

# Codling Moth at Linden in 1953

## successful control sprays applied in experimental orchard in season of serious infestation at Linden

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An outbreak of the codling moth on walnuts in 1953—the most destructive infestation since 1948—was successfully controlled with a single treatment in the experimental orchard at Linden, whether the sprays were applied with a conventional or with an air carrier sprayer.

In extensive codling moth control experiments at Linden, sprays were applied to Payne walnuts that numbered 18 trees to the acre. All treatments were replicated from two to 10 times.

The sprays were applied from May 6 through May 11. The average cross sectional diameter of the nuts ranged from  $\frac{3}{8}$ " to  $\frac{1}{2}$ ", and the treatments were applied just prior to the time that the first-brood caterpillars began entering the nuts.

### Conventional Sprayer

Using the conventional sprayer, two treatments were compared. The sprayer had a 25' tower and was equipped for automatic spraying. The trees were circled and approximately 1,000 gallons of spray were applied per acre. The treatments were:

1. Standard lead arsenate... 6 pounds  
Safener ..... 1.5 pounds  
DDT 50% wettable powder ..... 1.5 pounds  
Parathion 25% wettable powder ..... 0.5 pound  
Light summer oil emulsion ..... 1 gallon  
Water ..... 300 gallons
2. DDT 50% wettable powder ..... 2.25 pounds  
Parathion 25% wettable powder ..... 0.5 pound  
Light summer oil ..... 1 gallon  
Water ..... 300 gallons

Better control was obtained with the straight DDT spray than with the DDT-standard lead arsenate mixture. The results clearly indicated that an increase of  $2\frac{1}{2}$  pounds of DDT, 50% wettable powder, per acre more than made up for 20 pounds of standard lead arsenate. These results substantiate experimental trends of previous years.

The  $7\frac{1}{2}$  pounds dosage of DDT, 50% wettable powder, in no way increased the frosted scale, walnut aphid or spider mite population more than when the

standard lead arsenate-DDT mixture was used. In both treatments, the walnut aphid was checked by adding parathion to the sprays, and in neither case did a frosted scale or spider mite problem develop.

### Air Carrier Sprayer

The air carrier sprayer used was equipped with a volute and had an air capacity of at least 43,000 cubic feet per minute. All applications were made at the rate of approximately 200 gallons per acre, and two dosages of DDT were compared. In one series, approximately eight pounds of DDT, 50% wettable powder, were applied per acre in combination with different aphicides. In the second series, DDT, 25% wettable powder, combined with 3% parathion, was used at the approximate rate of 12 pounds per acre. In the first case, about four pounds of actual DDT were applied, while in the latter, roughly three pounds were used.

The compositions of the two spray mixtures per 500 gallons of water were:

1. DDT, 50% wettable powder ..... 20 pounds  
DDT Depositor ..... 2 pounds  
Parathion, 25% wettable powder ..... 2.5 pounds  
or  
Liquid Parathion (4 pounds per gallon) .... 20 ounces  
or  
EPN 300, 25% wettable powder ..... 7.5 pounds  
or  
Malathion, 25% wettable powder ..... 7.5 pounds  
or  
Nicotine, 14% dry concentrate ..... 18 pounds  
or  
Demeton—several dosages  
or  
OMPA ..... 7.5 pounds  
Light summer oil emulsion ..... 3 gallons
2. DDT, 25% wettable powder, combined with 3% parathion ..... 30 pounds  
DDT, Depositor ..... 2 pounds  
Light summer oil emulsion ..... 3 gallons

### Per Cent of Infested Walnuts in the Harvested Crop in Experimental Plots at Linden, California.

Treatment Amount of insecticide applied per acre	% infested nuts
<b>Check</b>	
No codling moth treatment . . . . .	<b>2.20</b>
<b>Conventional Sprayer</b>	
Standard lead arsenate, 20 lbs. + 50% DDT, wettable powder 5 lbs. in 1,000 gallons of water . . . . .	<b>0.26</b>
50% DDT, wettable powder, $7\frac{1}{2}$ lbs. in 1,000 gallons of water . . . . .	<b>0.06</b>
<b>Air Carrier Sprayer</b>	
50% DDT, wettable powder, 8 lbs. in 200 gallons of water . . . . .	<b>0.28</b>
25% DDT, wettable powder, 12 lbs. in 200 gallons of water . . . . .	<b>0.25</b>

The infestation in each case was only about one fourth of 1%, and the three-pound dosage of actual DDT resulted in as good control as did the four-pound dosage. This is in substantiation of some previous investigations where three pounds equaled a four-pound dosage. However, the control fell off rapidly as the amount of DDT was reduced below three pounds.

### Community Action

Codling moth control could be simplified if all growers in an area applied effective sprays. This was well illustrated at Linden where approximately 150 acres were under experimentation. Effective treatments were applied to all but 40 trees, which were left unsprayed except for an aphid treatment to serve as check trees. The check trees were well protected from surrounding orchards by sprayed plots. Yet in spite of a general raise in the codling moth population throughout the area, the infestation in the harvested crop in the check trees was only 2.2%.

There was some migration of the codling moth into the experimental orchards but this was largely confined to the edge. For example, the average per cent of infested nuts in the harvested crop in the marginal plots was 0.69% as compared with 0.28%, the average figure for the inner plots.

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