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Metalosate® Zinc Applied to Golden Delicious Apples

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Introduction

In areas with high-pH calcareous soils, zinc deficiencies are widespread. This is a problem found in many of the apple producing areas of the Western United States.

Little leaf is a common visual symptom of zinc deficiency on fruit tree shoots. In the case of severe zinc deficiency, one may observe shoot die back, defoliation, and chlorosis. This project was carried out by Thor Lindstrom and James Frisby, Utah State University and was initiated to determine if two in season zinc applications of Metalosate® Zinc are more effective at increasing zinc levels in the leaves than the standard practice of applying zinc sulfate as a delayed dormant spray.

Materials and Methods

The trees used in this trial were *Golden Delicious* apples on EMLA-26 rootstock. These trees were planted in the spring of 1995 and have historically had zinc levels which are considered deficient (<15 ppm). All trees were irrigated with a micro-sprinkler system.

The treatments were as follows:

1. Control (untreated trees)
2. Trees sprayed with a zinc sulfate product containing 50% zinc.
3. Trees sprayed with Metalosate® Zinc.

The zinc sulfate product was applied on April 11 at a rate of 10 lbs./acre in 100 gallons of water (11 kg/ha in 379 liters of water). The developmental stage of the trees at the time of application was *1/2-inch (1.3-cm) green* (delayed dormant spray).

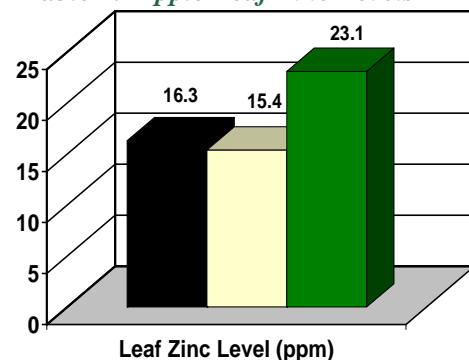
The Metalosate® Zinc was applied on May 7, and again on June 6. Each application was applied at a rate of 1 qt./acre in 50 gallons of water (2.3 L/ha in 189 liters of water). The June 6 application was at petal fall and the May 7 application was applied five days before the first cover spray.

The trial was set up as a completely randomized block design. Each replication consisted of 2 trees with 4 repetitions for each treatment. Leaf samples were collected on July 20th from all treatments and analyzed for zinc content.

Results and Discussion

Table 1 is a summary of the results from the leaf analyses. The leaf zinc levels from the trees sprayed with zinc sulfate were not significantly better than the untreated-control trees. Leaves from the Metalosate® Zinc treatment had significantly higher zinc levels.

Table 1. Apple Leaf Zinc Levels



■ Control □ 50% zinc sulfate ■ Metalosate® Zinc

Metalosate® Zinc proved to be much more effective than zinc sulfate at increasing leaf zinc levels when applied as discussed in this trial. ☞



*Left: Normal Apple Leaf
Right: Little Leaf in Apple
Caused by Zinc Deficiency*

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