

Eradication of California Red Scale in Yuma County - An Ongoing Battle

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ABSTRACT

During the last 15 years, the Yuma County Citrus Pest Control District (YCCPCD) has twice eradicated infestations of California Red Scale within the district. A third infestation, found in late 1986, is currently being fought with eradication as the goal.

INTRODUCTION

In November, 1986, an infestation of red scale was discovered in the southern end of Yuma Valley. This is the first infestation found outside of a radius of one mile from Morgan's Corner in the central part of the valley. Five lemon trees in a 40 acre block were found infested. These 5 trees and the 16 immediately adjacent were sprayed with malathion and oil by personnel from the Arizona Commission of Agriculture and Horticulture (ACAH). They skeletonized the 5 infested trees and burned the trimmings. The YCCPCD board declared the north half of this grove, consisting of approximately 20 acres, in the quarantine zone. In August, 1988, a grapefruit tree in a grove contiguous with the infested lemons was found infested. This tree and 25 around it were sprayed with malathion and oil by the ACAH. The south 25 rows, approximately 20 acres of the grapefruit, were placed under quarantine by the YCCPCD board.

MATERIALS AND METHODS

After two successful eradication efforts, the YCCPCD board decided to continue the same materials and methods on the third. The block of lemons under quarantine was sprayed with malathion at the rate of 1 pint per 100 gallons of water and spray oil at 1-1/2 gallons per 100, using hand-spraying equipment. Thirty days later, supracide at 2 pints per 100 was applied. By the time the third application was scheduled (Sevin and oil), temperatures were too high to use oil, so another application of supracide was made. In June, an application of Parathion 8E at the rate of 1/4 pint per 100 with a tower spray rig was made. The maximum of 2 quarts per acre allowed by the label was used.

When the lemons were picked, which was before this series of spraying was completed, an inspector from the ACAH was present to inspect the fruit as it was dumped into the bins. One more infested tree, near the first 5, was found at this time. In previous years, fruit picked before the spraying program was finished was fumigated with hydrogen cyanide. Since this use is no longer on the label, it had to be discontinued. However, the fruit was sent in bulk shipments to California for juice. Picking bags used in the block were fumigated.

During the summer, pheromone trapping for red scale was done in the grove. Some males were found, but no pattern of interception was apparent. No trap was consistent in the number caught.

In the fall, another spray program with the hand rig was scheduled. The first two sprayings were the same as those done immediately after the discovery of the scale. However, with the third application, Sevin at the rate of 1-1/4 lbs. per 100 gallons, spray oil 1-1/2 gallons per 100, and buffer spreader at 1 pint per 100, was used.

When the lemons were picked, an inspector was again present to watch the fruit as bags were dumped. No scale was found during this picking. The picking bags were fumigated as before. Parathion 8E at the rate of 1/3 pints per 100 gallons of water was again sprayed with the tower rig during the late spring.

When pheromone traps were distributed throughout the grove in June at a spacing of a trap every fourth tree in every fourth row, a few males were again found on the sticky boards. However, the pattern indicated that they were not originating from within the lemon grove. Catches were primarily along the north edge of the grove. Traps were placed in the grapefruit adjacent to the lemons on the north side. High counts on these traps confirmed that an infestation was there. Visual inspection yielded one infested tree in the grapefruit. Trap counts indicated that more trees were infested, but they have not been found even though the area has been carefully inspected.

Even after the 24 trees in the area where high counts were found were sprayed with malathion and oil, subsequent trap readings went up. This prompted the board to order the 20 acre quarantine zone in the grapefruit to be sprayed with parathion and .5 percent oil using the tower rig. More trapping is scheduled to determine how effective this was in reducing the scale populations. Thirty days after the parathion spraying was completed, the series of 3 sprayings with the hand rig will begin.

RESULTS AND DISCUSSION

California Red Scale was first found in a commercial citrus grove in Yuma County in 1973. Early efforts to eradicate the pest were insufficient because only the infested trees and the eight trees immediately adjacent were sprayed. When red scale was found in two other groves near the first, all-out eradication efforts were instigated.

In the original grove, the entire block of 10 acres was designated for spraying. In the other groves, which were much larger, an area 600 feet within the block beyond the last infested tree was placed within the spray zone. A spray program similar to that now required was used, except some chemicals now in the program were not available at that time. With the use of pheromone traps, a fourth infested grove within one-half mile of the others was found. The quarantine called for the spray program to continue until three series of spraying had been completed after the last living scale had been found. In 1980, the quarantine on this first infestation was lifted.

In December, 1984, a second red scale infestation was found approximately one mile south of where the first was eradicated. This involved 81 trees in one block, seven in an adjacent block to the west, and six more in a block immediately north. These three blocks, which included about 42 acres, were placed under quarantine and designated for spraying. The infested trees were skeletonized by the grower and the removed foliage burned. This was not required by the district, but it was suggested by the board of directors. The spray program that had previously been successful was instigated and continued until three series of spraying was completed after the last live scale was found. This quarantine was lifted in March, 1988.

We hope this third infestation can be eradicated as quickly as the last. Our past success can be attributed to the cooperation of the growers, the assistance of the ACAH, and the availability of pheromone traps. If none of these circumstances change, we believe we will be successful.