
DDT AS AN INSECTICIDE AGAINST CODLING MOTHS

F. E. WHITEHEAD, Oklahoma Agricultural Experiment Station, Stillwater

Depredations by codling moths are the greatest hazard apple growers must face in their efforts to produce crops of sound apples. As a result, a tremendous amount of research has been conducted to find better insecticides to be used against them; but, for the most part, such research has indicated that arsenate of lead, which has been the standard for years, is still the most reliable material known.

DDT, the principal component of which is 1-trichloro-2, 2-bis (p-chlorophenyl)-ethane, has proven so effective against so many insects that, when it was made available to researchers, work was started to determine its effectiveness against this pest. The test was made in 1945 in a portion of the Experiment Station Orchard at Perkins. Here the trees are set out by varieties in rows running north and south; the rows running east and west include all of the several varieties in this part of the orchard. Each time the orchard was sprayed, one of the east-west rows (row 16) was sprayed with DDT, using it at the rate of 1.5 pounds of 40 percent DDT (Geigy AKZ40) and 1.5 pints of spreader (*Gessaflox*) per 100 gallons of water. The remainder of the orchard was sprayed with arsenate of lead, 3 pounds; lime, 4 pounds; wettable sulphur, 5 pounds; and soy-bean flour, 0.5 pound per 100 gallons of water for the first four sprays. The fifth spray consisted of arsenate of lead, 3 pounds; lime, 4 pounds; and 0.75 gallon of summer spray oil. The sixth spray was the same as the fifth except that no oil was included. The sprays were applied April 17, April 26, May 10, May 24, July 18, and August 3, 1945.

At harvest, counts were made of the codling-moth infestations of the trees sprayed with DDT and those of the same variety sprayed with the arsenate of lead. Table I gives the results of these observations.

TABLE I

Percentages of infestation found in apples harvested from two lots of trees which had been treated respectively with arsenate of lead and DDT

Variety	Arsenate of Lead	DDT
Jonathan	16	7
Starking	13	19
King David	33	21
Delicious	8	6
Turley	5	3
Collins	9	7
Winesap	2	0
Stayman	3	1
Paragon	2	0
Averages	10.1	7.1

These data show that the infestation in the trees sprayed with DDT was three-percent less than in those sprayed with arsenate of lead and that there were slightly over 42-percent more worms (3=42.25 percent of 7.1) in the fruit sprayed with arsenate of lead.

It was also noted that infestations of red spiders (*Tetranychus telarius* Linn.) were much more severe on the trees sprayed with DDT, probably owing to the fact that the DDT killed a high percentage of the predators that normally hold red-spider populations in check.

These results are in agreement with those obtained at numerous other experiment stations concerning the comparative value of DDT and arsenate of lead as a spray against codling moths.