

Red menace on the horizon!

A red menace is lurking on the horizon. It is the Red Palm Mite, known scientifically as *Raoiella indica* Hirst (Prostigmata: Tenuipalpidae). Kane and Ochoa (2006) reported that the first Western Hemisphere record of this mite was from Martinique in 2004. It has subsequently spread to virtually all of the Caribbean islands. Prior to this, the Red Palm Mite was known only from tropical and subtropical regions of the Old World where it was a pest of coconut, Areca palm and date palm in India, Sri Lanka, Pakistan, Egypt, Israel, Iran, Mauritius, Sudan and the Philippines (Kane and Ochoa, 2006).

What does it look like?

Pena et al. (2006) state that adult female red palm mites are red, typically with dark patches on the body, and about 0.32 mm long. Males are smaller than females and triangular in form. The larvae are reddish and sluggish. The minute eggs (0.09 mm x 0.12 mm) are oblong smooth and red and attached to the underneath leaf surface by a slender stalk in patches of 100-300 eggs.

Red Palm Mites

Average length of the egg stage is 6.5 days. Adult females live for approximately 30 days and the male lives about 26.5 days. A female mite can lay 28 to 38 eggs in 27 days and may mate with several males during



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her lifetime. Studies on seasonal fluctuation in the population of *R. indica* indicated that rainfall and relative humidity showed a negative correlation with mite population, while temperature and hours of sunshine showed a positive correlation (Wellbourn 2006).

Red mites are usually found on the undersides of leaves and are often in groups of hundreds of individuals that are visible with the naked eye. Exuvial remains (cast skins) are white and are often more numerous than living mites in very productive populations. Feeding mites, especially at high mite densities, cause localized yellowing of the leaves followed by tissue darkening and death (Wellbourn 2006).

How does the mite move around?

Wind currents and transport of infested plants or leaves are the mode of dispersion for this mite.

What plants do the mites feed upon?

The red palm mite has been recorded primarily on palms (Arecaceae),



Red Palm Mites

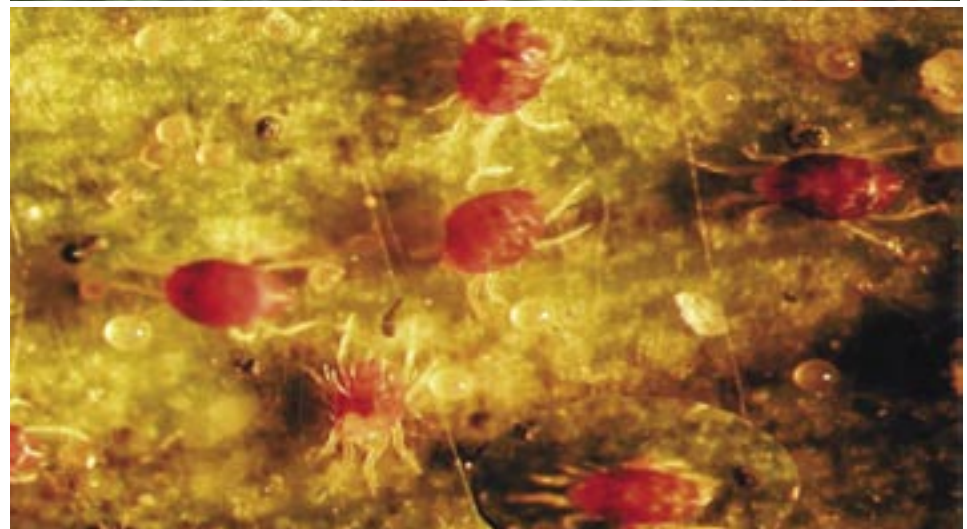
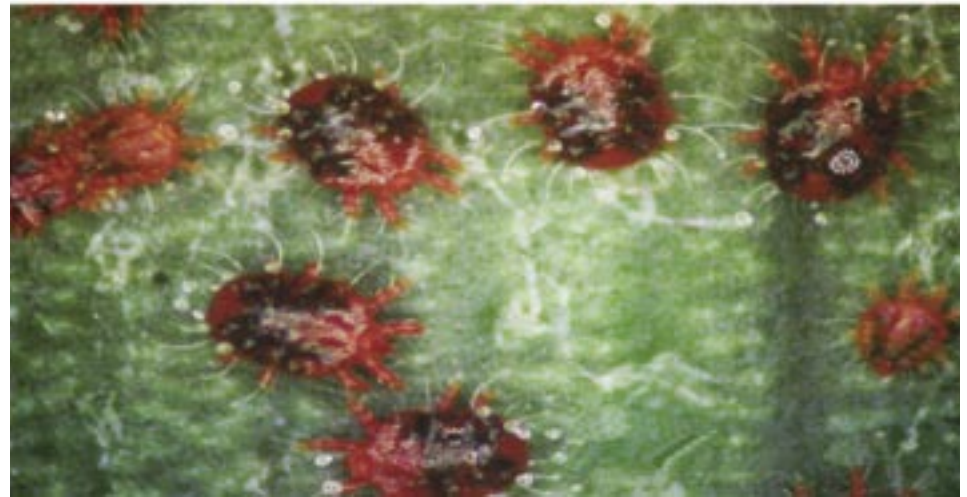
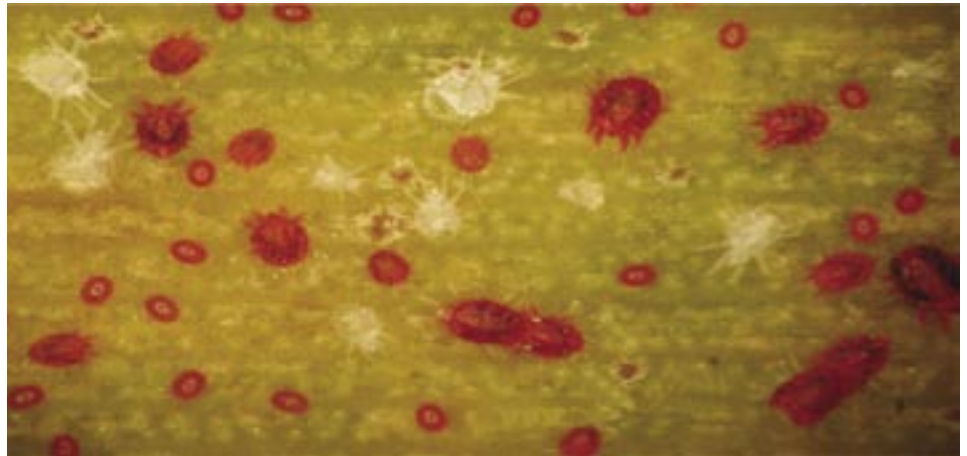
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but in infested islands of the Caribbean region, the mite also feeds on banana (Musaceae) and undetermined species of heliconia and gingers. All palm species should be considered potential hosts for this mite until we have more data on the range of hosts in the Caribbean region. This mite reportedly also feeds on orchids.

What impact could the mite have on Barbados?

The red palm mite can severely affect the palm flora of Barbados. Estimates by some scientists in Trinidad are of up to 100 million mites per coconut tree, resulting in a 75% decrease in coconut production! The author has seen many palm and coconut trees killed by the mite in St. Kitts. Bananas, heliconias, gingers and orchids can also be affected by this mite resulting in decreased fruit and flower production. Exporters of ginger and heliconia flowers could also be financially impacted if they cannot export their flowers because of red palm mite infestation.

Aesthetically, tourists associate tropical holiday destinations like Barbados with lush palms and exotic flowers such as heliconias and gingers. If these plants become heavily infested with the Red palm



The above photos shows the various stages of the Red Palm Mites
(F. Hosein, Min. Agric., Trinidad & Tobago)

The red palm mite can severely affect the palm flora of Barbados.



Inspecting coconut trees as part of the Red Palm mite survey

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mite, they will appear unattractive to our visitors and could diminish our overall appeal as a destination.

Control measures

The red palm mite can be controlled in localized positions by using chemical pesticides. However, since it feeds on such a wide range of palms and other species and since palm plants which include coconuts are widely dispersed throughout the island, it will be difficult to control specifically with pesticides alone on an island-wide basis. The answer could lie in the way of biological control i.e. using predatory mite and insect species and parasitic fungi. The best way to 'control' this pest is to prevent it from getting into Barbados.

What is the Ministry of Agriculture doing?

Staff of the Entomology Section have taken part in numerous television and radio programmes highlighting this pest. Articles on this pest were also prepared for local print media. Posters and leaflets have also been prepared for display at the ports of entry and in local craft shops. The Entomology Section has been conducting an island-wide survey for this mite for over 1.5 years.

What can you do to assist in preventing the entry of this mite into Barbados?

When you travel to neighbouring Caribbean islands do not bring back any green palm products such as woven hats, bags or table mats. These articles can serve as host material for the Red palm mite. Also,

declare any orchid plants to the Plant Quarantine Section at the airport or seaport upon your arrival. Banana, heliconia, gingers and other plants of the wider Musaceae family are not permitted entry into Barbados.

References

- Kane, E.C. and Ochoa, R. (2006). Detection and identification of the Red Palm Mite (Acari: Tenuipalpidae). USDA Systematic Entomology Laboratory, Beltsville, Maryland, USA.
- Pena, J.E., Mannion, C.M., Howard, F.W. and Hoy, M.A. (2006). *Raoiella indica* (Prostigmata: Tenuipalpidae): The Red Palm Mite: A Potential Invasive Pest of Palms and Bananas and Other Tropical Crops of Florida. Document EENY-376 (IN680), Entomology and Nematology Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, USA.
- Wellbourn, C. (2006). Red palm mite *Raoiella indica* Hirst (Acari: Tenuipalpidae). Pest Alert. Florida Division of Agriculture and Consumer Services, Division of Plant Industry, Florida, USA.

For further information on the Red palm mite, you can contact the Entomology Section of the Ministry of Agriculture at 434-5103, 310-2821 or 426-3870.