

Improving Efficacy of Spray Applications in Almond

Project Leaders: Ken Giles¹ & James Markle²

¹Biological and Agricultural Engineering Department, University of California, Davis, One Shields Ave, Davis, CA 95616
(530) 752-0687, dkgiles@ucdavis.edu

²Coalition for Urban/Rural Environmental Stewardship (CURES), 531-D N. Alta Ave., Dinuba, CA 93618
(559) 591-1995 jcmarkle@sbcglobal.net

PROJECT SUMMARY

Objectives:

- Improve spray efficacy by assessing both spray drift and spray deposition to target area(s) together.
- Develop easier methods to monitor spray efficacy
- Assess the effect of various grower practices and/or differences in equipment on spray efficacy.

Background:

Pest control relies on application of pest control materials via air blast sprayers in tree crops. Ideally every drop of sprayed material would reach the parts of the tree most in need of protection allowing for perfect pest control efficacy. In reality with current spray technology for orchards it is not easy to both ensure maximum spray efficacy with minimal off-target spray deposition.

In addition, there is increased scrutiny, especially for water quality, of spray drift from airblast applications.

This project brings together the skills and interests of three different research groups to look at spray efficacy in almonds.

Joel Siegel, USDA-ARS, has been monitoring the efficacy of applications of pest control materials for Navel Orangeworm control in terms of reaching the intended target – the nuts (see 10-ENTO11-Siegel/Walse). The USDA lab is set up to measure residues on nuts or other materials.

Ken Giles has been interested in the efficacy of new spray technologies for tree crops - both for reaching the target while also reducing off-site movement. James Markle is interested in finding techniques growers and applicators can implement with current equipment to reduce spray drift. CURES is involved with helping growers meet more stringent surface water quality standards.

This project will assess spray deposition onto the target nuts and spray drift comparing normal volume to a lower volume spray application in collaboration with a grower. A lower volume spray application is more economical in terms of time and fuel usage but the effects on reaching the target and/or off-site is not clear.

In addition, the project will assess the use of fluorescent dyes as an easier way to monitor the depositions compared to actually pest control materials.

Future work will address other application variables such as ground speed, sprayer air flow characteristics and more detailed volume / droplet size effects.

Project Cooperators and Personnel Franz Niederholzer, UC Cooperative Extension, Sutter & Yuba counties

For More Details, Visit

- Poster location 32, Exhibit Hall, Session 2; or on the web (after January 2011) at AlmondBoard.com/AICposters