Deposition Testing and Pattern Refinement for Spray Swath Analysis and Drift Management

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PROJECT SUMMARY

Objectives for current year:

- Minimize off-target movement of pest control materials applied by plane or helicopter by ensuring they are properly calibrated.
- Measure horizontal drift, spray deposition on the orchard floor and berms.

Background and Discussion:

There are times when an aerial application is the best choice for proper pest control in almonds. With the increased focus on water quality, endangered species, and general concerns about off-site movement of pest control materials, minimizing spray drift is critical to maintain the ability to use aerial applications when appropriate.

Proper calibration and set up can help ensure minimization of spray drift while also enhancing the efficacy of the application. However, for aerial applicators calibration is a complex effort.

For the last 10 years, the group has been working with aerial applicators to help them with calibrating and ensuring their equipment is set up to maximize efficiency and minimize drift. Each year some 30-45 aircraft are tested.

For pattern refinement, Rhodamine dye is placed in the spray tank. The aircraft is then flown over a string system. The string is analyzed with a fluorometer and the pattern is analyzed and adjustments are made if needed.

To measure horizontal drift, droplet cards are placed at 50 foot intervals from the center of the swath out to 300 feet downwind of the application. The cards are then analyzed for percent spray coverage.

For berm and orchard floor deposition, cards are placed in the center of the floor and on the berms equidistant between the trees. These are then analyzed for percent coverage.

The benefits derived include:

a. Knowledge of canopy interception of the spray
b. How much of the spray is reaching the orchard floor which may present run-off issues
c. What off target movement might be
d. Improved distribution of almond crop production products in the orchard

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Project Cooperators and Personnel:
JR Gallagher – Valent USA, Deborah Shatley – Dow AgroSciences, Charlie Witrado – American West Ag Aviation, Kevin Collins, Borba Farms, Dennis Bernsen – Waukena Flying Service, Steve Wilson – American West Ag Aviation

For More Details, Visit

- Poster location 35, Session 3; or on the web (after January 2012) at AlmondBoard.com/AICposters
- Project Progress Report on 2010 – 2011 Annual CD (10-WATER1-Stoltz); or on the web (after January 2012) at AlmondBoard.com/ResearchReports