

#### 4. Chemical Control/ New Products

### TRUE BUG CONTROL WITH NICOTINOIDS IN PEARS

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**Methods and Materials** - Two trials were conducted on mature 'Bartlett' pear trees in commercial orchards near Fairfield, CA. Trial A consisted of eight treatments and trial B consisted of nine treatments. Each treatment was replicated four times in a RCB design. Each replicate consisted of an individual tree with buffer trees in each direction. Treatments were applied on 12 Jun for trial A and 14 Aug for trial B with a hand-held orchard sprayer operating at 250 psi and delivering 250 gpa of finished spray (2.78 and 3.57 gal/tree for Trials A and B, respectively). Control in both trials was evaluated by caging 25 adult *Lygus* bugs (LB), *Lygus hesperus* Knight, on the foliage for 24 h at 0, 3, 7, 14, 21 and 28 DAT. Starting with the 3 DAT evaluation for trial A and for all evaluations of trial B, the caged LB were covered with aluminum heat shields that reduced the amount of mortality caused by hot temp.

**Results and Discussion:** - For trial A, Actara and Provado provided significantly greater LB mortality compared to the untreated control through 28 DAT and were highly effective through 14 DAT. Calypso, Assail and Avaunt were not highly effective LB insecticides. Dimethoate and Carzol were only highly effective at 0 DAT. Dimethoate was not significantly different from the untreated control at 7 DAT while Carzol was not significantly different from the untreated control at 14 DAT. For trial B, the V-10066 provided significantly higher mortality than the untreated control through 28 DAT and was highly effective through 14 DAT. The highest rate of Actara was also highly effective through 14 DAT while the highest rate of Provado was highly effective through 7 DAT. V-10066, Actara and Provado all appear to be promising new LB insecticides for pears. V-10066 is a promising new reduced risk nicotinoid that might provide significant true bug control.

Table 1. Mean Percent Mortality of Caged Lygus Bugs by Various Nicotinoid or Reduced Risk Insecticides at Fairfield, CA – 2000

Treatment/ formulation	Rate lb (AI)/ac	Mean Percent Mortality DAT					
		0	3	7	14	21	28
Trial A							
Calypso 4SC	0.150	59.5 b	50.9 c	53.0 bc	49.2 c	27.2 c	38.4 bc
Assail 70WP	0.150	35.8 a	48.6 bc	37.3 ab	44.6 bc	30.6 c	30.4 abc
Actara 25WG	0.250	96.0 cd	76.1 d	87.9 e	92.0 d	67.1 d	41.2 cd
Provado 1.6F	0.250	93.8 cd	74.1 d	81.3 de	81.0 d	64.5 d	60.0 d
Dimethoate E267	2.000	100.0 d	45.7 bc	29.1 a	20.6 a	22.1 bc	23.6 a
Carzol SP	0.920	85.4 c	54.7 c	63.8 cd	30.0 ab	13.9 ab	26.1 ab
Avaunt 30WG	0.110	64.4 b	35.5 ab	42.0 ab	29.2 ab	14.8 ab	18.4 a
Untreated check	----	51.1 ab	23.3 a	25.1 a	23.0 a	6.6 a	20.9 a
Trial B							
Provado 1.6F	0.063	96.0 cd	88.0 cd	52.7 b	17.7 a	16.3 a	19.6 a
Provado 1.6F	0.125	98.1 de	96.0 ef	67.6 b	27.5 ab	35.7 bcd	21.1 a
Provado 1.6F	0.250	100.0 e	94.1 def	92.9 c	30.7 ab	31.7 abc	22.7 a
Actara 25 WG	0.063	85.8 b	82.1 c	55.4 b	16.1 a	17.0 ab	21.4 a
Actara 25 WG	0.125	97.3 cd	88.5 de	94.0 c	37.6 b	21.2 ab	22.3 a
Actara 25 WG	0.250	98.0 de	91.4 def	90.7 c	79.4 c	43.0 cd	26.7 ab
V-10066 50WDG	0.250	99.0 de	98.0 f	93.2 c	88.7 c	55.1 d	39.0 b
Dimethoate E267	2.000	90.9 bc	56.6 b	26.4 a	15.9 a	----	----
Untreated check	----	21.2 a	38.6 a	24.2 a	17.4 a	21.4 abc	24.2 a

Means followed by the same letter within a column are not significantly different (Fisher's protected LSD,  $P \leq 0.05$ ). Data analyzed using an arcsin transformation.