



CYCLOPROPANE MITICIDES FOR SUPPRESSION OF SPIDER MITE POPULATIONS ON TROPICAL FOLIAGE PALMS—(Note).¹ The twospotted spider mite, *Tetranychus urticae* Koch, is a major pest in production and interior maintenance of ornamental palms. Available miticides are effective (S. L. Poe. 1973. J. Econ. Ent. 66:490-2), but the potential for resistant populations necessitates evaluation of new compounds for miticidal activity. Reports by G. B. Staal et al. (J. Econ. Ent. 1975. 68:91-5) and R. D. Nelson and E. D. Snow (J. Econ. Ent. 1975. 68:261-5) indicate esters of cyclopropylmethyl alcohol and cyclopropanecarboxylic acid are effective against *T. urticae*. This study evaluated these chemicals for control of *T. urticae* on parlor palm, *Chamaedorea elegans* Mart., under commercial, greenhouse-production conditions.

Cyclopropane miticides in a 25% WP formulation included: ZR-793 (bis(cyclopropylmethyl)terephthalate); ZR-856 (hexadecyl cyclopropane-carboxylate); ZR-1829 (*trans*-1,4-bis(cyclopropylcarbonyloxy-methyl)cyclohexane); and ZR-1859 (tetradecyl 3-cyclopropylpropionate). Standard chemicals were: Pentac[®] (decachlorobis-2,4-cyclopentadien-1-yl), 50% WP; Vendex[®] (hexakis(beta,beta-dimethylphenethyl) distannoxane), 50% WP; and oxamyl 24% L. In Test 1, 1 or 2 sprays (0.21, and 0.08 lb ai/100 gal, respectively) were applied 7 days apart to 4 replicated plots of *T. urticae*-infested *C. elegans* in a randomized block design. Test 2 assayed the protective activity of these compounds to prevent infestation of noninfested parlor palms replicated and treated as in Test 1. Each palm was infested 1 day after the 1st application with an infested palm leaf (mean number \pm SEM of mites and eggs/leaf were 42.3 ± 9.1 and 33.2 ± 10.3). Test 3 determined activity of aged residues with chemicals and concentrations as in Test 1 and 2 but applied twice, 7 days apart, to a replicated series of noninfested palms. One month following the 2nd application, palms were infested with 2 leaflets containing a mean number of 14.9 ± 1.7 mites and 14.4 ± 2.7 eggs/leaflet. In all tests, samples of 10 leaflets were taken periodically from each plot, eggs and mites removed by a mite brushing machine, and counted. Data were subjected to analysis of variance.

Cyclopropane miticide sprays to establish populations (Test 1) were ineffective, compared to oxamyl or Pentac (0.5 and 0.25 lb ai/100 gal, respectively). In Test 2 sprays of ZR-1859, ZR-793 or ZR-856 were as effective as oxamyl, Vendex (0.25 lb ai/100 gal) or Pentac in prevention of infestations. Forty-five days after the 2nd spray or 15 days postinfestation (Test 3), palms treated with ZR-1829, ZR-1859, ZR-856, or ZR-793 contained populations significantly lower than controls and equal to treatments of oxamyl or Vendex. By 60 days after the 2nd spray or 30 days postinfestation, the best chemicals were ZR-1829, ZR-793, and ZR-856, comparing favorably with oxamyl, Vendex and Pentac. Populations did not differ 87 days after the 2nd spray. Cyclopropane compounds, at the concentrations tested, were inferior to standard miticides in reducing established *T. urticae* populations; preventative applications, however, have potential for suppressing mite population development.—R. A. Hamlen, Univ. of Fla., Agr. Res. Center, Apopka, Fla. 32703.

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