

Evaluation of Plinazolin® against twospotted spider mite

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The efficacy of Plinazolin® insecticide on two-spotted spider mite was evaluated at the Cal Poly Strawberry Center. The experiment was conducted in Field 35a at Cal Poly (GPS coordinates: N35°18'20"; W120°40'30") in San Luis Obispo, CA. Bare root strawberry transplants ('Cabrillo') were planted into raised beds on 31 Oct 2024. Beds were covered with 1.1 Mil black TIF (totally impermeable film) polyethylene mulch (TriCal Inc., Hollister, CA). The experimental area consisted of five beds, 120 ft long. Each strawberry bed was 64 in. center to center, with four rows of plants spaced 12 in. between rows and 15.5 in. between plants within a row. Plants were irrigated and fertilized via three lines of drip tape per bed. The plot was 10 ft long, replicated four times and arranged in a Randomized Complete Block (RCB). Treatments were applied using a backpack sprayer calibrated to deliver 150 gal/A using compressed CO₂ at 60 psi. The sprayer was equipped with a custom 48-in. handheld boom. The boom had five 14-in. dropdown tubes and eight nozzles (ALBUZ ATR 80 red hollow cone, Kisco Sales, Santa Maria, California). The outer two dropdown tubes contained a single nozzle angled inward at 45 degrees and the three inner tubes contained two nozzles, with each nozzle at opposing 45-degree angles. Dyne-Amic® was added at a rate of 18 fl oz/A to Plinazolin® at 2.1 and 3.1 fl oz/A and grower standard treatments, which consisted of a rotation of Oberon® at 3.5 fl oz/A followed by Enervate® at 16 fl oz/A. Applications were made on 25 Mar and 2 Apr. Ten mid-tier leaflets were collected per plot two days before treatment (Pre-treat), 3 days after treatment (DAT1), and 7 DAT1, 3 DAT2, 7 DAT2, 14 DAT2, and 21 DAT2. Leaflets were placed in paper bags and transported to the lab. All mites were counted under a dissecting microscope within two days of sampling. Total mite data was analyzed with analysis of variance (ANOVA) and generalized linear mixed model (Proc Glimmix) following a negative binomial distribution in SAS version 9.4 (SAS Institute Inc., Cary, NC). Means were separated according to Tukey's HSD. Data was analyzed for each time point because repeated measures analysis found that the interaction between sample date and treatment was significant ($P < 0.001$).

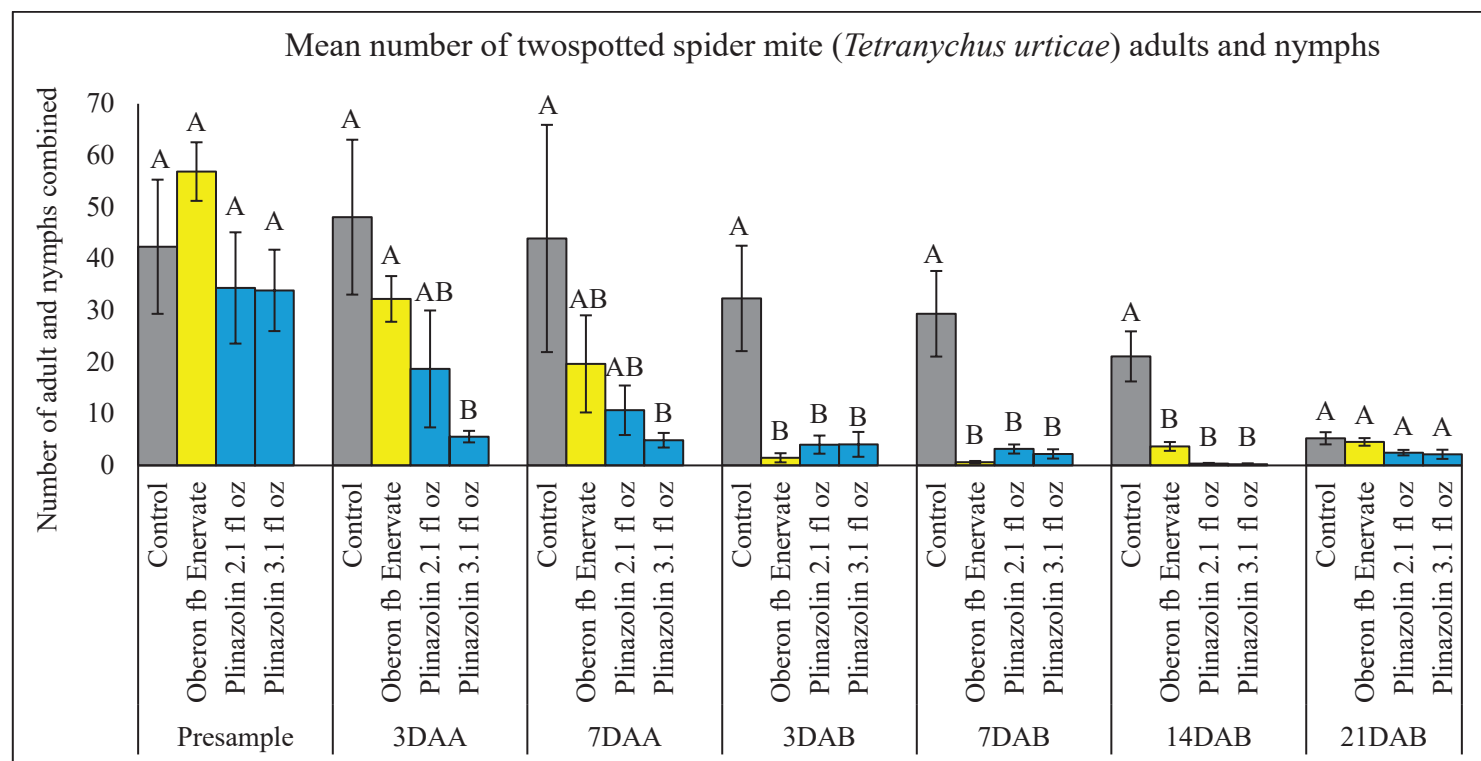


Figure 1: Twospotted spider mite (*Tetranychus urticae*) nymph and adult combined counts at the following sample times: presample, 3 and 7 days after first spray (DAA), 3, 7, 14, and 21 days after second spray (DAB). Oberon 2 SC was sprayed at 3.5 fl oz/A followed by Enervate 4 SC at 16 fl oz/A. Plinazolin was sprayed at 2.1 and 3.1 fl oz/A. Dyne-Amic was mixed with all products at a 1% v/v. Products were sprayed using a volume of 150 GPA. Error bars represent standard error of the mean. Means that do not share the same letter are significantly different ($\alpha = 0.05$).

