

Chemical Control/New Products

PEAR PSYLLA PREBLOOM CONTROL OPTIONS

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Three replicated trials were conducted during the prebloom period in 2000. Esteem, two formulations of Dimilin, and Surround were compared in one trial, Esteem and two rates of Pyramite were compared in another trial, and in a block with a high population of pear psylla, Esteem, Pyramite and Surround were compared. In all cases, a single application was made at the pink stage using an air-carrier sprayer. The sampling methods used to evaluate the treatments were cluster examination, beating tray, and leaf brushing. While pear psylla was the target organism, data on other pests and natural enemies were also collected.

A bioassay was developed using dormant pear wood to test the effect of Surround on deterring oviposition of pear psylla. One-year-old dormant shoots were pruned off prior to pear psylla egg laying and held under refrigeration in the laboratory and were subsequently used as a substrate when overwintering pear psylla reentered the orchard in the spring. The effect of Surround on deterring oviposition was compared to the standard treatment with horticultural mineral oil (Orchex 796) and an untreated check. Adult pear psylla were field collected and caged on treated shoots for three days and the number of eggs laid per shoot was then evaluated. A series of concentrations of both Surround and horticultural mineral oil was tested using this technique.

Results and Discussion

In all three trials the Esteem treatment had significantly fewer pear psylla nymphs in the cluster leaf samples which were taken from petal fall to the beginning of June (Table 1). The Esteem treatment resulted in the lowest number of pear psylla nymphs and the highest number of pear psylla eggs in all three trials. The high number of pear psylla eggs is due the egg sterilization effect of Esteem. Both formulations of Dimilin reduced the level of nymphs to a significant degree, similar to Esteem. The nymphal level observed in the lowest rate of Pyramite tested, 8.8 oz/acre, was significantly lower than the control but higher than Esteem, but higher rates of Pyramite were not significantly different than Esteem. In both trials where Surround was tested, no significant reduction of pear psylla nymphs was observed. A single application of Surround at pink is not sufficient to provide control of pear psylla as foliage is rapidly expanding at that time.

The deterrent effect of Surround and horticultural mineral oil (HMO) on pear psylla oviposition, using the dormant shoot technique described above, is shown in Figure 1. Both Surround and HMO treatments produced a significant deterrent effect, although the HMO was consistently more deterrent, particularly at low concentrations.

Table 1. Pear psylla nymphs and eggs per leaf, posttreatment means (4/12-6/2), 2000

Trial #1		Posttreatment mean (six sample dates)	
Material	Rate form./acre	Pear psylla eggs/leaf	Pear psylla nymphs/leaf
Surround WP	50 lb	0.12 a	0.99 b
Dimilin 2L	3 pt	0.37 bc	0.30 a
Dimilin 25W	3 lb	0.22 ab	0.25 a
Esteem 0.86EC	1 pt	0.46 c	0.23 a
Check	-----	0.31 abc	1.04 b

Trial #2		Posttreatment mean (seven sample dates)	
Material	Rate form./acre	Pear psylla eggs/leaf	Pear psylla nymphs/leaf
Pyramite 60W	8.8 oz	0.25 a	0.42 b
Pyramite 60W	11.0 oz	0.31 a	0.37ab
Esteem 0.86EC	1 pt	0.80 c	0.20 a
Check	-----	0.58 b	0.87 c

Trial #3		Posttreatment mean (seven sample dates)	
Material	Rate form./acre	Pear psylla eggs/leaf	Pear psylla nymphs/leaf
Surround WP	50 lb	0.41 a	1.02 b
Pyramite 60W	13.2 oz	0.32 a	0.40 a
Esteem 0.86EC	1 pt	1.15 b	0.31 a
Check	-----	0.49 a	0.91 b

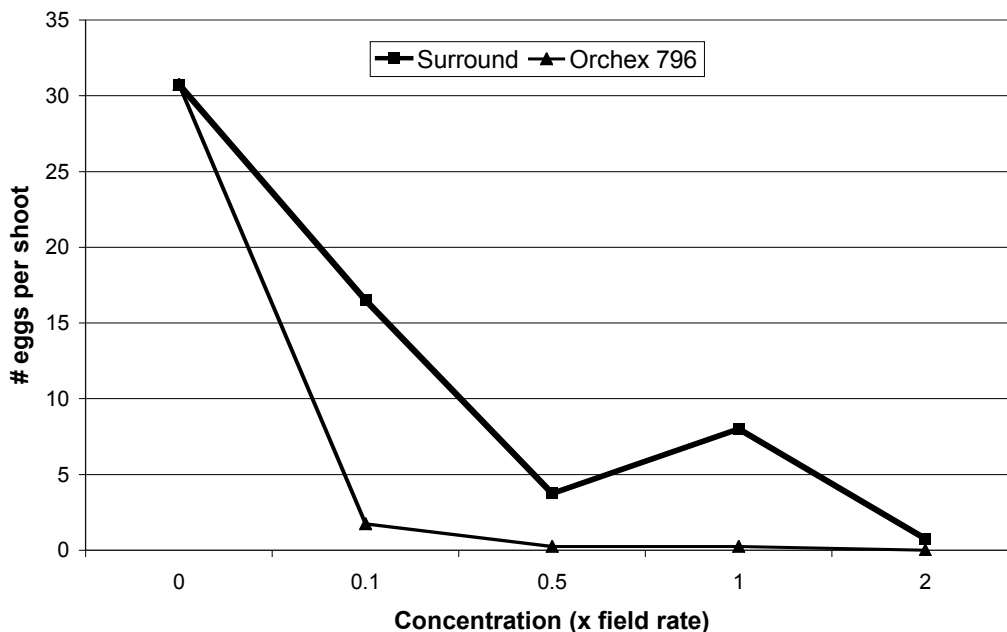


Figure 1. Effect of Surround WP and Orchesthene 796 on pear psylla oviposition; field rate for Surround WP is 25 lb/100 gallons and for Orchesthene 796 is 2% v/v.