

7. Mating Disruption/SIR

Economic Analysis of A Cling Peach Mating Disruption Program

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The two key insect pests in the cling peach orchard system are Oriental fruit moth (OFM) and peach twig borer (PTB). Commercial products for controlling OFM with pheromone confusion have been available since 1987. In 1995, the first commercial PTB product for pheromone confusion became available. Many growers have been reluctant to use OFM mating disruption since they still had to spray for PTB, increasing the overall cost of control. This project's goal is to introduce a complete mating disruption program for both OFM and PTB and conduct cost analysis of this program compared to grower standards.

Methods

Demonstration blocks were around 10 acres in size, however, growers with small acreage were also included in the program. Whenever possible, a nearby "grower standard" was used for comparison. All the blocks were evaluated for efficacy of the pheromone using weekly trap catches, shoot strike counts and damage at harvest. Growers were asked to keep track of pheromone dispenser costs, application methods and application costs. They also reported pesticide application costs from grower standards. This data was used for analysis of pheromone application costs compared to costs in a sprayed orchard.

The first two years of the economic analysis included the complete mating disruption program. The last year a partial mating disruption program was incorporated into the analysis. In the complete program, the first application of OFM was typically around March 1st, and PTB around April 1st. This date varied for each grower since it was based on first trap catch and weather conditions. The second application for both OFM and PTB typically went up around June 1st. Then, growers would not have to make a separate application in a few weeks for PTB. Growers in the program used all three commercial OFM products including Isomate, Checkmate, and Hercon. The manufacturer's recommendations for the application rate and length of product were followed.

Results and Conclusions

At the end of the season, pheromone dispenser costs, application methods and application costs were collected from the 10 cooperators in the Sacramento Valley in 1995 and 10 cooperators in Sutter and Yuba in 1996. The average dispenser cost for two OFM applications was \$92.12 per acre compared to \$96.60 per acre in 1995. Two applications of PTB cost was \$101.56 per acre compared to \$115.00 in 1995. The price of pheromone dispensers for four applications dropped \$17.92 from 1995 to 1996.

Growers were also asked to keep track of their method of pheromone application and the number of hours. In both 1995 and 1996, ladders were found to be the most expensive application method although using small ladders cost much less. Growers were effective lowering costs by using poles from the ground. A trailer pulled by a tractor is the best method for getting dispensers high in the tree and the least expensive. For the three applications necessary for the program the average cost, excluding growers using ladders, was \$37.90. Taking an application cost of \$30.00 per acre for three applications plus the cost of pheromone, the 1996 pheromone program cost was \$223.68 per acre. The cost in 1995 was \$243.00 per acre, so the cost of the complete program decreased about \$20.00 in 1996. This was also compared to the standard spray program in both years. In 1996, the standard program averaged \$109.00 including one mite spray (\$40-60 per acre) which was \$115.00 less than the complete mating disruption program. To keep costs down, some growers prefer a partial program with two pheromone applications, one each of OFM and PTB plus one summer spray which costs \$132.00.

Other costs associated with spraying such as worker training and safety should be considered when comparing cost of the complete pheromone program with the standard spray program. For some growers, the benefits of worker safety, no drift and less machinery maintenance plus being able to irrigate, and thin as needed, is worth the extra cost of the complete mating disruption program. As the overall cost of mating disruption decreases and growers lose their currently registered cheaper pesticides, we expect more cling peach growers to adopt mating disruption which has been demonstrated to give growers a proven alternative.