

Mating Disruption/SIR

MATING DISRUPTION OF CODLING MOTH USING SPRAYABLE FORMULATIONS:  
TRAP SUPPRESSION AS A FIRST LOOK

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Mating disruption of codling moth has traditionally relied on hand-applied dispensers for suppression of codling moth. New technologies such as sprayable formulations appear to offer several advantages including ease of application, flexibility with application timing and rates, use in large canopied tree crops, and reduced labor needs. Two products were evaluated for suppression of codling moth traps as the first step in a more extensive evaluation process. The assumption of the studies is that products that fail to suppress traps are not expected to produce significant reductions in damage, whereas trap suppression should not be construed as successful damage or mating suppression. Instead it is viewed only as a first necessary step before more risky crop evaluation trials are initiated.

A sprayable formulation of codlemone by Consep was tested in a replicated trial in walnuts using 2-acre plots. Each of three treatments was replicated 3 times: non-pheromone treated grower plots, plots with 400 Isomate dispensers per acre, and plots treated with the Consep sprayable at 20 g AI/acre. Only a single application was made of the sprayable formulation using conventional speed spray technology. The Isomate treated plots were applied on May 13, whereas the Consep applications were made on May 17. Sterile codling moths from the SIR program in Penticton, Canada, were released into all plots on a weekly basis. Two releases of ca. 800 moths per release point were made within each plot. Similarly, 2 traps baited with 1 mg and 2 traps baited with 10 mg lures were placed within each plot. Traps were monitored on a weekly basis. The Isomate treated plots were included as a standard measure of trap suppression from a program that has had excellent success in the past. One hundred percent trap suppression was not expected with such high population pressure.

A similar approach was used for a sprayable formulation of codling moth by 3M. However, rather than use replicated plots, a range of application rates was used on 2-acre plots. The application rates were 5, 10, 20, 40, 80, and 150 g AI/acre using a conventional speed sprayer at 100 gal per acre. We had anticipated using a regression approach to understanding the relationship between application rates and trap suppression to define the shape of the relationship.

Both products provided excellent suppression of codling moth traps far beyond expectations. Both products provided approximately 81 days of suppression until an application of organophosphate terminated the experiment as a confounding variable. The Consep product provided equal or superior suppression compared to the Isomate treated plots until Aug 2 with greater than 90% suppression. Similarly, the 3M treated plots showed trap suppression roughly

equivalent to the Isomate treated plots, but the variation was higher. While the best trap suppression was observed at 80 and 150 mg AI/acre for the 3M product, there was no strong rate response observed. As the season progressed, the lower application rate of 20 mg AI/acre appeared inadequate at several points, but the pattern amongst rates was not consistent with the 5 g AI/acre providing good suppression during the same period.