

Developing Sampling Methods for Pre-Season Mite Detection and Implementing Management Decisions in Almonds

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PROJECT SUMMARY

Objectives for current year:

- Characterize mite overwintering locations in the soil in relation to the tree trunk
- Determine the soil depth in which overwintering mites are abundant
- Identify the time of the year in which spider mites are moving from the soil to the trees using trunk-band traps
- Evaluate reduced risk miticides and other materials for trunk application early in the season, and foliar application late in the season

Background and Discussion:

Spider mite is one of the major arthropod pests in almond orchards in California. Mite feeding can ultimately lead to tree health and productivity decline. Spider mites overwinter in orchard floor and move to the trees during the season. In practice, we only know the mite infestation after we see their damage on leaves (leaf stippling) in spring or later. If there are ways to quantify the presence of overwintering female mites in the soil during the winter, and establish a relationship of that population with their infestations in the trees later in the season, the soil sampling method may be useful in early detection of what future mite population looks like in the orchard. Also,

finding ways to trap mites in tree trunk while they are moving up from their overwintering sites also provides an early idea of future mite population, and their movement timing. These two sampling methods can help in mite monitoring even before the beginning of the growing season. Knowing the mite movement timing will be helpful in finding alternative ways to treat mites during their migration. Early-warning sampling methods coupled with miticides can be useful in managing mites in almond orchards.

In 2016 spring, we conducted preliminary work to refine soil sampling methods and tree-band traps. Soil samples collected from an almond orchard were processed to recover overwintered mites. Based on composite soil samples taken from 12 tree bases, the average mite recovery was 0.87 mites per 6 oz. soil. We also tested tree-band traps recovered a substantial number of mites belonging to more than one species. Future studies include testing these sampling techniques in orchards that have high mite pressure. We will compare the infestation of mites on leaves with and without bands. This provides information about the effectiveness of the tree-bands in monitoring female mites as well as excluding them from foliage. We will also evaluate the efficacy of miticides/insecticides for tree trunk treatment.

Project Cooperators and Personnel:

Frank Zalom, UC Davis-Entomology; Roger Duncan, UCCE-Stanislaus; Nicola Nicole, UC Davis-Entomology

For More Details, Visit

- Poster location 108, 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-ENTO17-Tollerup