

Duster Equipment on Tomatoes

effectiveness of a duster with and without hood compared in field tests controlling caterpillars

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Effective duster equipment saved 40% of the insecticide in caterpillar control tests in tomato fields near Woodland.

The experiments were made to test equipment that might confine insecticidal dusts to the plants and fields being treated.

A power take-off duster regulated to treat five rows of tomatoes was equipped with a canvas hood and with the air intake placed in a position to draw the air from under the hood. By this arrangement it was hoped to create conditions which would reduce the turbulence and minimize drift, thus insuring a higher deposit of dust on the plants. The insecticide contained 5% DDD and 75% sulfur.

The experiment was designed to test the efficiency of the hood by comparing the control of caterpillars by applications made with and without the hood.

To bring out differences, the usual recommended dosage of 30 pounds of dust per acre per application was reduced to approximately 18 pounds. It was believed that this reduction would make it easier to detect any improvement in the control should the hood result in a better deposit and less drift.

Plots receiving each method of application were replicated three times, under rather uniform weather conditions. To minimize the error that might arise from changing weather conditions, plots with and without the hood were treated alternately.

Two applications were made, the first on July 23 and the second on August 30. Applications were also made on additional plots with the usual recommended dosage of 5% DDD, 75% sulfur, 30 pounds per acre. Infested fruits were counted in three pickings, September 14, September 25, and October 10.

The control obtained where 18 pound-per-acre applications were made with and without the hood was excellent and about the same. Slightly better results on the second picking occurred where the hood was used but the difference was so small as to be of no real significance.

The duster was equipped with the United States Department of Agriculture type hopper with a vertical auger agitator. The dust feeds to the blower from the side of the auger tube. A slide gate in the tube to the blower controls the rate of dust flow.

This system produces a noticeable improvement in uniformity of dust flow over other dusters used. It allows less variation in flow due to physical characteristics of different dusts, and gives continuous recirculated agitation.

The dust discharge system consists of two tapered booms, one on each side of the duster with circular outlet holes one and one-half inches in diameter spaced every 10 inches on the bottom of these booms and on a shorter boom under the rig. For the six-foot tomato rows the holes which lined up over the furrows were plugged.

Observations made at the time of application to the experimental plot indicated this duster applied the material in a uniform and thorough manner.

The results proved that the degree of control with applications of approximately 18 pounds per acre per application

was almost as good as that which resulted from the recommended dosage of 30 pounds per acre. The experiment illustrated the importance of thorough and even application, even though the results failed to indicate any definite value from the use of the hood.

If most grower equipment approached the effectiveness of that used in the experiment it probably would be safe to reduce the recommended dosage of 5% DDD or DDT from the present 30 pounds. Under the circumstances, however, it is felt that no reduction is advisable.

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Hooded duster used in experimental work in operation in a melon field. The holes in the hood which permit passage over tomato rows have been closed. Note patches of white canvas on forward side of hood.

