

Control of Twospotted Spider Mite on With Ovation And Unconventional New Miticides

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Introduction

Seven treatments were compared in a winter greenhouse trial for control of twospotted spider mite (*Tetranychus urticae* Koch) on potted greenhouse mini-roses. Foliar applications compared included the residual miticides Ovation 4SC (clofentezine, Scotts-Sierra Crop Protection Co.) and Hexygon 50WP (hexythiazox, Gowan Co.), and the contact miticides GC-Mite (40% cottonseed oil, 20% clove oil, 10% garlic extract; JH Biotech, Inc.), Acaritouch (RM-131 S EC, 70% propylene glycol fatty acid ester, Toagosei Co., Ltd.), Avachem Sucrose Octanoate (40% sucrose octanoate esters, AVA Chemical Ventures, L.L.C.), Hexacide (5% rosemary oil, EcoIPM, Inc./EcoSmart Technologies, Inc.). Water-sprayed plants were used as a control.

Materials and Methods

This trial was conducted from 1/7/02 to 5/1/02 on greenhouse-grown potted mini-roses, *Rosa chinensis minima* 'Lady Sunblaze.' Rooted cuttings were planted singly in 6" pots with a commercial peat-based media (Pro-Mix) and maintained with overhead watering, then ebb-and-flood irrigation as needed with 150 ppm N. Eight plants were randomly assigned to each treatment listed in Table 1 and arranged in a completely randomized design on a greenhouse bench. Treatments were first applied on 3/27/02. Sprays were applied thoroughly to drip using a CO₂-powered backpack sprayer fitted with a TeeJet TJ60-8006VS twinfan nozzle operating at 30 psi. All sprays except for Ovation and Hexygon were repeated on 4/10/02 and 4/24/02.

Treatments were evaluated by selecting four older and four young compound leaves from around each plant and tallying the number of mites (all motile stages) present. ANOVA and multiple comparisons among treatments were performed on transformed plant totals using a statistical multiple comparison procedure (SupcrAnova v. 1.1, Abacus Concepts). Results are shown in Table 1.

Results and Discussion

All treatments as used in this trial were able to suppress twospotted spider mite populations compared with the water-sprayed control. Both Hexygon and Ovation appeared to show activity for at least two to three weeks, even though applications were timed as populations began to build rather than at the earliest sign of infestation which may be most appropriate.

Plants treated with Hexacide had unacceptable brown spotting on foliage after the first application, although there was much less injury following the second and third sprays. There was no other phytotoxicity observed in any other treatment. Hexacide appears to leave a temporary oily residue on foliage and much of the spray beads up and rolls off leaves during application; a lighter misting spray may be more appropriate for this material. Acaritouch was slightly less effective than the other contact insecticides Hexacide, GC-Mite and Sucrose Octanoate, although still appeared to suppress populations significantly. The contact materials may be best used in a weekly program when populations are building, or preventively as needed when low numbers are present. Ovation application left a slight pinkish residue that was not especially noticeable on foliage. Other applications left little or no observable residue.

Table 1. Control of Twospotted Spider Mite on 'Lady Sunblaze' Roses, Riverhead, NY, 2002.

Treatment	Rate/100 gal (form.)	Sample Date				
		3/26	4/2*	4/9	4/17	5/1
		(mites per plant)				
Ovation 48C	2 fl oz	65.1ns	80.0ab	100.6ab	95.6ab	186.7ab
Hexygon 50W	2 oz	65.3ns	80.6ab	71.1a	113.7 b	179.6ab
GC-Mite	1 gal	69.9ns	65.0a	102.0ab	134.0 b	176.0ab
Sucrose Octanoate	1 gal	68.7ns	91.8ab	138.3ab	102.3ab	191.3a
Hexacide	8 qt	60.7ns	60.0a	81.5a	47.3a	139.7ab
Acaritouch	25 fl oz	76.9ns	119.9 b	186.4 b	145.0 b	229.9 b
Control (water only)		70.0ns	311.0 c	439.7 c	446.1 c	663.3 c

Means followed by the same letter are not significantly different at $p=0.05$ (Fisher's LSD)

*Data were transformed prior to analysis using \sqrt{y}