

Control of Navel Orangeworm (NOW) in Almonds Using Insecticides and Assessing Spray Coverage

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PROJECT SUMMARY

Objectives:

- Determine persistence of insecticides on nut surfaces.
- Assess the stability and longevity of commonly used insecticides for control of navel orangeworm (NOW) on nuts.
- Assess NOW larval feeding behavior in relation to the possible repellency of different insecticide classes used in almonds.
- Assess insecticide penetration and coverage into the upper canopy.

Background and Discussion:

Control of NOW with insecticides has always been difficult because of the prolonged egg laying period and the need to kill the emerging worms before they tunnel into the nut. Therefore, ensuring long term stability and good insecticide coverage of the nuts are keys to the successful control of NOW with in-season insecticides.

Over the last few years a number of new insecticides have been registered for use in almonds to control of 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 duration of control and the photostability of various NOW insecticides applied in the orchard. The duration of control of an insecticide is monitored, by removing treated nuts from the orchard at intervals, infesting the nuts with eggs and then assessing larval survival.

In ongoing studies designed to assess photostability, glass slides are treated with an insecticide and placed in a photolysis chamber for UV light exposure. The rate of breakdown is determined and contrasted to the rate on nuts by measuring the residues at different times after application. Insecticides degrade more slowly on nuts than they do on the glass slides.

Ongoing studies demonstrate that spray coverage of nuts in the upper reaches of the canopy is substantially reduced. We are investigating how application details affect the quality of the penetration of the materials in the trees, e.g., tractor speed, droplet size, and configuration and type of nozzles used.

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.

Novel contact and adult assays evaluated the contact and adult toxicity of narrow spectrum insecticides. These newer materials require an earlier time frame for application to ensure coverage at the onset of hull-split.

Project Cooperators and Personnel: Matt Strmiska, Qualified Applicator Specialists; Gary Weinberger, Winberger, Fukoda & Assoc.; Chris Wiley, AgriWorld; Forrest Felger; Valley Orchard Management; May Berenbaum, University of Illinois

For More Details, Visit

- Poster location 24, Exhibit Hall A + B during the Almond Conference; or on the web (after January 2015) at Almonds.com/ResearchDatabase
- 2013-2014 Annual Reports CD (13-ENTO11-Siegel/Walse); or on the web (after January 2015) at Almonds.com/ResearchDatabase
- Related projects: 14-ENTO1-Berenbaum; 14-WATER3-Niederholzer/Giles/Markle