Pest, red palm mite,

Raoiella indica

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Chemical control of the red palm mite on coconut, Second test, 2008. The experiment was conducted in an ornamental nursery in Broward Co., Florida. Two to three year coconut palms planted in the soil at an approximate distance of 6 feet between rows were selected for this study. Five palms were used per treatment and each palm was considered a replication. Four pinnae were collected from different fronds from each palm. Samples were taken to the lab and the number of mites from a leaf area (16mm in diameter) was recorded, under the dissecting microscope, resulting in 20 readings/treatment. Spray treatments (Table 1) were applied on September 11 with using hand sprayers at approximately 25 psi at an application rate of 100 gallons/acre. Only three treatments with Avid were sprayed a second time 14 days (25 September, 2008) after the first spray as requested. Mite densities were evaluated before spray on September 11, 2008 and after spray on 18, 24 September, 2, 8, 23 October and 6 November, 2008. Phytotoxicity from the treated palms was evaluated using an index scale (i.e., 0 = no burning, no defoliation observed, 5= 100% burning of all fronds, defoliation) read on 24 September and 23 October. The GLM procedure was used to detect any statistical differences and means were separated using LSD tests.

Table 1. Treatments applied against RPM

Treatments	Active ingredient	Rate / 100 gal
Control	--------	---------
Pylon	21.4% Chlorfenapyr or pyrrole	5.2 fl oz.
Sanmite	Pyridaben 75% -	6 oz.
Shuttle 15 SC	Acequinocyl 15.8%	12.8 oz.
TetraSan 5 WDG	Etoxazole 5%	16 oz.
Thiolux (FV)	Dry Flowable Micronized Sulfur AI: 80% sulfur	10 lbs.
Ultiflora	Milbemectin 1%	16 oz.
Avid 0.15 EC*	Abamectin (2.0%) - chem name: Avermectin	8 oz.
Avid 0.15 EC + Oil (used Glacial)*	Abamectin (2.0%) - chem name: Avermectin	8 oz. + 1%
Agrimek0.15 EC + Silwet L-77*	Abamectin (2.0%) - chem name: Avermectin	8 oz. + 4 oz.

* The three treatments with Avid were sprayed a second time 14 days after the first spray.

Table 2. Mean RPM, *Raoiella indica* (all stages, including eggs) per sample.

Treatment	Day 0	Day 7	Day 13	Day 21	Day 27	Day 42	Day 56
Control	143.3	134.00 a	222.70 a	85.20 a	144.95 a	238.50a	101.25 ab
Pylon	122.8	10.00 bc	40.40bc	13.50 cd	43.70 c	112.25 b	74.75 abc
Sanmite	49.95	5.75 bc	0.90 d	2.90 d	4.15 d	8.50 d	26.45 cde
Shuttle	118.6	3.15 c	12.80cd	15.05 cd	22.95 cd	35.15 cd	61.80 bcd
TetraSan	35.30	16.15 bc	25.75 cd	32.10 bc	28.05 cd	76.70 bc	65.35 bc
Thiolux	65.35	10.35 bc	7.50 cd	21.85 cd	45.15 c	27.30 cd	36.60 cde
Ultiflora	65.00	28.10 b	74.65 b	53.15 b	78.50 b	99.85 b	123.55 a
Avid*	45.35	9.35 bc	11.90 cd	10.35 cd	16.55 cd	20.80 cd	14.90 de
Avid + Glacial*	91.65	6.50 bc	9.45 cd	5.50 cd	7.05 d	7.20 d	10.35 e
Avid + Silwet *	70.95	4.35 c	21.20 cd	0.20 d	0.10 d	2.05 d	0.05 e
p <	0.1232	0.0001	0.0001	0.0001	0.0001	0.0001	0.0005

*The three treatments with Avid were sprayed a second time 14 days after the first spray.
Treatments with a different letter within a column were statistically significant (LSD = 0.05)

Table 3. Mean predatory mites (all stages) per sample.

Treatment	Day 0	Day 7	Day 13	Day 21	Day 27	Day 42	Day 56
Control	1.60	0.30 abc	0.25	1.95 a	0.65 a	0.60 a	0.30
Pylon	1.55	0.00 c	0.10	0.10 b	0.10 b	0.75 a	0.10
Sanmite	0.35	0.00 c	0.00	0.00 b	0.00 b	0.00 b	0.00
Shuttle	1.05	0.30 abc	0.55	0.40 b	0.15 b	0.40 ab	0.20
TetraSan	0.60	0.40 ab	0.15	0.30 b	0.05 b	0.10 b	0.00
Thiolux	1.05	0.20 bc	0.20	0.45 b	0.15 b	0.15 b	0.30
Ultiflora	0.35	0.05 c	0.25	0.50 b	0.65 a	0.05 b	0.05
Avid*	0.80	0.20 bc	0.40	0.25 b	0.00 b	0.05 b	0.00
Avid+ Glacial*	1.30	0.55 a	0.40	0.15 b	0.15 b	0.00 b	0.00
Avid + Silwet *	0.75	0.05 c	0.15	0.05 b	0.00 b	0.00 b	0.00
p <	0.2267	0.0235	0.3689	0.0003	0.0025	0.0077	0.2142

*The three treatments with Avid were sprayed a second time 14 days after the first spray.
Treatments followe3d by a different letter were statistically significant (LSD=0.05)

Results. All treatments were statistically low in mite density compared to the untreated control for 42 days after spray. Avid treatments, which were applied twice were statistically lower than the control 28 days after the second spray. In general, Sanmite and Avid + Glacial had the lowest mite densities throughout the experiment. The untreated control had the highest predaceous mite densities, at 21, 27, and 42 days after treatment compared to the chemical treatments. No differences in predaceous mite densities were recorded between the untreated control and treatments 7, 13, and 56 days after treatment. Phytotoxicity was recorded as zero during two evaluation dates.