

1. Thresholds/Monitoring/Sampling

MONITORING CODLING MOTH IN PHEROMONE-TREATED ORCHARDS: COMPARISON OF TRAP DESIGNS

Larry J. Gut and Jay F. Brunner
Washington State University
Tree Fruit Research and Extension Center
Wenatchee, WA 98801

The "wing" type trap is not the only trap that can be used to capture CM males attracted to a pheromone lure. Three other trap designs, delta, cylindrical and Multipher, have been reported to be at least as effective as the wing trap. We directly compared the effectiveness of these trap designs and the industry standard, wing trap. The experimental design was a randomized complete block (6-8 blocks). All traps were baited with red septa loaded with 10 mg of codlemone (Trécé, Inc.). The number of male moths captured in the different traps was recorded every 2-3 days. To minimize position effects, traps were rotated each time they were inspected. Lures were replaced after three complete rotations (27 days) during the first generation and after two complete rotations (18 days) during the second generation. The sticky bottoms of wing, delta and cylindrical traps were replaced after a cumulative catch of 30 moths, more often if dirty. The Multipher trap is a non-sticky type trap, and moths were removed each time it was inspected.

The effectiveness of five kinds of pheromone traps are compared in Figures 1A and B. Data are presented as the average capture of moths in the various traps over the course of 9 days. Each successive 9-day trapping period corresponded to a complete cycle of trap rotations. The delta trap was the most effective trap. It was significantly more attractive than the wing, ice cream carton, Multipher and Hercon plastic cylinder traps during the first 9 days of the first and second generation flights and was at least as attractive as these traps during the other trapping periods in each flight. The ice cream carton and Multipher trap were generally as effective as the industry standard, wing trap. There were no significant differences in moth catches between the ice cream carton and wing trap for each of the 5 periods in which they were compared. Similarly, there were no significant differences in the attractancy of the Multipher and wing traps during 4 of 5 first generation and 3 of 4 second generation trapping periods. The Hercon plastic cylinder was the least attractive trap, capturing very few moths throughout the second generation flight, the only period it was tested.

The limited effectiveness of the high load trapping system, particularly during the summer, may be improved by identifying a better trap. The delta trap was significantly more effective than any other trap design tested. However, the trapping surface of the delta trap is smaller than that of the standard wing trap and requires more frequent replacement to maintain a high level of performance. The Multipher trap simplifies trap maintenance requirements but is less effective than the wing and delta traps. We plan to test modified versions of this trap in 1997, e.g. try the different knockdown materials and shapes of the trap entrance in an effort to improve its performance.

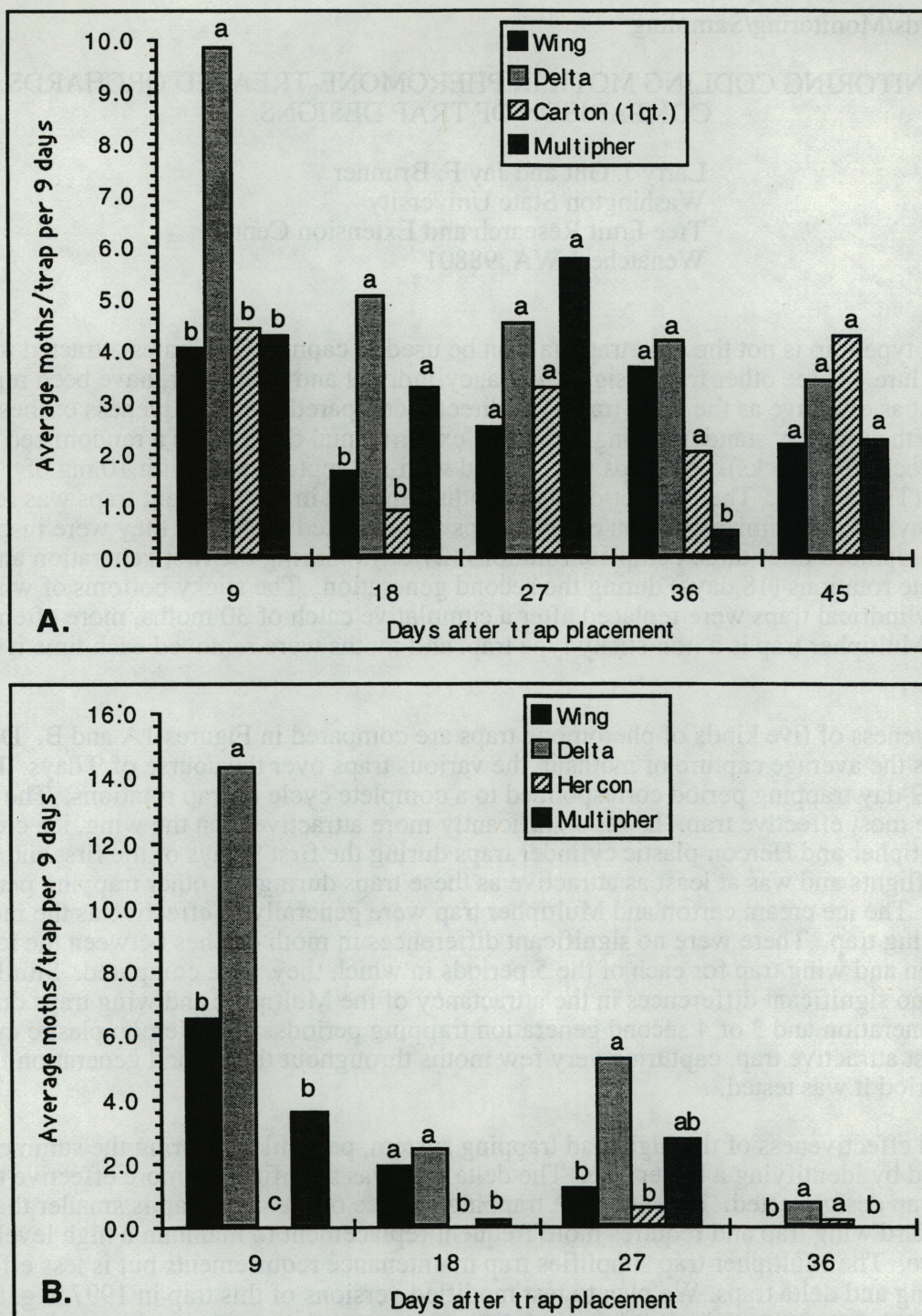


Figure 1. First generation (A) and second generation (B) capture of CM males in various types of pheromone traps. Each trap was baited with a 10 mg red septum. Means followed by different letters are significantly different ($P < 0.05$) according to Fisher's Protected LSD.