Chemical Control/New Products

Control of *Lacanobia subjuncta* with Insecticides: Field and Laboratory Tests

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Several chemicals were evaluated in replicated field plots at two locations and in leaf-disk bioassays for their effect on *L. subjuncta* larvae. Field plot testing was done on mature Delicious apples at two locations in the Columbia Basin. Treatments were applied with a airblast sprayer to 1/3 acre plots replicated 3 times. Application timing was targeted for 100% egg hatch (mid-June). Pre- and post-treatment larval evaluations were conducted with beating tray samples. Fruit damage evaluations were also conducted at each site. The leaf-disk bioassay was a screening of insecticides believed to be effective against lepidopteran larvae. The insecticides were evaluated at the equivalent concentration of a dilute field application. Mortality was recorded at 48 hr.

Refer to Tables 1 and 2 for summaries of field trial results. Site #1: Only the Lannate 1.8 L treatment significantly reduced larval densities relative to the untreated control at the 29 Jun evaluation. The Lannate 1.8 L treatment also significantly reduced fruit injury from *L. subjuncta* at the 16 Jul evaluation. Although the Provado 1.6 F treatment did not reduce larval densities, there was significantly less fruit injury than in the untreated control. It should be noted that Lannate 1.8 L is not recommended for summer use and should be used with caution due to its disruptive effects on integrated mite control.

Site #2: At the 29 Jun post-treatment evaluation the 8 fl oz rate of Success 2SC and the Lorsban 50WP treatments significantly reduced larval densities relative to the untreated control. The Lorsban 50WP treatment had the lowest mean number of larvae of all the treatments. There appeared to be a slight rate response noted with the Success 2SC treatments although there were no statistically significant differences among the Success 2SC treatments. All treatments significantly reduced fruit injury relative to the untreated control. There were no significant differences in fruit injury among the treatments. It is likely that Success will have to be targeted for younger larvae and two applications may be necessary in high pressure areas.

Refer to Table 3 for bioassay results. The chemicals that were observed to be effective in the field were also very effective in the bioassay. These included Success 2SC and Lorsban 50WP. Insecticides that also caused a high level of mortality in the bioassay were Thiodan 50WP, Penncap-M 2F and Malathion 50% EC. The organophosphate insecticides Guthion 50WP and Imidan 70WP that are commonly used in conventional orchards had little effect on larval survival.

Table 1. *Lacanobia subjuncta* field trial 1, Royal Slope, WA, 1998.

		Avg. no. Ls larvae/20 trays		
Chemical	Rate (AI/100 gal)	pretreatment 10 Jun	post-treatment[1] 29 Jun	Avg. % fruit injury
Sevin 50WP	454.0 g	11.0a	3.0b	0.39b
Provado 1.6F	45.4 g	10.7a	3.0b	0.06a
Lannate 1.8L	612.9 g	8.7a	0.0a	0.00a
Untreated		5.0a	2.7b	0.50b

Means in the same column followed by the same letter not significantly different (p=0.05, Fisher's Protected LSD).
[1]Statistics run on transformed data (log (y+ 1)).

Table 2. *Lacanobia subjuncta* field trial 2, Othello, WA, 1998.

		Avg. no. Ls larvae/20 trays		
Chemical	Rate (AI/100 gal)	pretreatment 10 Jun	post-treatment[1] 29 Jun	Avg. % fruit injury
Success 2SC	28.4 g	16.0a	3.0bc	0.22a
Success 2SC	42.6 g	5.7a	2.3a-c	0.33a
Success 2SC	56.8 g	6.7a	1.7ab	0.33a
Lorsban 50WP	681.0 g	11.3a	0.0a	0.12a
Untreated		16.0a	4.7c	0.83b

Means in the same column followed by the same letter not significantly different (p=0.05, Fisher's Protected LSD).

Table 3. *Lacanobia subjuncta* leaf disk bioassay results, 1998.

Chemical	Rate (form./acre)	% mortality
Success 2SC	8 fl oz	100
Lorsban 50WP	3 lbs	100
Penncap-M 2F	8 pts	100
Thiodan 50WP	3 lbs	100
Malathion 50% EC	3 pts	100
Imidan 70WP	4 lbs	33
Guthion 50WP	2 lbs	20
Sevin 50WP	2 lbs	17
Pyrellin EC	4 pts	13