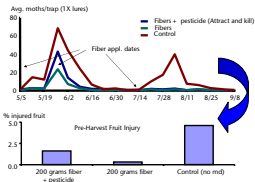


Mating Disruption Technology Advancements, 2002-2004

Jay Brunner, Betsy Stutzman, Keith Granger and Mike Doerr
 Dept. of Entomology
 WSU-Tree Fruit Research and Extension Center
 Wenatchee, WA

Scentry NoMate CM Fibers

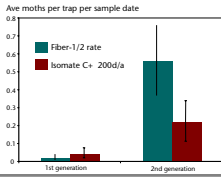
- Pheromone released out the open ends of hollow fibers.
- Fibers require special applicator equipment.
- Fibers stuck to tree with BioTac.
- Large number of point sources (≈20,000/a) compete with females.



- Ground applications of fibers have shown promise for reducing trap captures and fruit injury.
- The addition of a pyrethroid to BioTac as an attract and kill strategy did not represent a significant improvement.

NoMate Fibers compared to Isomate C+

- Fibers applied once per generation - 100 grams/acre.
- Capture in 1X lure in Fiber plot similar to 10X lure in Isomate C+.
- Fruit injury at harvest was 0.9% in fiber and 1.1% in Isomate C+, mostly on borders.

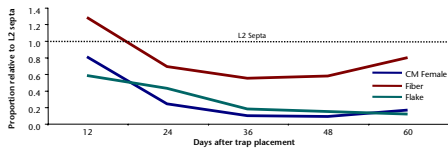


- Pheromone released out the edges of small, laminated plastic squares.
- Flakes require special applicator equipment.
- Flakes stuck to tree with Gelva.
- Large number of point sources (≈20,000/a) compete with females.



Longevity and Attractiveness of Fibers and Flakes

- Both technologies appear to retain relative attractiveness for entire generation.
- Flakes were as attractive as a female codling moth, Fibers slightly more attractive.

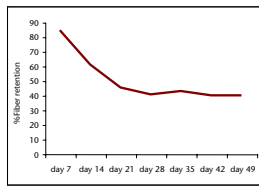


Application Technology

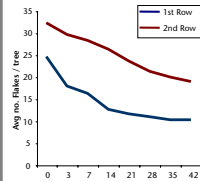
- Fibers can be applied by a special applicator attached to a tractor, helicopter or fixed-wing airplane.
- We do not have sufficient information to determine which method is most efficient.



- Initial tests of ground applicator indicate >80% of the Fibers directed toward trees are intercepted by foliage.
- The percentage landing behind tractor is not known.
- 40% of all Fibers (those landing on the top of leaves) were retained for at least one full generation.



- Flake applicator (prototype) attached to the back of an ATV traveling at 8 mph.
- More than 25 Flakes/tree were deposited on both the 1st and 2nd rows from the applicator.
- At least 50% of all Flakes remained on the tree after 42 days (majority on top of leaf).

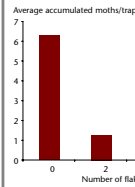


Point Source Competition

- Fibers and Flakes are much closer in attractiveness to a female CM than hand applied dispensers or sprayable pheromones.
- Therefore they are good candidates for studying competition as a mechanism of mating disruption.
- Varying the number of point sources can help to optimize rates and improve performance.

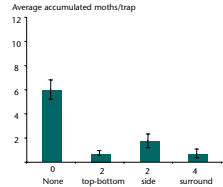
Test #1

- 2, 4, or 12 Flakes were placed in a tree surrounding (18" away) a delta-style trap baited with a female codling moth.
- Females surrounded by 4 or more Flakes captured no moths over an 11-day period.



Test #2

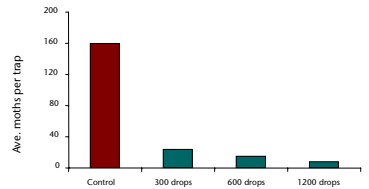
- Flakes were placed next to, above and below or surrounding (18" away) a delta-style trap baited with a NoMate Fiber (replacing the female in Test #1).
- All Flake treatments caused a significant reduction in moth captures over an 11-day period.



- Last Call OBLR was applied to at three rates (300, 600 and 1200 drops/acre) in an effort to make application more efficient.

- Suppression of OBLR flight was good at all rates.

- A separate trial suggested that the higher rate was needed to suppress larval densities.



Last Call OBLR

Hercon Disrupt CM Flakes