weevils. This new method of control now available to the growers through regional officers of Coconut Cultivation Board or directly from the Coconut Research Institute.

Problems associated with pest management: The detection of the damage is rather difficult, since almost the entire life cycle of the weevil is spent inside the palm. The adult female, which flies from one locality to another, lives for a period of 76 days and lays about 275 eggs in its lifetime.

The unique ability of the pest to complete its life cycle in the host plant, fly from one locality to another and to withstand adverse weather conditions make it even more difficult task to control it completely.

Therefore, the growers should be vigilant, look for the pest as some times the pest or the symptoms could not be seen by a mere glance at the palm. Like for any other pest of coconut, awareness among growers is vital in combating Red Palm Weevil effectively.