

# California Red Scale Again Eradicated from Yuma County

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## Abstract

*Since 1973, Yuma County has had three apparently unrelated infestations of California Red Scale (CRS). The Yuma County citrus Pest Control District (YCCPCD) was successful in eradicating the first two in 1980 and 1984, respectively. We are continuing our spray program on the third, but our detection methods indicate that this infestation has now also been eradicated.*

## Introduction

When a third infestation of red scale was found in the fall of 1986 in a lemon grove in the lower Yuma Valley, the YCCPCD board authorized a district quarantine on the north 20 acre block in which the infested trees were found. This required control methods which had proven successful in the previous infestations. The infested trees were skeletonized and sprayed with malathion and oil by personnel of the Arizona Commission of Agriculture and Horticulture (ACAH). A Commission inspector was present when the lemons were picked to watch as the picking bags were emptied into the bins. Another infested tree was found at this time. Pheromene trapping indicated an infestation in the grapefruit grove adjacent to the lemons. In August, 1988, an infested tree was found there by visual inspection. The YCCPCD declared a quarantine zone on the south 25 rows of the grapefruit consisting of 20 acres.

## Materials and Methods

The same proven methods that had been used on the previous infestations were used to fight this new one. Three consecutive sprayings, 30 days apart with hand-spraying equipment was begun. The first with malathion at the rate of 1 pint per 100 gallons of water with 1.5% spray oil. Thirty days later, supracide at 2 pints per 100 gallon was applied. Since bees were active, the third application was delayed until late May. By that time temperatures were too high for oil to be used, so the third application was also with supracide.

When the lemons were stripped, the fruit was shipped in bulk to California for processing. In previous years, when it was legal to fumigate fruit with hydrogen cyanide, the district allowed fruit to be packed or processed locally after fumigation. This use is no longer allowed by the present label.

After infested trees were found in the grapefruit trees contiguous to the infested lemon grove, the board suggested to the owner that the infested trees be skeletonized and offered to pay for the labor involved. The owner countered by offering to cut back all of the trees in the quarantine zone, but leaving enough limbs to shade the tree to allow him to topwork the grove. Since this would accomplish the desired effect and still benefit the grower, this was accepted.

The spray program called for by the quarantine has changed slightly from that first used because new and improved pesticides have become available. Our current spray program calls for an application of malathion 8E at the rate of 1 pint per 100 gallons of mix with 2% citrus spray oil 415. This is applied by hand at the

rate of 17 gallons per mature tree. The topworked trees average about 10 gallons per tree. This first application is applied in the fall as soon as maximum temperatures are consistently below 90°F. Thirty days after the first, the second application is made consisting of supracide at the rate of 2 pints per 100 gallons of tank mix. In another thirty days, Lorsban 4E at the rate of 1 pint per 100 gallons with 2% citrus spray oil 415 is applied. In late May or early June, a spray to catch the crawler stage of the scale is done with a tower boom rig using parathion 8E at the rate of 1/3 pint per 100 gallons.

## **Results and Discussion**

When red scale was first found in a commercial citrus grove in Yuma County in 1973, the YCCPCD had already been formed 11 years earlier, in 1962. Assessments had been collected and money was in the bank ready for an emergency. Action by the district on this first discovery of red scale consisted of spraying the infested tree and those immediately adjacent to it. When red scale continued to spread from the initial grove to others nearby, the board asked for advice from the University of California and the ACAH. Working together, it was decided to hire a manager for the district to coordinate activities for a full scale eradication effort. In relatively small groves, the entire block of trees was quarantined if one infested tree was found. In larger groves, an area 600 feet beyond the last infested tree was quarantined. Trees inside the quarantine zone, trees were required to be pruned so that the skirts did not touch the ground, weeds were to be controlled, and a prescribed spray program, similar to that previously described, was to be maintained. This resulted in the desired eradication. However, the quarantine requires that the spray program continues until 3 years after the last live scale is found.

The district attributes its success to several factors: 1) Money was available when needed; 2) Pheromone traps have become available to locate and monitor infestations; 3) ACAH district personnel's cooperation in fighting infestations, in trapping for CRS in and around cities and towns, and spraying them when found; 4) Border inspection stations operated by ACAH have deterred the entry of new scale pests; and, 5) Owners and operators of the infested groves have given excellent cooperation to the district.