



LEAFFOOTED BUGS IN ALMONDS: APPROACHES IN 2008

During the past few weeks I have received several calls about leaffooted bugs in almonds. In almost every case the topic leads to one single question, “What can we expect in 2008”. While it is impossible to know exactly what will happen, there are some questions that are repeatedly asked of me that I think are worth answering to all.

- 1. Where do the leaffooted bugs in the spring come from?** The simple answer is all over the place, and generally not within the orchard. Leaffooted bugs overwinter as adults in aggregations that can be found in trees like palms, citrus or junipers, or can be found in places like wood piles. They do not feed during the winter and hunker down together in groups to await the spring.
- 2. What triggers the movement into the orchard?** Nobody knows all of the factors, though we do know that temperature plays a key role. In rather cool springs the migration can be delayed. This year, consistent 70-degree weather during the first two weeks of March has already triggered the movement. This has been confirmed by Kent Daane, UC Berkeley Specialist, who has been doing weekly monitoring of overwintering aggregations in Fresno County, as well as by multiple PCAs in Kern County who have reported finding their first leaffooted bugs in orchards during the first week of March.
- 3. What time of year should I be concerned for damage?** The simple answer is April and May. Leaffooted bug in March is generally not a major concern because the trees have not yet set their crop. This means that, up to a certain point, nuts shed due to leaffooted bug feeding will just contribute to the many other nuts that abort naturally and the tree will compensate. However, once the tree has set the crop that it plans to keep, leaffooted bug damage becomes a greater concern. Nuts fed on during April mostly abort, while nuts fed on in May can either abort, or will be retained on the tree and have a black necrotic spot on them that remains at harvest. Damage in June is not very common because bugs that immigrate into the orchard in the spring are dead by then. Also, the nuts are no longer a preferred food source, because nymphs from eggs laid earlier in the season naturally die in almond orchards before reaching adulthood.
- 4. How do I know if I need to spray?** PCAs should already be on the lookout for leaffooted bugs and their damage. In particular, look for the gummosis that is associated with leaffooted bug feeding on the nut. If found, cut cross-sections to confirm that the feeding is due to leaffooted bug, and not just some other physiological problem such as a double-kernel. If damage is occurring, then a decision to spray should be made after considering the amount of damage, and susceptibility of the crop. Fritz blocks should be watched very closely due the high sensitivity of this variety to damage. Aldrich, Livingston, Monterey and Carmel should be watched to a lesser extent. Other varieties, such as Nonpareil, Butte, Mission, Padre, Price and Winters are not very susceptible to damage and remained relatively unscathed even in 2006.
- 5. What is the best way to monitor for leaffooted bug?** There are two ways to monitor for leaffooted bug: look for the bugs and look for evidence of their existence. The first is difficult due to the behavior of leaffooted bugs to hide in the tops of trees and be camouflaged within the tree canopy. One of the best ways to find them is by using a long pole and whacking tree growth. If disturbed, leaffooted bug will quickly take flight and generally land nearby, at which point you can sneak up on them and get a better look. The second method is by monitoring for gummosis coming from nuts on the tree or on the ground. If found, it is important to first ensure that the damage is not due to a physiological problem, such as a double kernel. Also, in some cases gummosis can occur when damage to the hull exists, though this doesn't necessarily mean that the kernel is or will at any point become damaged prior to harvest. It is also important to look for evidence of green stink bug, which overwinters in orchards, and particularly those with ground covers and that haven't received broad spectrum pesticides as dormant sprays during the past few years. Leaffooted bug and green stink bug damage can be very difficult to distinguish, and finding the bugs can facilitate a diagnosis.

- 6. Is leaffooted bug going to be a problem in 2008?** My quick answer that there is a low probability of another 2006, though damage in isolated areas is possible. We did get some cool weather that provided good chilling, but did not get the extremely low temperatures that knocked out the overwintering populations one year ago. Other considerations are that 1) fall populations in Kern County last year were not nearly as high as in the fall of 2005, 2) warm weather has the leaffooted bugs moving early, meaning that we will see them in March when they are less of a problem and won't be blindsided by them in April or May when the crop has passed its stage where compensation for nut drop is possible, and 3) we know a lot more about this pest now than we did two years ago.
- 7. How do you recommend that we approach leaffooted bugs in 2008?** The same as you would any pest. Keep on the lookout for it, take note if you see it, then be educated on whether or not you need to do anything about it. If you do need to do something about it, remember that biological control is worthless on adults in the spring, cultural controls relate to whether or not you have a susceptible variety, and chemical controls pretty much come down to Lorsban® or Brigade®. Neither one of these products are ideal due to air quality issues or those associated with flaring mites, but both are highly effective and available in times of desperation.

*David Haviland, Farm Advisor
Entomology and Pest Management*

Disclaimer: Discussion of research findings necessitates using trade names. This does not constitute product endorsement, nor does it suggest products not listed would not be suitable for use. Some research results included involve use of chemicals which are currently registered for use, or may involve use which would be considered out of label. These results are reported but are not a recommendation from the University of California for use. Consult the label and use it as the basis of all recommendations.

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KERN CO. ALMOND & PISTACHIO PEST MANAGEMENT MEETING

April 9, 2008 · 8:00 a.m. – 12:00 p.m.

**University of California Cooperative Extension Conference Room
1031 S. Mt. Vernon Avenue, Bakersfield, CA 93307**

- 8:05 **Status Report on Efforts to Hire a New Kern County Pomology Advisor**
Darlene Liesch, County Director, UCCE Kern County
- 8:10 **Vertebrate Pest Control Regulations**
Ed Greynolds, Ag Biologist, Kern County Ag Commissioner's Office
- 8:40 **Spider Mite Management in Almonds**
David Haviland, Entomology Farm Advisor, UCCE Kern County
- 9:10 **Managing Bugs in Almonds and Pistachios**
Almond Perspective: *David Haviland*; **Pistachio Perspective:** *Bob Beede, Nut Crops Advisor, Kings Co.*
- 9:45 **Break**
- 10:05 **Navel Orangeworm Management in Pistachios and Almonds: Results from On-farm Research at Paramount Farms**
Brad Higbee, Research Entomologist, Paramount Farming Company
- 10:50 **Update on the Area-wide Mating Disruption Project for Navel Orangeworm in Kern County**
Joel Siegel, Research Entomologist, USDA-ARS, Parlier, CA
- 11:05 **Alternaria Management in Kern County Nut Crops**
Jim Adaskaveg, Plant Pathologist, UC Riverside
- 11:50 **Closing Comments and Adjourn**

PCA CREDITS HAVE BEEN REQUESTED

WEED MANAGEMENT IN PERENNIAL CROPS SEMINAR

April 16, 2008 · 12:30 – 4:00 p.m.

**University of California Cooperative Extension Conference Room
1031 S. Mt. Vernon Avenue, Bakersfield, CA 93307**

- 12:30 **Registration and Weed Identification Exercise**
- 1:00 **Problem Weeds in Orchards and Vineyards and Herbicide Injury Symptoms**
Kurt Hembree, Weed Management Farm Advisor, UCCE Fresno County
- 1:50 **Organic Weed Control in Perennial Crops—Tom Lanini, Weed Ecology Specialist, UC Davis**
- 2:20 **Non-Crop Weed Management—Steve Wright, Farm Advisor, UCCE Tulare County**
- 2:50 **Break**
- 3:05 **Herbicide Resistance Management—Anil Shrestha, IPM Weed Ecologist, UC Statewide IPM Program**
- 3:35 **Follow-up to Hands-on Exercise on Weed Identification**
Tulio Macedo, Farm Advisor, UCCE Madera County
- 4:00 **Adjourn**

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