Arthropod Pest Management in the Lower San Joaquin Valley

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PROJECT SUMMARY

Objectives:

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

- Screen new miticides for benefit in IPM programs aimed at Pacific spider mite
- Evaluate the ability of herbivore-induced plant volatiles (HIPVs) to be used for monitoring predators of spider mites
- Evaluate the effect of hull split treatments of larvicides for navel orangeworm
- Evaluate baiting strategies for fire ants
- Screen new reduced-risk insecticides for their effectiveness against leaffooted bug
- Maintain a UC-based research and demonstration orchard in Kern County

Background and Discussion

Pacific spider mite - During 2014 we evaluated twelve different miticides for their effects on Pacific spider mites and their eggs. Excellent efficacy was provided by the grower standard products Envidor, Fujimite (the old 5EC formulation as well as the new XLO formulation), Onager, Vigilant and Zeal. Excellent control was also provided by the unregistered miticide Nealta. The unregistered miticides Magister, PFR-97 and GOP-1 Meal did not cause a significant reduction in spider mite density on any evaluation date.

HIPV evaluations - During five weeks during the summer of 2014 we evaluated the effects of four herbivore-induced plant volatiles for their ability to attract mite predators to sticky cards. These included methyl salycilate, geraniol, phenylethanol, and a combination of all three. Data are currently in the process of being analyzed.

Navel orangeworm trials - During 2014 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 the untreated check. Data are currently being processed and will be presented at the Almond Industry Conference.

Ant Bait Trials – We conducted a large field trial to evaluate the effects of two new ant baits (Altrevin and Seduce) compared to the commercial standard Clinch. When applied on 27 Jun, Clinch resulted in a gradual reduction in ant density for 6 weeks that led to a 74 to 83% reduction in ants 7 to 10 weeks after treatment. Altrevin resulted in a quick knockdown of ants by 70-90% from 1 to 5 weeks after treatment (WAT), after which they remained suppressed (28 to 44% reduction) from 8 to 10 WAT. Seduce resulted in a minor reduction in ants for 1 week but not thereafter.

Leaffooted bug trials – We evaluated a variety of insecticides for their effects on leaffooted bug. In direct contact studies greater than 90% mortality was achieved with Brigade, Warrior II, Lorsban Advanced and Agri-Mek SC, whereas 70 to 90% control was provided by Bexar, Belay, Closer and Exirel. Mortality for Beleaf, Sivanto and Dyne-Amic was statistically equivalent to the untreated check. When these same insecticides were tested in the field, residues of Brigade and Warrior killed insects caged on treated leaves for a period of at least 4 weeks. Residues of Lorsban Advanced killed leaffooted bugs for approximately one week. Residues of all other products had minimal to no impacts on bugs caged on treated leaves.

Project Cooperators and Personnel: Stephanie Rill, UCCE- Kern County; Brad Higbee, Paramount Farming Co.; and Kris Tollerup, UC Statewide IPM Program

For More Details. Visit

- Poster location 14, Exhibit Hall A + B during the Almond Conference; or on the web (after January 2015) at Almonds.com/ResearchDatabase
- 2013-2014 Annual Reports CD (13-ENTO6-Haviland); or on the web (after January 2015) at Almonds.com/ResearchDatabase
- Related projects: 14-ENTO7-Zalom; 14-ENTO11-Siegel/Walse; 14-ENTO14-Tollerup