Stone Fruits—Biological Control

Effect of Mechanical Tree Topping on Oriental Fruit Moth Populations

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The objective of this work was to determine if mechanical topping of stone fruit orchards following harvest would lower populations of overwintering OFM larvae. Three portions of a large, mature nectarine orchard in Tulare County were commercially topped on August 5, September 11, and November 1, 1991 (Fig. 1a). A second orchard at the Kearney Agricultura1 Center in Parlier was topped on September 13 and October 25, 1991. The intent of the topping treatments in the fall of 1991 was to 1) kill eggs and larvae of OFM from the fourth or fifth generation moths and 2) reduce the numbers of growing terminals for OFM egg laying and larval development in the fall of 1991. The first flights (overwintered OFM) of moths in these orchards were then monitored with pheromone traps in February, March, and April of 1992 to measure any differences in moth numbers in the various tree topping treatments.

The results of the tree topping experiment showed that the removal of terminal growth by mechanical topping in either August or September reduced the surviving and overwintering population of oriental fruit moth larvae that produced moths the following spring (Figure 1b). The implications from these results are that it is beneficial to top stone fruit orchards, preferably during the fourth flight of OFM and secondarily during the fifth flight in September to mechanically reduce the potential overwintering population of OFM larvae. The topping operation should be timed as closely as possible to the peak of OFM activity in these two flights, at approximately 500-600 day degrees (45°F threshold) after the beginning of each respective flight.

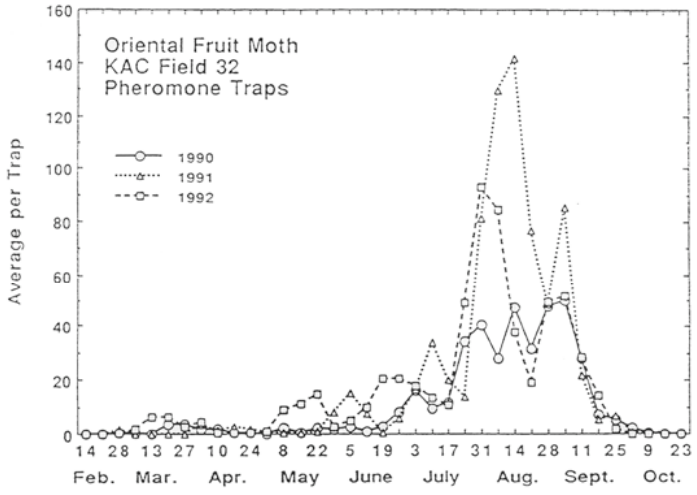

Figure 1a

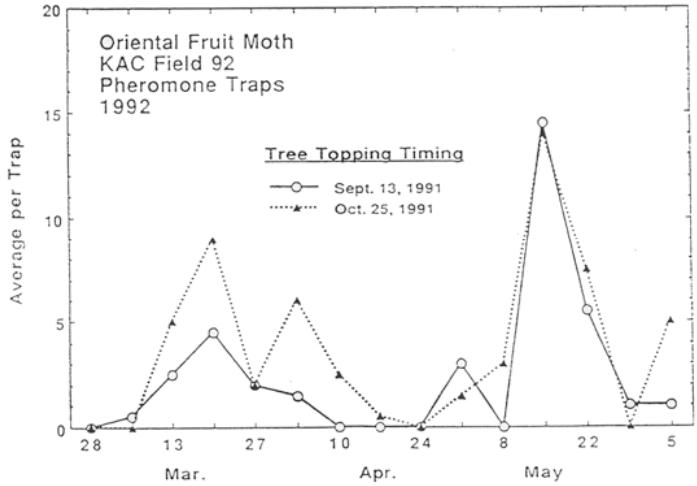

Figure 1b