

Mating Disruption/SIR

Mating Disruption of Codling Moth Using "Puffers"

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Keywords: codling moth, puffer, obliquebanded leafroller, pear

In 1996, a 160-acre trial was initiated to test a novel, economical dispenser—"puffers." Puffers are plastic devices containing a pressurized aerosol can filled with pheromone. A timer triggers a plunger to open a valve, releasing a given amount of pheromone at a preset time interval.

Puffers full of the codling moth (CM) pheromone codlemone and butane propellant were applied to 160 acres of Bartlett pears in Kelseyville, CA, on April 16. Devices were placed every 35 feet around the perimeter of the site, with some additional ones within the site; application rate was 1 per 1.3 acres. Pheromone was released every 25 minutes from April through September. All dispensers were replaced June 1; the butane was replaced with an experimental propellant and OBLR pheromone was added. Upwind units were again replaced in late July due to propellant interference with emission during a prolonged heat spell. On all but 156 acres, the normal CM control program was carried out in addition to the pheromone. Four 1-acre plots in the center of the site were left untreated except for pheromone. Numerous 1 mg, 10 mg, and OBLR traps were placed throughout the site, as well as in two upwind standard program orchards.

Trap catches, CM eggs and fruit damage (1st generation, preharvest, bin and postharvest samples) were recorded in mating disruption (MD), standard, and untreated orchards (1st generation only). No eggs were found in any plots in a mid-May sample and there was no 1st generation CM damage; however, OBLR damage averaged 1% in the MD plots. Preharvest CM damage was zero in downwind MD plots but averaged 1.8% in upwind plots. Bin counts were 0 in downwind and averaged 1.0% in upwind plots. OBLR damage averaged 11% in all MD plots but only 1.0% in the MD + OP-treated areas, reflecting the lack of early OBLR pheromone to control the 1st generation and confirming the relative efficacy of chemical control (Tables 1 and 2).

Table 1. Codling moth damage—puffer trial—Bartlett pears, Lake County, 1996, total of 2 picks.

Sample	MD		MD + OP		Grower	Untreated
	avg. 2 plots		avg. 2 plots			
	upwind	downwind	upwind	downwind		
1 st gen., tree	0.0	0.0	--	--	0.0	10.5
2 nd gen., tree	1.8	0.0	--	--	0.0	--
2 nd and 3 rd gen., bin	1.0	0.0	0.0	0.0	0.0	--
Postharvest	13.8	0.0	1.1	0.0	0.0	--

Table 2. OBLR damage—puffer trial—Bartlett pears, Lake County, 1996, total of 2 picks.

Sample	MD		MD + OP		Grower	Untreated
	avg. 2 plots		avg. 2 plots			
	upwind	downwind	upwind	downwind		
1 st gen., tree	1.3	0.8	--	--	0.0	0.35
1st gen., bin	0.4	0.1	0.3	0.1	0.0	--
2 nd gen., tree	5.0	6.3	--	--	0.0	--
2 nd gen., bin	11.8	10.8	1.5	0.6	0.0	--
Postharvest	0.0	0.0	0.0	0.0	0.0	--