

Eriophyid Mites on Coconut and Their Management

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Introduction

The first occurrence of coconut mite *Eriophyes guerreronis* (*Asceria guerreronis*) K. was reported in 1965 from the Guerrero state of Mexico (Keifer, 1965). Since then, this coconut mite was reported from several countries in Africa, South and Central America and Caribbean islands. In India, the menace of Eriophyid mite to coconut palms was first noticed in February 1998, around Cochin, in Kerala. Subsequently, the devastating effects of these mites were noticed in Coimbatore and Theni districts of Tamil Nadu and Bangalore in Karnataka. (Sathiamma *et al.*, 1998). The occurrence of this mite has been reported from Chittoor district of Andhra Pradesh in 1999.

Pest and its Damage Symptoms

The adults of this mite have elongated and worm-like body. They are minute and measure about 200-250

microns in length and 40 microns in width (Fig. 5). They have two pairs of legs in the anterior portion of the body. A female lays about 20 to 100 eggs. The life cycle is completed in 7-10 days.

Large numbers of *E. guerreronis* colonize on the tender portion of nut (button) covered by the inner bracts of the perianth and suck the sap from meristematic tissues. As the feeding sites grow out of the perianth, they appear as white or creamy triangular bands or patches (Fig. 1). These patches turn into yellow and then become brown and develop fissures and finally appear as warts (Fig. 2). Due to the drying tissues of coconut the enlargement of the nut is affected leading to drastic reduction in the size of coconut (Fig. 3). When the infestation is high in the early stages of development, the button shedding is also heavy. Because of the hampered growth of affected nuts the kernel size and quality are affected (Fig. 4). It is estimated that the damage may result in about 25 percent yield loss of copra content.

The mites attack one to three months old immature nuts usually after pollination. However, the unfertilized female flowers do not harbour the mites. Once infested, the nuts continue to harbour mites upto nine months but not in fully mature nuts.

The pest is dispersed through wind to long distances and within the plantation it spreads by phoresis and rain. Some studies have revealed that the mites could migrate by walking in large numbers across nut surfaces and they could move from one inflorescence to another if the two are in contact. Increased nut damage appears to encourage mite dispersal. Thus the



Fig 2 : Bunch in early stage of infestation with white bands turning brown

mites have spread to vast tracts of coconut plantations in all the Southern states of India in a very short time. Although the pest is present in the gardens throughout the year, the peak populations are recorded during summer or dry periods.

Management

It is of paramount importance to protect the nuts for the first few months after fertilization. Since the mites are well protected underneath the perianth, controlling them is a difficult task.

Preliminary trials conducted by CPCRI, have shown that administration of root feeding with 10ml monocrotophos + 10ml water at monthly intervals, provided adequate control of mite infestation. At present several field trials with insecticides, botanicals and inorganic materials are in progress.

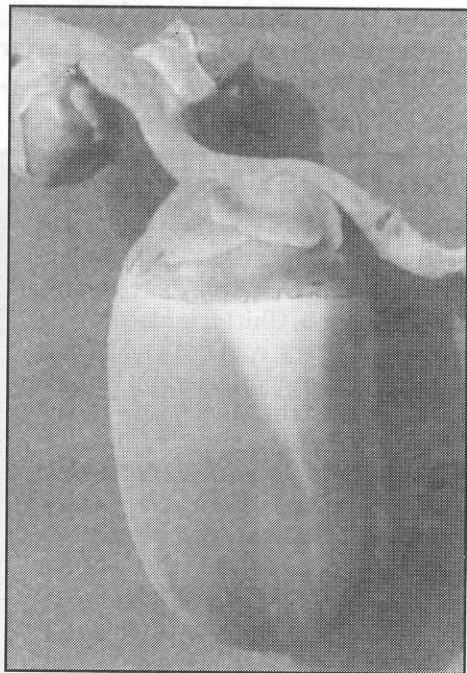


Fig. 1 : Developing button showing white patches below perianth

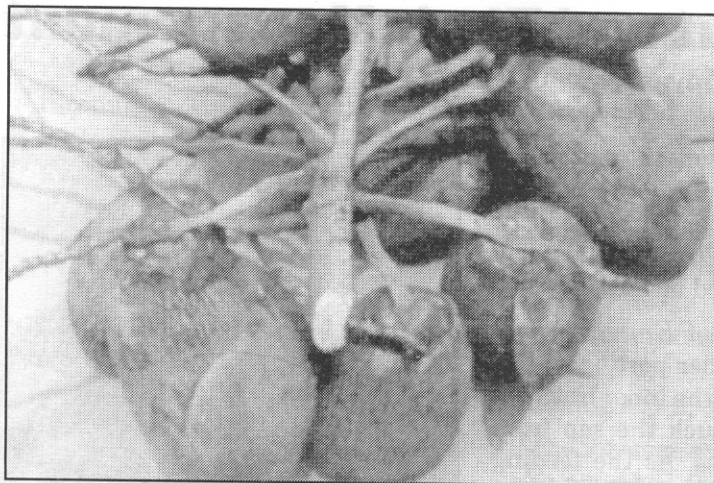


Fig. 3 : Severely infested bunch with varied nut damage

The field trials carried out by Kerala Agricultural University showed that spraying of either dicofol 6ml per liter of water or 2% neem oil + garlic mixture at monthly intervals, gave a reasonable control of the mite.

In Pollachi (Tamil Nadu) field trials conducted by Mohanasundaram *et. al.*,

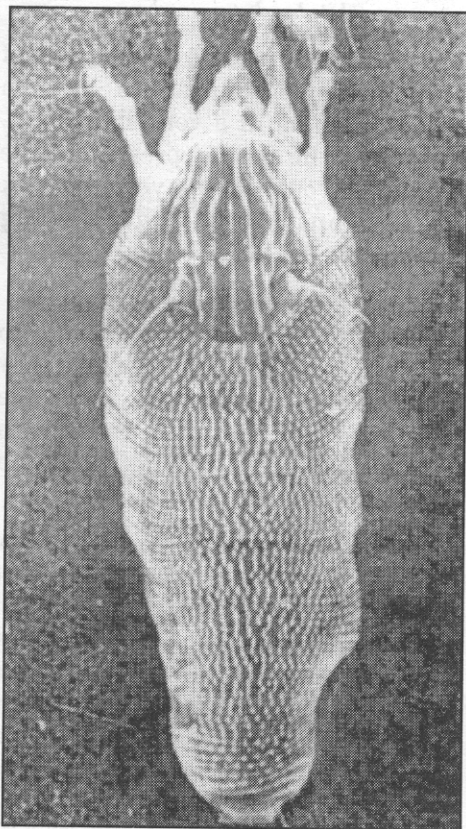


Fig 5 : SEM of coconut mite *Eriophyes guerreronis* K.

(1998) revealed that spraying of two rounds of methyl demeton (Metasystox) 4ml or triazophos (Hostathion) 5ml in one litre of water at 7 to 10 days interval has reduced pest infestation.

There are reports of the use of biological control agents against the eriophyid mite in Central America, Pacific and Indian Ocean. Two species of entomogenous fungi viz., *Hirustella thomposoni* (Fisher) and *H. nodulosa*, have been found to be effective in keeping the mites under check. Attempts are being made to identify any natural enemies of this pest in



Fig 4 : Healthy and infested nuts cut open

India, besides working on exotic biocontrol agents.

Reference

- Sathiamma B., Nair C.P.R and Koshy P.K. 1998. Outbreak of nut infesting eriophyid mite *Eriophyes guerreronis* (K.) in coconut plantations in India. *Indian Coconut J.* **29** (8) : 1-3.
- Mohanasundaram M., Kalyanasundaram K. Somasundaram O.V.R. and Mahendran, R. 1999. Management and control measures for the coconut eriophyid mite, *Asceria guerreonis* Keifer (Eriophyidae : Acari), in Tamil Nadu. *Indian Coconut J.* **30** (1) : 8-9

SURVEY FOR ROOT (WILT) DISEASE IN KASARAGOD DISTRICT

Root (wilt) disease has been reported recently in Chittarikal of Kasaragod district, which has hitherto been considered as a disease-free district. In a survey of 16 gardens under East Eleri Krishi Bhavan, Chittarikal, covering 2140 coconut palms, 402 adult palms were found to be root (wilt) diseased (18.8%). Out of this root (wilt) diseased palms 23 were affected by leaf rot disease also. Another significant observation was that over 40% of the arecanut palms in these gardens were affected by yellow leaf disease. Enquiries with farmers revealed that the disease was first noticed in arecanut garden and later on in coconut. Seedlings for raising these plantations at least in two cases, were brought from diseased area, Thodupuzha (Idukki district). Serological testing of representative samples from these gardens revealed positive reaction in 19 out of 20 samples tested confirming the root (wilt) disease. *Fusarium* sp., a dominant fungus that occurs during dry season on leaf rot affected leaves was also isolated from nine leaf rot affected palms. Efforts are being made to remove the infection.

-CPCRI News letter