

DEPARTMENTAL NOTES

THE COCONUT CATERPILLAR (POLGASTHALAMBUWA, S. THENNOLAIPULU, T.)

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EXTENT AND NATURE OF DAMAGE

SOME ten years ago the coconut caterpillar (*Nephantis serinopa*) had become established in the majority of the coconut areas on both the eastern and western sides of the Island, and its outbreaks were more frequent and extensive on the eastern coast than on the western. This caterpillar then continued to spread inland in the North-Western Province and for a few years it became a periodically serious pest in this Province, while its attacks became almost continuous in the Batticaloa district of the Eastern Province. Serious and prolonged attacks in any area cause a gradual weakening of the infested palms which may result in subsequent loss of crop. Within the last two or three years, however, the severity of these attacks has gradually decreased on both sides of the Island and this improvement may be attributed partly to the general application of the scheduled control measures and partly to the increased efficiency of its parasitic enemies in certain areas.

The actual damage is done by the caterpillars, which gradually eat away the undersides of the leaflets of the older and lower leaves, so that they first of all become badly spotted. Then if the attack continues for some time the infested leaflets gradually curl up along their whole length to form tubes within which the caterpillars continue to feed until every green portion of the leaflets are eaten and they gradually turn gray and die (Fig. 5). On a badly infested estate the majority of the leaves on almost every palm become completely gray and shrivelled, only the younger leaves remaining green and uninjured. As indicated above, the vitality of heavily infested palms is lowered by repeated attacks and on neglected estates a noticeable reduction in crop may follow later. It is possible that palms which have been weakened by years of starvation and neglect, by attacks of the coconut beetles or by disease, may die after repeated attacks of the caterpillar, but usually palms on well-manured estates recover rapidly even after a heavy infestation, provided that the pest is not allowed to continue its ravages indefinitely.

LIFE-HISTORY AND HABITS

Moths.—The moth, or winged adult stage, is a small grayish insect which usually rests with its two pairs of wings folded together so as to cover the abdomen or hinder portion of the body (Figs. 1 and 6a). The male and female moths are similar in appearance, the males being usually smaller than the females. During the daytime the moths are inactive and remain for long periods resting on the leaflets of the older leaves or sometimes among the fibrous sheathing at the bases of the leaves. Even when

disturbed by the violent shaking or beating of the leaves they only flutter away for a short distance and soon settle down again on other leaves. During wet weather they may retire to more sheltered places and may sometimes be found under the cadjan roofs of estate sheds. They are usually more active at night when mating and egg-laying take place.

Habits of oviposition.—The female moths usually start laying eggs within about 2 days after emergence from the cocoons which are formed on the undersides of the leaflets. They may either lay their eggs in small batches on the surface of the leaflets under or near the edges of the larval galleries and cocoons (Figs. 2 and 6b), or they may fly to an uninfested leaf on the same palm or an adjacent one and lay their eggs in small masses on the under-surfaces of the leaflets or in rows in the grooves of the "ekels" or midribs. Sometimes the eggs may be laid on the basal portions of the leaves covered by the fibrous sheaths. Breeding experiments carried out at Peradeniya and at Kurunegala have shown that the moths may lay from about 50 to about 350 eggs and that the average number of eggs per moth is about 200. The eggs are laid in small masses daily for periods ranging from about 4 to about 10 days.

Eggs.—The eggs are oval, very small and creamy white when freshly laid, but gradually turn pinkish after two or three days (Fig. 2). A fully developed egg is shown enlarged in figure 2a. The eggs were observed to hatch in about 7 to 10 days at Kurunegala and in about 6 to 9 days at Peradeniya.

Caterpillars.—The young caterpillars are very small and slender with black heads and pinkish bodies. At first they settle down in the groove of the midrib on the underside of a leaflet and cover themselves with a few threads. After feeding has begun they gradually cover these threads with small pieces of leaf tissue and pellets of waste matter to form protective galleries, more than one caterpillar often feeding under the same gallery. These brownish galleries are gradually extended to take in fresh portions of the under surface of the leaflets and are widened as the caterpillars grow. The caterpillars may feed outside their galleries, especially at night. They are very active and when disturbed they move backwards or forwards inside the galleries with equal rapidity. If a large number of caterpillars start on a single leaflet this soon becomes partially covered with galleries and the eaten portions turn brownish-gray and die. (Fig. 6). The leaflets are eaten further by the second brood of caterpillars and Fig. 6b shows the galleries of young second brood caterpillars radiating in all directions from the cocoons under the edges of which the eggs were laid.

Cocoons.—The caterpillars become full-grown in about 5 to 7 weeks at Kurunegala and in about 6 to 8 weeks at Peradeniya; two caterpillars are shown at Figure 6c. They spin their oval, silken cocoons usually on the undersides of the leaflets, covering them thickly with small pieces of leaf, etc. The caterpillars, after constructing their cocoons, gradually shrink in size and change within about 1 to 2 days into brown pupae inside the cocoons. Two cocoons are shown in Figure 6b, one with the top removed to expose the pupa, while Figure 4 illustrates a cocoon turned over to show the pupa inside. The pupal stage lasts for about 7 to 10 days at Kurunegala and for about 7 to 13 days at Peradeniya. The moths begin laying eggs for another brood within about 2 days after emerging from their cocoons.

CONTROL MEASURES

Cutting and burning of infested leaves.—In districts where the coconut caterpillar is known to occur, all superintendents of estates and occupiers of town and village coconut areas should always be on the lookout for the first sign of any spotting of the lower leaves. If it is suspected that an attack has started then a few leaves or portions of leaves should be cut off and examined. Then, if definite evidence of the pest is found, the most effective and the simplest method of checking further spread is to remove and burn without delay all leaves or portions of leaves which bear the slightest signs of caterpillar attack. At this stage it is usually only the oldest leaves which are affected and their removal will destroy numbers of the eggs, caterpillars and cocoons, if the leaves are burnt within 12 hours of removal, as is required under the Plant Protection Ordinance. On young palms the damage can be detected easily and estate labourers can be sent round to cut off and burn all portions of the leaves. Palmyrah palms are also attacked by this caterpillar and all such palms growing on coconut estates or along roadsides should be treated as soon as the pest is noticed, or they should be removed altogether if they are found to serve as regular breeding places for the caterpillars.

GENERAL REMARKS

All coconut growers should keep their palms in as vigorous a condition as possible by regular cultivation and manuring, and coconut areas should be kept clean so as to prevent the Black Beetle and the Red Weevil from breeding and attacking the palms. Vigorous palms are able to recover more rapidly from caterpillar attacks than those which are usually starved and neglected. All coconut growers in any district known to be infested by this caterpillar should co-operate to keep the pest in check by seeing that their own palms are kept as free as possible from attack. If the control measures are carried out by everyone concerned as soon as the pest appears, it should be possible to prevent a recurrence of the serious and wide-spread outbreaks which occurred a few years ago on both sides of the Island.