

# Navel Orangeworm Control: Relative Photostability of Insecticides and Assessment of Application Coverage

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## PROJECT SUMMARY

### Objectives:

- Assess the stability and longevity of commonly used insecticides for control of navel orangeworm (NOW) on nut and leaf surfaces.
- Monitor the insecticide penetration into the upper canopy.

### Background:

Control of NOW with insecticides has always been difficult because of the limited space and time to reach the emerging worms before they bury themselves into the shelter of the nut. Thus ensuring long stability and good coverage of the nuts is key to successful control of NOW with in-season insecticides.

Over the last 5 years a number of new insecticides have been registered for use in almonds to control of navel orangeworm (NOW), the primary insect pest of almonds. These compounds have different modes of action than the traditional broad-spectrum insecticides.

This project focuses on assessing the persistence and photostability of various NOW insecticides applied in the orchard.

Persistence of insecticides on the nut surface is being monitored by removing treated nuts from the orchard at different times and assessing

whether NOW eggs and emerging larvae survive. Photostability will initially be assessed by treating a glass slide with the insecticide and placing in a photolysis chamber for UV light exposure. And persistence on the leaves will be assessed by measuring the residues at different times after application.

Joel Siegel has noted that spray coverage of nuts in the upper reaches of the canopy is substantially reduced. This project will continue to assess the efficacy of spray penetration into the trees by placing small strips with NOW eggs as well as spray cards at different locations within the tree. The focus on spray coverage will dovetail with the project on spray efficacy and spray drift by Giles and Markle (see 10-WATER3-Giles/Markle).

By better understanding the persistence of the different insecticides, optimal timing for improved efficacy can be evaluated. It may be with these newer materials that an earlier or later time frame than the traditional hull-split application is more effective.

Future work will address how application details affect the quality of the penetration of the materials in the trees, for example tractor speed, droplet size, etc.

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**Project Cooperators and Personnel** Brad Higbee, Paramount Farming Company; Gary Weinberger, Weinberger & Assoc.; James Bettiga, S&J Ranch; Chris Wiley, AgriWorld

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- Poster location 38, Exhibit Hall, Session 2, or on the web (after January 2011) at [AlmondBoard.com/AICposters](http://AlmondBoard.com/AICposters)