

An evaluation of lure technologies for monitoring codling moth in a variety of pheromone environments

Mike Doerr, Betsy Stutzman, and Jay Brunner
Washington State University
Tree Fruit Research and Extension Center

Introduction

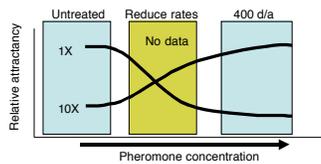
Pheromone-baited traps are routinely used to determine the time of emergence of codling moth (CM), track seasonal phenology and time insecticide applications

- The application of synthetic pheromone in a mating disruption (MD) program changes the relative attractancy of pheromone lures (Figure 1)
- High load lures (10X) represent an improvement to 1X septum in MD orchards, especially at high rates (i.e. 400 dispensers/a)

CM monitoring in MD orchards is not precise due to many sources of variation

- Lure types, each with a different level of attractiveness, are being used to monitor CM
- Reduced rates and alternative delivery systems (Scentry NoMate Fibers, Sprayable CM pheromone) can change the relative attractancy of pheromone lures. Lure comparisons under these conditions have been limited.

As we move toward greater reliance on narrow-spectrum materials, a more precise understanding of trapping systems will be required to achieve control.

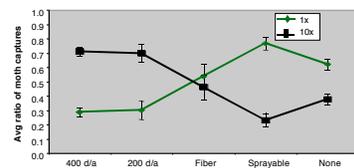


Red septa lures

Red septa lures, available from most companies, release a high level of pheromone for a short time.

- Attractive for 3 weeks in spring and 2 weeks in summer
- Pheromone treatments used in this poster

- 300-400 hand-applied dispensers/acre (n=46)
- 200-300 hand-applied dispensers/acre (n=35)
- 200 gms Scentry NoMate CM Fibers/acre (n=15)
- 10 gm AI Suterra CM-F sprayable pheromone/acre (n=17)
- No pheromone treatment (n=18)

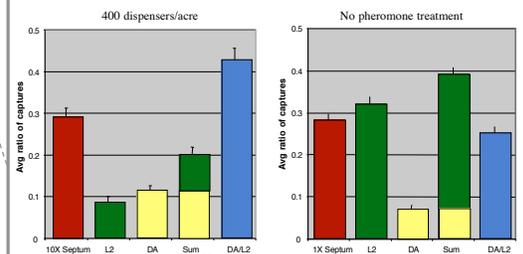


- 10X lures appropriate for most rates of hand applied dispensers. 1X septa may be best choice for alternate pheromone delivery technologies

DA Lure (± Pheromone)

The primary attractant in the DA Lure (Trécó, Inc.) is a pear kairomone known to attract both CM males and females.

- Lure changed at 8 week intervals
- Standard DA lure compared to L2 pheromone lure (moderate pheromone release, 1X<L2<10X) and a DA/L2 combo lure (Trécó, Inc.)
- Test for synergism or antagonism between the two attractants



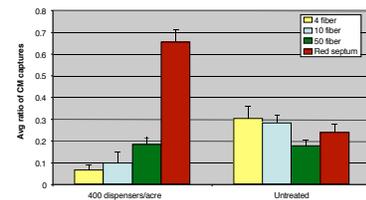
- The DA/L2 combo lure caught significantly more CM than the 10X red septa and the sum of L2 + DA, suggesting a synergistic effect.
- The DA/L2 combo lure caught an equivalent number of CM as the 1X red septa but significantly less than the L2 or the sum of L2 + DA, indicating the DA component was not additive and possibly antagonistic in this test.

The DA/L2 combo lure has promise for both pheromone and untreated orchards

Fiber Lures

Scentry, Inc. developed a variety of long-life lures utilizing their NoMate CM Fiber technology

- Lure release controlled by number of fiber on tape
- We tested 4, 10, and 50 fibers in 400 d/a and untreated orchards
- Lures last for an entire generation (at least 60 days)

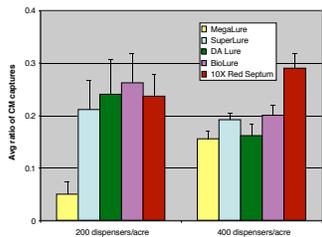


- At 400 d/a, the NoMate Fiber lures were not as attractive as the 10X red septa.
- The 4 or 10 NoMate Fiber lures were equal to or more attractive than the 1X red septa in a non-pheromone treated orchard.



Long-life 10X lures have an advantage over red septa in that they have a more consistent release rate over time and require fewer lure changes during a season

- SuperLure (Phero Tech, Inc.) changed every 6 weeks
- BioLure (Suterra, Inc.) changed every 6 weeks
- MegaLure (Trece, Inc.) changed every 8 weeks
- DA Lure (Trece, Inc.) changed every 8 weeks
- 10X Red Septum changed every 2-3 weeks

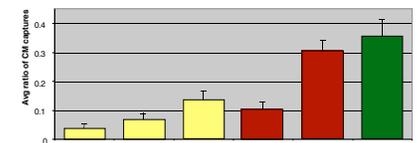


- All long-life lures were equivalent to each other under all hand-applied pheromone treatments, except the MegaLure at 200 d/a. Since the MegaLure was equivalent to the others at 400 d/a it is confounding that it was significantly less attractant at 200 d/a.

- The 10X red septum appeared more attractive than the long-life lures in the 400 d/a treatments, but not so in the 200 d/a treatments.

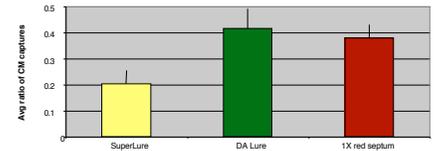
Long-Life 10X Lures

Suterra CM-F, sprayable CM pheromone, was applied at 10 gm AI/acre



- 10X lures (long-life and red septum) were not suitable for monitoring sprayable pheromone orchards. 1X red septa and DA Lures were equally attractive.

1X red septa, SuperLures, and DA Lures were used to monitor CM in orchards treated with Scentry NoMate Fibers.



- 1X lures or DA lures appear to be more suited for monitoring NoMate Fiber treated orchards than the long-life 10X SuperLure.

Suterra CM-F and NoMate Fiber