

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 stability and good insecticide coverage of the nuts are key 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 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 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 and then assessing larval survival.

To assess photostability, profiles of all currently registered insecticides will be created and their presence detected using analytical equipment. Glass slides will be treated with each insecticide and placed in a photolysis chamber for UV light exposure. The rate of breakdown will be determined for each insecticide and their persistence on almonds will be assessed by measuring the residues at different times after application.

Joel Siegel and Brad Higbee have 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 12.WATER3.Giles/Markle).

By better understanding the duration of control of the different insecticides, optimal timing for improved treatment efficacy can be achieved. It may be with these newer materials that an earlier 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.

Project Cooperators and Personnel: Gary Weinberger, Weinberger, Fukoda & Assoc.; James Bettiga, S&J Ranch; Chris Wiley, AgriWorld, Forrest Felger, and Valley Orchard Management

For More Details, Visit

- Poster location 43, Exhibit Hall A and B during conference, or on the web (after January 2013) at www.almondboard.com/researchreports
- 2011.2012 Annual Report CD (11.ENTO11.Siegel/Walse); or on the web (after January 2013) at www.almondboard.com/researchreports
- Related Projects: 12.WATER3.Giles/Markle; 12.ENTO1.Berenbaum/Robertson; 12.ENTO7.Zalom