

Evaluation of select organic and conventional insecticides against multiple aphid species in strawberry

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The efficacy of five organic and conventional insecticides on four aphid species (*Myzus persicae*, *Aphis gossypii*, *Macrosiphum euphorbiae*, and *Chaetosiphon fragaefolli*) was evaluated at the Cal Poly Strawberry Center. The experiment was conducted at 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 5 beds, 120 ft long. Each strawberry bed was 64 in. center to center, with 4 rows of plants spaced 12 in. between rows and 15.5 in. between plants within a row. Plants were irrigated and fertilized via 3 lines of drip tape per bed. The plot size was a 10 ft long section of bed, replicated 4 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 8 nozzles (ALBUZ ATR 80 red hollow cone, Kisco Sales, Santa Maria, CA). The outer 2 dropdown tubes had a single nozzle angled inward at 45 degrees and the 3 inner tubes had 2 nozzles, with each nozzle facing forward/backward at opposing 45-degree angles. The treatments were sprayed at the following rates Botanigard ES 48 fl oz/A, PestOut Ultra 192 fl oz/A, Tri-tek 384 fl oz/A, Sefina 14 fl oz/A, and Beleaf 50SG 2.8 oz/A. Broadspred 18 fl oz/A was tank mixed with Beleaf and Sefina. Water for each spray was buffered to a pH of 5.5 using MixWell. Applications were made on 21 and 27 Feb. A pre-sample of 10 mid-tier leaflets was taken the day prior to the first application. Ten mid-tier leaflets were collected per plot 2 days before treatment (Pre-treat), 5 days after first treatment (DAT1), and 8 days after second treatment (DAT2). Leaflets were placed in paper bags and transported to the lab. All aphids were counted under a dissecting microscope within 2 days of sampling. Due to relatively low numbers of each species, nymphs and adults of all species were combined for analysis. Total aphid data were analyzed with ANOVA and Generalized Linear Mixed Model (PROC GLIMMIX) following a normal distribution using JMP version 18.0 (SAS Institute Inc., Cary, NC). Means were separated according to Tukey's HSD.

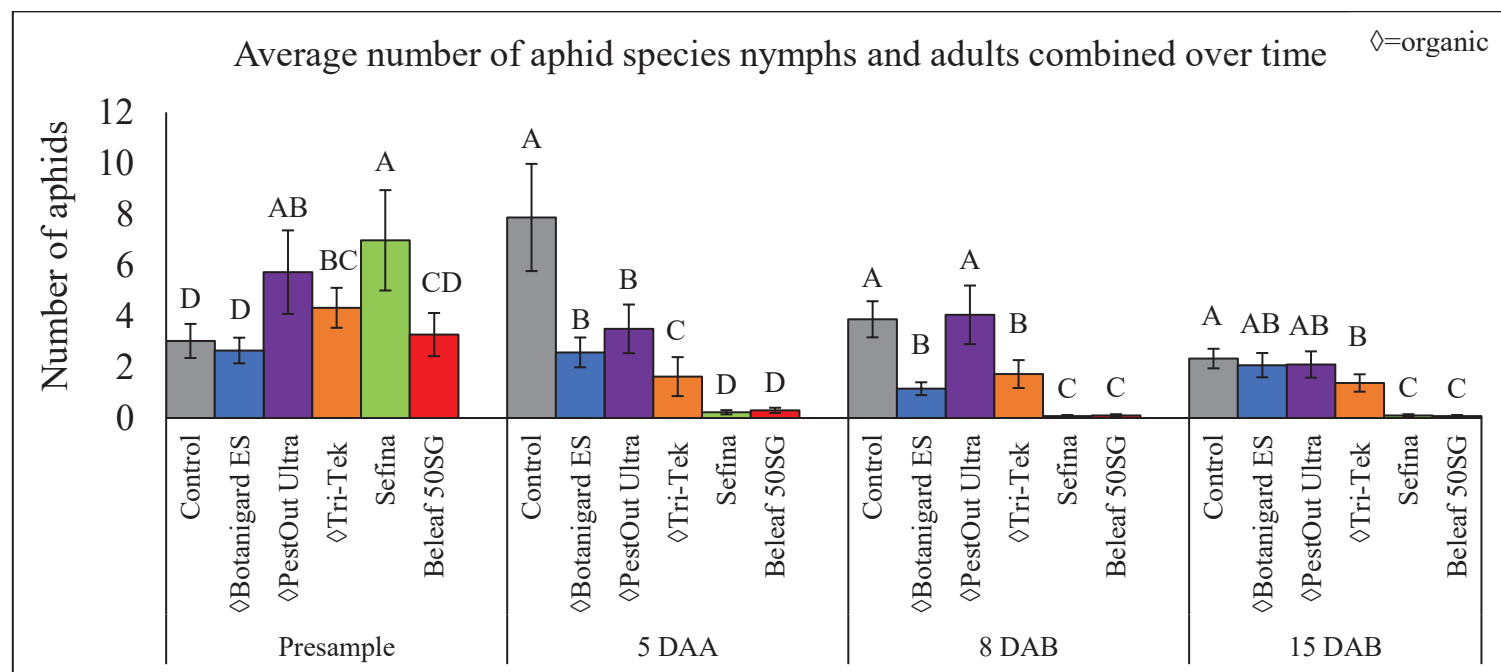


Figure 1. Comparison of total nymph and adult aphids from four aphid species (*Myzus persicae*, *Aphis gossypii*, *Macrosiphum euphorbiae*, and *Chaetosiphon fragaefolli*) from the presample, 5 days after first treatment (DAA), 8 and 15 days after second treatment (DAB). Spray volume was 150 GPA. Error bars represent standard error of the mean. Means that do not share the same letter are significantly different ($\alpha = 0.05$).

