

Stone Fruits—Biological Control

Peach Twig Borer

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Due to persistent problems in obtaining the BASF RAK® 5-6 pheromone dispensers in North America, the 1992 peach twig borer (PTB) mating disruption program in California used pheromone dispensers manufactured by Consep Membranes Inc., Bend, OR. These dispensers were loaded with 100 mg of PTB pheromone and applied at 500 dispensers per ha. Field release rate studies with these dispensers in 1991 had shown that they were essentially depleted of pheromone after 60 days. Consequently, two applications of these dispensers 60 days apart were made in the field efficacy trials in 1992. The results of these trials are shown in Table 1.

As in previous years, the first fruit harvested in May had relatively low levels of infestation in both the pheromone treated blocks and in the untreated checks. As the harvests progressed into June, infested fruit in the checks generally increased, while the pheromone treatments held infestations to acceptable levels. One significant failure in PTB control occurred in the 1.6 ha apricot orchard harvested July 1, 1992. This organically managed orchard (without fungicides) sustained severe crop losses to brown rot fungus (*Monilinia* spp.) in the three weeks prior to harvest, which greatly increased the PTB pressure on the remaining fruit and probably contributed to an increase in PTB infested fruit.

Differences in PTB infestations between pheromone treated blocks and untreated checks tended to lessen as the season progressed into late July, but orchards that had been under PTB mating disruption for several successive years generally maintained good control.

### Summary

Field trials for mating disruption of *Anarsia lineatella* using several types of pheromone dispensers containing the standard two-component blend of PTB pheromone have shown promise as an acceptable commercial control for PTB in California. The problems with continued use of dormant spray programs for control of PTB continue and are increasing, leading to greater interest on the part of growers and pest managers for this technology. Inherent problems, particularly in logistics and application, associated with use of point source or hand-applied pheromone dispensers include the cost of the pheromone for two treatments per season, with a minimum of 120 g ai per ha, per season, and may make the cost prohibitive in the short term. Also, hand application of pheromone dispensers in the upper one-third of stone fruit tree canopies 5-6 m high exacerbate difficulty of application, while hand application of dispensers to almond trees 7-9 m high becomes almost a physical impossibility. In spite of these problems, however, growers and pest control advisors continue to support the concept of mating disruption for peach twig borer in California orchards, and it is anticipated that a registered commercial product will be available for application in California by 1994.

**Table 1.** Field trials for mating disruption of peach twig borer, *Anarsia lineatella*, in central California stone fruits, 1992.

Cultivar <sup>1</sup>	Trial	Harvest date	Plot size (ha)	Years—MD	% infested
May Glo (n)	pheromone check	5/19	0.8	1	0.2 0.4
Sparkling May (n)	pheromone check	6/2	0.8	1	0.2 5.2
Blenheim (a)	pheromone check	6/10	0.8	4	0.2 8.4
Red Diamond (n)	pheromone check	6/22	0.8	4	0.8 11.6
Babcock (p)	pheromone check	6/29	1.6	3	0.3 0.4
Blenheim (a)	pheromone check	7/1	1.6	1	21.5 12.6
Elegant Lady (p)	pheromone I pheromone II check	7/6	0.8	4	1.3
			1.0	1	5.3
Fay Elberta (p)	pheromone check	7/22	0.5	4	3.7
					39.2
O'Henry (p)	pheromone check	7/25	0.8	3	0.8
					1.6
French (prune)	pheromone check	7/27	1.2	1	1.3
					5.5
Nonpareil (al)	pheromone check	7/29	2.0	1	13.4
					19.8
Dr. Davis (p)	pheromone Bt check	7/30	2.0	1	2.6
					3.3
Starn (p)	pheromone Bt check	8/10	2.0	2	0.4
					1.2
Fairtime (p)	pheromone check	8/18	0.8	4	9.2
					29.2

<sup>1</sup>First applications Feb. 24-27; second applications May 18-26. Consep pheromone dispensers applied at 500/ha in all tests except BASF in French prunes and almonds. (n)=nectarine; (a)=apricot; (p)=peach; (al)=almond.