

Arthropod Pest Management in the Lower San Joaquin Valley

Project Leader: David Haviland

University of California Cooperative Extension, Kern County, 1031 S. Mount Vernon, Bakersfield, CA 93307
(661) 868-6215, dhaviland@ucdavis.edu

PROJECT SUMMARY

Objectives:

Provide overall improvements in arthropod IPM programs in almonds by the following:

- Develop an understanding of sixspotted thrips biology
- Evaluate methods for monitoring sixspotted thrips
- Determine if herbivore induced plant volatiles (HIPVs) can be used to attract sixspotted thrips and other natural enemies to an orchard
- Evaluate the impacts of sixspotted thrips on spider mite populations
- Evaluate the effects of miticides on Pacific spider mite
- Maintain a University-based research and demonstration orchard for almond pest management research

Background and Discussion:

Pacific spider mite - During 2015 and 2016 we evaluated nine different miticides when applied with 1% 415 oil for their impacts on Pacific spider mites. Mite populations were too low in 2015 to draw conclusions. In 2016 cumulative mite-days in plots treated with the new miticides Nealta, Magister and Biomite were statistically equivalent to industry standards such as Vigilant and Onager.

Sixspotted thrips monitoring – During 2016 we evaluated seven different sticky cards for monitoring sixspotted thrips. Average trap captures ranged from less than 15 to over 1,000 per week. Yellow and green traps were more effective than traps of other colors. Evaluations of different sizes and brands of yellow traps had varying results.

Relationship between thrips and mites – During 2016 we placed sticky cards in almond orchards

containing a wide range of spider mite and sixspotted thrips densities. We trapped thrips for one week intervals with mite density assessments at the start and end of the week. We are currently in the process of evaluating all of these cards with the goal of determining how thrips to mite ratios influence changes in mite density.

HIPV evaluations – During 2014 and 2015 we evaluated four herbivore-induced plant volatiles (HIPVs) for their ability to attract sixspotted thrips. We caught thousands of thrips but had inconclusive results about the role of HIPVs in trap attraction. In 2016 we conducted a large scale trial in a commercial orchard to help clarify the results. Observations showed that it does not appear that HIPVs attracted sixspotted thrips or other predators, however, confirmation of these results will not be available until insects from sticky cards in the trial are counted.

Navel orangeworm trials - During 2015 we evaluated the effects of single applications of seven different insecticides at hull split or two weeks later, as well as at both timings, for their effects on the percentage of NOW damage at harvest. Products included Altacor, Intrepid, Intrepid Edge, Belt, Exirel, Delegate, Proclaim, and untreated checks. All products except for Proclaim provided significant reductions in NOW damage. A similar trial including the product Harvanta was performed in 2016 and is still being evaluated.

Research orchard maintenance – We continue to maintain a 7-acre almond orchard in Shafter, CA with partial support from the Almond Board of California. Between the years of 2010 and 2016 this orchard and a sister orchard in Fresno County (that in 2015 was repurposed for non-pest management research) were used for a total of 59 different field experiments on pest of almonds.

Project Cooperators and Personnel: Stephanie Rill, UCCE- Kern County

For More Details, Visit:

- Poster location 96, Exhibit Hall A + B during the Almond Conference; or on the web (after January 2017) at Almonds.com/ResearchDatabase
- 2015 - 2016 Annual Reports CD (15-ENTO6-Haviland); or on the web (after January 2017) at Almonds.com/ResearchDatabase
- Related projects: 16-ENTO7-Zalom; 16-ENTO10-Rijal/Tollerup; 16-ENTO17-Tollerup