

Ornamental Plants

new mite control chemical promising but more tests required

A. Earl Pritchard and Robert E. Beer

The use of DMC—di-(p-chlorophenyl) methyl carbinol—cannot be recommended, particularly with regard to control of the cyclamen mite, until further experience is gained concerning its effectiveness and the tolerance of plants.

DMC is poisonous and must be handled with care. Comparatively little is known of its toxicity to human beings. Considerable smarting of the eyes has been experienced by workers in connection with its application in greenhouses during experimental studies on ornamental plants.

The 25% emulsion concentrate is sold under the trade name *Dimite*.

A preliminary screening test with DMC against the cyclamen mite, *Tarsonemus pallidus* Banks, was carried out in May, 1948 on several dozen plants of severely infested English ivy in two-inch pots.

The results of this test indicated that the 25% emulsion used at the rates of one pint per 100 gallons of water or one quart per 100 gallons of water gave considerable control. Although parathion was not included in the test, it appeared that the higher concentration of DMC was nearly comparable in effectiveness to parathion.

Tests made in July and August on a few large pots of English ivy indicated that excellent control could be obtained with a concentration of 1½ or two quarts per 100 gallons of water.

Complete control was obtained on several African violets which were treated with a concentration of 1½ quarts per 100 gallons of water.

In the case of 27 potted fuchsias which were sprayed at a rate of two quarts per 100 gallons of water, 100% control was obtained.

About 1,500 large ivy plants—in a relatively cool greenhouse—were treated in August with the 25% DMC emulsion at a dosage of 1½ quarts per 100 gallons of water. No live mites were found on 40 damaged tips which were examined four days later. Seven days following treatment, one feeble female, one nymph, and several viable eggs were noted on 40 damaged tips. Spotty infestations, including adults, were found over the greenhouse 12 days following treatment, and a general infestation returned subsequently.

These observations indicate that the residual acaricidal action was somewhat ineffective after about six days.

Spreader-sticker was generally added in these tests at rate of four to eight ounces per 100 gallons of water.

The holly spider mite or red-spider, *Paratetranychus ilicis* McGregor, is sometimes a serious pest of azaleas and camellias in California. It feeds primarily on the upper surface of the leaves, leaving them stippled or rusty.

A moderate infestation of this mite on several hundred azaleas, under cool lath-house conditions, was sprayed with 25% DMC emulsion at the rate of one pint per 100 gallons of water. Eight days later no live mites were found, but all eggs appeared viable. The infestation was again moderate two months following the single treatment.

The false spider mites are closely related to the spider mites, but they differ in being smaller, flat, and by not spinning silken threads. They are generally bright red and stipple the leaves on which they feed.

Parathion and other organic phosphate acaricides are ineffective against them, but DMC gave excellent control of the species against which it was tested.

A severe infestation of the privet mite, *Brevipalpus inornatus* Banks, on 400 lath-house azaleas was sprayed with 25% DMC emulsion at a concentration of one pint per 100 gallons of water. A 100% control was obtained.

Several hundred potted phoenix palms which were infested with an undescribed species of *Brevipalpus* were sprayed with 25% DMC emulsion at a rate of one pint per 100 gallons of water. Here, too, a 100% control was obtained.

A phalaenopsis orchid which was very heavily infested with the phalaenopsis mite, *Tenuipalpus pacificus* Baker, was sprayed with 25% DMC emulsion at the rate of one pint per 100 gallons of water. The infestation was eliminated.

Similar results were obtained on another phalaenopsis which was lightly covered with a dust containing 3% DMC, although feeble mites were found six days after dusting.

The leaf distortion on this fuchsia was caused by the cyclamen mite. The crippled new growth of English ivy, aralias, African violets, azaleas, and many other plants is often due to this persistent pest.

Aside from its value for mite control, DMC appears to be worthy of some consideration for experimentally determining its value in the control of soft scale insects.

A preliminary test of this material was made against the soft brown scale, *Coccus hesperidum* Linnaeus, on a dwarf lemon which was sprayed with a dosage of one quart of the 25% emulsion per 100 gallons of water. Complete mortality occurred, although many adults appeared alive for several weeks.

A 75% control of the same species was obtained on eight potted grapes which were sprayed at a similar rate, the kill being evident at the end of three weeks.

At the rate of one pint of the 25% emulsion per 100 gallons of water, DMC showed no injury to a large number of azaleas and phoenix palms, to a few English ivy plants, and to a phalaenopsis orchid which were treated.

A few cyclamen and English ivy plants showed no injury when treated with a concentration of one quart per 100 gallons of water. A few small grapes showed slight marginal burn. Several Boston ferns were killed immediately.

When sprayed with a dosage of 1½ quarts per 100 gallons of water, a large number of ivy plants, as well as a few sanseveria, peperomia, *Philodendron cordatum*, pepper plant, and Japanese aralia showed no injury.

Several African violets appeared to be unaffected except for blossom burn and injured new growth which died. Several tuberous begonias which were treated

Continued on page 15



OLIVES

Continued from page 4

Girdling plots were established with Sevillano olives in Tulare County during the 1948 season with girdling done at three different times.

Five trees were girdled on November 13, 1947, five on December 17, 1947 and five on February 3, 1948.

The trees used were relatively large and had a history of nonbearing, but with flower production, for the previous four or five years.

**Effect of Girdling on Olive Yields. Pounds of Fruit Per Tree
Sevillano Variety—Lindsay, California, 1948**

Date girdled	Tree number					Total	Average yield per tree	Per cent increase over check
	1	2	3	4	5			
Nov. 13, 1947	329	310	438	256	183	1516	303	98
Dec. 17, 1947	328	402	292	329	365	1716	343	124
Feb. 3, 1948	548	329	438	365	256	1936	387	153
Check	127	37	256	164	182	766	153

The girdling operation consisted of the removal of a strip of bark about $\frac{1}{4}$ inch wide completely around the primary branches. The cuts were immediately covered with an asphalt emulsion grafting wax.

The best method yet used for making the girdling cuts is with an ordinary grape girdling knife. It is very important in making the girdling cut to completely remove the bark down to the wood or the desired results are not likely to be obtained.

Two small branches on each tree were not girdled; they were left for the purpose of supplying the roots with some carbohydrates until the girdling cuts healed, which took about eight weeks.

ary 3rd had the highest yields, an increase of 153% over the nongirdled trees.

A composite fruit sample from the three girdled plots was compared with a fruit sample from the nongirdled trees. Little difference was seen except in the cull grade which is in favor of the girdled trees.

No detrimental effects have been noted in the appearance of the girdled trees at any time during the year since the girdling was done.

The results from the Tulare County test plot are encouraging but the work so

far is of a preliminary nature. More experimental plots are necessary to see if such results can be obtained consistently and to determine the long-time effect on the trees.

If girdling proves to be a reliable method of obtaining fruit set in olives it probably will be of the most value in securing crops from orchards which have a history of failing to set fruit although they bloom heavily.

Girdling should not be attempted in orchards which are infected with olive knot until reliable methods of disinfecting the cuts can be demonstrated so as to prevent the entrance of the olive knot bacteria.

Trials are under way to test various

Effect of Girdling on Size of Fruit. Sevillano Variety. Lindsay, California, 1948

	Size Grades							
	Super colossal	Colossal	Jumbo	Giant	Mammoth	Extra large	Large	Culls
Girdled	6.8%	24.3%	21.6%	20.3%	12.2%	9.5%	2.7%	2.7%
Check	7.7	23.6	21.0	15.0	11.5	5.8	2.3	13.0

The dates on which the girdling was done were selected with the idea that the desired accumulation of carbohydrates in the tops of the trees should occur just preceding or coincident with the development of the flowers which are initiated about March 15th.

Previous girdling tests with olives in 1946 and 1947 in which the girdling was done at the blooming period, in May, failed to show any beneficial results.

Increased yields, which were statistically significant, were obtained in all the girdled plots. The trees girdled on Febru-

methods of disinfecting the girdling cuts. Further girdling plots have been established for the 1949 season at Lindsay, Madera, Winters, Oroville, Palermo, Orland, and Corning.

These trials are designed to give more information as to the optimum time for the girdling to be done; and more rapid methods of making the cuts.

H. T. Hartmann is Assistant Professor of Pomology and Assistant Pomologist in the Experiment Station, Davis.

The above progress report is based on Research Project No. 1301.

NEW BLACKBERRY

Continued from preceding page

The Thornless Oregon Evergreen—Thornless Himalaya—developed as a bud mutation of the Oregon Evergreen. It was introduced in 1946.

In the interior valley the berries are small, production is light, and the picking season begins in the latter part of June and continues until August. In the central coast region the berries are small to medium in size, production is fair, and the picking usually does not begin until the first or second week of July and extends throughout the fall months.

The flavor is pleasing but distinctly different from that of other blackberries. Typically it has a slightly sweet taste and a musty-like aroma. The flavor is not good enough to justify the inclusion of this variety in home garden plantings.

Alfred

The Alfred variety is a vigorous blackberry and is the best of the erect types which have been tested by the University. The berries are medium to large and attractive in appearance. The flavor is fair to good.

In the central coast area the picking season continues from June to October. Production has been too light for commercial purposes. However, this variety may be suitable for home garden plantings.

Richard E. Baker is Assistant Professor of Pomology and Assistant Pomologist in the Experiment Station, Davis.

The above progress report is based on Research Project No. 1387.

Carl Muller and George Murphy first reported the discovery of the Boysen variety shiny type, in their planting near Denair in 1947.

ORNAMENTALS

Continued from page 13

showed distortion and serious leaf and flower burns. Several gynura and grape ivy plants showed peculiar distortion.

Several ivy plants, azaleas, and one potted phoenix palm showed no injury when sprayed with 25% DMC emulsion at a rate of two quarts per 100 gallons of water. A small plant each of *Ficus repens* and asparagus fern showed serious leaf and tip burn. Of 27 potted fuchsias treated, one variety was killed while the others showed serious leaf burn, defoliation, and stem brittleness.

A. Earl Pritchard is Assistant Professor of Entomology and Assistant Entomologist in the Experiment Station, Berkeley.

Robert E. Beer is Research Assistant, Division of Entomology and Parasitology, in the Experiment Station, Berkeley.

The above progress report is based on Research Project No. 1318.