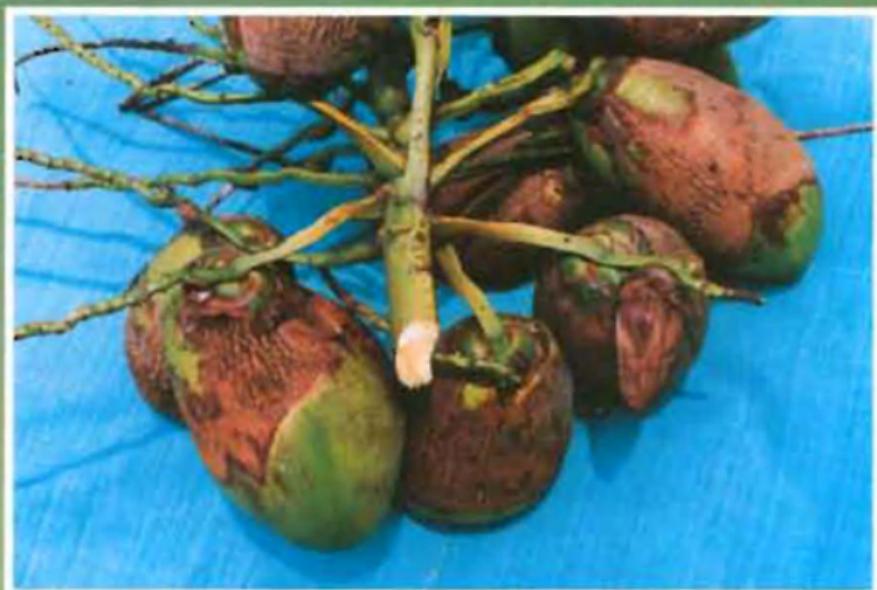


ERIOPHYID MITE



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Coconut cultivation in India is now threatened by the nut infesting eriophyid mite *Aceria guerreroni* Neifer. This notorious pest on coconut was first reported from India by the scientists of Central Plantation Crops Research Institute (CPCRI) in 1998 from Ernakulam district of Kerala State. This was the first report of the mite from the Asiatic region. The mite has assumed severe proportion subsequently and is now known to cause considerable crop loss in Kerala, Tamil Nadu, Karnataka, Pondicherry and parts of Andhra Pradesh, Lakshadweep and Goa.

HISTORY OF THE MITE

The first report of *A. guerreronis* on coconut was in 1960 from Mexico. Later its occurrence was widely noticed in several countries in South America and Caribbean region. In 1981 severe damage by the pest was reported from the western parts of Africa and in 1999 from Sri Lanka.

LIFE CYCLE, HABITAT AND DISPERSAL

The mites take about 7-10 days to complete their life cycle. Under favourable conditions they multiply and spread rapidly. The dispersal of the pest is mainly through wind. Honey bees and other insects visiting inflorescence of coconut also act as agents for dispersal of mites. The female mite has a high fecundity and lays about 200 eggs on an average. Various stages of the mite are seen in the floral bracts and the tender portion of developing nuts covered by the perianth. Colonies of the mite harbour in the large numbers on immature nuts of one to five month growth. The unfertilised female flowers do not harbour any mite.

The eriophyid mites are microscopic having an elongated worm-like body. The adults reach a size of 250 micron (about one fourth of a millimeter) on an average. Their bodies are finely ringed and bear two pairs of legs on the anterior end.

SYMPTOMS OF ATTACK

The mites suck the plant sap with their needle like mouth parts, living on the tender meristematic region covered by the perianth. The first symptom of mite

attack is the appearance of elongated white lines below the perianth. Within a short time these feeding marks appear as pale yellow triangular patches just below the perianth and gradually turns brownish in colour. As the nut grows, the injury forms warting and longitudinal



Colonies of the mite seen on the tender portion of immature nuts, below the perianth region

fissures on the nut surface. Severe infestation by the mite results in poor development of nuts with reduced kernel weight and poor quality of fibre.

EXTENT OF DAMAGE

Infestation by the mite during early stages of nut development results in excessive button shedding. Severe infestation results in 20-25% reduction in copra, along with reduction in fibre content.

MANAGEMENT OF THE PEST

With the present know-how it becomes necessary to



Different stages of the infestation by the mite

adopt chemical control measures with pesticidal spraying to manage the mite. However, chemical spraying has got many limitations, biological control methods are yet to be developed. Studies are in progress on the possibility of bio control of the mite using predacious mites/insects and pathogenic fungus like *Hirsutella thompsonii*. Investigations on the management of the pest with various pesticides carried out at CPCRI have proved the effectiveness of the following pesticides.

Botanical pesticides

Spraying of affected palms with a mixture of 2 percent neem oil, garlic and soap mixture has been found to be



Eriophyid mite - as seen in a microscope

effective. To prepare one litre of the above mixture 20 ml neem oil, 20g of cleaned garlic pearls and 5g washing soap are required. Dissolve the soap in 500ml of water, add the neem oil to this solution and mix it well so that it forms an emulsion. In another 500 ml water mix the well ground garlic and add this to the soap neem oil mixture by sieving through a cloth to remove the debris of garlic pearls. This mixture is stirred well and can be used for spraying. The same shall be used on the day of preparation.

Azadirachtin, the active insecticidal principle in neem oil is commercially made and used as an insecticide. Studies at CPCRI have proved that 0.004 percent azadirachtin gives very good control of the pest in the field. Spraying of botanical pesticide containing 1 percent azadirachtin at the rate of 4ml per litre of water is recommended for the management of the mite.

Chemical pesticides

Various chemical pesticides have also been found to be effective for mite management in the studies conducted at CPCRI. Trials carried out with micronised wettable formulation of sulphur have given good control of the mite. Sulphur is recommended for spraying at 0.4 percent concentration for mite control (5g per litre of water). Spraying of either 0.2 percent triazophos/0.1 percent endosulfan/0.1 percent dicofol/0.05 percent carbosulfan has also been found to be effective management of the mite based on field trials.

Details on the spraying of insecticides proved to be effective in the management of the mite are given in the adjoining table.

POINTS TO BE OBSERVED FOR PESTICIDAL SPRAYING AGAINST COCONUT MITE

The success of pesticidal spraying against the mite is dependent on the careful application of pesticide. It is to be understood that the mite colonies are lodged on the inner soft tissues of the developing nuts covered by perianth. Hence the pesticide shall be applied on the perianth region so as to provide its penetration into the perianth lobes and inner surface through capillary action.

The size of the spray droplets is very important. The insecticide should be applied as fine droplets on the perianth region and general surface of nuts of 2-7 months age. For this 250-500 ml/palm of spray solution is required. Before spraying, the mature bunches should be harvested. Spraying need to be carried only on the bunches, sparing the unpollinated bunches.

Pesticidal spraying has to be done at the appropriate time. The mite population is active all round the year. However, infestation is at its peak during summer after receipt of summer showers. Depending on the population build up of the pest spraying has to be carried out during April-May after the receipt of

summer showers, post monsoon (October - November) and early summer (December - January) seasons. It is desirable that all the infested palms in one particular area are covered at the shortest interval.

Details of pesticides proved to be effective in the studies conducted at CPCRI.				
Pesticide	Concentration (%)	Quantity per litre of water	Cost of chemical (per palm @ 1.5lit spray fluid per palm)	Pesticidal formulation used in the study
Micronised wettable Sulphur	0.4	5 g	0.90	Sultaf 80% (micronised) WP
Azadirachtin	0.004	4 ml	4.00	Neemazal T/S
Triazophos	0.2	5 ml	3.00	Hostathion 40 EC
Endosulfan	0.1	3 ml	1.35	Hildan 35 EC
Dicofol	0.1	5.5 ml	2.50	Kelthane 18.5 EC
Carbosulfan	0.05	2 ml	1.50	Marshal 25 E
Neem oil-garlic-soap mixture	2	20ml 20 g 5 g	3.00	

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