

# Chemical Control of Palm Mite *Raoiella indica* Hirst on Arecanut

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## Abstract

*The palm mite, Raoiella indica Hirst is a common and widespread pest of arecanut in India attaining serious proportions especially during the hot summer months. A field trial was conducted at Central Plantation Crops Research Institute, Regional Station, Vittal, Karnataka to evaluate the efficacy of four pesticides viz., dicofol, dimethoate, formothion and phosphamidon at 0.05% and 0.025% concentration in controlling the population of the pest. It was found that dicofol 0.05%, dimethoate 0.05% and 0.025%, formothion 0.05% and phosphamidon 0.05% gave significant control of the mite population.*

## Introduction

The palm mite, *Raoiella indica* Hirst (Acarina: Tenuipalpidae) is a common and widespread pest of arecanut in India. The mite is found in colonies on the lower surface of the leaves. As a result of the feeding activity of the mites, the leaves become yellow and bronzed in appearance and ultimately wilt and wither away. Young seedlings when severely affected often die. The mite infestation reaches its peak during summer months and decreases with the onset of monsoon.

The pesticides earlier reported effective against the mites include, dicofol, carbophenthion, chlorobenzilate (Rajamani and Nambiar, 1970), formothion, dimethoate (Saradamma, 1972) and dinobuton (Anonymous, 1981). In the present study

the relative efficacy of four pesticides in controlling the mite was tested in a field experiment.

## Materials and Methods

The experiment was conducted at the farm of the Central Plantation Crops Research Institute, Regional Station, Vittal, Karnataka during April-May 1981 on young areca palms. Each treatment plot consisted of a single palm and was replicated thrice. The treatments included dicofol, dimethoate, formothion and phosphamidon, each at 0.05% and 0.025% concentrations. Two controls, one with water spray and the other without spray were also maintained. The chemicals were applied with a manually operated knapsack sprayer taking care to avoid drift. The effects of the treatments were assessed by taking counts of the mite population prior to treatment and also on the 7th, 15th and 30th day after treatment. Counts were taken of eggs, nymphs and adults in three 1cm<sup>2</sup> unit area on a

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Table 1. Effect of different pesticide sprays on the control of *R. indica* on arecanut

Pesticide and concentration	Percentage reduction in population over pretreatment during different periods*					
	7th day		15th day		30th day	
	Nymphs and Adult	†Eggs	Nymphs and Adults	Eggs	Nymphs and Adults	Eggs
Dicofol 0.05%	87.22 [ 99.76]	90.00 [100.00]	58.32 [72.42]	90.00 [100.00]	80.00 [96.98]	88.27 [ 99.91]
Dicofol 0.025%	88.73 [ 99.95]	90.00 [100.00]	77.92 [95.62]	72.34 [ 90.80]	49.94 [58.58]	55.00 [ 67.12]
Dimethoate 0.05%	86.66 [ 99.66]	90.00 [100.00]	77.90 [95.61]	88.81 [ 99.95]	75.72 [93.92]	85.80 [ 99.46]
Dimethoate 0.025%	85.21 [ 99.30]	90.00 [100.00]	81.13 [97.63]	90.00 [100.00]	69.72 [87.99]	84.28 [ 99.01]
Formothion 0.05%	90.00 [100.00]	90.00 [100.00]	73.24 [95.85]	90.00 [100.00]	82.94 [98.49]	90.00 [100.00]
Formothion 0.025%	72.22 [ 90.67]	90.00 [100.00]	74.28 [92.67]	88.39 [ 99.92]	44.81 [49.67]	66.97 [ 84.70]
Phosphamidon 0.05%	85.04 [ 99.25]	90.00 [100.00]	83.47 [98.71]	85.09 [ 99.27]	68.22 [86.23]	77.69 [ 95.45]
Fosphamidon 0.025%	74.00 [ 92.40]	87.30 [ 99.78]	69.70 [87.96]	82.12 [ 98.12]	43.07 [46.63]	52.97 [ 63.73]
Control [water spray]	17.19 [ 8.73]	49.38 [ 57.61]	26.71 [20.22]	53.53 [ 67.67]	9.20 [ 2.56]	39.03 [ 39.66]
Control [no treatment]	0 [ 0 ]	43.37 [ 47.16]	8.51 [ 2.19]	31.78 [ 27.74]	0 [ 0 ]	40.38 [ 41.97]
CD [P = 0.05]	14.59	26.58	40.08	23.42	16.91	22.30

\* Mean values after arcsin transformation

Figures in parentheses indicate retransformed mean values

leaflet distributed at the base, middle and tip portions of the leaflet in each replication.

### Results and Discussion

The percentage reduction in the number of eggs, nymphs and adults present under different treatments over pretreatment at different intervals is furnished in Table 1. The results show that all the pesticides under test gave significant control of the mites at one or other or both the concentrations, as compared to that in untreated control. The pesticides remained effective up to the 30th day after application and the loss of toxicity from the 15th day to the 30th day of treatment was not significant

with any of the pesticides. Based on the sustained effect in controlling the mite population, dicofol 0.05%, dimethoate 0.05% and 0.025%, formothion 0.05% and phosphamidon 0.05% were found to be the most effective treatments and superior over the others significantly and were on par among themselves.

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