

Statewide Monitoring Study to Determine Relationship Between Navel Orangeworm (NOW) Egg and Male Moth Capture

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PROJECT SUMMARY

Objectives:

- Determine NOW population dynamics over the geographical almond growing region: Sothern San Joaquin Valley (Kern Co) to the Sacramento Valley Region (Glenn Co).
- Determine biofix dates for egg-laying and male-moth capture at sites in different growing regions

Background and Discussion:

In 2013, Suterra LLC, Bend OR, began marketing a male NOW lure containing synthetic female sex pheromone. The lure when placed in delta sticky traps, provides an effective and efficient method for monitoring male moth flights within orchards. Up to now, egg traps have been used to monitor NOW and time sprays. We do not have a sufficient understanding of the relationship between egg capture and male moth capture and therefore cannot fully utilize male capture data for making treatment decisions.

In May 2014 we initiated an NOW trapping study using 18 orchards located among Kern, Fresno, Madera, Merced, Stanislaus, Yolo, and Glenn counties. At each site we selected three tree-rows, separated by at least 500 ft.

We placed a monitoring trap-set consisting of four egg traps (ET) and a single pheromone trap (PT) within each tree-row. Traps were monitored weekly and lures changed every fourth week.

Pheromone traps began capturing male moths at all 18 sites within the first week of being placed in orchards, therefore, we could not establish a biofix based on male moth capture. Biofix based on egg capture occurred at most of the sites between mid and late April. In contrast to male

moths, egg capture did not occur at all sites.

With the exception of the more northern sites in Glenn Co, males of the overwintering generation (first flight) were captured up to mid-June with the beginning of the second flight (first generation) tending to occur at approximately the same period. Other than degree days accumulating more rapidly than in previous seasons, no degree day anomalies occurred in 2014.

The initiation of egg laying in relationship to male flight was relatively consistent across sites. Tentative results suggest that eggs are more likely to be captured when orchard populations reach some threshold; in this case, indicated via male capture exceeding approximately 15 – 20 moths per trap. Additionally, egg capture tended to lag slightly behind upswings of male capture.

At this early stage in the study, data are not complete enough to determine a relationship between male moth and egg capture. However, the data collected suggest that before eggs are found on traps, a population threshold in the orchard must be exceeded. Also, egg capture has a predictable lag period once the threshold is exceeded. A logistic model is one possible option that can provide a predictive tool.

The benefit of this model is that several independent categorical variables can be employed such as: geographical region, level of sanitation, proximately to sources of infestation in other crops can. As this project progresses, we will explore how a logistic and or other models can be used best.

Project Cooperators and Personnel:

David Haviland, UCCE-Kern County; Joel Siegel, USDA-ARS, Parlier; Roger Duncan, UCCE-Stanislaus County; David Doll, UCCE-Merced County; Frank Zalom, UC Davis; Franz Niederholzer, UCCE-Yolo County; and Dani Lightle, UCCE-Glenn/Tehama Counties

For More Details, Visit

- Poster location 13, Exhibit Hall A + B during the Almond Conference; or on the web (after January 2015) at Almonds.com/ResearchDatabase
- 2013-2014 Annual Reports CD (13-RESEARCH1B-Tollerup); or on the web (after January 2015) at Almonds.com/ResearchDatabase
- Related project: 14-ENTO7-Zalom