Improving Integrated Pest Management of Spider Mites on Almond

Project Leader: Kris Tollerup[1] and Brad Higbee[2]
[1]UCCE – Kearney Center; 9240 S. Riverbend Ave., Parlier, CA 93648(559) 646-6527; ketollerup@ucanr.edu
[2]Wonderful Orchards, 6801 E. Lerdo Hwy, Shafter, CA 92368; Brad.Higbee@wonderful.com

PROJECT SUMMARY

Objectives for current year:

- Determine the effectiveness of a prophylactic, early-season application of abamectin and other miticides to manage spider mite populations on almond.
- Determine if southern San Joaquin Valley populations of *T. urticae* and *T. pacificus* have developed resistance to abamectin.
  a) Establish base-line LD_{50} for susceptible strains of twospotted and Pacific spider mites to abamectin.
  b) Evaluate spider mite populations collected from various locations in the southern and central San Joaquin Valley against the susceptible strain.

Background:

Preventing economic damage from twospotted spider mite, *Tetranychus urticae* Koch, and pacific mite, *Tetranychus pacificus* McGregor, is a key component of arthropod management strategies on almond. One spray strategy is to apply consists of an application of abamectin applied in May while spider mite densities are well below threshold levels. Often these spring abamectin applications occur in conjunction with another insecticide targeting navel orangeworm. No studies, however exist that have evaluated if these prophylactic sprays provide a better management strategy than the recommended threshold tactic.

In this study we evaluated three prophylactic treatments: 1) Abamectin, 2) Nealta, and 3) Zeal against 4) abamectin applied at threshold (~2 mites per leaf), and 5) an untreated control.

Additionally, the heavy reliance on abamectin to manage spider mites on almond has caused some concern that resistance has begun to develop in some populations, most notably in the southern San Joaquin Valley and this project is investigating this.

Discussion:

Mean spider mite densities in our experimental plots in Kern County ranged between 0 and 0.2 mites per leaf until late July. This was unusual; typically, densities begin increasing in early to mid-June. It is interesting that spider mite populations tended to increase later than typical throughout the San Joaquin Valley and Sacramento Valley region. As a result of mite populations increasing late, we did not apply treatments 1, 2, or 3 until mid-June. Moreover, in treatment 4 plots, densities did not reach approximately 2 mites per leaf until 22 Aug. Therefore, we did not apply treatment 4. On 22 Aug, mean spider mites per leaf equaled approximately 5.1, 3.1, 13.2, 1.8, and 10.9 in treatments 1, 2, 3, 4, and 5 respectively. By 29 Aug, mean mite density did not exceed 0.1 per leaf in all plots.

Beginning in late July to early Aug, populations of the natural enemy, sixspotted thrips, begin to build; it is likely the species played a major role in the precipitous decrease of spider mite populations.

At this stage in the project, we do not have any abamectin resistance data to discuss.

Project Cooperators and Personnel: Samantha Rodriquez and Dolph Beasley

For More Details, Visit

- Poster location 109, Exhibit Hall A + B during the Almond Conference; or on the web (after January 2017) at Almonds.com/ResearchDatabase
- Related projects: 16-ENTO6-Haviland; 16-ENTO10-Rijal/Tollerup