

Chemical Control/New Products

NEW INSECTICIDE EVALUATION FOR PREBLOOM CONTROL OF PEAR PSYLLA

John E. Dunley, Greg T. Hannig, Bruce M. Greenfield and Larry H. Bennett  
Washington State University Tree Fruit Research and Extension Center, Wenatchee, WA

*Keywords:* pear psylla, *Cacopsylla pyricola*, Diflubenzuron, Dimilin, Pyriproxyfen, Esteem, Esfenvalerate, Asana, PBO, Piperonyl Butoxide, Saf-T-Side, Comply, Fenoxycarb

This study compares several experimental insecticides that are in various stages of the registration process. This study compares these insecticides at various rates and timings with some registered compounds and also examines the effects of some adjuvants. The treatments examined are listed below.

Blocks 8 and 9. Treatment summary

Treatment	Materials applied	Application rates	Application dates
Control			
Dimilin 25WP – CB	Dimilin 25WP	3 lb/acre	Cluster Bud (4 Apr)
Dimilin 2SL – CB	Dimilin 2SL	48 fl oz/acre	Cluster Bud (4 Apr)
Dimilin – DD, CB	Dimilin 2SL	48 fl oz/acre	Delayed Dormant (24 Mar), Cluster Bud (4 Apr)
Esteem – DD, CB	Esteem 0.88EC	1 pt/acre	Delayed Dormant (24 Mar), Cluster Bud (4 Apr)
Esteem – DD	Esteem 0.88EC	1 pt/acre	Delayed Dormant (24 Mar)
Esteem – CB	Esteem 0.88EC	1 pt/acre	Cluster Bud (4 Apr)

Blocks 10 and 11 Treatment summary

Treatment	Materials applied	Application rates	Application dates
Control			
Asana	Asana 0.66EC	1 pt/acre	3/17
Asana/PBO	Asana 0.66EC/PBO	1 pt/acre	3/17
Esteem/Oil	Esteem 0.88EC/Saf-T-Side SL	1 pt/acre, 0.25 %V/V	3/24
Dimilin/Oil	Dimilin 25WP/Saf-T-Side SL	3 lb/acre, 0.25 %V/V	3/24
Comply	Comply	8 oz/acre	4/3
Dimilin/Oil	Dimilin 25WP/Saf-T-Side SL	3 lb/acre, 0.25 %V/V	4/3; 4/3
Dimilin/Oil	Dimilin 25WP/Saf-T-Side SL	48 fl oz/acre, 0.25 %V/V	4/3; 4/3
Esteem/Oil	Esteem 0.88EC/Saf-T-Side SL	1 pt/acre, 0.25 %V/V	3/24,4/3; 3/24,4/3
Esteem/Oil	Esteem 0.88EC/Saf-T-Side SL	1 pt/acre, 0.25 %V/V	4/3; 4/3
Esteem/Dimilin/Oil	Esteem 0.88EC/Dimilin 25 WP/Saf-T-Side SL	1 pt/acre, 3 Lb/A, 0.25 %V/V	3/24; 4/3; 3/24,4/3
Dimilin/Oil	Dimilin 25WP/Saf-T-Side SL	3 lb/acre, 0.25 %V/V	3/24,4/3; 3/24,4/3
Dimilin/Oil/Esteem	Dimilin 25WP/Saf-T-Side SL/Esteem 0.88 EC	3 lb/acre; 0.25 %V/V; 1 pt/acre	3/24; 3/24,4/3; 4/3

These trials were conducted at the WSU Tree Fruit Research and Extension Center in Wenatchee, WA, on pear Blocks 10 and 11 and Blocks 8 and 9. Treatments on Blocks 10 and 11 were applied to small tree plots that were four rows wide with at least 18 trees per block. Four trees from the middle two rows of each block were marked and psylla counts were taken from each of the marked trees on each count date. Treatments on Blocks 8 and 9 were 3 x 3 with the center tree sampled. Treatments were applied with an airblast sprayer calibrated to deliver 200 gallons of spray per acre. The two outer rows were sprayed inward only to control

overspray to adjacent plots. The middle two rows were sprayed from both sides to give good overall spray coverage. Application dates were as follows: 17 March (dormant) on Blocks 10 and 11 only; and both sites were sprayed 24 March (delayed dormant) and 3 April (clusterbud). Pear psylla adult counts were made by using a beating tray and counting the number of adults on four tray samples on each of the four marked trees in each treatment, one from each quadrant of the tree. Psylla egg and nymph counts up through 17 April were made by collecting 5 spurs per replicate and examining them under a binocular dissecting scope and counting the number of eggs and nymphs. On counts made after 17 April, 25 leaves were collected from each plot, taken to the lab and brushed with a standard mite-brushing machine onto a glass plate. One-half the plate area was examined under a binocular dissecting scope using a grid system and the number of egg and nymphs counted and recorded as numbers/12.5 leaves.

Results from Blocks 8 and 9 suggest that a single application at cluster bud with Esteem is the most efficacious approach to control pear psylla because the delayed dormant application had higher numbers overall and the delayed dormant/cluster bud series was not significantly different from the single cluster bud application. This is due to the fact that at delayed dormant the winter form adults have not reached peak egg laying and waiting until cluster bud would allow for better coverage of a greater population of eggs and newly emerged nymphs. Because Esteem is known to have strong ovicidal and nymphicidal effects, while not affecting adults, clusterbud would be the most appropriate application time. Both formulations of Dimilin applied at clusterbud were as effective as Esteem applied at clusterbud.

For Blocks 10 and 11, there were no significant differences between treatments and the control with the eggs. Comply, Dimilin/Oil, and Esteem/Dimilin/Oil had significantly lower numbers of adults than the control. Comply, Esteem/Oil, Dimilin/Oil, Esteem/Dimilin/Oil and Dimilin/Oil/Esteem had significantly lower numbers of nymphs than the control.

Blocks 8 and 9. Seasonal means

Treatment	Eggs		Nymphs		Adults	
Control	193	ab	50.8	b	54.7	abc
Dimilin 25 WP – CB	103	b	68.9	ab	49.8	bc
Dimilin 2 SL – CB	157	ab	77.6	ab	60.5	ab
Dimilin – DD, CB	172	ab	83.5	ab	53.3	abc
Esteem – DD, CB	276	a	58	ab	42.9	c
Esteem – DD	247	a	114	a	66.4	a
Esteem – CB	217	ab	56.4	ab	45.9	c

Means within the same column followed by the same letter are not significantly different ( $p=.05$ , LSD).

Blocks 10 and 11. Seasonal means

Treatment	Eggs High		Eggs low		Nymphs High		Nymphs Low		Adults	
Control	9.064	abc	204	b-e	66	abc	164.5	ab	102.6	a-e
Asana	4.375	c	208.5	b-e	59.19	bcd	104	a-d	117.6	abc
Asana/PBO	7.313	abc	243.7	bc	64.25	bc	167.5	a	120.5	a
Esteem/Oil	8.5	abc	83.19	cde	64.37	bc	121.3	a-d	97.53	def
Dimilin/Oil	5.125	c	195.8	b-e	34.94	d	71.15	cd	78.76	g
Comply	5.25	c	210.8	b-e	66.37	abc	41.27	d	81.6	fg
Dimilin/Oil	11	a	228.1	bc	90.25	a	81.67	bcd	113.9	a-d
Dimilin/Oil	8.75	abc	199.7	b-e	81	ab	126.4	abc	102.1	b-e
Esteem/Oil	10.63	ab	59.27	e	69.25	abc	42.05	d	94.32	ef
Esteem/Oil	7.188	abc	437.1	a	78.31	ab	99.45	a-d	118.8	ab
Esteem/Dimilin/Oil	6.438	abc	269.5	b	44.5	cd	54.67	cd	73.89	g
Dimilin/Oil	6.438	abc	222	bcd	83.87	ab	104	a-d	109	a-e
Dimilin/Oil/Esteem	6.003	bc	63.65	de	63.44	bc	66.65	cd	100	cde

Means within the same column followed by the same letter are not significantly different ( $p=.05$ , LSD).