FURTHER OBSERVATIONS ON THE RED WEEVIL PEST

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The Red Palm Weevil (*Rhyncophorus ferrugineus)* which causes fatal damage to young coconut palms are fairly widespread in all coconut growing areas in Sri Lanka.

Mostly the trunk and crown regions of palms between 6–15 of age have been found susceptible to Red Weevil attack. Although damage to tall palms is rare, pest attacks often occur in palms which are tapped for toddy, the out ends of inflorescences and injuries on trampled petioles being sites of attraction.

Nature of damage

The female lays eggs only on fresh wounds. The tiny grubs that hatchout from eggs burrow into the palm and start feeding on internal tissues. Red Weevils can thrive a minimum of three generations in one palm.

Voracious feeding of plant tissues by a large number of pest grubs causes retardation and finally the palm succumbs to this fatal injury.

Young palm attacked by Red Weevil.

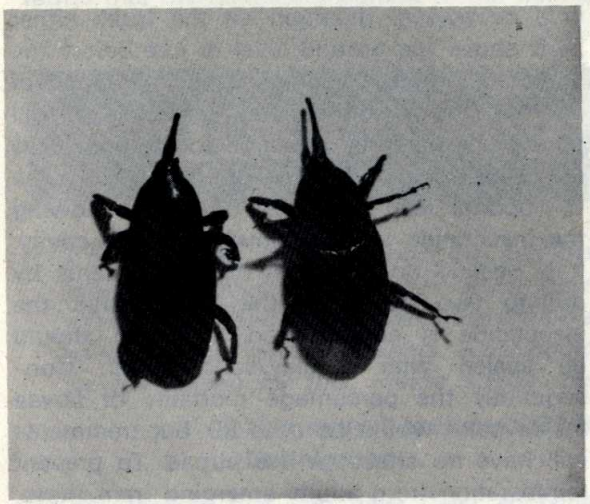
It is rather difficult to distinguish between the male and female Weevil. In the male insect, the snout tip has a tuft of thick hair and on the front pair of legs is a tuft of brown hair. The snout tips and front pairs of legs in females are hairless.

Adult behaviour

The adult Weevils feed by sucking plant sap from injured portions. It has been observed that adults could thrive for a period of 7–10 days even without feeding. They mostly live

in congregations. On splitting severely infested palms, 30–40 adults and over 200 grubs of varing developmental stages, have been observed.

This number exceeds in Kitual trunks. Coconut palms fallen due to Red Weevil attack and Kitul trunks left over on lands harbour



Adult Red Weevil

this pest. Normally, females tend to lay eggs on the very host material upon which it thrived. But if the numbers are excessive the females fly out in search of new breeding sites. The time of flight has been observed to range from 9.00 hrs. to 17.00 hrs. They seldom fly during the night.

A female lays between 200–300 eggs during the first $2\frac{1}{2}$ month period of its life. It pierces the laying medium and oviposits individual eggs, which stick to the plant tissue. Generally 65% of the eggs laid are fertile. But instances have been observed where this brood gets exposed to extremes of weather. During warm weather plant tissues dry up and in wet weather excess of moisture taints the eggs, thereby reducing hatchability. The newly emerged adults become very active and start mating within 24 hrs, and continue to do so during their entire adult period. One mating has been found to be sufficient for producing fertile eggs. Multiple matings increase the number of eggs. The adult life span depends to a great extent on the availability of feeding material and the adult longevity tests indicated female and male survival periods up to $3\frac{1}{2}$ and 4 months respectively, under well-fed conditions.

Life cycle

Females lay white oblong eggs of about .01 mm length, which hatchout in 3–5 days. The tiny grubs with red head capsules are pale yellow, soft bodied and do not possess legs. About 35% of this larval population die due to fatigue exerted by them while burrowing. This is especially so in case of eggs that hatchout on wounds of coconut petioles. After 7 moultings they grow up to about 4 cm, at the 8th and final instar.

During this stage the grubs slowly make its way back towards the fibrous area of the palm and makes a cocoon to pupate inside. While in cocoon, its body transforms from pale yellow to light brown in colour, and its length gets reduced to about 3/4 of the original size. This is the prepual stage. After constructing its cocoon in full, it rests inside for 12–15 days for full transformation to adult stage.

Red Weevil grub

The larval period generally lasts 55–60 days, depending upon the availability and type of feeding material. Red Weevil larvae tend to pupate early when fed on mature tissues. Adults emerging from such pupae have been found to be tiny and weak.

The cocoons so woven are closely knit and do not break easily. Due to various reasons, 20% of pupae do not emerge as adults. During very warm periods, the cocoons dry

up and harden thus preventing the adults from emerging. Under normal circumstances the adults Weevil often pierces the upper end of the cocoon and emerges, after spending the adult life inside the cocoon for 7–10 days.

Identification of the damage and remedial measures

Early detection of Red Weevil damage is difficult. Regular observations of young palms and tapping palms are very necessary to take preventive measures. If oozing in the trunk or bole and fading leaves is observed the palm will have to be immediately attended to. One has to make sure that the palm has actually been infested by Red Weevil before attempting treatments as oozing or bleeding from trunk is not always attributable to Red Weevil damage.

In infested palms the top leaf fails to unfurl properly. The leaves turn yellow and indicate symptoms similar to that in drought affected palms. Feeding of the internal tissues by the larave blocks water uptake of the palm and such symptoms then appear. On close examination of petioles and crowns of these palms, the emergence holes of the pest and broken cocoons could be observed. Infested palms should be treated with insecticides soon after detection. Once the bud is severely damaged treatments will not be effective. Systemic insecticides such as Monocrotophos and Methamidophos have been tested and found suitable for treating Red Weevil infested palms provided such treatments are done before the bud is severely damaged.

A hole will have to be drilled with an auger in a downward direction on the trunk either $2\frac{1}{2}$ ft above the ground level or just below the detected region. Two teaspoonfuls (10 ml) of one of the recommended insecticides will have to be carefully poured into the hole. This could be done by placing one side of a piece of coconut leaf on to the hole and allowing the insecticide to flow slowly into the cavity. It is best to do two split dose treatments by drilling two holes on the trunk. After the insecticide is administered, the hole should be sealed with a clay/sand motar. Consequently the percentage mortality of larvae inside palm would be upto 80 but treatments will have no effect on live pupae. To prevent reinfestation from adults emerging from these, a repetition of chemical treatments after a month is advisable.

Basically it is important to destroy breeding grounds of this insect. Kitul stumps, boles of freshly cut young palms and even of mature palms should be properly disposed of.

Pouring insecticide into the hole.

Cutting of coconut fronds at a distance of 60 cm from its base has been observed to incapacitate the Red Weevil larvae from tunneling up to the base even if the unattend petiole ends attract the weevil for egg laying. Before the larvae could tunnel 60 cm it has been found that the remaining portion of the petiole dries preventing the larval entry into the crown region of the palm.

With regular observations, and with applications of correct pest management systems the Red Weevil pest can be kept well under control and a healthy coconut plantation could be established.