

Navel Orangeworm Program 2025 – Weekly Report

Week Ending – January 17, 2025

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I. Program Updates

Navel Orangeworm Area Wide Program – Multi-Phase Approach

Phase 1 – 2018-2022

Phase 1 was the Initial Phase of the Navel Orangeworm (NOW) Program (Program) with a focus on developing NOW sterile insect technique (SIT) moths, determining their viability during cold storage transfer, performing quality control (QC) on mating propensity and survivability of the sterile moths, developing a trap monitoring program, and collecting preliminary damage data from the orchards participating in the Program's project site.

Phase 2 – 2023-2025

Phase 2 is the Data Phase of the NOW Program. The focus of this phase is controlling variables within the orchards participating in the Program's project site to increase the integrity of the field data being collected. Strategic planning and industry communication with NOWAC remains with Matthew Aubuchon, the USDA National Policy Coordinator, in partnership with CDFA.

Navel Orangeworm Sterile Insect Technique

The Navel Orangeworm Program utilizes NOW SIT moths obtained from the United States Department of Agriculture (USDA) and California Department of Food and Agriculture's (CDFA) Phoenix, Arizona Rearing Facility. QC tests are performed on every shipment of NOW SIT moths used for aerial releases.

Releases of sterile NOW moths are anticipated to begin in March 2025 over select sites in West Fresno County. Prior to releases, the Navel Orangeworm Action Committee (NOWAC) will meet to discuss plans for the 2025 NOW SIT season.

Navel Orangeworm Trapping

The Phase 2 Area Wide Project Site for 2025 currently includes eight orchards: three pistachio and five almond, located in Fresno County. Seven of the eight orchards have a total area of 640 acres each with one almond orchard having 600 acres. These orchards are designated as Zones 2 through 9. Trapping is being conducted weekly year-round in all zones.

Listed below are any circumstances which prevented regular trap servicing in 2025:

- Week of January 3: No traps were serviced in Zones 2, 6, and 9 due to excessive rain and muddy conditions preventing access to trap sites

II. Project Design

The Area Wide Project Site was restructured in 2023 in preparation for Phase 2 of the Program. Phase 2 aims to establish more standardized and consistent approaches to mating disruption, sanitation, pesticide usage, and other cultural practices for more comparable data between each orchard set (release site/control site).

The 2025 Area Wide Project Site currently includes eight orchards located in Fresno County, identified as Zones 2 through 9. Additional acreage is currently being investigated and will be added to the Project Site as they are established. Listed below is information related to each orchard within the Program's Phase 2 project site for 2025:

| Zone # | Crop Type | Acres | Release/Non-release Site | Magazine Designation | Date Added to Area Wide Project |
|---------------|------------------|--------------|---------------------------------|-----------------------------|--|
| Zone 2 | Pistachio | 640 | TBD | TBD | February 2023 |
| Zone 3 | Almond | 640 | TBD | TBD | February 2023 |
| Zone 4 | Almond | 640 | TBD | TBD | February 2023 |
| Zone 5 | Pistachio | 640 | TBD | TBD | March 2023 |
| Zone 6 | Pistachio | 640 | TBD | TBD | March 2023 |
| Zone 7 | Almond | 640 | TBD | TBD | April 2023 |
| Zone 8 | Almond | 640 | TBD | TBD | April 2023 |
| Zone 9 | Almond | 600 | TBD | TBD | May 2024 |

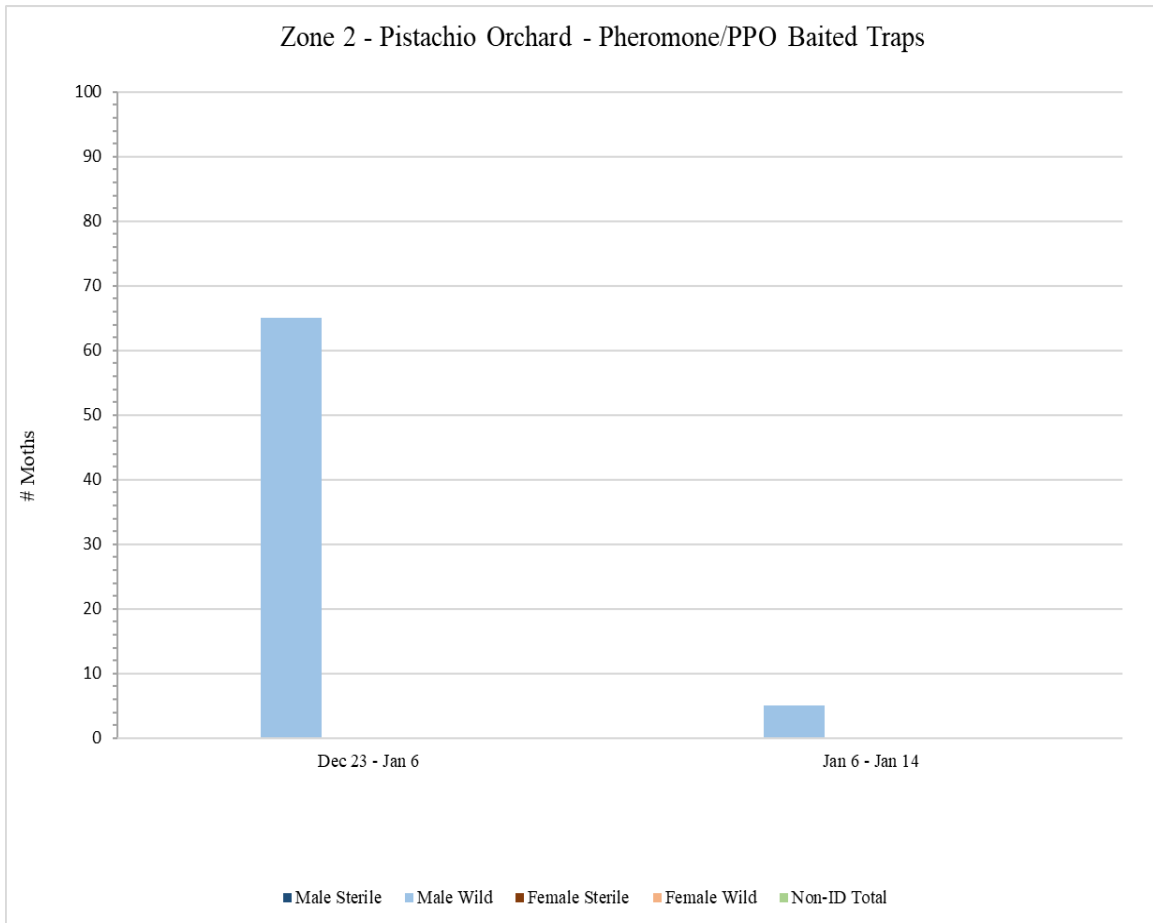
Each zone has a trap site ratio of approximately one trap site per 18 acres for a total of 36 trap sites for each 640-acre zone and 34 traps for the 600-acre zone. Each trap site has one trap baited with NOW pheromone/PPO lures. All traps are serviced on a weekly basis. Servicing includes collecting trap bottoms and replacing with new trap bottoms. Bait/lure changes occur once a month, and trap tops are replaced as needed. Counts are performed on each trap collected to determine number of wild versus sterile captures and male versus female captures.

III. Trap Results for Week Ending on January 17, 2025

Zone 2 – Pistachio Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 2 on Tuesday, January 14.

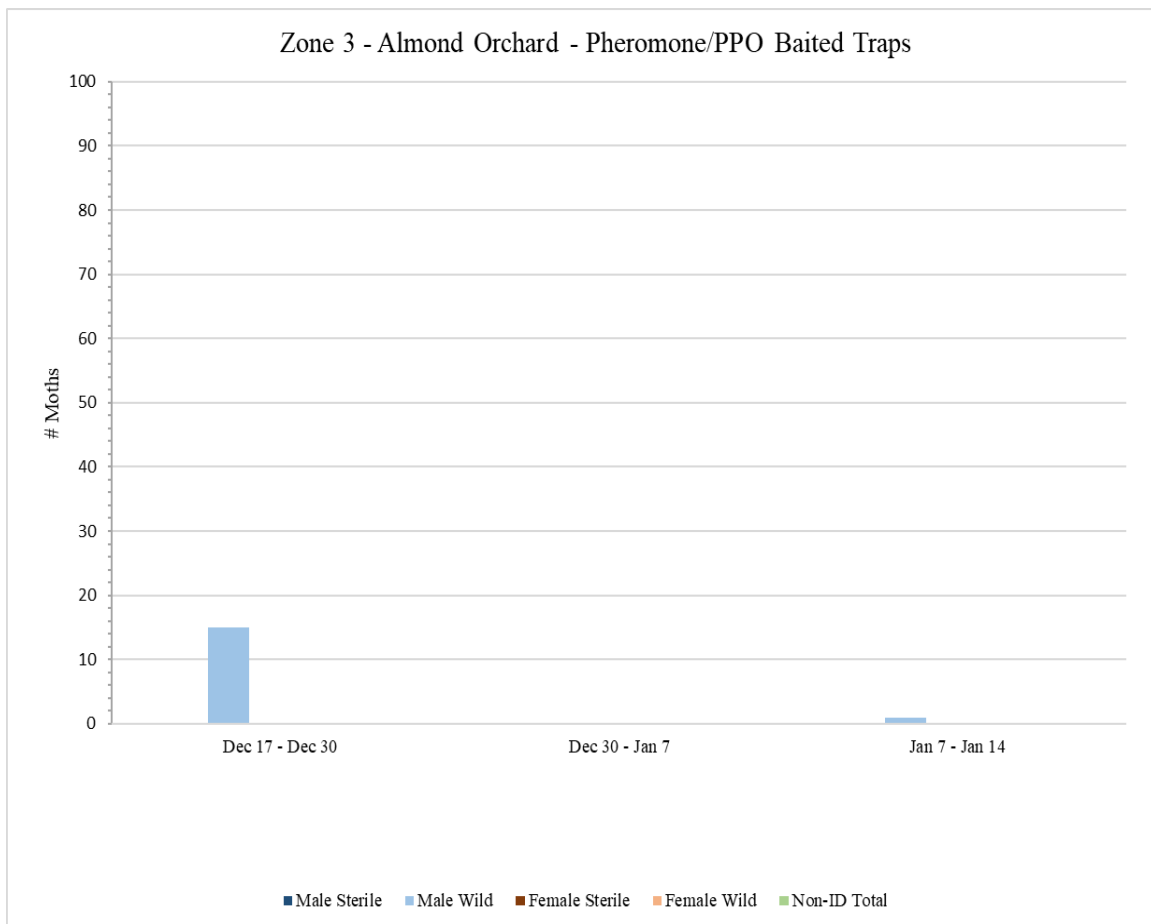
| Zone 2 - Pistachio | | | | | | | | |
|---|----------------------------------|--------------|-----------|------------|----------------|-------------|--------------|--------------|
| Pheromone/PPO Lure Baited Traps | | | | | | | | |
| Dates Traps in Field | # of Releases During Trap Period | Male Sterile | Male Wild | Male Total | Female Sterile | Female Wild | Female Total | Non-ID Total |
| ¹ Dec 23 – Jan 6 | 0 | 0 | 65 | 65 | 0 | 0 | 0 | 0 |
| Jan 6 – Jan 14 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 0 |
| ¹ No traps were serviced in Zone 2 during the week of January 3 due to excessive rain and muddy conditions preventing access | | | | | | | | |



Zone 3 – Almond Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 3 on Tuesday, January 14.

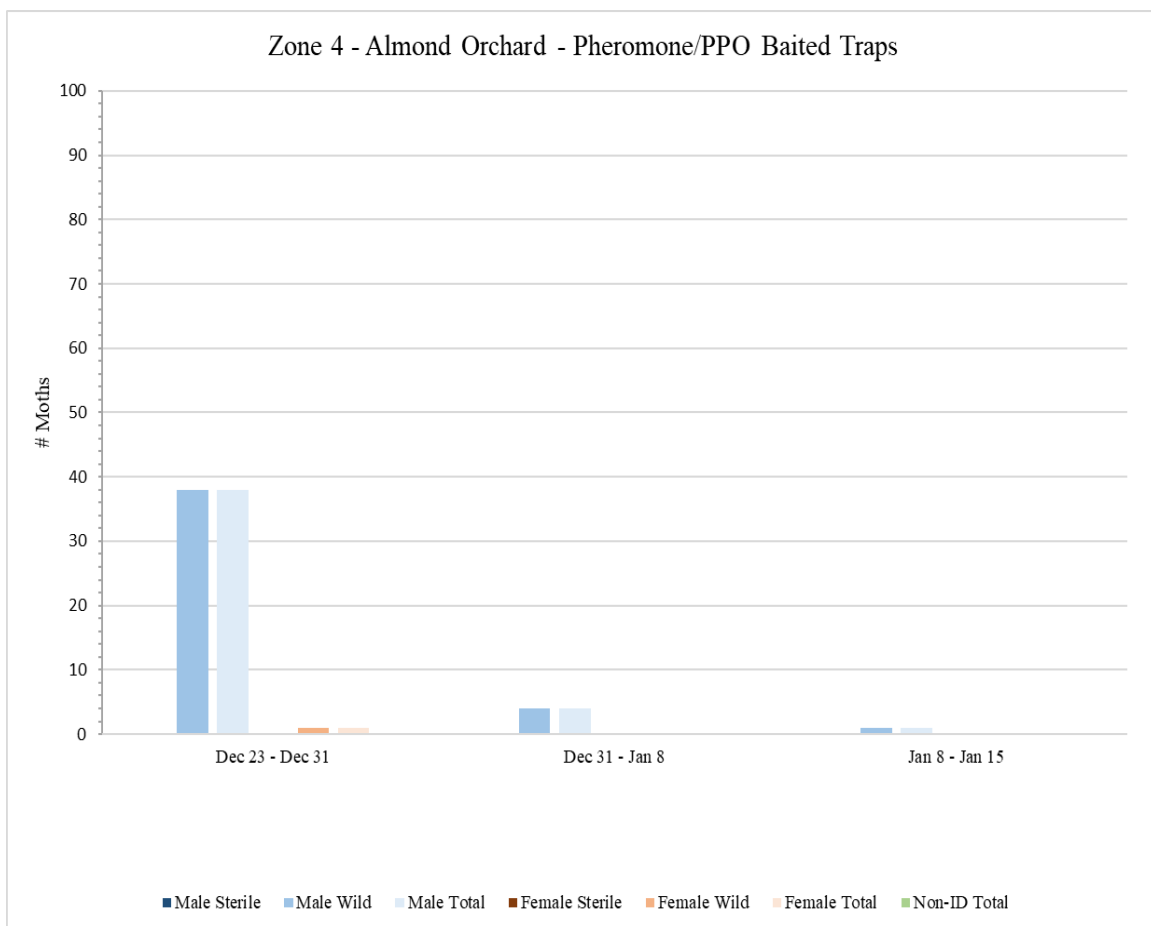
| Zone 3 - Almond | | | | | | | | |
|---------------------------------|----------------------------------|--------------|-----------|------------|----------------|-------------|--------------|--------------|
| Pheromone/PPO Lure Baited Traps | | | | | | | | |
| Dates Traps in Field | # of Releases During Trap Period | Male Sterile | Male Wild | Male Total | Female Sterile | Female Wild | Female Total | Non-ID Total |
| Dec 17 – Dec 30 | 0 | 0 | 15 | 15 | 0 | 0 | 0 | 0 |
| Dec 30 – Jan 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Jan 7 – Jan 14 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| | | | | | | | | |



Zone 4 – Almond Orchard

A total of **35** pheromone/PPO lure-baited traps were collected from Zone 4 on Wednesday, January 15. Trap number 24 was missing.

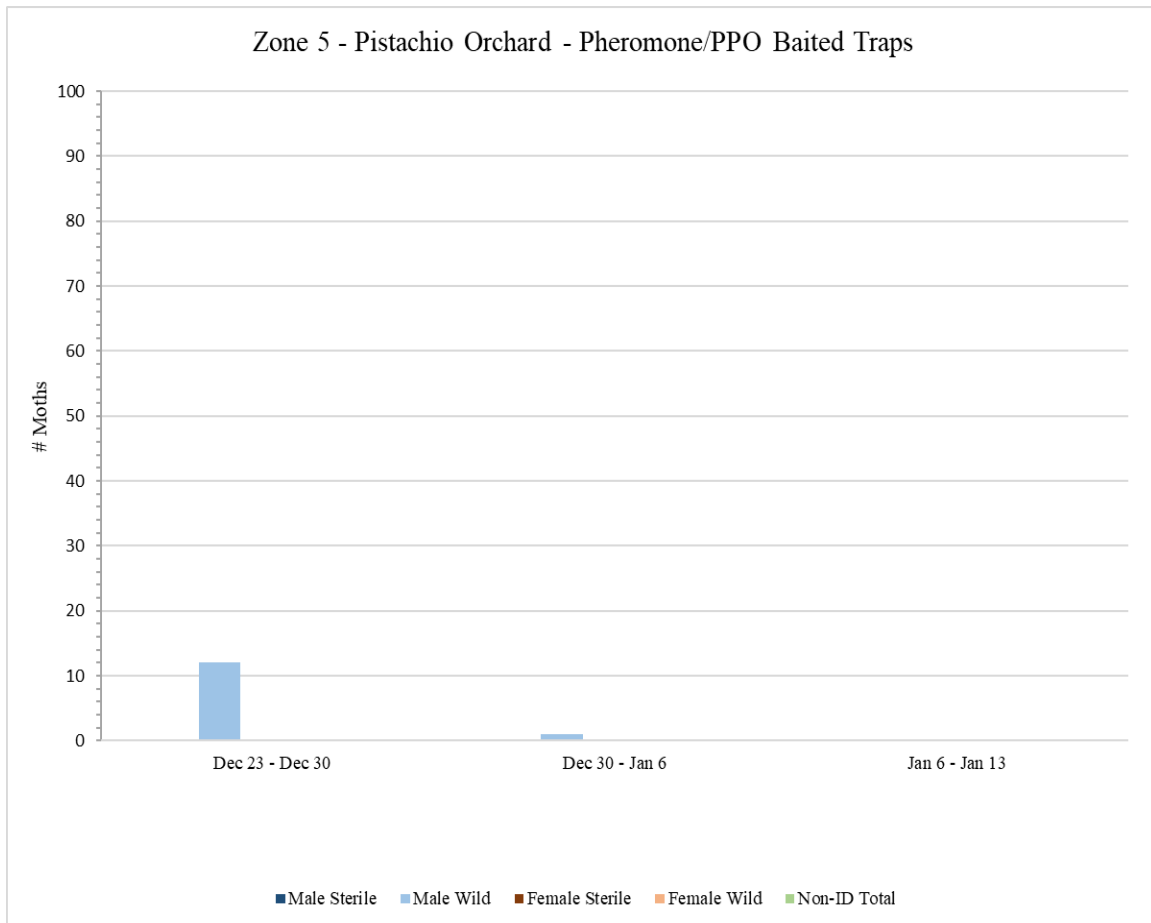
| Zone 4 - Almond | | | | | | | | |
|---------------------------------|----------------------------------|--------------|-----------|------------|----------------|-------------|--------------|--------------|
| Pheromone/PPO Lure Baited Traps | | | | | | | | |
| Dates Traps in Field | # of Releases During Trap Period | Male Sterile | Male Wild | Male Total | Female Sterile | Female Wild | Female Total | Non-ID Total |
| Dec 23 – Dec 31 | 0 | 0 | 38 | 38 | 0 | 1 | 1 | 0 |
| Dec 31 – Jan 8 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 0 |
| Jan 8 – Jan 15 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| | | | | | | | | |



Zone 5 – Pistachio Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 5 on Monday, January 13.

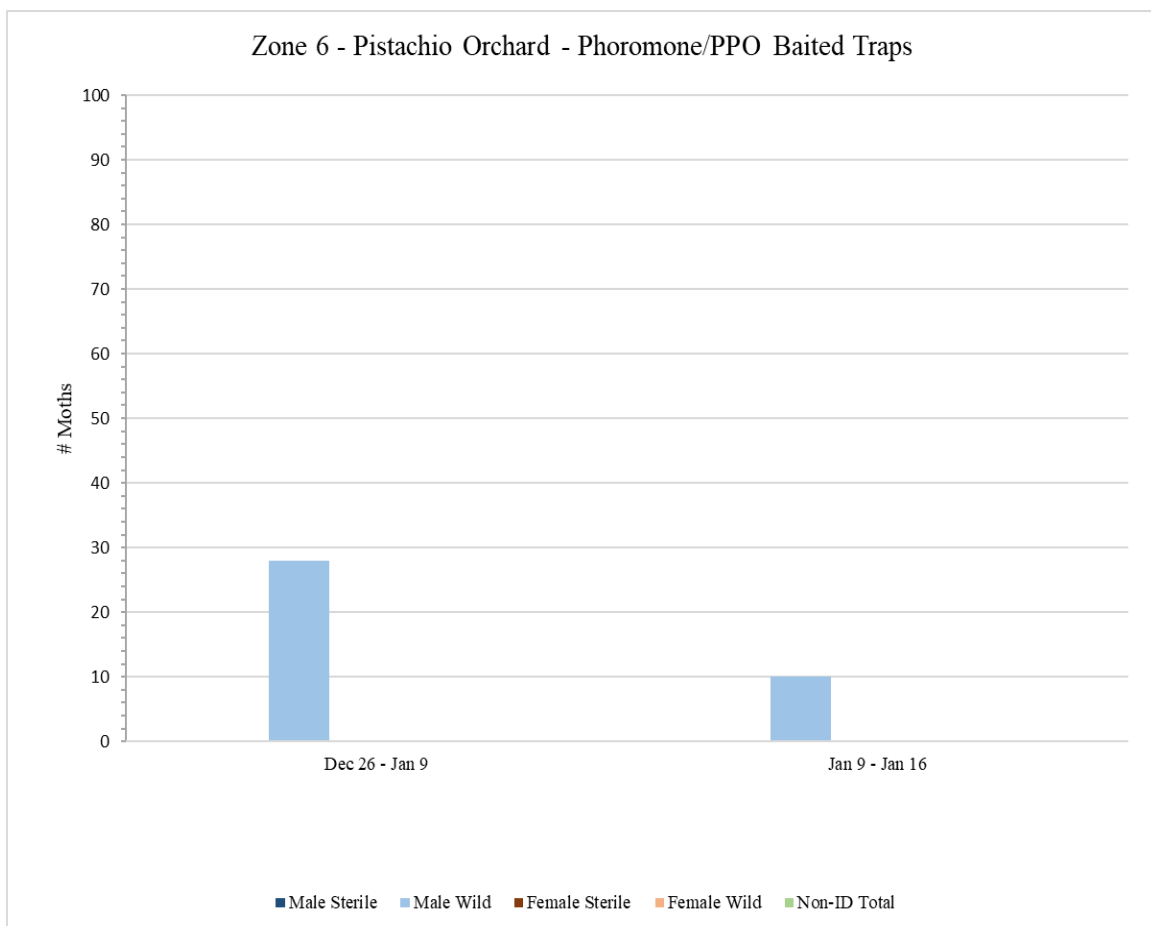
| Zone 5 - Pistachio | | | | | | | | |
|---------------------------------|----------------------------------|--------------|-----------|------------|----------------|-------------|--------------|--------------|
| Pheromone/PPO Lure Baited Traps | | | | | | | | |
| Dates Traps in Field | # of Releases During Trap Period | Male Sterile | Male Wild | Male Total | Female Sterile | Female Wild | Female Total | Non-ID Total |
| Dec 23 – Dec 30 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 0 |
| Dec 30 – Jan 6 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| Jan 6 – Jan 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | |



Zone 6 – Pistachio Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 6 on Thursday, January 16.

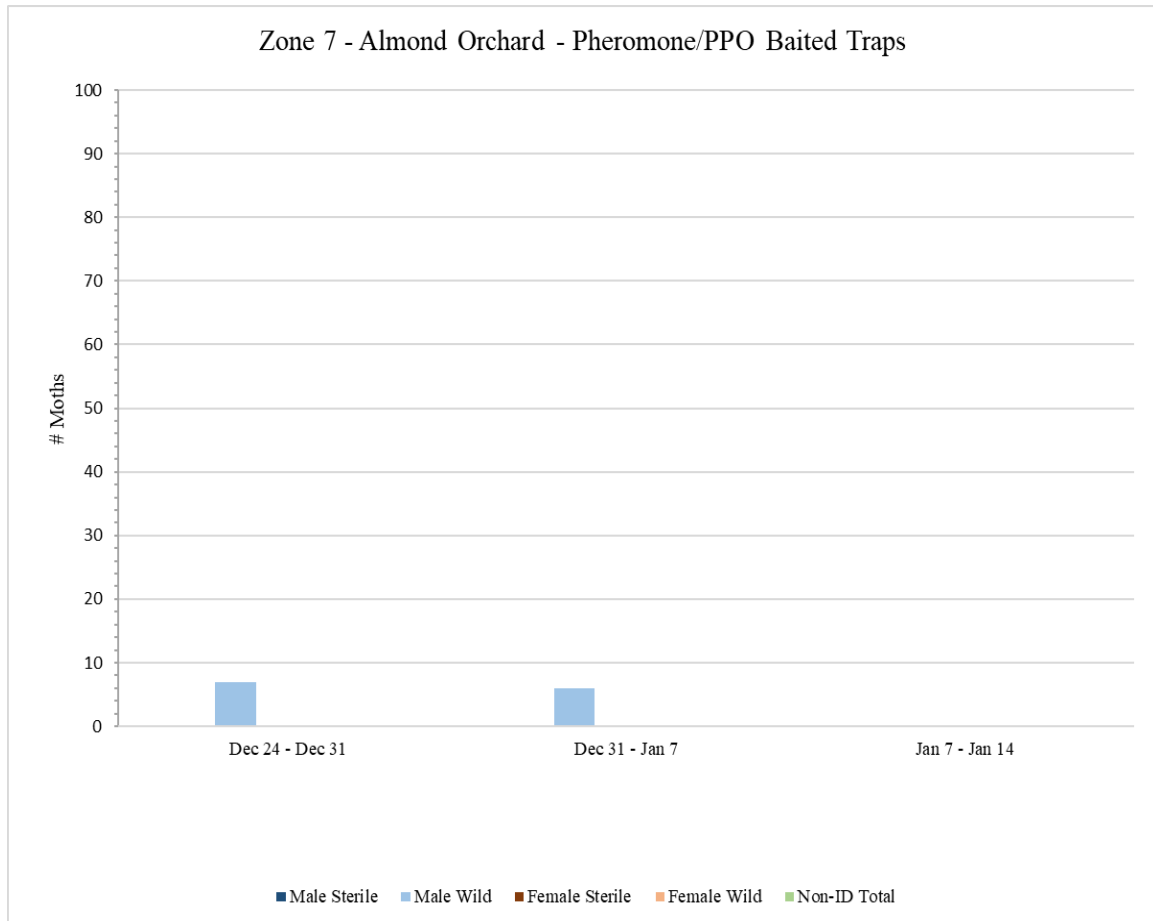
| Zone 6 - Pistachio | | | | | | | | |
|---|----------------------------------|--------------|-----------|------------|----------------|-------------|--------------|--------------|
| Pheromone/PPO Lure Baited Traps | | | | | | | | |
| Dates Traps in Field | # of Releases During Trap Period | Male Sterile | Male Wild | Male Total | Female Sterile | Female Wild | Female Total | Non-ID Total |
| ¹ Dec 26 – Jan 9 | 0 | 0 | 28 | 28 | 0 | 0 | 0 | 0 |
| Jan 9 – Jan 16 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 0 |
| ¹ No traps were serviced in Zone 6 during the week of January 3 due to excessive rain and muddy conditions preventing access | | | | | | | | |



Zone 7 – Almond Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 7 on Tuesday, January 14.

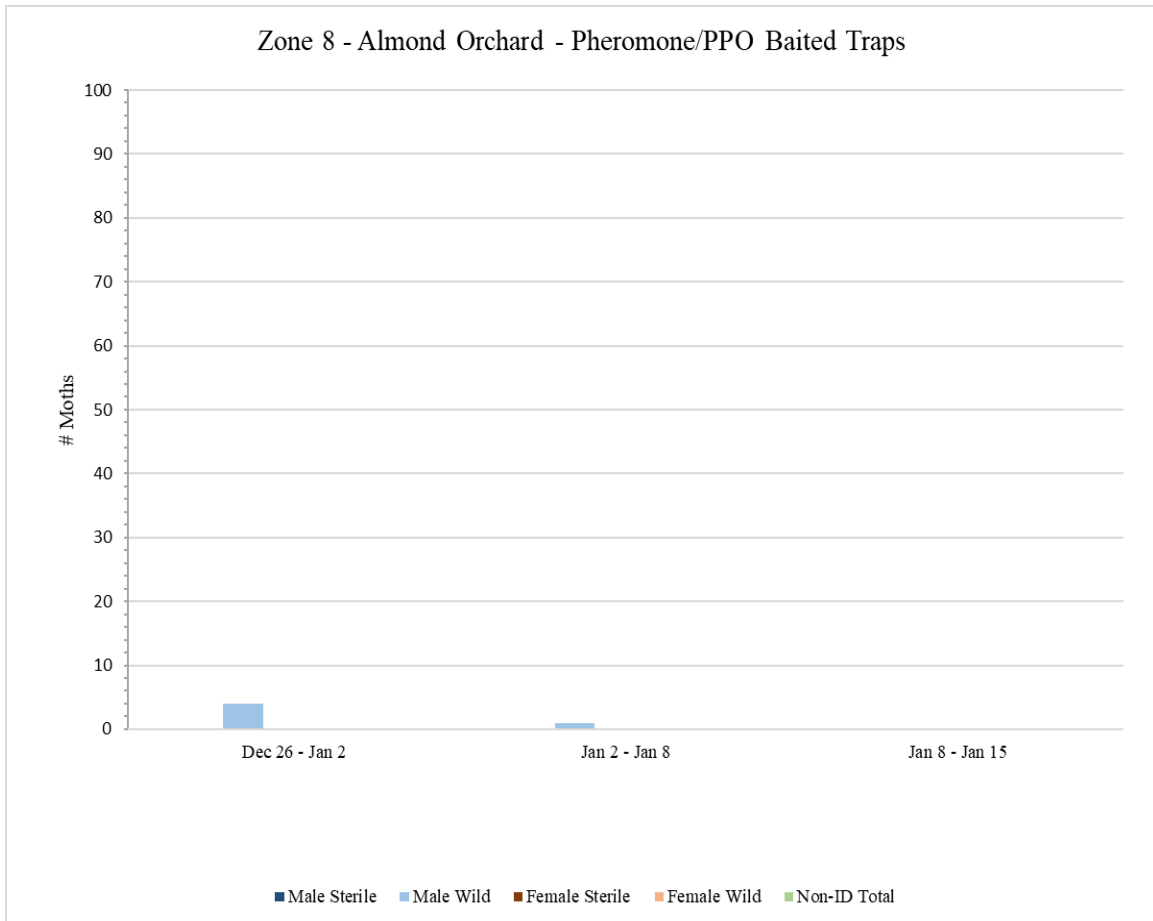
| Zone 7 - Almond | | | | | | | | |
|---------------------------------|----------------------------------|--------------|-----------|------------|----------------|-------------|--------------|--------------|
| Pheromone/PPO Lure Baited Traps | | | | | | | | |
| Dates Traps in Field | # of Releases During Trap Period | Male Sterile | Male Wild | Male Total | Female Sterile | Female Wild | Female Total | Non-ID Total |
| Dec 24 – Dec 31 | 0 | 0 | 7 | 7 | 0 | 0 | 0 | 0 |
| Dec 31 – Jan 7 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 0 |
| Jan 7 – Jan 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | |



Zone 8 – Almond Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 8 on Wednesday, January 15.

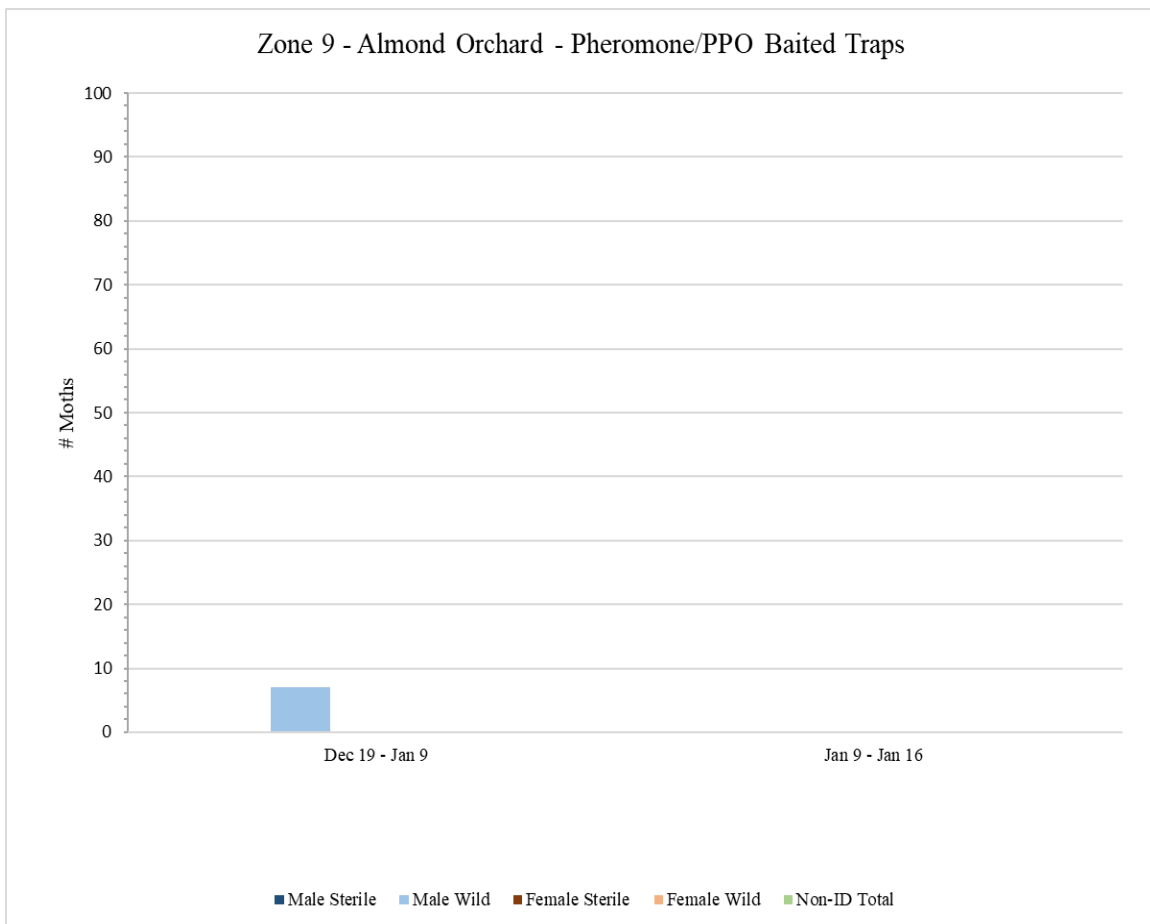
| Zone 8 - Almond | | | | | | | | |
|---------------------------------|----------------------------------|--------------|-----------|------------|----------------|-------------|--------------|--------------|
| Pheromone/PPO Lure Baited Traps | | | | | | | | |
| Dates Traps in Field | # of Releases During Trap Period | Male Sterile | Male Wild | Male Total | Female Sterile | Female Wild | Female Total | Non-ID Total |
| Dec 26 – Jan 2 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 0 |
| Jan 2 – Jan 8 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| Jan 8 – Jan 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | |



Zone 9 – Almond Orchard

A total of **34** pheromone/PPO lure-baited traps were collected from Zone 9 on Thursday, January 16.

| Zone 9 - Almond | | | | | | | | |
|---|----------------------------------|--------------|-----------|------------|----------------|-------------|--------------|--------------|
| Pheromone/PPO Lure Baited Traps | | | | | | | | |
| Dates Traps in Field | # of Releases During Trap Period | Male Sterile | Male Wild | Male Total | Female Sterile | Female Wild | Female Total | Non-ID Total |
| ¹ Dec 19 – Jan 9 | 0 | 0 | 7 | 7 | 0 | 0 | 0 | 0 |
| Jan 9 – Jan 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ¹ No traps were serviced in Zone 9 during the week of January 3 due to excessive rain and muddy conditions preventing access | | | | | | | | |



IV. NOW Degree Days

NOW Degree days begin to accumulate when ambient temperatures remain between the lower threshold of 55° F and the upper threshold of 93.9° F. Using data from weather stations nearest to the trap sites, courtesy of the UC IPM website - https://ipm.ucanr.edu/PHENOLOGY/ma-navel_orangeworm.html, the chart below shows daily and total accumulated degree days since January 1, 2025. The model uses a double triangle and vertical cutoff method of calculating degree days.

Weather Station Location: Five Points, Fresno

| Date | Air Temperatures (°F) | | Degree Days | |
|------------------|-----------------------|--------------|-------------|--------------|
| | Min | Max | Daily | Accumulated |
| 1/1/2025 | 33.00 | 60.20 | 0.50 | 0.50 |
| 1/2/2025 | 33.60 | 62.30 | 1.15 | 1.65 |
| 1/3/2025 | 42.80 | 60.10 | 0.67 | 2.32 |
| 1/4/2025 | 37.70 | 59.50 | 0.43 | 2.75 |
| 1/5/2025 | 34.40 | 59.40 | 0.37 | 3.12 |
| 1/6/2025 | 32.40 | 60.80 | 0.76 | 3.88 |
| 1/7/2025 | 42.50 | 63.40 | 1.46 | 5.34 |
| 1/8/2025 | 34.60 | 62.90 | 1.03 | 6.37 |
| 1/9/2025 | 30.10 | 62.40 | 0.86 | 7.23 |
| 1/10/2025 | 30.80 | 69.10 | 2.83 | 10.06 |
| 1/11/2025 | 36.70 | 62.10 | 0.91 | 10.97 |
| 1/12/2025 | 31.50 | 57.90 | 0.15 | 11.12 |
| 1/13/2025 | 26.00 | 60.20 | 0.41 | 11.53 |
| 1/14/2025 | 27.70 | 62.70 | 0.85 | 12.38 |
| 1/15/2025 | 28.00 | 66.80 | 1.82 | 14.20 |
| 1/16/2025 | 29.10 | 66.20 | 1.77 | 15.97 |
| 1/17/2025 | 32.30 | 65.40 | 1.59 | 17.56 |

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