

**EFFICACY OF MITICIDES
IN CALIFORNIA COTTON**
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Abstract

Early season residual control of strawberry mite (*T. turkistani*) was observed with Zephyr (Abamectin), Zephyr + Capture (Bifenthrin), Kelthane (Dicofol), and Alert (AC303,630). Results of this study demonstrated that all miticides significantly lowered mite densities by the 14th day after treatment (DAT). Control lasted for 21 - 56 days. Zephyr and Kelthane treatments provided the longest control of mites (approx. 7 days longer than Alert).

Introduction

Spider mites (*Tetranychus* Sp.) are one of the most injurious arthropods that attacks cotton in the SJV. Feeding of *Tetranychus* Sp. often results in canopy and fruit losses. The three principle species found in this region include the strawberry mite, *Tetranychus turkistani* Ugarov & Nikolski, two spotted mite, *T. urticae* Koch, and the pacific mite, *T. pacificus* McGregor (Kepner and Treacy 1994). The strawberry mite can be found early in the season throughout the valley. Damage by this mite, if not monitored, can cause severe defoliation and yield reduction. The pacific mite is primarily found in the western half of the valley while the two spotted mite occurs in the eastern and southern parts of the valley. These latter species are generally encountered in the late part of the growing season and tend to be less injurious than the strawberry mite (Brita et. al., 1986). All three species can be found in mixed population and can vary in percentage depending on the area and time of year.

Materials and Methods

Studies were conducted in the Central San Joaquin Valley. Test plots were 6 - 38 inch rows by 700-1,566 ft. in 1994 and 75 ft. in 1995. The plots were arranged in a randomized complete block design with four replications. All plots were treated with a six row ground sprayer and four row high clearance sprayer in 1995.. Nozzle arrangement consisted of 3 conejet "TXYS - 6" per row; two drops and one over the top. Miticides were applied June 9, 1994. Total spray volume of 15 GPA was applied at 55 psi at a speed of 4 mph. Wind speed ranged from 0 - 5 mph at an approximate temperature of 98°F. Cotton height ranged from five to twelve inches with seven to eight nodes per plant. Stage of growth was early squaring.

Mite pressure was high with approximately 100% infested leaves. (Leaf samples were obtained at 0, 4, 7, 14, 21, 28, 35, 42, 49, and 56 days after treatment (DAT)). Forty healthy leaves per plot were sampled from the upper lower half of the plant in the morning. Leaves were stored in coolers, then transferred to refrigerators prior to mite brushings. Motile mite and egg densities were determined using a mite brushing technique. Counts are based on county 1/16 of the plates per 40 leaves. All counts represent mites per leaf. Mite densities ranged from 18 to 100 mites per leaf prior to miticide application.

Results and Summary

All miticides significantly lowered mite and mite egg densities, with Zephyr treatments and Kelthane providing the longest control (42-56 days). Alert treatments were about 7 days shorter control than Zephyr and Kelthane.