

Chemical Control/New Products

NEONICOTINYLS AND IGRs FOR CONTROL OF CODLING MOTH IN PEARS

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Abstract: Individual plots consisted of single trees replicated four times in a randomized complete block design. Treatments were applied using a handgun sprayer at 400 gpa. The IGR compounds were applied twice for each generation starting 1-3 weeks earlier than the other compounds which were applied on a more typical codling moth timing. Calypso was applied 4x/generation, Imidan 3x/gen, and Assail and Guthion 2x/gen on a 10-, 14-, 21-day schedule, respectively. CM injury was evaluated after each generation by examining 50 fruit per tree for CM stings and entries. All compounds gave good control of codling moth at the first evaluation, although CM injury was only 10% in the check. At the second evaluation, Dimilin 25WP had more CM stings than the other compounds and was not significantly different from the check. All compounds had significantly fewer CM entries than the check, but the differences between the compounds tested were not statistically significant.

Materials and Methods

Dimilin and Novaluron treatments were applied 1 May (50 degree days (DD)¹ and repeated on 17 May for the 1st generation CM, and 7 July (950 DD) with a subsequent application on 27 July for the 2nd generation. Imidan applications were started 21 May (250 DD), 6 Jun (250 DD + 16d), and 19 Jun (250 DD + 29d) for the 1st generation, and 16 Jul (1200 DD), 27 Jul (1200 DD + 13 d), and 13 Aug (1200 DD + 28 d) for the 2nd generation. Calypso treatments were applied 21 May (250 DD), 31 May (250 DD + 10d), 11 Jun (250 DD + 21d), and 21 Jun (250 DD + 31d) for the 1st generation, and 16 Jul (1200 DD), 26 Jul 1200 DD + 10d), 6 Aug (1200 DD + 21d), and 15 Aug (1200 DD + 30d) for the 2nd generation. Assail and Guthion treatments were applied 21 May (250 DD), and 11 Jun (250 DD + 21d) for the 1st generation and 16 Jul (1200 DD), and 6 Aug (1200 DD + 21d) for the 2nd generation.

Results and Discussion

CM injury was evaluated after each generation by examining 50 fruit per tree for CM stings and entries. All compounds gave good control of codling moth at the first evaluation (Table 1), although CM injury was only 10% in the check. At the second evaluation (Table 2), Dimilin 25WP had more CM stings than the other compounds and was not significantly different from the check. All compounds had significantly fewer CM entries than the check, but the differences between the compounds tested were not statistically significant.

¹DD = accumulated degree days after first moth capture in pheromone trap(biofix), calculated from daily maximum and minimum temperatures using the method described by Baskerville and Emin (Ecol. 50: 514-516, 1969).

Table 1.

Treatment	Rate/acre	% Codling moth injury on 12 Jul ^z		
		Stings	Entries	Total
Check		2.5 a	7.5 a	10.0 a
Dimilin 25WP + Saf-T-side	1.0 lb 0.25 % v/v	1.5 a	1.0 b	2.5 b
Dimilin 2EC + Saf-T-side	1.0 pt 0.25 % v/v	0.5 a	0.0 b	0.5 b
Novaluron 7.5WG + Saf-T-side	4.44 lb 0.25 % v/v	0.5 a	0.0 b	0.5 b
Imidan 70WP	5.0 lb	0.0 a	0.0 b	0.0 b
Calypso 480SC	6 fl oz	0.5 a	0.5 b	1.0 b
Calypso 480SC	8 fl oz	0.0 a	0.0 b	0.0 b
Assail 70WP	0.144 lb	2.0 a	0.5 b	2.5 b
Assail 70WP	0.22 lb	0.0 a	0.0 b	0.0 b
Guthion 50WP	3.0 lb	0.0 a	0.0 b	0.0 b

^zMeans in the same column followed by the same letter are not significantly different ($P=0.05$, Student-Newman-Keuls).

Table 2.

Treatment	Rate/acre	% Codling moth injury on 4 Sep ^z		
		Stings	Entries	Total
Check		5.5a	31.5a	37.0a
Dimilin 25WP + Saf-T-side	1.0 lb 0.25 % v/v	4.5a	4.5b	9.0b
Dimilin 2EC + Saf-T-side	1.0 pt 0.25 % v/v	1.5b	2.0b	3.5bc
Novaluron 7.5WG + Saf-T-side	4.44 lb 0.25 % v/v	0.0b	0.5b	0.5c
Imidan 70WP	5.0 lb	1.0b	0.0b	1.0c
Calypso 480SC	6 fl oz	0.5b	0.0b	0.5c
Calypso 480SC	8 fl oz	0.0b	0.0b	0.0c
Assail 70WP	0.144 lb	1.5b	0.5b	2.0bc
Assail 70WP	0.22 lb	1.0b	0.5b	1.5c
Guthion 50WP	3.0 lb	0.0b	0.0b	0.0c

^zMeans in the same column followed by the same letter are not significantly different ($P=0.05$, Student-Newman-Keuls).