Herbicidal Efficacy Testing, Crop Safety Evaluations, and Glyphosate-Resistant Weed Management in Central Valley Almond Orchards

Project Leader: Bradley D. Hanson
Dept. of Plant Sciences, University of California, Davis, Robbins Hall, Davis, CA 95616
(530) 752-8115, bhanson@ucdavis.edu

PROJECT SUMMARY

Objectives for current year:

- Evaluation of new herbicides, tank mixes, and application techniques for glyphosate-resistant weed control
- Evaluate almond injury symptoms from various herbicide and develop training tools for advisors and consultants
- Continue evaluations of methyl bromide alternatives for replant disease management in almond orchards

Background and Discussion:

Most almond growers use multiple weed management approaches in the tree rows and orchard middles. However, the majority of California's almond acreage is treated with herbicides each year with residual preemergence and/or broad spectrum "burn down" products. Over time, new weed problems and herbicide-resistant biotypes emerge, new herbicides are considered for registration, crop safety issues arise, and changing pesticide regulations affect almond production systems. Growers and advisors need up-to-date herbicide information as weed management needs change.

Three lines of herbicide research were continued in California almond orchards during the 2012 growing season. This research included efficacy and crop safety evaluations of PRE- and POST-emergent herbicides. The goal of this work is to provide the industry with information on weed control efficacy and has a special focus on glyphosate-resistant species. Field trials were conducted in the Central Valley during the 2012 season to evaluate residual herbicides (5 sites), POST control of hairy fleabane (3 sites), POST control of yellow nutsedge (1 site), and comparison of low VOC formulations of oxyfluorfen (3 sites).

Each year, growers and consultants have questions about possible almond injury from herbicide. Injury can come from foliar, trunk, or root exposure from herbicides registered in almond or from herbicides that drift from applications made in nearby areas. Several trials are under way to develop a herbicide symptomology photo set that can be used to address these questions. One trial was initiated near Davis to evaluate simulated glyphosate drift on 2nd leaf almond. Three trials were established in 1st and 2nd leaf almond near Arbuckle. Two of the Arbuckle experiments are addressing trunk injury symptoms from glufosinate (Rely 280) and the third includes simulated foliar drift of several herbicide modes of action. These experiments will continue for at least two more years.

Finally, the third objective of this program involves following up on fumigant and non-fumigant alternatives to methyl bromide for almond replant disease management. This program has focused on the tree site steam auger work initiated in 2009 with pilot funding from the Almond Board. Monitoring of these trials continues and has been expanded with support of US-EPA and CDFA and is largely integrated into other Almond Board and USDA-ARS supported projects (PIs Doll, Browne, Gao). Evaluation of steam auger treatments continues at one almond site in Kern Co, three sites in Merced Co, with recent supporting work in Merced and Colusa Co.

Project Cooperators and Personnel:
Marcelo Moretti, Andrew Johnson, Lynn Sosnoskie, University of California, Davis; David Doll, University of California Cooperative Extension, Merced

For More Details, Visit

- Poster location 50, Exhibit Hall A & B during conference; or on the web (after January 2013) at www.almondboard.com/researchreports
- 2011.2012 Annual Report CD (11.HORT12.Hanson); or on the web (after January 2013) at www.almondboard.com/researchreports
- Related Projects: 12.AIR9.Doll; 12.PATH1.Browne;12.AIR5.Gao