Alternative Mating Disruption Choices For Codling Moth And Leafroller

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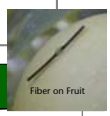
Introduction

Alternative pheromone delivery technologies for management of tree fruit pests continue to be evaluated for efficacy and longevity against codling moth and leafroller in Washington State apple orchards.

Products
- Scentry Codling Moth and OBLR Fibers
- IPM Technologies, Inc. LastCall OBLR and PLR Attract and Kill Formulations
- Isomate C+ hand-applied dispensers

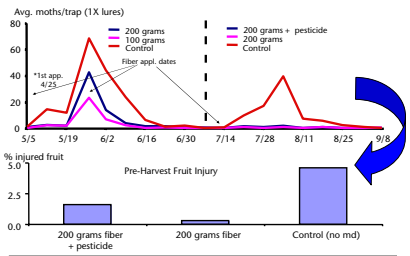
Methods
Scentry Fibers
- 5 acre treatments
- Rates 100, 200 or 200 grams plus pesticide compared with untreated control or hand-applied dispensers
- One application per generation depending on pressure

IPM Technologies LastCall OBLR/PLR Formulations
- 1-5 acre treatments
- Rates 300, 600 and 1200 drops per acre compared with untreated control
- Applied at 5 week intervals

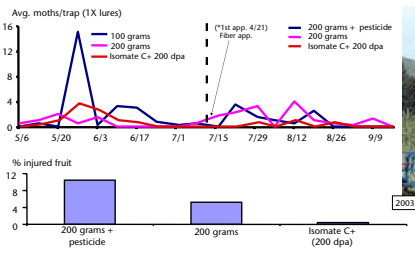

Fiber on Fruit

Codling Moth Fiber Research

Quincy - This Golden Delicious orchard had moderate to high CM pressure with no history of mating disruption. In the 1st generation there was only a slight difference between rates of fiber compared to the control (no pheromone). In the 2nd generation the fiber treatments provided nearly complete trap shutdown when used at the 200 gram rate and as a supplement to a chemical control program. A pre-harvest evaluation showed no difference between fiber treatments but both provided better suppression of CM injury than the control (see below). The entire orchard was treated with insecticides for CM control.



Moxee Orchard - Fiber treatments were compared to a half-rate of Isomate C -plus at 200 dpa. The orchard was under high CM pressure This did not correlate with fruit injury at harvest. The high fiber (200 grams/acre) rate suppressed CM moth captures equal to the Isomate treatment in both generations but fruit injury was higher in the fiber treatments.

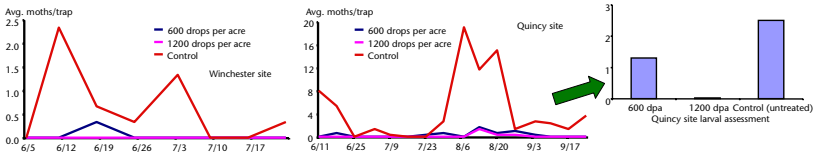



2003 Fiber Applicator

IPM Technologies Last Call OBLR and PLR Formulations

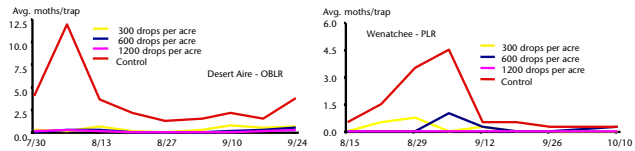
1st Generation

Large 15-acre sites were used in 1st generation with three 5-acre treatments per site. OBLR populations varied with only one site receiving a supplemental Success treatment. At the Quincy site there was a remarkable reduction in moth capture in pheromone traps in both generations with both rates of LastCall compared to the untreated control. There was no rate effect using the 600 or 1200 drops per acre in trap reduction in any trials. However, there was a greater reduction in larval densities at the Quincy site in the higher rate of Last Call OBLR.



2nd Generation

Smaller 1-acre plots were treated in the 2nd generation to determine a rate effect from 0 (untreated control), 300, 600 or 1200 drops per acre of LastCall OBLR and PLR. Treatments were replicated 2-4 times depending on the size of the sites. All of the LastCall treatments suppressed moth capture in traps but there was little to no rate effect between the LastCall treatments.

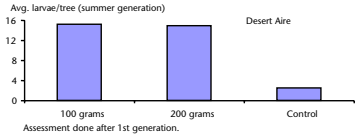



LastCall Dispenser

Obliquebanded Leafroller Fiber Research

Two large sites were evaluated using Scentry OBLR Fibers. Both sites had a history of moderate to high leafroller pressure and conventional control programs. Scentry OBLR Fibers reduced trap catch in both generations especially the higher rate but did not reduce summer larval densities. An assessment of overwintering larval densities will be conducted in early spring of 2004 to assess the effects of the fiber treatments on the second moth flight.

	% reduction in average moths per trap			
	Site 1 - Desert Aire		Site 2 - Mattawa	
Treatment	1st gen.	2nd gen.	1st gen.	2nd gen.
100 grams	37%			
200 grams	75%	75%	87%	100%
200 grams + pesticide		93%		100%



Conclusion
For both CM and OBLR the 200 gram/acre rate of fiber performed best at high pressure sites to reduce trap catch compared to control blocks. The ability of the fibers to reduce fruit injury by CM was variable. The fibers did have an impact on OBLR moth activity but not on larval densities, at least of the summer generation. The fibers hold promise as a possible alternative to hand-applied dispensers when used as a supplement to a control program. Additional research in larger plots will continue in 2004.

Conclusion

- Alternative pheromone delivery technologies show some promise for management of both codling moth and leafroller.

- Scentry codling moth and OBLR fibers reduced trap catch at higher rates but this effect was not always correlated with reduction in fruit injury or larval densities.
- IPM Technology's LastCall OBLR and PLR formulations suppressed moth capture in traps over the untreated controls but there was little difference between the low and high treatment rates.
- Both codling moth and overwintering leafroller populations will be assessed in early spring 2004 to better determine the effect of all treatments against the second generation in 2003.
- Research on these and possible new alternatives to hand-applied pheromone dispensers will continue in 2004.

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