

Section 1. Thresholds/Monitoring/Sampling

TRAPS AND LURES: WHERE'S THE SCIENCE

Alan Knight and Brad Christianson
ARS, USDA, 5230 Konnowac Pass Rd., Wapato, WA 98951

Traps baited with sex pheromone lures are used to establish action thresholds and to time sprays for both codling moth and leafrollers. A number of factors are known to affect moth catch and we have examined several of these over the past few years. Today's talk will discuss the following factors: trap type, lure type, trap height in the canopy, trap position in the orchard, lure load rate, lure longevity, lure degradation, lure and trap proximity, trap density, and mixing lures of different species in the same trap.

- 1) Trap size affects moth saturation: larger traps catch more moths and at low moth densities variable sized traps perform similarly.
- 2) Trap position within the orchard is important and different results occurred in flat orchards with low population densities versus hilly orchards with high population densities.
- 3) Traps placed higher catch more moths
- 4) Trap density affects the number of moths caught per trap.
- 5) Load rate and dispenser material affects its emission rate, longevity, and degradation of lures. The red septa is probably the worst choice for a codling moth lure.
- 6) Isomate C+ dispensers placed within six inches of a trap can reduce moth catch and even dispensers from the previous year can impact traps.
- 7) In orchards treated with sex pheromones for disruption of both codling moth and leafrollers traps can be baited with both lures without significantly reducing moth catch.

In summary, here is what can happen with the two extremes. We can get a twenty-fold difference in moth catch over a three week period with these two case studies.

Case 1: A Pherocon ICP trap with a 10 mg red septa placed 2 m in the canopy 50m from the edge of the orchard 6" from a dispenser at 1 trap per hectare.

Case 2. A Pherocon VI trap with a long-life lure placed in the top of the canopy near the edge of the orchard > 1 yard from a dispenser at 1 trap per 5 acres.