

Early Sprays for Brown Mites

new miticides tested for effectiveness when included in usual near-bloom sprays on almonds and peaches

F. M. Summers and D. M. Holmberg

Recent investigations tested the possibility of incorporating various new miticides for the control of the brown mite—*Bryobia praetiosa* K.—in the usual sprays applied to almonds and peaches in the pink-bud period.

Numerous plot tests and limited field trials by growers indicate that two recently developed materials, K-6451—Ovotran—and EM-923—Genite—possess properties which offer an excellent solution to the brown mite problem.

Similar Tendencies

The two different chemicals have shown similar tendencies: 1. Single treatments applied near the outset of the period of mite build-up can be made to give lasting control of heavy infestations. 2. They are compatible with Bordeaux, fixed copper fungicides, basic lead arsenate and DDT. 3. They have relatively long residual activity against immature mites. 4. Their action is chiefly ovicidal and larvicidal. 5. There is no obvious direct lethal effect on insects, beneficial or otherwise. 6. Unusual or special precautions are not required in handling. 7. They were not found to be injurious to almonds or peaches—within the range of varieties, dosages and combinations so far tested.

A 50% wettable powder formulation of K-6451 was tested most frequently at dosages ranging from 1½ to 2 pounds per 100 gallons of spray. EM-923 was tested as a 50% emulsion at dosages of 1½ to 2 pints per 100 gallons. The test plots from which numerical data were taken were sprayed by hand from the ground with high pressure sprayers operating at 400 pounds per square inch. The amount of spray used was not less than 400 gallons to 48 almond trees per acre, and not less than 480 gallons to 90 peach trees per acre. Both materials were tested in pink-bud and petal-fall sprays as well as later in the season. Within this range of dosages, the results so far obtained with K-6451 do not differ significantly from those obtained with EM-923.

Control Level

The level of control obtained with the two miticides in test plots varied from 94% to 99%—as tested on badly infested almonds. These percentages were deter-



Photomicrograph of a portion of a terminal twig of almond. Several adult brown mites may be seen resting in the folds of bark. The ill-defined, white objects are cast skins and empty egg shells.

mined near the peak of the mite attack in late May or early June, six to 15 weeks after treatment, according to the date of application.

Excellent results were also obtained in grower trials with dosages of six to eight pounds of 50% K-6451 or ¾ to one gallon of 50% EM-923 per acre in full-volume sprays. Various types of ground equipment were used in these commercial trials, including high pressure spray rigs with attached blowers and with integral blower-sprayers.

The materials performed equally well in pink-bud or popcorn and petal-fall sprays. They were also very effective when applied later than the petal-fall period—but before the heavy hatch of eggs in April. But trees so treated retained the mite injury accumulated prior to the time of spraying.

Sprays containing either miticide were characteristically slow to reduce heavy populations of adult mites. For this reason these chemicals were not entirely satisfactory when used in late spring—near the peak of the attack.

Problems of residues on almond hulls fed to livestock are not anticipated if these sulphonate miticides are used for brown mites during the early part of the growing season.

Taste tests were run on samples of Nonpareil and Texas nuts sprayed with K-6451 and with EM-923 in late June. No off-flavor was detected in the edible kernels.

Results obtained in 1952 indicate that the two chemicals are about equally well-adapted for use on peaches—insofar as the control of brown mite is concerned. However, information about residues and possible effects on the flavor of peaches sprayed with either of these is not yet available.

Pre-pink Sprays

A new triethanolamine dinitro-phenol compound may prove to be useful in almond orchards infested with brown mites and with damaging populations of the peach twig borer. During the course of earlier research on new insecticides in dormant sprays for twig borer, it was evident that this compound showed a pronounced effect on wintering mite eggs.

Sprays containing two quarts of one commercial formulation—DN-289—per 100 gallons were then tested separately on twig borer and brown mite. The results were outstanding in both tests.

Foliage samples taken from the mite plot showed 98% reduction of mites during June as a result of one spray applied in the pre-pink period.

The spraying of almonds with the dormant dosage of this dinitro-phenol compound later than the green-tip stage may cause injury to foliage or blossoms. It is believed to be unwise to apply this material to peaches in the concentrations required to kill hibernating twig borer larvae or dormant brown mite eggs.

F. M. Summers is Assistant Entomologist, University of California College of Agriculture, Davis.

D. M. Holmberg is Farm Advisor, Yolo County, University of California College of Agriculture.

The taste tests with almonds were conducted by Dr. Elly Hinreiner, Department of Food Technology, University of California College of Agriculture, Davis.

The above progress report is based on Research Project No. 1348.