

Hexaethyl Tetrphosphate Thermal Aerosol Fog Effective Against Grape Leafhopper

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DURING SEPTEMBER, 1947, observations were made of hexaethyl tetrphosphate applied as a thermal aerosol fog for control of the grape leafhopper, *Erythroneura elegantula* Osb., on grapes. A commercial operator of a Tifa machine (Todd Insecticide Fog Applicator) cooperated in tests and the results of several commercial applications were evaluated.

For all treatments a commercial preparation containing 50% of HETP—Vaportone—was mixed with a commercial light medium spray oil—Greenol—and applied in Emperor variety vineyards in Tulare County. The Tifa machine was mounted on a jeep, with the outlet nozzle so adjusted that the fog was directed to the ground at a point about 10 feet to the rear and midway between the rows. Controls were set to deliver particles of 20 to 30 microns in size.

Three vineyards were treated, two at sundown and the third at sunrise, with a mixture of one part of 50% HETP and three parts of oil applied at one gallon per acre in alternate middles. No actual

counts were made of leafhoppers killed but both evening treatments resulted in a very good commercial reduction of populations. The early morning test showed no observable effect.

Two additional evening tests were made. In one vineyard a mixture of one part of 50% HETP and three parts of oil was applied at two gallons per acre in every middle. This resulted in a reduction of the average population per leaf on 10 leaves from 64.4% to 0.9% or 98.6%. In the second vineyard a mixture of equal parts of 50% HETP and oil was applied at one gallon per acre in alternate middles. The average population per leaf on 10 leaves was reduced from 123.8 to 1.6 or 98.7%. In both cases pretreatment population samples were taken the day of treatment and post-treatment samples counted the day following application.

An application was then made over a 100-acre vineyard in which equal parts of HETP and oil were applied at night in alternate middles at one gallon per

acre. This resulted in a very excellent kill of leafhoppers. In spots where averages of 398, 141, 168, and 139 leafhoppers per leaf had been counted prior to treatment the population had apparently been reduced by 100%. It was difficult to find a live adult or nymph anywhere in the treated area the day after treatment.

No discernable injury developed on the vines as a result of any treatment.

Further use and tests of this method will be necessary to determine its relative merits as a means of controlling the grape leafhopper.

FIG SCALE

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parathion near the start of hatching had evidently retarded the establishment of the summer forms until late in the hatching period of eggs from the overwintered females.

At harvest, August 7, 1947, 100 figs from the sprayed and unsprayed tree were examined for numbers of scale present (table 2). All the figs from the unsprayed tree and 78% of those from the sprayed tree were infested. The high percentage of infestation on fruit from the sprayed tree was expected since observations in 1944 and 1945 had indicated that unless the infestation in late June was substantially less than 1 per leaf, an appreciable fruit infestation could be expected on the mature figs. Table 2 shows that 72% of the figs from the sprayed tree had five or fewer scales each while 72% of those from the unsprayed tree had 26 or more scales.

This preliminary test indicates that parathion may be very effective in control of fig scale. Information on dosage, timing, residue, etc., must be obtained. The possibility of controlling spider mites and other pests makes the possible use of parathion even more interesting.

RED SPIDER

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four ounces of TEPP was fortified with B 1956 and IN4200 the combination was more effective than eight ounces of HETP (i.e. one pint of 50%). But in the second

application the HETP was more effective than TEPP when used alone. By comparing with the data in table 5, it can be seen that the double applications of ethyl phosphates in table 6 were not as effective as single applications of parathion at two pounds of 15% per 100 gallons.

TABLE 6—Double Applications of Ethyl Phosphates on Pacific Mite on Grapes

Plot	Sprayed, 1947	Material	Amount per 100 gallons	Ave. live mites per leaf		
No. 1	July 10	TEPP	4 oz.	4.8		
		B1956	4 oz.			
		IN4200	1 pint			
No. 2	July 17	TEPP	4 oz.	11.4		
		July 10	HETP 50%		1 pint	40.8
			July 17		HETP 50%	