

# Develop an Early Season Monitoring System for Leaffooted Bug on Almond

## Project Leader: Kris Tollerup

UCCE – Kearney Center; 9240 S. Riverbend Ave., Parlier, CA 93648  
(559) 646-6527; ketollerup@ucanr.edu

## PROJECT SUMMARY

### Objectives:

- Determine indicators such as low temperatures that provide an early-season mechanism for estimating leaffooted bug (LFB) population density.
- Develop an efficient and effective sampling method for LFB on almond.
- Evaluate host-plant volatiles as possible lures.

### Background and Discussion:

In the San Joaquin Valley, leaffooted bug has three complete and a partial fourth generation per year. In Sept. to Oct., adults begin moving out of almond and pistachio orchards to sheltered sites to form aggregations of five to 500 individuals. The existence of a male pheromone associated with mating and aggregation has been supported; however, we do not have a full understanding of the behavioral chemical or visual cues involved.

In March the adults begin to disperse into almond just as nuts reach the “pea-sized” stage. The UC Statewide IPM Pest Management Guidelines recommend monitoring for LFB by visually inspecting for gummosis on nuts during March and April. In March, the most efficient sampling method is the appearance of damage i.e., dropped nuts. The drawback to this method is the results from the difficulty in distinguishing damaged nuts from natural nut drop.

The appearance of gummosis may also be used later into the season, however, beyond April; it's often too late for making a management decision.

To date, no method exists for monitoring LFB as they leave aggregations in the spring and move into almond. As a possible monitoring tool, we evaluated the attractiveness of clear, white, yellow, green, and red sticky traps. LFB was not attracted to any of the colors evaluated.

However, during our experiments, we learned that early LFB instars were highly attracted to whole-ground pistachio. When placed in a mesh bag and attached to a clear sticky trap dozens of LFB nymphs were trapped. Experiments are planned to determine the potential role whole-ground pistachios could play as a monitoring lure. In the laboratory, we evaluated the attractiveness of almond, avocado, coconut, peanut, and walnut oil for attractiveness to adult LFB. There was no detectable attractiveness of any of the oils evaluated.

The use of weather data may provide a tool for predicting the severity of LFB population densities. Daane et al. (unpublished data) analyzed average weekly minimum temperatures. In years where minimum temperatures dropped below ~ 27°F, LFB pressure was low during the following growing season. Results of cold cabinet experiments conducted on field-collected LFB showed that adult survival fell to approximately 27% when exposed for six hours to this low temperature. Our results suggest that cold winter temperatures could provide a tool for predicting LFB pressure for the subsequent season.

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**Project Cooperators and Personnel:** Samantha Rodriguez and Dolph Beasley, UCCE Kearney

### For More Details, Visit

- Poster location 15, Exhibit Hall A + B during the Almond Conference; or on the web (after January 2016) at [Almonds.com/ResearchDatabase](http://Almonds.com/ResearchDatabase)
- 2014 - 2015 Annual Reports CD (14-ENTO14-Tollerup); or on the web (after January 2016) at [Almonds.com/ResearchDatabase](http://Almonds.com/ResearchDatabase)
- Related project: 15-ENTO8-Joyce