Pome Fruits—Chemical Control

Apple, Pandemis Leafroller Control in Summer

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Different insecticides were evaluated for their ability to control PLR larvae during the summer when used in large plots in a commercial apple orchard. The test was conducted in two blocks at the Wells & Wade Fruit Company Birchmont orchard (block 4D=Test plot #1 and block 1D1=Test plot #2). Trees used in this test were 14-year-old spur-type Red Delicious on dwarfing roots pruned to a central leader structure. The orchard was irrigated by under-tree sprinklers on a 14-day schedule. Each treatment in test plot #1 was applied to approximately one acre using an Airofan PTO air blast sprayer delivering 400 gallons per acre. Each treatment in test plot #2 was applied to approximately four acres (the untreated being only one acre) using the same equipment and water volume. Treatments were applied on June 14. On June 21 Lorsban was again applied in test plot #2 to alternate rows not treated on June. A pre-treatment sample of leafroller density was made on May 31 by counting the number of active feeding sites (live larvae) in a two-minute search on each of 12 trees per plot. Post-treatment counts were made on August 2 by counting the number of live PLR larvae in 20 actively growing shoots from 24 trees in each treatment. On October 1, a picking bag of fruit was collected from each of 25 trees per treatment and examined for the presence of PLR damage. WTLM samples were taken on July 18 and July 25 following the second WTLM generation. Five leaves were collected from each of 10 trees in each treatment and mines dissected to determine the number of WTLM mines per leaf and the level of parasitism.

Penncap applied to every row provided good control of PLR adults and/or larvae resulting in a significantly lower level of fruit damage compared to Penncap applied to alternate rows and Guthion applied to every row. Lorsban applied to alternate rows seven days apart did not reduce PLR populations. All treatments had fewer PLR larvae in the post-treatment counts compared to the untreated plot with the exception of the Lorsban treatment

Material, formulation	Rate form. per acre	Pre-treatment avg. larvae/tree (2-min. count)	Post-treatment avg. larvae per 20 shoots	Relative change between 1st & 2nd generation	% fruit damage PLR[1]
Test Block #1					
Penncap 2FM	6 pt	0.50	1.00a	2.0	0.4a
Penncap 2FM (alternate rows treated)	3 pt	1.75	4.00b	2.3	4.5b
Guthion 35WP	3 lb	0.83	4.08b	4.9	4.7b
Untreated	---	0.40	13.70c	34.3	12.5c
Test Block #2					
Lorsban 50WP (alternate row 2 appl, 7 days apart)	3 lb	0.54	4.13b	7.6	---
Penncap 2FM (alternate rows treated)	3 pt	0.67	0.19a	0.3	---
Untreated	---	0.17	4.11b	24.2	---

[1]Means in columns without letters or followed by the same letter within a column were not significantly different (P=0.05, Student-Newman-Keuls).

		Leafminer density and percent parasitism[1]					
		July 18			July 25		
Material, formulation	Rate form. per acre	M/L[2]	% WTLM	% P.f.[3]	M/L	% WTLM	% P.f.
Test Block #1							
Penncap 2FM	6 pt	1.9b	100b	0a	2.2b	87ab	13a
Penncap 2FM (alternate rows treated)	3 pt	1.5b	90b	10ab	1.4a	88b	12a
Guthion 35WP	3 lb	0.7a	80ab	20ab	1.3a	65ab	35b
Untreated	---	1.3ab	60a	40b	1.9ab	64a	36b
Test Block #2							
Penncap 2FM (alternate rows treated)	3 pt	1.0	100b	0a	1.6	100b	0a
Lorsban 50WP (alternate row 2 appl., 7 days apart)	3 lb	2.8	98b	2a	2.6	99b	1a
Untreated[4]	---	---	75	25	---	74	26

[1]Means in columns without letters or followed by the same letter within a column were not significantly different (P=0.05, Fisher's Protected LSD).
[2]M/L=mines per leaf.
[3]*Pnigalio flavipes*.
[4]This plot was not included in the statistical analysis because it was sampled in a different manner with the intent only to determine percent parasitism and not WTLM density.