Rosy Apple Aphid Control Tests

dormant oil plus phosphate compounds applied to control the overwintering eggs more efficient than spring foliage sprays

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Rosy apple aphid—perhaps the commonest aphid found on apples in California—can be a very destructive pest if not controlled.

The damage caused by this aphid is rather severe on apples. The foliage is curled as it develops and the aphids are protected within the curled leaves. A considerable amount of honeydew is produced which drips to the fruit and foliage. In addition, the feeding of the aphids on the leaves affects the nearby fruit, and the apples become deformed and fail to increase in size.

Rosy apple aphid overwinters as an egg on the shoots and buds of the tree. The eggs hatch early in the season, usually about the time that the apple tree blooms. The stem mother that hatches from the egg gives rise to apterous forms which infest the unfolding leaves. Many generations are produced during the spring months, and in early June, alates become abundant. The winged aphids leave the apples for a summer host, where they remain until fall. At that time, winged aphids are produced on the summer host, and these aphids return to the apples where they give rise to sexual forms which mate and lay the overwintering eggs.

Because the aphid overwinters as an egg, and because of the difficulty in controlling aphids within curled leaves, the standard means of control has been the use of dormant oil plus dinitro compounds during the winter. This combination, if properly applied, will destroy the aphid eggs. Growers, however, have objected to this combination as it is a caustic spray and will burn and often destroy their winter covercrop.

Summary of 1957 Rosy Apple Aphid Plots

Material	Dosage per 100 gallons	Date applied	Mortality	
			May 10	May 16
Systox	1 pt. 21%	May 6	100%	100%
Thimet	1 qt. 48%	May 6	100	100
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Diazinon	1 lb. 25%	May 6	99.2	98.8
Guthion	1½ pts. 18%	May 6	40.3	73.0
Nialate	1 lb. 25%	May 6	28.1	59.0
Thiodan	2 lbs. 25%	May 6	34.5	68.2

A typical apple twig infested with rosy apple aphid.

In an attempt to find a substitute treatment during the winter, three combinations of oil and phosphate compounds were tried during 1957. The materials used were Trithion plus oil, Phostex-oil miscible, and Nialate-oil miscible. The materials were applied to acre plots with blower sprayer equipment in late March, during the delayed dormant stage of the trees.

In May, the plots were evaluated by counting the number of infested shoots on 16 trees in the center of each plot. European red mite eggs were also numerous in this orchard, and the effects of the materials on mite eggs were checked by leaf counts in May and June.

All of the materials effectively controlled the rosy aphid eggs. The few infested shoots found on the Nialate plot were at the top of a very high tree, and probably represent inadequate coverage. With European red mite, Trithion plus oil and the Nialate-oil miscible reduced populations to a considerable degree as compared with the check trees. The Phostex-oil miscible, however, did not seem to affect the mite eggs, and the counts paralleled those in the check.

There was no adverse effect from the use of these materials on the cover crop, and these data indicate that certain oil-phosphate combinations could be substituted for the oil-dinitro sprays now in use.

In this same orchard, a plot had been established for woolly apple aphid control, and the trees involved had not received a dormant treatment. As a result, a heavy infestation of rosy apple aphid developed in this block of trees in late April. Since the first sprays for woolly apple aphid were applied in May, it was decided to evaluate the effect of these materials against rosy apple aphid. The plots consisted of single trees with eight replications, and materials were applied with conventional ground equipment and hand guns. The materials were evaluated four and 10 days after application by

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Summary of 1957 Delayed Dormant Plots for Control of European Red Mite and Rosy Apple Aphid Eggs

Materials	Dosage per acre	Date applied	Rosy aphid counts*	European red mite counts**		
			May 16	May 10	June 6	June 21
10% Phostex-oil miscible..	3.6 gals.	March 21	0.0	0.6	6.4	12.6
5% Nialate-oil miscible..	3.6 gals.	March 21	0.7	0.2	0.2	0.5
48% Trithion .... + dormant oil	3.6 pts. + 7.2 gals.	March 21	0.0	0.1	0.2	0.7
Check	......	......	7.5	1.3	6.7	13.4

* Expressed as average number aphid infested shoots per tree.

** Expressed as average number mites per leaf.