Improving Codling Moth Mating Disruption Using New Technology

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Introduction
- Mating disruption (MD) has become an important pest management strategy for managing the codling moth (CM)
- Presently, MD is most effective in large blocks that under low CM
- Low dose pheromone dispensers (Scentry No-Mate Fibers and Hercon CM Flakes) and plant volatiles might improve MD in smaller blocks and/or under higher CM pressure

Study Objectives
- Determine the active space of low volume pheromone dispensers
- Evaluate the affect of dispenser spacing on CM trap capture
- Explore the use of plant volatiles in combination with pheromone as a CM monitoring tool

Active Space of Pheromone Dispensers
I. Mark Recapture Study
- Male CM released downwind of single traps
- Traps baited with a female, a Scentry No-Mate Fiber, or a Hercon CM Flake

Arrangement of Pheromone Dispensers
- 4, 8, or 16 Scentry No-Mate Fibers placed around a pheromone trap
- MD added for the second generation

Plant Volatiles as Pheromone Synergists
- Two orchards; one with and one without MD
- 3 plant volatiles (PV) (Beta farnesene, SS, or DA) alone or with an L2 pheromone lure

Field Observations of Caged CM
- Males responded to the Fiber up to 8 m away
- Most responses at wind speeds between 0.5 and 1.5 m/s

Summary and Conclusions
Active Space of Pheromone Dispensers
- Hercon CM flakes and Scentry No-Mate Fibers have a 24 hr attractive range of between 10 and 20 m
- A single Scentry No-Mate Fiber can be detected by male CM from a distance of at least 8 m
- Low volume pheromone dispensers have a probable active space of between 8 and 10 m

Arrangement of Pheromone Dispensers
- Even a low density of Scentry No-Mate Fibers (4 within 60 cm) reduced trap capture compared to no fibers in an orchard lacking background mating disruption
- Only a very high density of Fibers (16 within 30 cm) reduced trap capture in an orchard with background mating disruption

Plant Volatiles as Pheromone Synergists
- Plant volatiles may provide additional attractiveness to traps monitoring CM in orchards under MD