Detection and Management of Leaffooted Plant Bugs and Stinkbugs in Almond Orchards

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PROJECT SUMMARY

Objectives:

- Determine which species of stink bugs and leaffooted plant bugs are present in almonds and on alternate host plants though out the year
- Establish a colony of leaffooted plant bugs for ongoing field and lab work
- Conduct a mechanical damage study to simulate bug feeding on almonds, and to explore the relationship between almond age and nut drop, damage and the gummosis response

Background and Discussion:

Leaffooted plant bugs (LFPBs) and stink bugs feed on developing almonds, which results in nut drop and damage to developing kernels. These bugs are difficult to detect in the field prior to observing the damage they inflict on almonds. Currently, there is no trap or lure for monitoring LFPBs. Since leaffooted bugs are larger than most stinkbugs, they can feed on and damage developing nuts later in the growing season. A long-term goal for leaffooted bug management is to develop an early detection or monitoring system. Our findings will determine which species or host plant strains of LFPBs are present. This information will be important if traps or lures are to be developed.

After LFPBs feed on almonds, sap exudes and this condition is known as gummosis. Pest control advisors and managers currently use the gummosis response to make control decisions. However, the age and variety of the almond may affect when the gummosis response appears.

We are conducting a mechanical damage experiment which simulates bug feeding on different almond varieties as the almonds age and harden throughout the growing season, to determine how much nut drop and damage occurs to almonds, and how age and variety influence the gummosis response and drop.

This year, leaffooted plant bugs and stinkbugs have been collected from almonds, pistachios and/or pomegranates throughout the central valley. DNA is being used to determine the number of species or plant strains of LFPBs collected this year. Collections will continue next year, and the DNA work will expand to include stinkbugs. More detail will be provided on the poster presentation.

Leaffooted bug adults, nymphs and eggs collected from almonds were used to start a laboratory colony. The colony is being maintained year-round to provide live insects for several studies. The insects have been maintained in the laboratory successfully for several generations.

The mechanical damage study was setup on three almond varieties, Nonpareil, Monterey and Sonora in Merced Co. Comparisons of the level of nut drop, nut damage and the response time to exhibit gummosis was made. Since this is the first year of the study, the trials began in May when almonds were mid-sized and continued for 12 weeks. Next spring, we will conduct this study throughout the growing season and include more varieties, as well as a comparison of damage caused by caged LFPBs feeding on almonds. Our data contributes to developing a monitoring system and an IPM program for these insects.

Project Cooperators and Personnel: David Doll, UC Cooperative Extension-Merced County; Kent Daane, Dept. of ESPM, UC Berkeley & Parlier, Cooperative Extension Specialist; Brad Higbee, Research Entomologist, Paramount Farming Co., Bakersfield.

For More Details, Visit

- Poster location 14, Exhibit A and B during conference; or on the web (after January 2014) at www.almondboard.com/researchreports