

## Biological Control

### Preharvest Release of Green Lacewing Eggs and Adults to Suppress Levels of Overwintering Adult Pear Psylla

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Soft treatment alternatives in pear psylla (PP) management are few. Currently, postharvest supreme oil treatments are relied upon in many California Bartlett pear orchards to suppress PP levels prior to winter. Occasionally, postharvest levels have been so high that additional treatments have been warranted.

Late July releases of eggs and adults of the green lacewing (GLW) *Chrysoperla rufilabris* were evaluated as late season PP suppressants in Lake and Mendocino Counties in 1990. These were obtained from a commercial insectary (Beneficial Insectary, 14751 Oak Run Road, Oak Run, CA 96069). Releases of eggs were tested in 5 blocks and adult releases in 4 blocks, 1/2 acre each. The treatment area PP levels were compared with PP levels in adjacent 1/2 acre control areas of the same plantings by limb tap surveys (50 trays/test area), done in December. Both GLW and control areas received one postharvest supreme oil treatment at 5 gal per 600 gal/acre in September. No other treatments were applied in the GLW or control areas once the releases were completed. Insect and disease management treatments varied slightly among the test orchards but had been the same in each of the paired GLW and control areas prior to the insect releases.

### **Results and Conclusion**

Measurable suppression of overwintering PP in December was obtained by releasing approximately 22,000-31,000 GLW eggs/acre into the crotches of Bartlett pear trees in late July after the preharvest insecticide program had been completed. Suppression of overwintering PP using adult GLW releases was not obtained (Table 1).

Costs and availability dictated the rates of adults which could be tested. If the adults survived, were 50% females, and laid 40 eggs per female, the resulting number of eggs from the adult release would be 12,000 eggs per acre, only 50% of the egg release rates. However, if egg fecundity approached the optimum 400 eggs per female obtained in the insectary under controlled conditions at 75-78°F and 75% RH, 100,000 eggs per acre might be expected from the same number of females (Cynthia Penn, personal communication).

**Table 1.** Overwintering adult PP levels in test areas, 12-4-90.

Test Orchards			Treatments				PP levels	
			July GLW release rates <sup>1</sup>				% of control	
Block	Tree age	Trees /acre	Eggs <sup>2</sup> /tree	Eggs /acre	Adults <sup>3</sup> /tree	Adults /acre	Egg area	Adult area
1	28	194	160	31,000	5.2	1000	54	76
2	50	71	330	23,000	8.3	600	83	111
3	35	108	200	22,000	--	--	76	--
4	20	218	100	22,000	2.3	500	81	105
5	60	230	100	23,000	2.5	600	61	89
Mean							71a	95b

a: Results significant at the 5% level of probability using a *t* test.

b: Results not significant at the 5% level of probability using a *t* test.

<sup>1</sup>Cost of treatments was:

Eggs \$2/1000; \$48/acre at 24,000 eggs/acre.

Adults \$100/500; \$120/acre at 600 adults/acre.

<sup>2</sup>GLW eggs were obtained in containers of 1000 eggs each. Approximately 100-330 eggs were poured into the crotches of each tree in the release test areas within 3 days of receipt from the insectary. Within a few days GLW nymphs could be seen in the crotch area and on scaffold limbs above the release area.

<sup>3</sup>GLW adults were obtained in containers of 500 each and were released within 1 day of receipt from the insectary. Adults were released by walking down the test rows and thumping the container, which was opened at the top. Probably 75% of the insects immediately flew into the trees at the moment of release. The remaining 25% descended to the orchard floor.