

# PESTS OF ARECANUT AND THEIR CONTROL

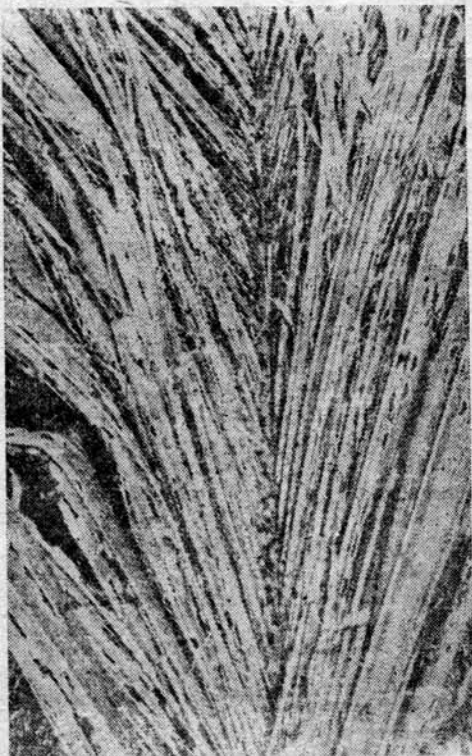
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The arecanut or betelnut palm is infested by more than ninety species of insect and non-insect pests. In many cases infestation by pests results in reduced yield of bearing palms and poor establishment of younger palms. While pest attack on fruits and inflorescences causes direct crop loss, attack on vegetative parts like leaves, stem and roots causes indirect crop loss. Among the many insects found infesting the arecanut palm only a few are considered to be major pests. Details on their nature of damage and control measures to be undertaken are given below.

## Spindle bug (*Carvalhoia arecae* Miller and China)

The pest is seen in colonies in the innermost leaf axil at the base of the spindle. Both adults and nymphs suck sap from the tender leaves and spindle resulting in necrotic patches which later turn brown. Subsequently the affected tissues dry up and break away leaving holes on the leaves. The continuous attack of the pest results in a sickly and stunted appearance of the palm. The adults are reddish black and nymphs are pale green to brown in colour. Adult bugs lay eggs into the tissues of the unopened leaves.



*Areca* leaf damaged by *Carvalhoia arecae*

The total life cycle from egg to adult takes about 20-35 days. The incidence of the pest is more in Southern and Central Kerala and also in parts of Dakshina Kannada in Karnataka. This is a persistent pest on the crop and the pest population is high during the monsoon and post monsoon periods.

Spraying the crown and spindle region with BHC 0.125% (250 g BHC 50% WP in 100 litres of water)

controls the pest. The spraying has to be undertaken at monthly intervals as long as the infestation continues. Since the infestation is more during the rainy months, filling the leaf axils around the spindle with granular insecticides is also recommended. Phorate 10% (Thimet 10 G) or Carbaryl 4% granules at the rate of 10 g per palm at three month intervals is recommended for effective control of the pest.

## Mites

Three species of mites infest the arecanut palm. They are the red mite, *Raoiella indica* Hirst, the white mite *Oligonychus indicus* Hirst and the calyx mite, *Dolichotetranychus* sp. The former two species infest the foliage and the latter species infests the calyx region of tender nuts. The foliage mites are seen in colonies on the under surface of leaves and suck the sap as a result of which the affected portions lose their green colour and develop yellow patches. In a later stage these patches coalesce, turn bronze coloured and the tissues dry up and wither away. In severe cases of infestation these mites are seen on the surface of tender nuts also. The life cycle of both the mites is completed in 10-15 days. Generally colonies of red and white mite co-exist on the same leaves. The build up of the mite population begins with the post monsoon period and reaches its peak during the summer months during April-May. Young seedlings are more susceptible to the attack of the pest. The mite infestation is more on the outer leaves and direct exposure to sunlight and moisture stress enhance the pest incidence during summer months.

Both species of mites can be controlled by spraying Dicofol (Kelthane) at a concentration of 186 ml in 100 litres of water. The lower surface of the leaves should be given a good coverage and the spraying repeated at an interval of 15-20 days if there is a recurrence of the pest. The mites are kept under check to a certain extent by a number of indigenous predators especially when the pest population is meagre.

Immature nut fall occurs as a result of calyx mite infestation, and its occurrence is common in Central Kerala. This pest can be controlled by the application of Dimethoate 0.05% (Rogor 30 EC at a concentration of 1.5 ml per litre of water).

## Root grub (*Leucopholis burmeisteri* Brenake)

The root grubs or white grubs are found to infest arecanut palms in all areas. The root grubs are seen typically in low lying and clayey soils with a high water table. The grubs feed on the root tips initially and later the entire roots are eaten away. In severe cases of infestation the bole of the palm is also eaten away by them. The infested palm exhibits aerial symptoms such as yellowing of leaves, tapering of stem, tender nut fall and reduction in yield. The grubs are usually seen at a depth of about 10 cm in the soil when there is sufficient soil moisture. During dry periods they move further deep into the soil.

The pest has a prolonged life cycle. The grubs have a typical soft U-shaped body. The adult beetles are chestnut brown in colour and they emerge in large numbers with the pre-monsoon showers. The eggs are laid in the loose soil around the root zone of the palm.

The most important factor to be considered for the control of the pest is the timely application of insecticides. The pest can be controlled by the application of soil insecticides. This has to be applied twice a year, once just before the onset of south-west monsoon and later in September-October towards the end of monsoon. The pest can be controlled by the application of Phorate (Thimet 10 G) granules at 8 g per palm or Dimethoate (Rogor 5 G) granules applied at the rate of 30 kg per ha. The treatment has to be repeated for at least 2-3 years for obtaining a good control of the pest. Improvement of soil conditions and drainage facilities will also be beneficial in reducing the infestation.

#### **Inflorescence caterpillar (*Tirathaba mundella* Walk.)**

The caterpillars of this moth feed on the tender flowers of the inflorescence. The adult moth lays eggs into the unopened inflorescence through punctures made by slugs on the spathe. On hatching the caterpillars begin to feed on the tender flowers. The caterpillars are dull white in colour with a brown head. The whole inflorescence is made into a wet mass of frass by the caterpillars. Due to the webb-

ing of the inflorescence the natural opening of the spathe does not occur. The life cycle of the pest is completed in 25-30 days.

For the control of the pest, spadices showing external symptoms of infestation such as presence of frass outside or slug damage should be force opened and sprayed with Malathion 0.1% (Cythion 50 EC at a concentration of 2 ml per litre of water). Since slugs are predisposing factors for the pest incidence they may be controlled by means of poison baits. The bait is prepared by mixing bran and cement in 13:2 ratio with one part of metaldehyde.

Other than the above mentioned major pests, the arecanut palm is also occasionally infested by pests of minor importance. The infestation by these pests is sporadic in nature. The shothole borer, *Xyleborus perforans* W. sometimes attacks the palm through the basal portion and bores upwards. Numerous holes and frass are seen on the affected stem. Application of BHC on the stem is effective in controlling the pest. The stem weevil, *Diocalandra stigmaticollis* Gyll. attacks the tender portions of the stem in the nodal region. Protection of the stem from sun scorch minimises the infestation. Application of contact insecticides is recommended for its control. Infestation by scale insects, mealy bugs and thrips are also sometimes noticed on arecanut palms. They can be controlled effectively by foliar application of systemic insecticides.

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