Distinguish the Nut Infestation by Eriophyid Mite and Coreid Bug in Coconut

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Recent reports on the incidence of a few emerging pest problems in coconut plantations in several parts of India present an alarming situation. The multilocational emergence of new pests agrees to the natural phenomenon that, over years minor pests once not known for the severity emerge as potential pests of crops due to changing scenario in agriculture. The nut infesting eriophyid mite which was first reported in India from Ernakulam District during 1998 has spread to almost all coconut growing tracts in South India within a short spell of two years. The wide spread occurrence of coreid bug in certain parts of Kerala particularly in South Kerala recently is another emerging pest problems in coconut. Both these pests infest nut and result in shedding nuts of various growth stages and malformation of mature nuts. It is necessary to differentiate between the symptoms of attack by both pest. With this knowledge only suitable management measures can be taken up.

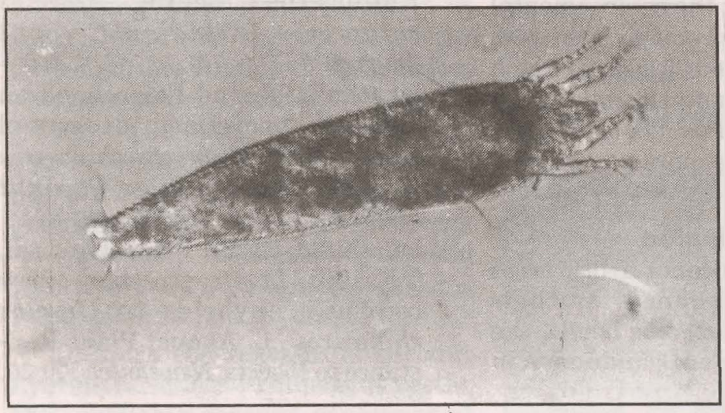

Fig 1 : Eriophyid mite, A. Guerreronis - *Microscopic view*

Description

Eriophyid mite

The Eriophyid mite *Aceria guerreronis* K. is elongated and worm like in appearance with a creamy white colour. Body is finely ringed and beset with bristles. (*Fig 1*). It is microscopic and the adult measures on an average 250 microns in length. They bear two pairs of legs towards the anterior end of the body. The life cycle is completed in 7-10 days and the adult female lays about 200 eggs. All the life stages of this pest are seen inside the perianth.

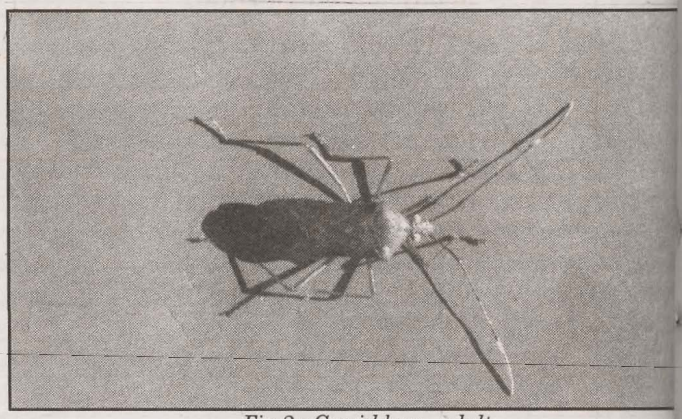

Fig 2 : Coreid bug - adult

Coreid bug

The coreid bug, *Paradasynus rostratus* Dist., adult is chocolate brown in colour measuring about 2cm in bodylength. (*Fig. 2*) The immature stages (nymphs) are **reddish brown in** colour. Eggs are laid in clusters on the spathe, matrix or on the base of leaf sheath. The life cycle is completed in 25-34 days and adult has a longevity of 49-53 days.

Habitat and nature of damage

The eriophyid mites inhabit the tender portion of the nut covered by the inner bracts of the perianth. They multiply and colonise very fast by sucking the sap from the tender meristematic tissues. They generally harbour the immature nuts, one to five months old. However fresh infestation is noticed upto six month old nuts also. *A guerreronis* is present in the field throughout the year and is spread through wind.

Feeding marks which grow out of the perianth appear initially as whitish **triangular patches, further** they develop to triangular yellow patches turn brown and later develop into longitudinal fissures as the nut grows **and finally appear as** warts (*Fig 3*). **The feeding points** on the **tender tissues of the button is** visible as brown patches (*Fig 4*). Infestation results in button shedding or formation of undersized nuts with warts.

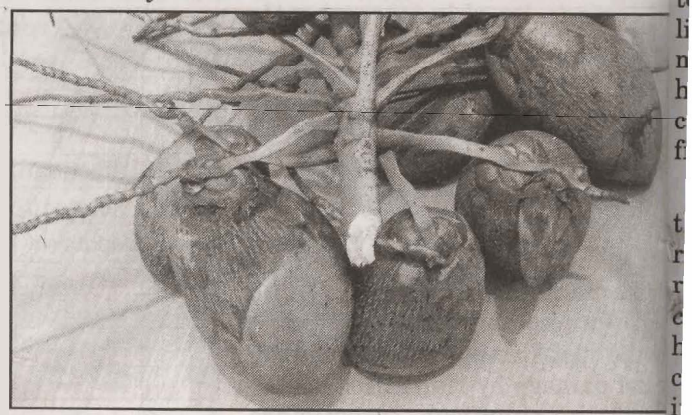

Fig 3 : Eriophyid mite affected mature coconuts

The coreid bug inhabit the crown of the palm. Nymphs stay gregarious and both nymphs and adults suck sap from the tender buttons of 1-3 months old. Adults feed on 4 month old nuts as well. They suck sap by piercing their needle like mouth parts just below the perianth, or through the floral bracts. While feeding, saliva is injected into the tissues. This is toxic and the feeding points develop into brown lesions in a short period which can be seen very clearly by removing the perianth (*Fig 5*). Depending on the quantity of saliva injected and location of feeding the button may shed or develop into undersized nuts. Affected nuts which are retained in the bunches later develop malformations with cracks and crinkles on the surface (*Fig 6*).

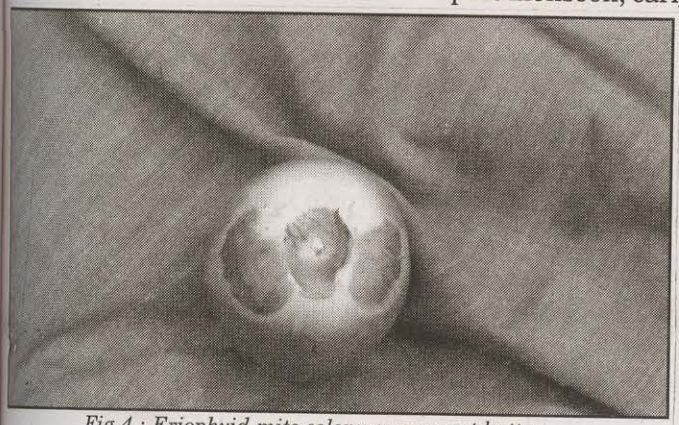

Fig 4 : Eriophyid mite colony on coconut button

Gummosis is also seen sometimes on the infested nuts. Maximum pest incidence is noticed in post monsoon period from September to December. Adult can fly and spread from one palm to another. However, the spread is very limited when compared to eriophyid mite. Coreid bug has many alternate hosts like cocoa, guava, tamarind, cashew, passion fruit. etc, where the fruits are infested.

Draining of the sap by the attack of these pests from the young buttons results in poor development of nut, reduction in nut size and kernel content and impair the growth of the husk rendering it unsuitable for the coir industry. Extreme cases of infestation results in formation of barren nuts.

Co-existence of the eriophyid mite and coreid bug in the same palm was observed during 1999 in several gardens in Trivandrum District, where coreid bug was rampant for the past few years.

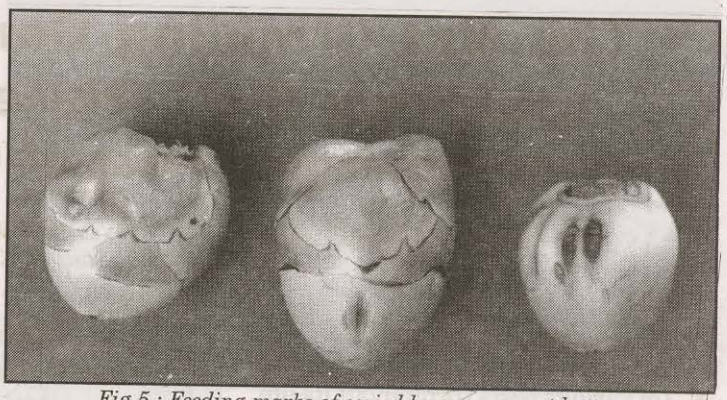

Fig 5 : Feeding marks of coried bug on coconut button

Management

Studies carried out at Central Plantation Crops Research Institute of the population dynamics of these pests suggest to adopt plant protection operations once in three months. The pest management operations can be scheduled during post monsoon, early summer and peak summer months.

For management of eriophyid mite spraying of pesticides / bio-pesticides has to be resorted to at the appropriate time. The just opened bunches are to be avoided from spraying. Application of 0.4 percent wettable sulphur, 0.004 percent azadirachtin, 0.05 percent carbosulfan, 0.1 percent traizophos and 0.1 percent endosulfan have been found to be effective in the management of eriophyid mite, in addition to 2 percent neem oil-garlic - soap mixture and 0.1 percent dicofol which are already in use. Hygiene of coconut gardens play a vital role in mite management. As this pest spreads through the wind, the fallen nuts harbouring the mites have to be properly disposed off by burial or burning. Care must be taken to avoid drift of pesticide fluid to ground or nearby water bodies when the same is used.

For the control of coreid bug spraying the crown with 0.1 percent carbaryl or endosulfan is recommended. Bunches and leaf axils where nymphs and adult remain hidden are to be sprayed for effective control. As the pest is limited to certain areas or palms, spot application of insecticide is always preferred. Spraying may be done in the afternoon when pollinators are less active. Inflorescence buttons of receptive stages are to be avoided while spraying. Fixing perforated polythene sachets containing 2.5 g phorate 10G on the base of the bunch also checks the infestation. Two such sachets may be kept in the bunches below 5 months growth. Periodic crown cleaning is also useful in reducing the population build up of this pest. When co-existence of both these pests are observed spraying of endosulfan may be resorted to.

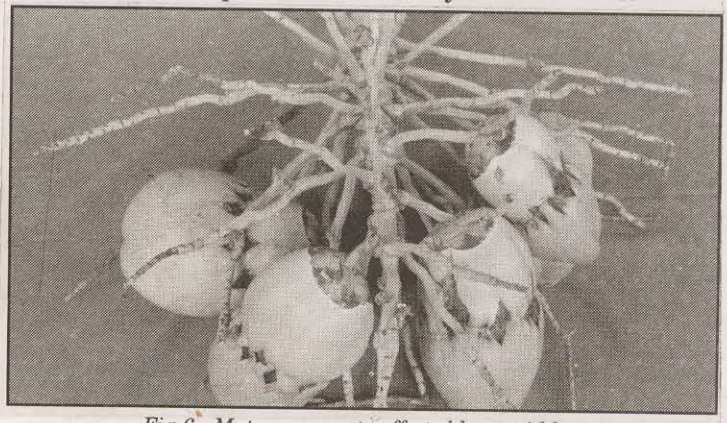

Fig 6 : Mature coconuts affected by coreid bug