



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



YEAR 4

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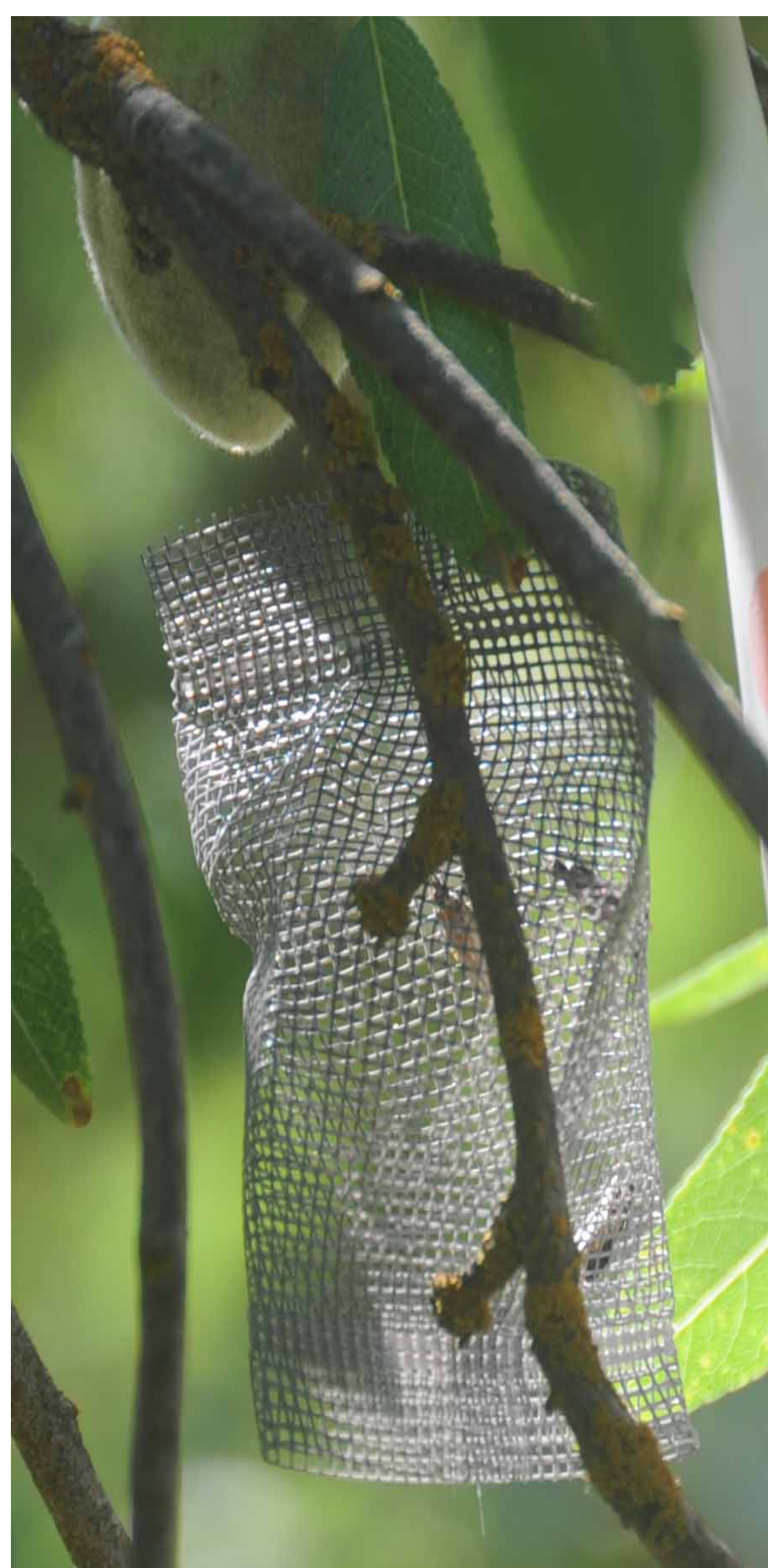
Introduction

Recently narrow spectrum insecticides (insect growth regulators, anthranilic diamides, spinosids) 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 Alistair McKay, (Dow Agrosiences), Gary Weinberger and Todd Fukoda (Weinberger, Fukoda and Associates), Jeff Pacheco and Terri Thomas (DuPont), and Seth Gersdorf (Bayer Crop Science). 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 24-120 hours after exposure. Additional studies were conducted on the effect of adjuvant on adult activity.

Objectives

1. Determine adult activity of selective insecticides
2. Determine effect of adjuvants on adult kill

Three adults in netting bag before spray exposure



Results

Table 1. Adult activity of Intrepid Edge, Delegate and Altacor, June 11, Latron B-1956 at 3.2 oz/100 gal, 200 gpa, 2 mph

Treatment	Live	Distress+Dead	Total
Control	61	69	130
Intrepid Edge 12 oz/ac	3	114	117
Delegate 3 oz/ac	7	85	92
Altacor 4 oz/ac	10	74	84

Table 2. Adult activity of Altacor 4.5 oz/ac + Dyne-Amic (8 oz/ac) and Altacor + Latron B-1956 (3.2 oz/ac), 200 gpa, 2 mph, July 16.

Treatment	Live	Dead+Impair	Total
Day 1			
Control+DyneAmic	89.8%	11.2%	166
Altacor+DyneAmic	69.0%	31.0%	158
Altacor +Latron B-1956	47.7%	52.3%	130
Day 3			
Control	78.9%	21.1%	166
Altacor+DyneAmic	50.6%	49.4%	158
Altacor +Latron B-1956	40.8%	59.2%	130

Table 3. Belt at 4.0 oz/ac, June 19, Dyne-Amic at 8 oz/100 gal, Latron B-1956 at 4.0 oz/100 gal, 2 mph, 100 gpa

Treatment	Live	Dead	Total
Day 1			
Control	81.8%	18.2%	176
Belt + DyneAmic	66.7%	33.3%	156
Belt + Latron B-1956	85.4%	14.6%	185
Day 3			
Control	60.8%	39.2%	176
Belt + DyneAmic	34.6%	65.4%	156
Belt + Latron B-1956	56.2%	43.8%	185

CONCLUSION

These trials confirm that Altacor, Belt, Delegate, and Intrepid Edge have adult activity. The effect of adjuvant varied by insecticide. Interestingly, although Altacor and Belt are both diamides, Dyne-Amic increased the efficacy of Belt against adult Navel orangeworm and did not enhance the activity of Altacor. Navel orangeworm exposed to the combination of Belt+Dyne-Amic were 1.41X as likely to die as those exposed to Belt+Latron B-1956, (0.005 > P > 0.001).