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Coconut Mite *Aceria guerreronis* Keifer, and Its Management

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Abstract
Aceria guerreronis Keifer, known as the coconut mite (CM), is one of the most dangerous and significant pests of coconut fruits in many nations. It has spread to most places of the world where coconuts are produced.

Keywords: coconut mite, damage, symptoms, management.

Introduction
Coconut (*Cocos nucifera* L.) was cultivated as most important crop among the several palm species over the centuries (Howard*etal*.,2001). Despite the fact that the coconut mite has been documented causing harm to coconuts for more than 40 years in the Americas and Africa (Cabral and Carmona 1969; Mariau1969; Ortega et al. 1967; Robbs andPeracchi1965;Zuluagaand Sa´nchez1971), Continuously updated publications have been made about the biology, ecology, taxonomy, management, and economic significance of CM. it still results in significant losses in these regions, and in the past 15 years, it has spread to countries from southeast Asia, including India and Sri Lanka (Fernando *et al*.,2002; Sathiamma *et al*.,1998). The impact of the mite in Sri Lanka and India indicates that the spread of CM to these nations may result in extremely significant losses (Fernando *et al*.,2002; Haq2011).

Morphology and biology
The coconut mite is a long, wormlike eriophyid that is yellowish white. Matured females are36–52 lm wide and 205–255 lm long (Keifer1965). Eggs are tiny, white, and oblong to spherical. The sizes and the presence of genital apertures in adults are the only real differences across developmental phases. On the meristematic zone of the fruits covered by the perianth, coconut mite populations grow. Feeding in this region causes necrosis (Moore and Howard 1996). As the coconut inflorescences disperse, mites can be seen on them. (Manson and Old field 1996). According to the authors, a female can produce up to 66 eggs. The immature phase of CM includes the egg, larval, and one nymphal stage, just like other eriophyids.

Damage symptoms
As affected fruits mature, the coconut mite damage becomes necrotic and corklike, perhaps with deep cracks and viscous exudates; initially, the damage appears as a triangular white patch near to the perianth margin. Half or more of the fruit's surface may be covered by the coconut mite's damaged area (Howard *et al*.,2001). Later, as a result of uneven growth, infected fruits become deformed and stunted, lowering the yield of copra (Howard *et al*.,2001; Moore and Howard 1996). More Fruits drops prematurely because of coconut mite

infestations (Doreste1968; Nair 2002; Wickramananda *et al*.,2007) substantial reduction in the length and tensile strength of coconut fibre (Naseema Beevi *et al*.,2003),additionally a decrease in the husk supply for the coir business (Wickramanand*aetal*.,2007). Other phytophagous mites found on coconuts also exhibit symptoms, but they are different from those of coconut mite infection on coconut fruits, namely the tarsonemid mites *Steneotarsonemus concavuscutum* Lofego & Gondim Jr *Steneotarsonemus furcatus* and eriophyid mite *Amrineus cocofolius* Flechtmann and DeLeon. *Amrineus cocofolius* Symptoms include a necrotic transverse strip with the perianth's proximal border out of contact. The strip, often known as the "ring mark," might completely encircle the fruit. This mite mostly affects the aesthetics of fruit, causing more surface necrosis and very moderate losses.While *S. concavuscutum* and *S. furcatus* can also cause damage, it differs from coconut mite in that the damage is often not triangular and the lateral borders are typically subparallel to one another (Lofego and Gondim2006; Navia*et al*.,2005b).

Control methods

Chemical control: Mariau and Julia (1970) apparently conducted the first assessment of chemical products for CM control in Africa. Only chino-methionate (Morestan) exhibited some efficiency out of the 23 items that were evaluated, they noticed.Mariau and Tchibozo (1973) reported promising coconut mite control using chino-methionate and monocrotophos (Nuvacron) when applications were repeated every three weeks as a follow-up.

Biological control: De Moraes and Zacarias reviewed data on predatory mites on coconut palms (2002).The reported predators were Mesostigmata and Prostigmata species. A few Blattisociidae and Melicharidae species, which were afterwards grouped along with the Ascidae, as well as numerous Phytoseiidae species, were reported by the Mesostigmata in various areas of the globe. Few of those species had been reported in close association with coconut mite,namely the blattisociid *Lasioseius* sp., the melicharids *Proctolaelaps* sp. and *Proctolaelaps bickleyi* (Bram), as well as the phytoseiids *Amblyseius largoensis* (Muma), *Neoseiulus baraki* Athias-Henriot, *Neoseiulus mumai* (Denmark), *Neoseiuluspas palivorus* De Leon and *Typhlodromipss abali* (DeLeon). A variable effect of *H. thompsonii*on CM populations has been experienced by scientists (Cabrera 2002; Espinosa Becerril and Carrillo-Sanchez 1986; Suarez *et al*.,1989).

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