

Pome Fruits—Chemical Control

Apple, Pandemis Leafroller Control Test #4

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Different *Bt* products were evaluated for their ability to control PLR larvae during the summer. The test was conducted in an orchard at the WSU Tree Fruit Research and Extension Center in Wenatchee. Trees used in this test were 12-year-old spur-type Red Delicious on dwarfing roots. The orchard was irrigated by under-tree sprinklers on a 14-day schedule. The test design consisted of 5- to 7-tree plots replicated three 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. Applications were made on July 19, 26 and August 2. The post-treatment sample was taken on August 13. One hundred shoot tips in each replicate were examined and the number of live leafroller larvae recorded. On August 29, 200 fruit from each replicate (600 fruit per treatment) were picked and examined for the presence of PLR and CM damage. The density of leafrollers in the test block was high. Weather during the test period was good.

Three applications of all *Bt* products provided larval control statistically better than the untreated plot. Both rates of MVP provided excellent PLR control. While *Bt* products caused essentially 100% mortality of PLR larvae with three applications, fruit damage by PLR was not significantly different from that in the untreated plot. In summer, fruit damage by PLR occurs when the larvae are small, first and second instars primarily, and thus treatments of products such as *Bts* must be present at the beginning of the egg hatch period. In this test the first application was not made until most of the eggs of the summer generation had hatched. It is probable that the poor timing contributed to the level of fruit damage observed in the *Bt* treatments. It may also be that *Bt* acts too slowly to prevent significant fruit damage by larvae before they consume enough to kill them. This aspect of *Bt* control requires further research. *Bt* products targeted for control of the summer generation of PLR larvae did not control CM. The 1/10th (one-tenth) rate of Asana provided good control of CM in addition to providing control of PLR. Using low rates of other insecticides with *Bt* products may provide a reasonable tactic for achieving control of pests not controlled by *Bts*. However, the low Asana rates used in this test killed predatory mites and elevated levels of spider mites. The impact of even very low rates of synthetic pyrethroids on integrated mite control programs needs further investigation to determine the long-term effects of such use.

Table 1.

Material, formulation	Rate form. per acre	Treatment timing	Larvae per 25 shoots ¹	% fruit injury	
				PLR ¹	CM ¹
Javelin 100WG	1 lb	Jul 19,26, Aug 2	0.0a	5.7a	5.8b
Javelin 100WG Asana 0.67EC	1 lb 1.6 oz	Jul 19,26, Aug 2	0.0a	5.3a	0.5a
Asana 0.67EC	1.6 oz	Jul 19,26, Aug 2	0.0a	6.0a	0.2a
Dipel 2X	1 lb	Jul 19,26, Aug 2	0.0a	6.3a	5.7b
MVP 10%AF	2 qt	Jul 19,26, Aug 2	0.0a	5.3a	2.7ab
MVP 10%AF	3 qt	Jul 19,26, Aug 2	0.1a	4.7a	1.5a
Untreated	---	---	7.3b	9.3a	3.2ab

¹Means followed by the same letter not significantly different (P=0.10, Fisher's Protected LSD).

Table 2. Mite levels in plots following seasonal application of different insecticides.

Treatment, rate/acre	Mites per leaf							
	8/14/91				9/13/91			
	McD	ERM	ARM	WPM	McD	ERM	ARM	WPM
Javelin 100WG, 1 lb	0	0	1a	0.3ab	0.2a	0.0a	0	0.1
Javelin 100WG, 1 lb + Asana 0.67EC, 1.6 oz	0.3	0	1a	0.1ab	4.0b	1.4ab	0.1	0.0
Asana 0.67EC, 1.6 oz	0	0.3	1a	0.0a	1.3ab	2.6b	0	0
Dipel 2X, 1 lb	0	0.1	5bc	0.1ab	0.1a	0a	0	0.1
MVP 10%AF, 2 qt	0	0	4abc	0.3ab	0a	0.1a	0	0.1
MVP 10%AF, 3 qt	0	0	4abc	0.1ab	0a	0.1a	0	0.1
Untreated	0	0	2ab	0.7b	0a	0a	0	0.1

¹Means in columns without letters or followed by the same letter within a column were not significantly different (P=0.10, Fisher's Protected LSD).