Chapter 6
Summary

The coconut mite, *Eriophyes guerreronis* Keifer, first achieved pest status in 1960 in Mexico (Cardona & Potes 1971). Since then, the coconut mite has been a problem throughout Central America, the Caribbean and parts of West Africa (Griffith 1982, 1984, Medina-Guad and Abreu 1986). Griffith (1984) attributed this rapid spread of the coconut mite to its ability to disperse long distances by wind currents. In Jamaica, the coconut mite was first recorded in 1941 in St. Ann parish, but not was recognized as a pest until 1972. The Jamaica coconut industry suggested that exceptionally dry weather might have led to an outbreak of the mite (Hall 1981). Mariau (1969) and Otterbein (1988) noted that climate affects the development of coconut mite populations. Howard *et al.* (1990) found that coconut mite populations increased immediately after periods of high rainfall in Puerto Rico and Florida but noted that coconut mite populations fluctuations were not associated with wet and dry seasons.

The objectives of this research were to compare the infestation patterns of the coconut mite on two commercially grown varieties of coconut (Maypan and Red Malayan Dwarf) and the relative susceptibilities of these varieties to damage caused by the mite. A survey was conducted in two of the main coconut growing parishes to determine the distribution and extent of coconut mite damage. In Low and High Rainfall Zones, studies were done to evaluate the levels of damage, seasonal variations in populations and mortality of coconut mites among 2-, 4- and 10-month old nuts of Maypan and Red Malayan Dwarf varieties. Damage due to the coconut mite on varieties was assessed by quantifying scarring of the nut surface, size reduction and copra yield.

The pattern of coconut mite infestation on coconut bunches of different ages did not vary with geographical location or variety: Two-month old nuts normally had few mites and little damage. Four-month old nuts tended to have the highest mite populations with a wide range of damage. The highest percentage of damage was among 10-month old nuts and the mite population was low. There were differences between the amount of damage and coconut mite populations on Maypan and Red Malayan Dwarf nuts. Red Malayan Dwarf nuts were more susceptible to mite infestation than Maypan nuts. They were attacked earlier and showed more mite damage than the Maypan with fewer or equal numbers of mites. These differences could be due to variation in shape, color, growth rate, chemical constituents of the nuts, or combinations of these. This study underscores the potential of host plant resistance to manage coconut mites.

There was a direct correlation between the spatial orientation of nuts and infestation by the mite. Those nuts in the path of the prevailing wind had more damage. Yield was directly influenced by the degree of mite damage. The size of nuts and copra yield decreased with increased coconut mite damage for Maypan and Red Malayan varieties. The water content of Red Malayan Dwarf nuts declined with increased coconut mite damage but no relationship was found between the water content of Maypan nuts and coconut mite damage. Total yield loss depends on the proportion of nuts with ≥ 30% surface area damage. Total copra yield loss on Maypan farms was ca. 3% while total copra yield loss on Red Malayan Dwarf farms was ca. 6%.

Over the last three decades, the coconut mite has attained widespread distribution throughout the tropical and subtropical regions (Hall 1981, Griffith 1984). This widespread distribution is largely due to wind currents (Griffith 1984, Moore and Alexander 1987). The study of the relationships between coconut bunch orientation and damage infers that dispersal of the coconut mite in Jamaica is aided by the prevailing winds. Long distance dispersal of the coconut mite via wind currents might be hindered by the placement of barrier crops in the path of prevailing winds. More studies need to be conducted in this area. Another area for further research is the openness of coconut tree canopy and the resulting differences in humidity on coconut mite infestation. Varietal susceptibility plays a major role in the amount of damage caused by the coconut mite. The use of resistant varieties and barrier plants (for newly established coconut farms), with other cultural practices are the most immediate means of managing the coconut mite.

References

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