

Codling Moth on Walnut

1951 tests compare effectiveness of conventional and air-carrier sprayers on Payne walnuts in northern California

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Codling moth investigations in 1951 resulted in a reduction of the recommended standard lead arsenate in mixtures applied by conventional sprayers.

The amount was reduced from three to two pounds of standard lead arsenate in 100 gallons of water.

The 1950 recommendations of spray mixtures used in air carrier sprayers were confirmed in 1951.

The 1951 investigations were conducted on an experimental-commercial scale in the Linden and San Jose areas.

Nut size can be used in determining the best time to spray. The first brood of codling moth larvae does not enter the nuts until some time after the average cross-sectional diameter of the nut has reached one-half inch. Therefore spraying can be delayed safely until the nuts have reached this size. Depending upon the season, the spray date at Linden varies from the latter part of April to about May 15. At San Jose the spray date is usually about two weeks later.

A single well-applied treatment should give adequate control for the entire season. It is recommended that an aphicide—for aphid control—be added to all codling moth treatments.

The sprayers used had 25-foot towers and were equipped for automatic spraying. The spray was applied at a pressure of 600 pounds and each tree was circled. There were 18 large trees to the acre and approximately 55 to 60 gallons of spray were applied per tree.

Three principal treatments were tested. All treatments contained one-half pound 50% DDT wettable powder, one-half pound safener, and one-third gallon light summer oil emulsion per 100 gallons of water. They varied in the amounts of standard lead arsenate added. When three

Overwintering codling moth larva in walnut bark.



RECOMMENDATIONS

For codling moth and aphid control applied by conventional sprayer:

Standard lead arsenate . . . 2 pounds
DDT, 50% wettable

powder 1/2 pound

Safener—a commercial basic zinc sulfate product containing 50% zinc expressed as metallic 1/2 pound
25% wettable parathion

powder 2 2/3 ounces
or

Benzene hexachloride (6% gamma isomer) . . 1 pound

Light summer oil emulsion containing 80%

oil 1/3 gallon
Water 100 gallons

For codling moth and aphid control applied by air-carrier sprayer:

DDT, 50% wettable powder 10 pounds

DDT depositor 3 pounds

14% nicotine dry concentrate 9 pounds
or

25% wettable parathion 1 1/4 pounds
or

Benzene hexachloride (6% gamma isomer) 9 pounds

Light medium summer oil emulsion 3 gallons

Water 500 gallons
(to be used at approximately 400 gallons per acre)

OR

DDT, 50% wettable powder 20 pounds

DDT depositor 3 pounds

14% nicotine dry concentrate 18 pounds
or

25% wettable parathion 2 1/2 pounds
or

Benzene hexachloride (6% gamma isomer) 18 pounds

Light medium summer oil emulsion 3 gallons

Water 500 gallons
(to be used at approximately 200 gallons per acre)

pounds of standard lead arsenate was used, 0.5% of the nuts were infested; with two pounds, 0.66% were infested; and with 1 1/2 pounds the infestation was 0.3%. Check plot infestation was 3.22%.

Because all three treatments resulted in about equal control it is believed safe to lower the standard lead arsenate per 100 gallons from three to two pounds.

The addition of one-half pound of 50% DDT wettable powder probably insures good protection, because this amount of DDT alone controls the first brood of codling moth. At this dosage there is little evidence that DDT favors an increase in orchard mites or frosted scale.

The check—control trees—used in this experiment consisted of a block of six unsprayed trees. The percentage of infested nuts in the check—3.22%—would have been much larger if the entire orchard had been left untreated, as indicated in the number of first brood larvae at the start of the season. There is no question that the excellent control throughout the orchard was reflected in a marked decrease of infestation in the control trees.

An experiment was conducted in which the safener was omitted from the mixture. In this plot 0.6% of the nuts were infested as compared to 0.8% in a companion plot in which a safener was used. There was no evidence of any injury where the safener was left out of the spray mixture. If this can be substantiated by further investigations it may be safe to drop the safener from the recommended program.

In preparing the recommended mixture, the dry ingredients are slurried, and added to the spray tank with agitator going when the tank is one third to one half filled with water. The oil is added when the tank is three fourths full.

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Two specimens of the codling moth from a northern California orchard.



