

7. Mating Disruption

LATE-SEASON PHEROMONE HANGING TO REDUCE OVERWINTERING CODLING MOTH POPULATIONS

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As the district with the latest harvest in California (through August), Lake County fruit is vulnerable to late 2nd and 3rd generation codling moth damage during a period no cover sprays are applied. Previous experiments (1988-1994) showed that the long season renders mating disruption (MD) programs less effective than in earlier districts as populations increase year to year in treated orchards. In 1996, building on past observations by local pest control advisors, pheromone dispensers were hung in mid-July in five 10-acre blocks to disrupt mating of late season moths that normally escaped control. Trap catch and post-harvest infestation data that year showed that this method successfully reduced late flights and damage. In 1997, trap catch data showed that these effects carried over to the following spring, significantly reducing overwintering flight. Besides reducing flights for two years and post-harvest damage the year they were hung, the use of one mid-season hanging compensated for lack of organophosphate (OP) residue during the last half of harvest. This advantage will be even greater if (or when) pre-harvest intervals for OP's are lengthened. The carryover effect may also enable Lake County growers to decrease cover spray amounts and transition more rapidly to "softer" programs using more selective chemicals and/or MD. A side benefit (as yet unstudied) may be the reduction of current or future field resistance to OP's. Wider spread commercial implementation of this new tactic is likely to occur in 1998, as it is viewed as being more economically feasible than a full season MD program.

**Table 1: CODLING MOTH-INFESTED FRUIT ON TREES AFTER HARVEST
Lake County, 1996**

Orchard	Pheromone-treated	Untreated	Ratio
	No. per 300 fruit		
KV1	9	49	1:5
KV2	20	56	1:3
SV ¹	5	5	1:1
UL1	3	15	1:5
UL2	3	14	1:5

(paired t-test, significant at p = .06)

(SV¹: if this orchard is removed from the data set, p = 0.05)

**Table 2: Overwintering Flight Codling Moth Wing Trap Catches
March 27 - June 16, 1997
total catch per 2 traps**

Orchard	1 MG. LOW			10 MG.HIGH
	UC Pher	PCA Pher	Standard	Pher
KV1	0	0	26	0
KV2	5	-	87	55
SV	0	1	15	7
UL1	0	2	66	15
UL2	2	1	14	4
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(* paired t-test, SIGNIFICANT at p = 0.0475)