

Pome Fruits—Chemical Control

Apple, Pandemis Leafroller Control Test #1

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*Keywords:* pandemis leafroller, *Bt*, Javelin, Asana, Dipel, MVP, CGA237218, Lorsban, Cryolite, apple

Different *Bt* products were evaluated for their ability to control overwintered PLR larvae. The test was conducted in a commercial orchard located near Wenatchee. Trees used in this test were 4-year-old spur-type Red Delicious on dwarfing roots. The orchard was irrigated by under-tree sprinklers, but no irrigation was applied during the test period. The test design consisted of five-tree plots replicated five times per treatment in a randomized complete block. All treatments were applied with a handgun sprayer at 300 psi to the point of drip, simulating a dilute spray of approximately 400 gallons per acre. First application of the first three treatments was made on April 8, at the half-inch green-tip stage of fruit bud formation. Due to high winds the first application of the remaining treatments was not made until April 11, at the tight cluster stage of fruit bud development. The second application of all products except Lorsban was made on April 18, at the pink stage of fruit bud development. The third and final application of products, except Lorsban and treatments including Asana, was made on April 26, at the full bloom stage of apple. Third applications of the Javelin plus Asana and Asana treatments were not made because samples indicated that control was already nearly 100%. Pre-treatment samples (April 4) consisted of four buds from each tree in a replicate (20 buds per replicate, 100 buds per treatment). Buds were returned to the laboratory, examined under magnification and the number infested with PLR larvae recorded. The first post-treatment sample was made on April 22 after the first two applications of products containing *Bt* had been made. Each tree was examined and the number of active feeding sites (live leafroller larvae) recorded. The final post-treatment sample was made on May 15. Again each tree was examined and the number of active leafroller feeding sites was recorded. The feeding sites (a leaf or leaf-cluster webbed together) from each treatment were placed in a plastic bag and returned to the laboratory. Weather during the test period was poor on many days with wind and some rain interfering with application timing.

Three applications of most *Bt* products provided control statistically equivalent to the standard single Lorsban treatment. The percent control of leafroller larvae (Table 2) was improved by the addition of the third application. The 3-quart-per-acre rate of MVP provided slightly better control than the 2-quart-per-acre rate. Cryolite did not provide acceptable control under conditions in this test. Asana was originally intended to be tested as a synergist for Javelin when used at 1/10th the field rate. However, due to an error in interpreting rates and mixing, Asana was used at the full recommended field rate. At that rate Asana provided excellent PLR control. The leafroller population in the orchard at the beginning of the test was moderate.

Table 1. Density of PLR larvae in different treatments.

Material and formulation	Rate form. per acre	Treatment timing	% infested fruit buds (4/4/91) <sup>1</sup>	Active larval sites/tree <sup>1</sup>	
				4/22/91	5/15/91
Javelin 100WG	1 lb	Apr. 8,18,26	11a	1.60ab	1.4a
Javelin 100WG Asana 0.67EC	1 lb 16 oz	Apr. 8,18	16a	0.04a	0.2a
Asana 0.67EC	16 oz	Apr. 8,18	16a	0.20a	0.2a
Dipel 2X	1 lb	Apr. 11,18,26	17a	2.56ab	1.8a
MVP 10%AF	2 qt	Apr. 11,18,26	17a	3.16b	4.0ab
MVP 10%AF	3 qt	Apr. 11,18,26	20a	1.40ab	1.0a
CGA237218 50W	4 lb	Apr. 11,18,26	13a	2.28ab	2.6ab
Lorsban 4EC	2 qt	Apr. 11	7a	0.28a	0.8a
Cryolite 96%WP	10 lb	Apr. 11,18,26	12a	6.72c	5.8b
Untreated	---	---	15a	6.40c	10.0c

<sup>1</sup>Means followed by the same letter not significantly different (P=0.05, Student-Newman-Keuls).