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EFFICACY OF MATING DISRUPTION FORMULATIONS THAT COMBINE PHEROMONE BLENDS

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Abstract: Mating disruption (MD) using multi-species pheromones released from a single Microsprayer and two Shin-Etsu hand applied dispensers was evaluated in apples. The spatial distribution and behavior of codling moth (CM), Oriental fruit moth (OFM), and obliquebanded leafroller(OBLR) was examined by turning "on" and "off" the Microsprayer for periods of 7-8 days, mating disruption and time to recovery was monitored with grids of 25-30 pheromone traps in 1.2 to 2.0 acre apple blocks. Microsprayers were efficient pheromone-broadcasting devices with an active space of $\Box 0.450$ ha generating pheromone plums reaching more than 100 m downwind. Moth communication disruption occurred 1-3 days following the release of pheromone, but a rapid sensory recovery occurred after 3-6 days of continuous exposure. Percent trap "shutdown" was not related to percentage of protection from insect damage. In fact, the size of the disrupted area for CM & OFM combined was 40.7% and 43.5% respectively in the pheromone treatment and control. However, the area with less than 1% fruit damage was 78.0% in the pheromone treatment, but only 27.4% in the control

Evaluation of two Shin-Etsu hand applied multi-species pheromone dispensers (C/OFM and CD/LR/OFM) were tested against CM, OFM, and OBLR. Effectiveness of each dispenser type was directly compared to non-pheromone grower standard management program at four orchards. Dispensers were applied at a rate of 275-300 per acre in 5-10 acre bearing apple orchards. Pheromone baited traps were checked weekly and fruit injury data was collected in June and at pre-harvest. Each dispenser type suppressed OFM captures in traps for 12 weeks. The CD/LR/OFM dispensers effectively shutdown OBLR captures for 15 weeks. The effectiveness of these two products against CM was erratic and did not significantly reduce male captures under high pressure. Fruit injury was comparable in orchards treated with or without pheromone dispensers, however, a reduced number of chemical applications resulted in the MD vs. non-MD programs.

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