



Colorado State Flower Growers Association

IN COOPERATION WITH COLORADO A&M COLLEGE

Bulletin 19

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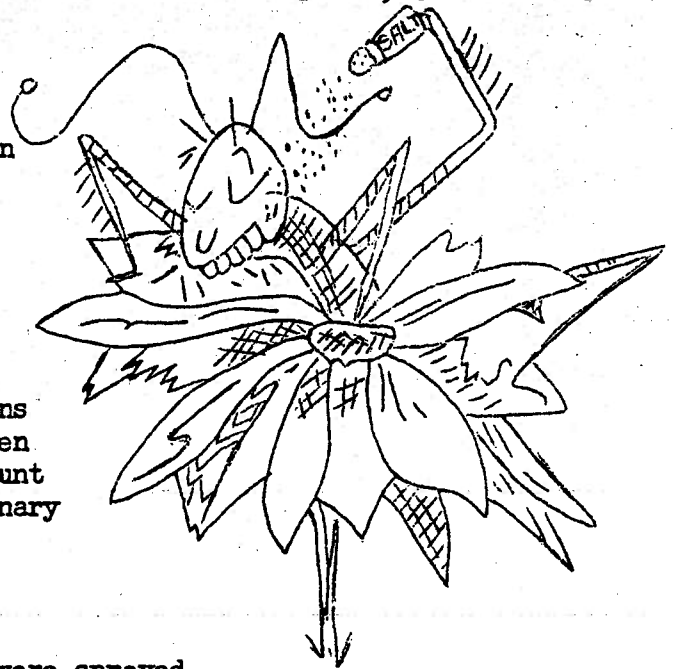
May 1951

K-6451 FCR RESISTANT MITES

By W. D. Holley

A year ago we had succeeded in developing a strain of red spider mites which parathion would not kill. These mites started on an occasional plant, gradually spread to most of one rose house and a part of another and eventually were present on young carnation stock in a connecting corridor. The population multiplied in spite of regular fumigation with parathion. Dithion fumigation did not give appreciable kills nor did the volatilization of Vapatone from steam pipes.

Preliminary spray trials with a formulation of K-6451 had given promising though extremely slow kills on this resistant strain of mites. No injury to rose plants had resulted from three spray treatments at dilutions of 1 - 800, and 1 - 400. The intervals between sprays were rather irregular which might account for the poor results obtained in this preliminary treatment.



Tests on Roses

On April 26, 1950, both houses of roses were sprayed with a mixture of Vapatone at 1 - 1600, K-6451* at 1 - 800, and Dreft at 1 - 1600. The Vapatone was added to try to get a quicker kill.

A second spray of the same mixture was put on May 5, and another without the Vapatone was used May 22. Sprays of K-6451 were applied June 27 and July 27. A mixture of K-6451 at 1 - 800, wettable sulfur at 1 - 600, dreft and

* K-6451 was used in a 50% wettable formulation unless otherwise designated.

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malachite green was applied to Pink Delight and Better Times in one house on September 5.

The kill was slow as no spectacular reduction in mites had occurred by the time the second spray was applied ten days after the first. At the time the third spray was applied, 27 days after the first, there were few mites surviving. Shortly after the third spray was applied no surviving red spiders could be found. Sprays were continued primarily as a preventative measure and to test for possible injury from continued use of this product.

No injury was noted on roses from the use of K-6451 alone or in combination with sulfur, vapatone or malachite green.

K-6451 did not control thrips so parathion bombs were used September 14, January 6, and April 18 for their control. Not one red spider mite has been found in either rose house since sometime during last summer.

Tests on Carnations

As mentioned previously, the resistant mites spread to a bed of young carnations in a connecting corridor where they multiplied in spite of regular fumigations with parathion. These plants were benched standard in late June and a spray program was started on them July 15. Six sprays of 50% wettable K-6451 at 1 - 800 dilution were applied from July 15 to August 8. The first three also included Vapatone at 1 - 1600.

Actual counts of percentage of kill were not made, but the mites gradually disappeared. In light of what we know now about the slowness of kill, the last two sprays were probably not necessary. No injury to the carnations resulted from this series of sprays.

K-6451 Dust

In late October the ends of two benches of carnations in another house had become rather heavily infested with red spider mites. These plants were thoroughly dusted with a dust formulation containing 10% K-6451. With no further treatment these plants are now free of red spider.

Steam Pipe Fumigation

L. L. English and S. S. Statler, of the Illinois State Natural History Survey, published in the Florists' Review of April 12, 1951 the results of trials with K-6451 as a steam pipe fumigant. They were able to make accurate counts and to determine which stages of mites were susceptible to this insecticide. They found as we did that the kill is slow but that there is a steady decline of mites and eggs following the use of K-6451. They were able to get a complete clean-up of mites in a commercial range with five weekly fumigations applying slightly over two grams of K-6451 per thousand cubic feet each week. No damage of any sort was noted from the fumigations.

Kill Slow

To quote English and Statler's article in "The Review"-- "The action of K-6451 is so slow that a grower who uses it is likely to be discouraged at first...The next day after a rose house is treated the mites may be ... as lively as ever ... K-6451 is a poor killer of adults. It is highly effective against the eggs, the larvae, the resting stages and all but the larger nymphs."

In their counts they found that the kill increased up to 15 days, at which time the kill of all but the adults was almost perfect. After this time the population began to build up again from eggs laid by the surviving adult females. They suggest repeated treatments at two week intervals until the surviving adults die of old age. Our results last summer certainly corroborate this.

In our tests there was some evidence that the poison is absorbed into the plant, thereby poisoning the plant sap. Plants sprayed from the top only gave appreciable kills of mites on the undersides of the leaves but the kill was slow. There is considerable possibility that continued applications can build up K-6451 in a plant to give long time protection.

K-6451 is not poisonous to warm-blooded animals according to information we have from Dow Chemical Company. It is considered about one-eighth as toxic as DDT when taken orally.

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Dow Chemical Company supplied the material which we used for our tests and will release a 50% wettable spray material shortly under the trade name, Cvotran Wettable.