

Chemical Control/New Products

Supplemental Confirm Applications in Codling Moth Mating Disrupted Pear Orchards

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Methods and Materials

A trial was conducted in a commercial 'Bartlett' pear orchard near Courtland, CA. The orchard was under codling moth (CM) mating disruption. Four treatments were replicated three times in a randomized complete block design. Each replicate was 2.5 acres. Insecticides were applied using an air-blast speed sprayer operating at 2.0 mph and applying 100 gal of finished spray per acre. The four treatments were: 1) Confirm 2F [0.25 lb (AI)/acre] applied at petal fall (PF) and at 1B CM flight, 2) Confirm 2F applied at PF and stop drop (SD), 3) Confirm 2F applied at 1B and SD, and 4) the grower standard. All Confirm applications contained 0.0625% Latron B-1956 by volume. The grower applied Diazinon 50 W [0.5 lb (AI)/acre] at PF, Penncap-M [1.0 lb (AI)/acre] at 1B CM flight and Crymax [0.15lb (AI)/acre] at SD. The PF treatment was applied 13 April, the 1B treatment was applied on 4 June and the SD treatment was applied on 8 July. The 1B application was scheduled based on degree days (DD). DD were calculated with a biofix of 14 April using a single sine horizontal cutoff model with a lower threshold of 50°F and an upper threshold of 88°F. Obliquebanded leafroller (OBLR) DD were also calculated with a biofix of 5 May using a single sine horizontal cutoff model with a lower threshold of 43°F and an upper threshold of 85°F. Maximum and minimum air temperatures were obtained from the IMPACT weather station at Lodi, CA. The control was evaluated weekly from 21 April to 11 June by inspecting 500 shoots per treatment for the presence of OBLR and green fruitworm (GFW). In addition, control was also evaluated weekly from 7 May to 13 July by inspecting 500 fruit (250 fruit pair) per treatment for CM, OBLR and GFW presence and damage. A first CM generation evaluation was conducted on 28 June by inspecting 1000 fruit (500 fruit pairs) per treatment and a harvest evaluation was conducted on 29 July by inspecting 1500 fruit (750 fruit pairs) per treatment for CM, OBLR and GFW presence and damage.

Results and Discussion

This orchard was heavily infested with GFW. The PF application of Confirm significantly lowered GFW damage compared to the grower standard of Diazinon or the untreated control. The untreated control was scheduled to be treated with Confirm at the 1B and SD timings (Table 1). GFW larvae were completing their development in April and few larvae were found in the foliage samples after 28 April. This orchard had a low OBLR population. Young OBLR larvae and damage were observed on the 11 June sample. The 1B applications on 4 June occurred at 595 OBLR DD and 653 CM DD. The 1B application was appropriately timed for both CM and OBLR. There was no significant difference in OBLR damage among the treatments except for 13 July (Table 2). It appears from this study that the best timing to control GFW, OBLR and CM in a mating disrupted orchard is the PF and 1B. No CM damage was

observed in any of the treatments.

Table 1. Mean percent green fruitworm fruit damage at Courtland, CA, 1999.

Treatment	Mean ¹ percent fruit damage			
	7-May	14-May	21-May	28-May
Diazinon	2.6ab	2.0a	2.6b	3.2c
PF&SD	1.0a	0.8a	1.6ab	1.0b
PF&IB	1.0a	0.2a	0.6a	0.2a
Untreated	4.4b	4.0b	3.0b	2.6c

¹Means followed by the same letter within a column are not significantly different (Fisher's LSD, P<0.05). Data analyzed using an arcsine transformation.

Table 2. Mean percent green fruitworm and obliquebanded leafroller fruit damage at Courtland, CA, 1999.

	Mean ¹ percent fruit damage					
	28-June			7-July		
	GFW	OBLR	Total	GFW	OBLR	Total
Grow. Standard	1.2a	0.7a	1.9a	8.0a	0.2a	8.2a
PF & SD	0.7a	3.3a	4.0a	8.0a	1.6a	9.6ab
PF & 1B	0.3a	1.0a	1.3a	10.8b	3.8a	14.6b
1B & SD	3.1b	1.2a	4.3a	11.2b	2.4a	13.6b

	13-July			29-July		
	GFW	OBLR	Total	GFW	OBLR	Total
	Grow. Standard	5.0a	0.0a	5.0a	2.7b	0.4a
PF & SD	3.8a	2.4c	6.2a	1.3a	0.5a	1.8a
PF & 1B	4.0a	0.8b	4.8a	1.5a	0.3a	1.8a
1B & SD	3.2a	1.4bc	4.6a	4.8b	0.9a	5.7b

¹Means followed by the same letter within a column are not significantly different (Fisher's LSD, P<0.05). Data analyzed using an arcsine transformation.