Control of navel orangeworm in almonds using insecticides and assessing spray coverage Year 2

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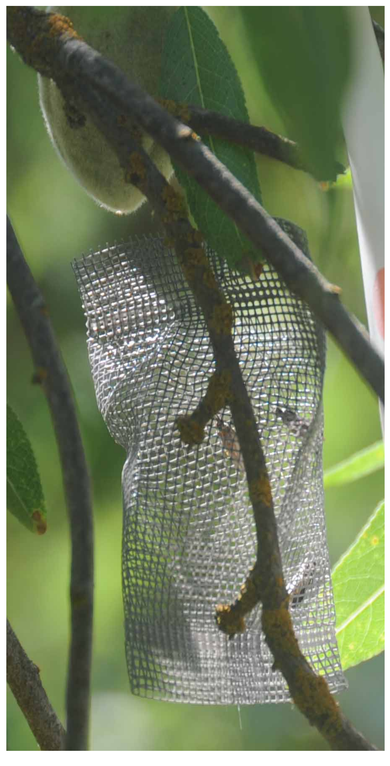
Introduction

Recently several narrow spectrum insecticides (insect growth regulators, anthranilic diamides) have been registered for use in almonds and pistachios to control navel orangeworm (NOW) *Amyelois transitella*. Our interest is evaluation of activity against all life stages of NOW, duration of control and spray coverage. In this poster we report adult activity. Insecticide trials were conducted in Fresno and Madera counties, in consultation and cooperation with Barat Bisabri and Byron Sleugh (Dow Agrosciences), Gary Weinberger (Weinberger, Fukoda and Associates), Chris Wiley (AgriWorld), and James Bettiga (S&J Ranch). We also are collaborating with the spray drift and deposition research of Ken Giles, Franz Niederholzer, and Jim Markle. Adult toxicity was determined by placing bagged adults (3 per bag) in trees immediately before insecticide application and removing them 24 hours later for observation. Adult survival was evaluated 24-72 hours after exposure. Spray coverage was evaluated using spray cards placed at two foot intervals on pvc pipe and in some trials the card were paired wth eggs.

Objectives

1. Determine adult activity of selective insecticides
2. Determine insecticide duration of control on nut surfaces
3. Determine spray coverage

Three adults of in netting bag before spray exposure



Results

Table 1. Adult activity of Altacor, Delegate and Intrepid at 24 hours after exposure, 2011

Treatment	Mortality	Adults
Control	0%	132
Delegate 6.4 oz	88.89%	108
Delegate 3.2 oz + Intrepid 12.8 oz	49.59%	123
Altacor 4 oz	16.67%	138

Table 2. Adult activity of Altacor and Delegate at 24 hours after exposure, 2012.

Treatment	Time	Mortality	Adults
Altacor (4.0 oz)	24	79.63%	108
Control	24	3.09%	121
Delegate (6.2 oz)	24	77.48%	48

Table 3. Adult activity of Altacor and Delegate at 24, 48 and 72 hours after exposure, 2012.

Treatment	Hours	Mortality	Adults
Altacor (3.5oz)	24	32.46%	114
	48	46.67%	120
	72	65.83%	120
Control		32.00%	121
Delegate (6.2 oz)	24	66.67%	123
	48	83.33%	120
	72	98.33%	120

Field evidence to support adult activity of Altacor. Male capture in pistachios following ground spray at 2 mph, 200 gpa, 4.5 oz/ac.

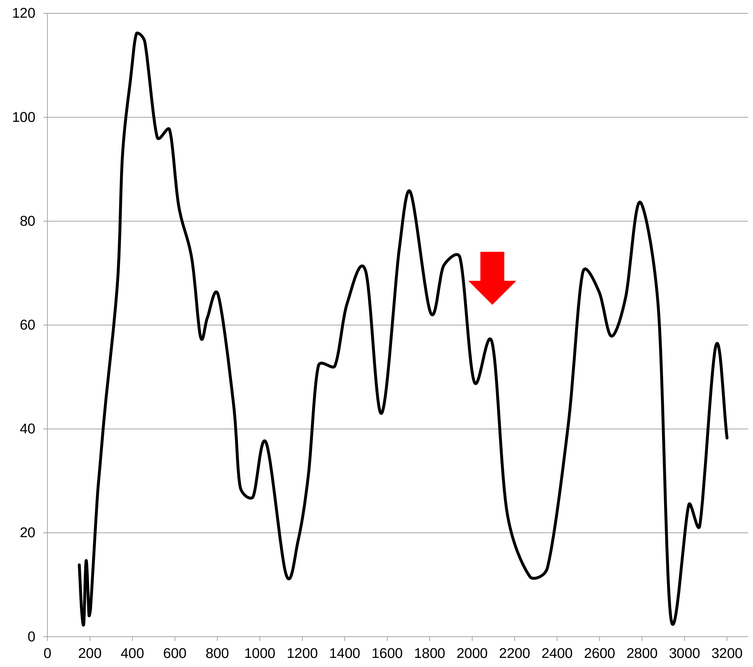


Table 4. Efficacy of Intrepid, Altacor and Delegate 1 day after spray

Treatment	Mortality	Eggs	Nuts
Intrepid 16 oz	99.78% A	920	92
Altacor 4 oz	99.80% A	500	50
Delegate 6.2 oz	99.20% A	250	50

Table 5. Efficacy of Intrepid, Altacor and Delegate 14 days after spray

Treatment	Mortality	Eggs	Nuts
Intrepid 16 oz	99.25% A	2,000	200
Altacor 4 oz	97.50% B	2,000	200
Delegate 6.2 oz	90.85% C	2,000	200