Spray Swath Analysis/Drift Management for Aerial Applications

Project Leader: Richard Stoltz
506 W. Tenaya Ave, Clovis, CA 93612, (559) 284-5406 dickmgs@pacbell.net

PROJECT SUMMARY

Objectives:

- Minimize off-target movement of pest control materials applied by plane or helicopter by ensuring they are properly calibrated.
- Explore the possibility of reduction in spray fines by a novel spray boom set up.

Background:

There are times when an aerial application is the best choice for proper pest control in almonds. However, with 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.

Discussion:

For the last 8 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.

Using dye applications to fluorescing string the swath variability is analyzed. Based on the pattern, swath variability is determined. If variability is too high (greater than 20 percent) then adjustments are made to the spray boom and the aircraft is retested. Also, certain pattern characteristics may indicate a potential to drift. If these are noticed, the usual correction is to shorten the boom length.

Spray drift is analyzed by assessing droplet size using Syngenta spray cards. If the droplet size distribution has more than 10% of the droplets less than 200 micrometers, then the equipment nozzles are adjusted to increase the droplet size.

Arena Pest Control is working on technology to reduce the number of fines in spray applications. They have invented a Reverse Venturi Application (RVA) system. The results to date of droplet spectra analysis show that they are on the right track for reducing drift potential.

Project Cooperators and Personnel J.R. Gallegher, Valent, USA; Debbie Shatley, DowAgrosciences; Craig Compton, Avag; Ross Stocker, Arena Pest Management; Aerial Applicators

For More Details, Visit

- 2009-10 Annual Report CD (09-WATER1-Stoltz); or on the web (after January 2011) at AlmondBoard.com/ResearchReports