

Malathon on Ornamentals

two years of experiments in bay area prove insecticide effective against soft scale, spider mites, and aphids

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Malathon is a new insecticide that is effective for controlling several types of insects and mites on ornamentals.

Malathon is an organic phosphate compound, allied to parathion and TEPP, but it is much less toxic to warm-blooded animals. Also it has a different range of effectiveness among insects.

Soft Brown Scale

Malathon sprays have given excellent control of the soft brown scale—*Coccus hesperidum* Linnaeus. This important pest of many ornamental plants has become even more serious following the wide-spread use of parathion.

The soft brown scale has been controlled successfully in greenhouses with Dithion — sulfa-TEPP — liquified-gas aerosols and smokes. But no spray material—other than oil—was available for treating nursery stock before malathon became available.

A dosage of one pound actual malathon per 100 gallons of water was inadequate for complete control of the scale when miscellaneous potted plants were first treated. In later treatments 1.5 to 2.0 pounds actual material per 100 gallons of water gave 100% control—or nearly so—with the lower dosage being just as effective.

Seven greenhouses of foliage plants were sprayed with 1.5 pounds actual malathon per 100 gallons of water. These greenhouses contained *Philodendron pertusum*, *P. hastatum*, *P. cordatum*, *Schefflera*, English ivy, ferns, and other types of infested plants. In each case the control was 100%, at least after a second application where the first coverage was possibly incomplete.

Complete Control

Two applications of malathon—1½ pounds actual material per 100 gallons of water—were made in a greenhouse of orchids, containing mostly *Phalenopsis* and *Cattleya*. Soft scale infestation was serious. Yet, 100% control of the pest was obtained.

Nursery stock that was badly infested with the soft brown scale was sprayed with malathon. The stock included several thousand cans each of camellias, podocarpus, clematis, and magnolias, and



Adult females and young of the soft brown scale. Malathon is one of the best insecticides available for controlling this pest.

several hundred cans of holly, citrus, and taxus. The scale infestations were eliminated in each case.

Other Soft Scales

The Monterey pine scale—*Physokermes insignicola* (Crawford)—is a serious pest of pine trees in California. There has been no satisfactory control of this pest, as oil is often injurious to conifers.

A single oriental pine tree that was heavily infested with the Monterey pine scale was sprayed with malathon at a rate of 1.5 pounds actual malathon per 100 gallons of water. The treatment gave 100% control.

Investigations are being continued on the value of malathon for pest control on conifers.

Tests made against the hemispherical scale—*Sassietia hemisphaerica* (Targioni)—were not promising.

A greenhouse of heavily infested gardenias was treated four times, with intervals of approximately two weeks between treatments. Malathon emulsifiable concentrate was used at a rate of 1.5 pounds actual material per 100 gallons of water. A moderate infestation of the scale persisted after these treatments.

Spider Mites

A greenhouse of gardenias harboring a moderate infestation of the two-spotted spider mite—*Tetranychus bimaculatus*

Harvey—was sprayed with one pound actual malathon per 100 gallons of water. It resulted in 100% control. No reinfestation occurred for over three months.

Small-scale tests on greenhouse roses indicated that malathon at a rate of 15 ounces actual material per 100 gallons of water is adequate for control of the two-spotted spider mite.

Aphids

Experimental work indicates that exposed aphids may be controlled with less malathon than is required for soft scale insects. However, the aphid control observed was incidental to investigations on control of the soft brown scale.

One hundred per cent control was obtained of the cotton or melon aphid—*Aphis gossypii* Glover—in a greenhouse of gardenias; of the apple-grain aphid—*Rhopalosiphum prunifoliae* (Fitch)—on several dozen tubs of *Strelitzia nicholi*; of the black citrus aphid—*Toxoptera aurantii* (Fonscolombe)—on several tubs of camellias; and of the ornate aphid—*Myzus ornatus* Laing—on several Japanese aralias.

Plant Tolerance

Over 100 kinds of greenhouse foliage plants, cut-flower crops, and nursery stock were sprayed with malathon. Observations following treatment indicate that malathon is less injurious to such crops than are many other insecticides.

Marginal leaf burn occurred in a greenhouse of Boston ferns that was sprayed. Maiden hair ferns are also subject to injury.

Severe injury occurred to greenhouse roses sprayed with relatively high dosages—20 to 30 ounces actual malathon per 100 gallons of water. Small plot tests indicated that at least three commercial varieties are not adversely affected by 15 ounces actual malathon per 100 gallons of water. Roses are even safer when subjected to steampipe fumigation of malathon. Experimental work on this method of application is being continued.

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