

## Studies on the seasonal incidence of coconut eriophyid mite *Aceria guerreronis* Keifer (Acari: Eriophyidae)

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The seasonal incidence of coconut eriophyid mite, *A. guerreronis* was studied during November 2000 to December 2001 in coconut plantations at Kadavasal, Chidambaram, Tamil Nadu. The incidence of mite was found throughout the year. But the peak incidence was observed during dry climate April, May and June and started declining during wet climate July. The correlation between temperature, rainfall and mite population revealed that the population density was positively correlated with temperature and negatively correlated with rainfall. The prediction model has been developed for the given set of parameters.

Key words : Eriophyid mite, Seasonal incidence, Prediction model.

### INTRODUCTION

The coconut palm, *Cocos nucifera* L. is one of the plantation crops in the world. Among the various non-insect pest that have been reported on coconut palm eriophyid mite, *A. guerreronis* Keifer (Acari: Eriophyidae) is a serious one. This was first described in 1965 from coconuts of Guerrero State, Mexico (Keifer, 1965). As a pest first reported from Ernakulam district of Kerala, a major coconut growing state, the pest has appeared simultaneously in adjoining states of Tamil Nadu and Karnataka and within a few years it has spread to almost all coconut growing states. On coconut the mites are seen in the floral bracts and the soft portion beneath the perianth. The infestation by the mite follows immediately after pollination. Appearance of elongated white streaks below the perianth is the first external manifestation of mite infestation on young buttons. Further these white streaks form triangular yellow patches. Draining of sap by the feeding activity of the colony resulting in drying of the tissues causing browning of the affected portion. As the nut grows, warts and longitudinal fissures appear on the nut surface. Severe infestation causes drying and shedding of buttons or malformation of nuts as a result of retarded growth. Considerable reduction in copra content and malformation. The incidence of eriophyid mite was more severe in relatively dry climates or during the dry season of wet climates (Zuluaga and Sanchez, 1971). However, in other localities there was no clear relationship between coconut mite

populations and wet or dry weather, or, if such relationship exists, it was obscured by other factors (Mariau, 1977; Howard *et al.*, 1990 ; Ramaraju *et al.*, 2000). Haq (1979a) studied the correlation between temperature and rainfall with mite population and found that the population density of the mite was positively correlated with temperature and negatively correlated with rainfall.

### MATERIALS AND METHODS

The study was conducted from November 2000 to December 2001 in coconut plantations at Kadavasal village. Field samples were collected at fortnightly intervals. The experiments was laid out in randomized block design with three replications, each replication consists of one palm which was maintained unsprayed. In such selected trees, third bunch from top was selected. From the selected bunch, one nut was taken at random and observations on number of mites per 8mm<sup>2</sup> area at three places were recorded and mean population was assessed. Simultaneously, the meteorological data such as maximum and minimum temperature, rainfall, relative humidity, wind velocity and sunshine hours were collected from the meteorological centre at Annamalai University, Annamalai Nagar Tamil Nadu. Simple correlation and multiple regressions between these parameters were worked out (Swamiappan *et al.*, 2001).

### RESULTS AND DISCUSSION

During, the present investigation, it was noted that the mite population was started developing from the month

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