Navel Orangeworm Program 2024 – Weekly Report

Week Ending – **June 28, 2024**

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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 – 2023-2024

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 in order to increase the integrity of the field data being collected. During this phase a University of California Cooperative Extension (UCCE) coordinator will be a primary grower point of contact. They will be responsible for coordinating with growers and establishing orchards for the Phase 2 Program project site. 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 began on March 20, 2024, with one magazine of approximately 750,000 sterile moths being released daily over select sites in West Fresno County. CDFA conducted ground releases daily between March 20 and April 7 at Zones 7 and 8 until aerial releases were available. Ground releases were limited to one magazine released at one zone per day along the north and west edges, alternating between the two zones each day. Aerial releases began on April 8 with one magazine being released daily over Zones 7 and 8. Initially, releases will be conducted exclusively over almond sites and will change to being conducted exclusively over pistachio sites later in the year to prioritize periods of crop-specific vulnerability to NOW damage.

CDFA began conducting ground releases every Wednesday, starting on May 8, due to shortage of pilots needed for aerial release. These weekly ground releases occur at either Zone 7 or Zone 8, alternating between the two zones each week when possible.

Listed below are any circumstances which prevented regular aerial releases in 2024:

- March 20 – March 23: Ground releases conducted while aerial releases were unavailable
- March 24: No releases conducted due to excessive rain and muddy field conditions preventing access to release sites
- March 25 – March 26: Ground releases conducted while aerial releases were unavailable

- March 27: No releases conducted due to release equipment issues
- March 28 – March 29: Ground releases conducted while aerial releases were unavailable
- March 30: No releases conducted due to excessive rain and muddy field conditions preventing access to release sites
- March 31: Ground releases conducted while aerial releases were unavailable
- April 1: No releases conducted due to excessive rain and muddy field conditions preventing access to release sites
- April 2 – April 5: Ground releases conducted while aerial releases were unavailable
- April 14: No releases conducted due to excessive rain and muddy field conditions preventing access to release sites; magazine was held overnight for potential release on April 15
- April 15: Double aerial release conducted with moth shipments from April 13 and 14

Navel Orangeworm Trapping

The Phase 2 Area Wide Project Site for 2024 includes eight 640-acre orchards: four pistachio and four almond, and one 600-acre almond orchard, located in Fresno County. Trapping is being conducted weekly year-round in all nine orchards, designated as Zones 1 through 9. Zone 9 was added to the Project Site on May 20, 2024.

Listed below are any circumstances which prevented regular trap servicing in 2024:

- Week of January 5: No traps were serviced due to excessive rain and muddy conditions preventing access to trap sites
- Week of January 12: No traps were serviced in Zones 4 and 6 due to excessive rain and muddy conditions preventing access to trap sites
- Week of January 26: No traps were serviced due to excessive rain and muddy conditions preventing access to trap sites
- Week of February 2: No traps were serviced in Zones 3 and 7 due to pesticide applications on site
- Week of February 9: No traps were serviced due to excessive rain and muddy conditions preventing access to trap sites
- Week of February 16: No traps were serviced in Zones 4 and 8 due to excessive rain and muddy conditions preventing access to trap sites
- Week of February 23: No traps were serviced in Zones 1, 2, 5, 6, and 7 due to excessive rain and muddy conditions preventing access to trap sites
- Week of March 1: No traps were serviced in Zone 8 due to pesticide applications on site
- Week of March 8: No traps were serviced in Zones 4 and 8 due to excessive rain and muddy conditions preventing access to trap sites; Traps 13 – 36 not serviced in Zone 3 due to pesticide applications on site
- Week of March 15: No traps were serviced in Zone 4 due to pesticide applications on site

- Week of March 22: No traps were serviced in Zones 2 and 5 due to pesticide applications on site
- Week of March 29: No traps were serviced in Zone 4 due to pesticide applications on site
- Week of April 5: No traps were serviced in Zone 4 due to staffing issues
- Week of April 19: No traps were serviced in Zone 8 due to pesticide applications on site
- Week of May 10: No traps were serviced in Zone 8 due to pesticide applications on site
- Week of May 24: No traps were serviced in Zone 6 due to pesticide applications on site

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 2024 Area Wide Project Site includes nine orchards located in Fresno County, identified as Zones 1 through 9. Listed below is information related to each orchard within the Program's Phase 2 project site for 2024:

Zone #	Crop Type	Acres	Release/Non-release Site	Magazine Designation	Date Added to Area Wide Project
Zone 1	Pistachio	640	Non-release		February 2023
Zone 2	Pistachio	640	Release	TBD	February 2023
Zone 3	Almond	640	Non-release		February 2023
Zone 4	Almond	640	Non-release		February 2023
Zone 5	Pistachio	640	Release	TBD	March 2023
Zone 6	Pistachio	640	Non-release		March 2023
Zone 7	Almond	640	Release	Mag 1	April 2023
Zone 8	Almond	640	Release	Mag 1	April 2023
Zone 9	Almond	600	Non-release		May 2024

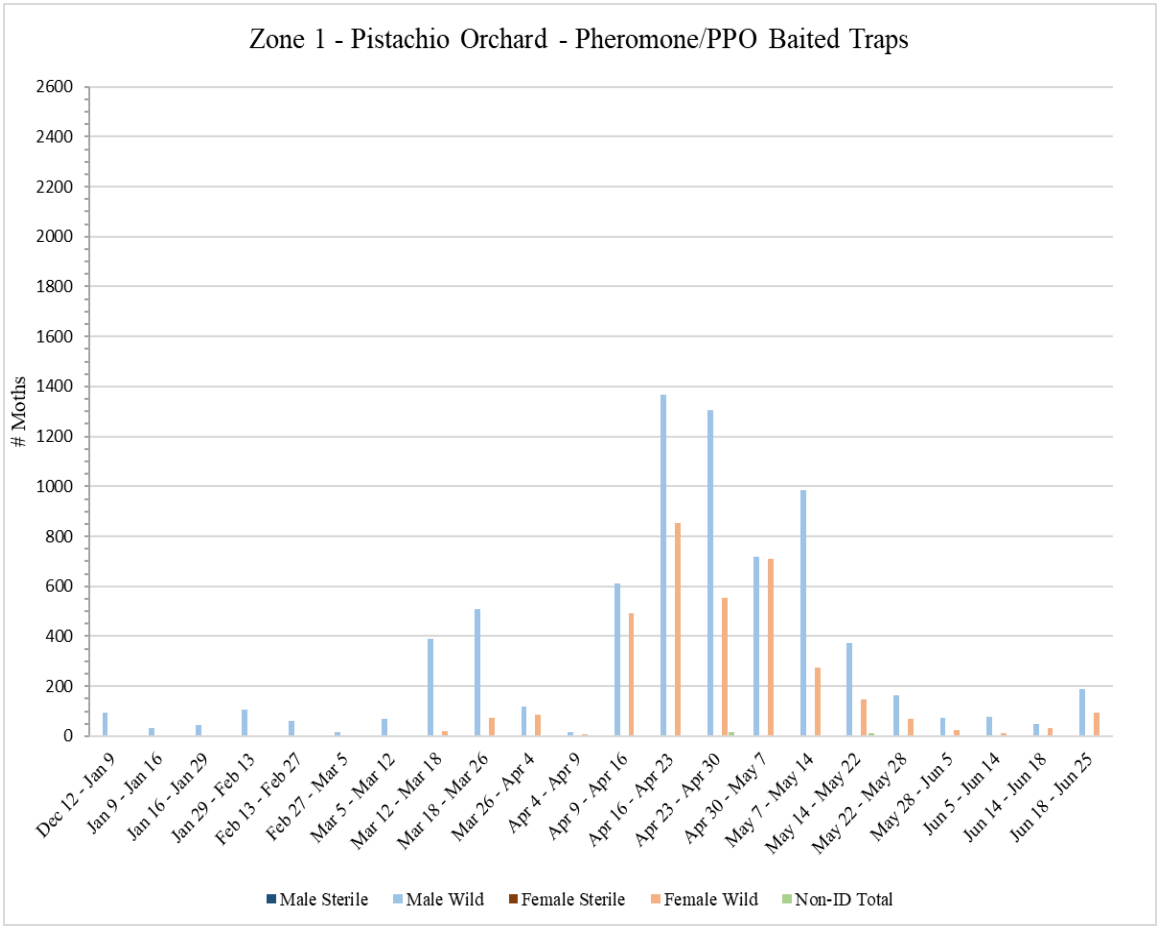
Each zone has a trap site ratio of approximately one trap site per 18 acres for a total of 36 trap sites for each 640-acre zone and 34 traps for the 600-acre zone. Each trap site has one trap baited with NOW pheromone/PPO lures. All traps are serviced on a weekly basis. Servicing includes collecting 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 June 28, 2024

Zone 1 – Pistachio Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 1 on Tuesday, June 25.

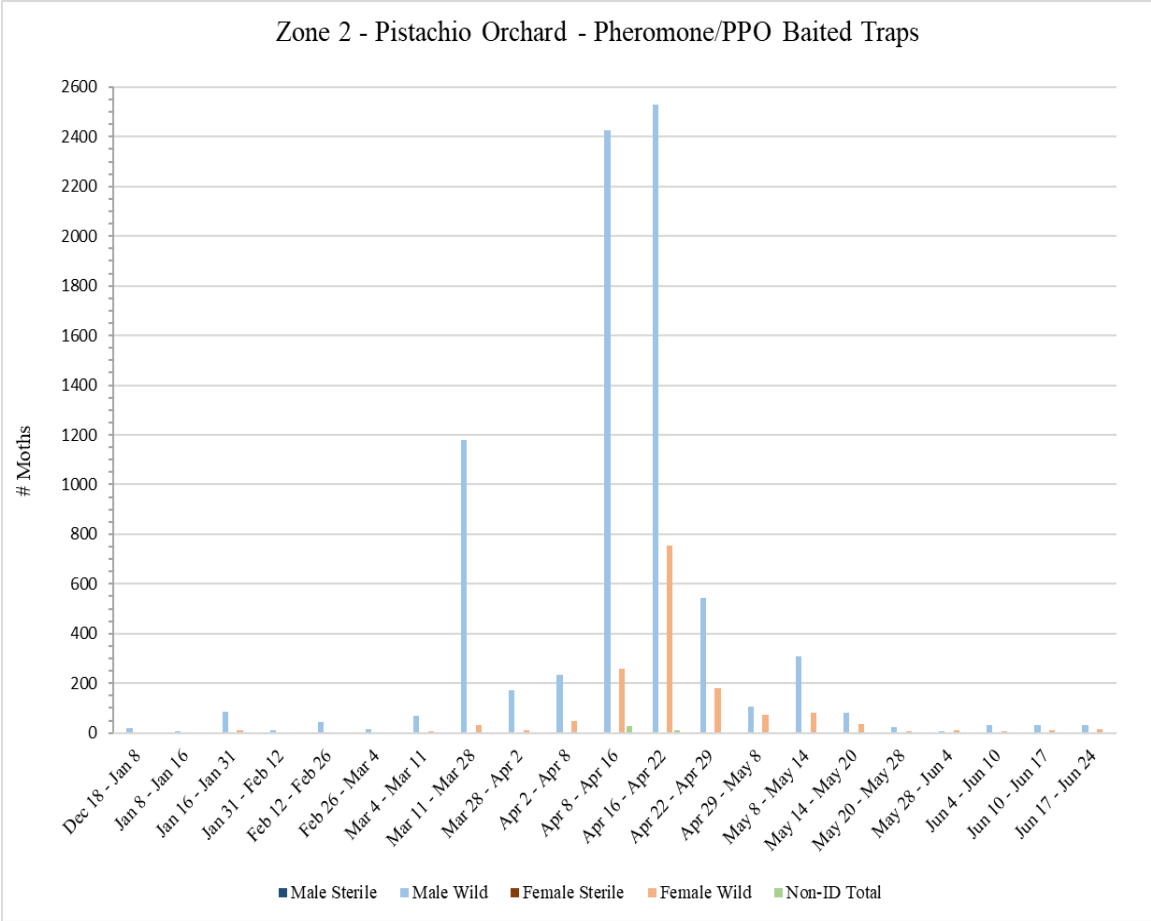
Zone 1 - Pistachio								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
[1]Dec 12 – Jan 9	0	0	93	93	0	0	0	0
Jan 9 – Jan 16	0	0	31	31	0	0	0	0
[2]Jan 16 – Jan 29	0	0	43	43	0	0	0	0
[3]Jan 29 – Feb 13	0	0	107	107	0	1	1	0
[4]Feb 13 – Feb 27	0	0	63	63	0	2	2	0
Feb 27 – Mar 5	0	0	16	16	0	0	0	0
Mar 5 – Mar 12	0	0	69	69	0	1	1	1
Mar 12 – Mar 18	0	0	390	390	0	19	19	0
Mar 18 – Mar 26	0	0	509	509	0	72	72	1
Mar 26 – Apr 4	0	0	118	118	0	86	86	0
Apr 4 – Apr 9	0	0	15	15	0	7	7	0
Apr 9 – Apr 16	0	0	611	611	0	493	493	0
Apr 16 – Apr 23	0	0	1366	1366	0	854	854	2
Apr 23 – Apr 30	0	0	1305	1305	0	554	554	17
Apr 30 – May 7	0	0	719	719	0	709	709	0
May 7 – May 14	0	0	985	985	0	276	276	3
May 14 – May 22	0	0	372	372	0	147	147	11
May 22 – May 28	0	0	164	164	0	69	69	0
May 28 – Jun 5	0	0	75	75	0	25	25	0
Jun 5 – Jun 14	0	0	79	79	0	13	13	0
Jun 14 – Jun 18	0	0	47	47	0	34	34	0
Jun 18 – Jun 25	**0**	**0**	**187**	**187**	**0**	**95**	**95**	**0**
[1]No traps were serviced in Zone 1 during the weeks of December 22, December 29, and January 5 due to excessive rain and muddy conditions preventing access								
[2]No traps were serviced in Zone 1 during the week of January 26 due to excessive rain and muddy conditions preventing access								
[3]No traps were serviced in Zone 1 during the week of February 9 due to excessive rain and muddy conditions preventing access								
[4]No traps were serviced in Zone 1 during the week of February 23 due to excessive rain and muddy conditions preventing access								


Zone 1 - Pistachio Orchard - Pheromone/PPO Baited Traps
Moths
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Dec 12 - Jan 9
Jan 9 - Jan 16
Jan 16 - Jan 29
Jan 29 - Feb 13
Feb 13 - Feb 27
Feb 27 - Mar 5
Mar 5 - Mar 12
Mar 12 - Mar 18
Mar 18 - Mar 26
Mar 26 - Apr 4
Apr 4 - Apr 9
Apr 9 - Apr 16
Apr 16 - Apr 23
Apr 23 - Apr 30
Apr 30 - May 7
May 7 - May 14
May 14 - May 22
May 22 - May 28
May 28 - Jun 5
Jun 5 - Jun 14
Jun 14 - Jun 18
Jun 18 - Jun 25
Male Sterile
Male Wild
Female Sterile
Female Wild
Non-ID Total

Zone 2 – Pistachio Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 2 on Monday, June 24.

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 18 – Jan 8	0	0	21	21	0	0	0	0
Jan 8 – Jan 16	0	0	7	7	0	0	0	0
[2]Jan 16 – Jan 31	0	0	87	87	0	12	12	0
[3]Jan 31 – Feb 12	0	0	11	11	0	0	0	0
[4]Feb 12 – Feb 26	0	0	45	45	0	0	0	0
Feb 26 – Mar 4	0	0	14	14	0	0	0	0
Mar 4 – Mar 11	0	0	69	69	0	8	8	0
[5]Mar 11 – Mar 28	0	0	1180	1180	0	33	33	2
Mar 28 – Apr 2	0	0	173	173	0	10	10	0
Apr 2 – Apr 8	0	0	236	236	0	49	49	0
Apr 8 – Apr 16	0	0	2424	2424	0	260	260	27
Apr 16 – Apr 22	0	0	2529	2529	0	754	754	12
Apr 22 – Apr 29	0	0	544	544	0	182	182	4
Apr 29 – May 8	0	0	105	105	0	73	73	0
May 8 – May 14	0	0	310	310	0	81	81	0
May 14 – May 20	0	0	80	80	0	37	37	0
May 20 – May 28	0	0	22	22	0	6	6	0
May 28 – Jun 4	0	0	7	7	0	11	11	0
Jun 4 – Jun 10	0	0	30	30	0	6	6	0
Jun 10 – Jun 17	0	0	32	32	0	13	13	0
Jun 17 – Jun 24	**0**	**0**	**33**	**33**	**0**	**14**	**14**	**0**
[1]No traps were serviced in Zone 2 during the weeks of December 29 and January 5 due to excessive rain and muddy conditions preventing access								
[2]No traps were serviced in Zone 2 during the week of January 26 due to excessive rain and muddy conditions preventing access								
[3]No traps were serviced in Zone 2 during the week of February 9 due to excessive rain and muddy conditions preventing access								
[4]No traps were serviced in Zone 2 during the week of February 23 due to excessive rain and muddy conditions preventing access								
[5]No traps were serviced in Zone 2 during the week of March 22 due to pesticide applications on site								


Zone 2 - Pistachio Orchard - Pheromone/PPO Baited Traps
Moths
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Dec 18 - Jan 8
Jan 8 - Jan 16
Jan 16 - Jan 31
Jan 31 - Feb 12
Feb 12 - Feb 26
Feb 26 - Mar 4
Mar 4 - Mar 11
Mar 11 - Mar 28
Mar 28 - Apr 2
Apr 2 - Apr 8
Apr 8 - Apr 16
Apr 16 - Apr 22
Apr 22 - Apr 29
Apr 29 - May 8
May 8 - May 14
May 14 - May 20
May 20 - May 28
May 28 - Jun 4
Jun 4 - Jun 10
Jun 10 - Jun 17
Jun 17 - Jun 24
Male Sterile
Male Wild
Female Sterile
Female Wild
Non-ID Total

Zone 3 – Almond Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 3 on Wednesday, June 26.

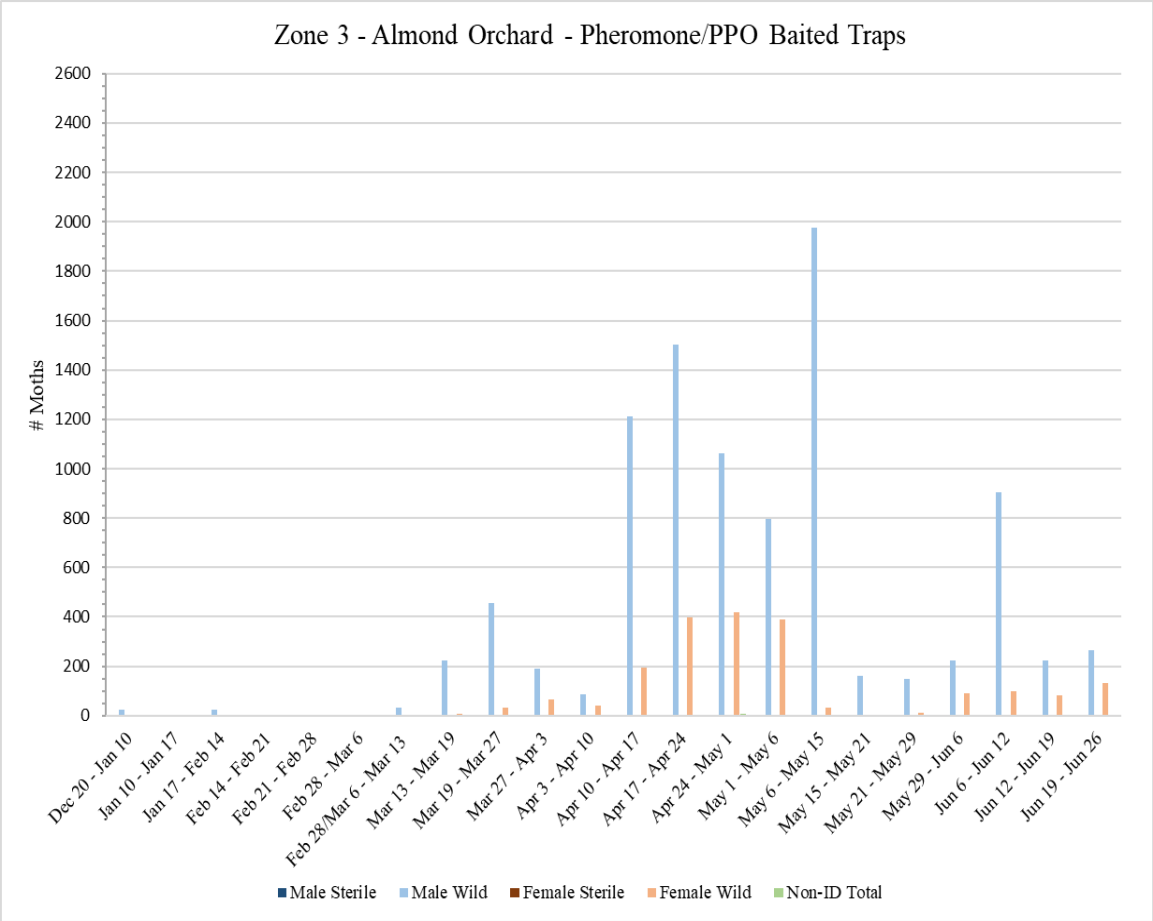
Zone 3 - Almond								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
[1]Dec 20 – Jan 10	0	0	24	24	0	0	0	0
Jan 10 – Jan 17	0	0	5	5	0	0	0	0
[2]Jan 17 – Feb 14	0	0	26	26	0	0	0	2
Feb 14 – Feb 21	0	0	5	5	0	0	0	0
Feb 21 – Feb 28	0	0	5	5	0	0	0	0
[3]Feb 28 – Mar 6	0	0	3	3	0	0	0	0
[4]Feb 28/Mar 6 – Mar 13	0	0	31	31	0	0	0	0
Mar 13 – Mar 19	0	0	223	223	0	6	6	0
Mar 19 – Mar 27	0	0	455	455	0	32	32	1
Mar 27 – Apr 3	0	0	191	191	0	65	65	1
Apr 3 – Apr 10	0	0	85	85	0	39	39	0
Apr 10 – Apr 17	0	0	1212	1212	0	194	194	1
Apr 17 – Apr 24	0	0	1501	1501	0	399	399	2
Apr 24 – May 1	0	0	1063	1063	0	420	420	7
May 1 – May 6	0	0	796	796	0	389	389	3
May 6 – May 15	0	0	1976	1976	0	33	33	4
May 15 – May 21	0	0	161	161	0	3	3	0
May 21 – May 29	0	0	148	148	0	12	12	0
May 29 – Jun 6	0	1	222	223	0	92	92	1
Jun 6 – Jun 12	0	2	904	906	0	100	100	0
Jun 12 – Jun 19	0	0	223	223	0	84	84	0
Jun 19 – Jun 26	**0**	**0**	**263**	**263**	**0**	**133**	**133**	**0**

[1]No traps were serviced in Zone 3 during the weeks of December 29 and January 5 due to excessive rain and muddy conditions preventing access

[2]No traps were serviced in Zone 3 during the weeks of January 26 and February 9 due to excessive rain and muddy conditions preventing access; No traps were serviced in Zone 3 during the week of February 2 due to pesticide applications on site

[3]Traps 13 - 36 not serviced in Zone 3 during the week of March 8 due to pesticide applications on site

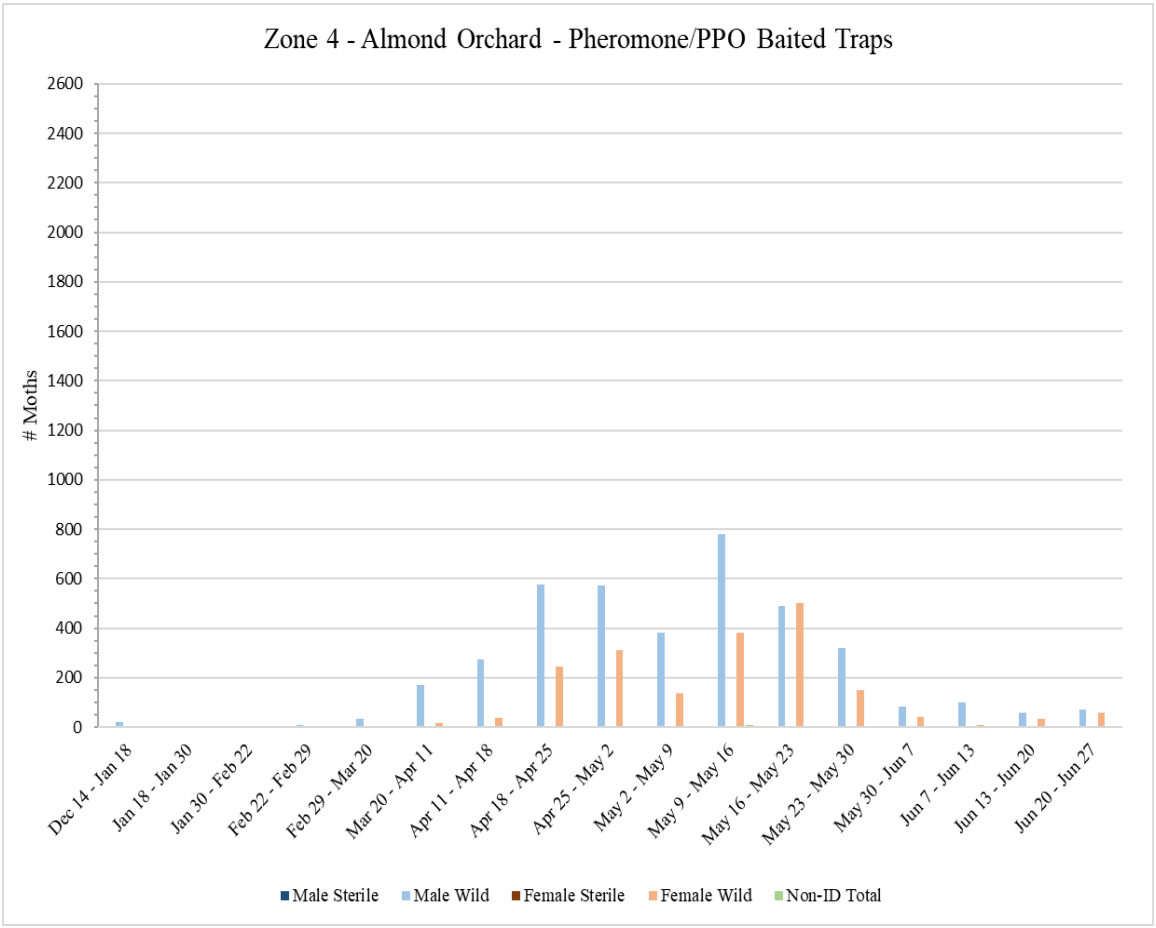
[4]Traps 13 - 36 in field since February 28


Zone 3 - Almond Orchard - Pheromone/PPO Baited Traps
Moths
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Dec 20 - Jan 10
Jan 10 - Jan 17
Jan 17 - Feb 14
Feb 14 - Feb 21
Feb 21 - Feb 28
Feb 28 - Mar 6
Feb 28/Mar 6 - Mar 13
Mar 13 - Mar 19
Mar 19 - Mar 27
Mar 27 - Apr 3
Apr 3 - Apr 10
Apr 10 - Apr 17
Apr 17 - Apr 24
Apr 24 - May 1
May 1 - May 6
May 6 - May 15
May 15 - May 21
May 21 - May 29
May 29 - Jun 6
Jun 6 - Jun 12
Jun 12 - Jun 19
Jun 19 - Jun 26
Male Sterile
Male Wild
Female Sterile
Female Wild
Non-ID Total

Zone 4 – Almond Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 4 on Thursday, June 27.

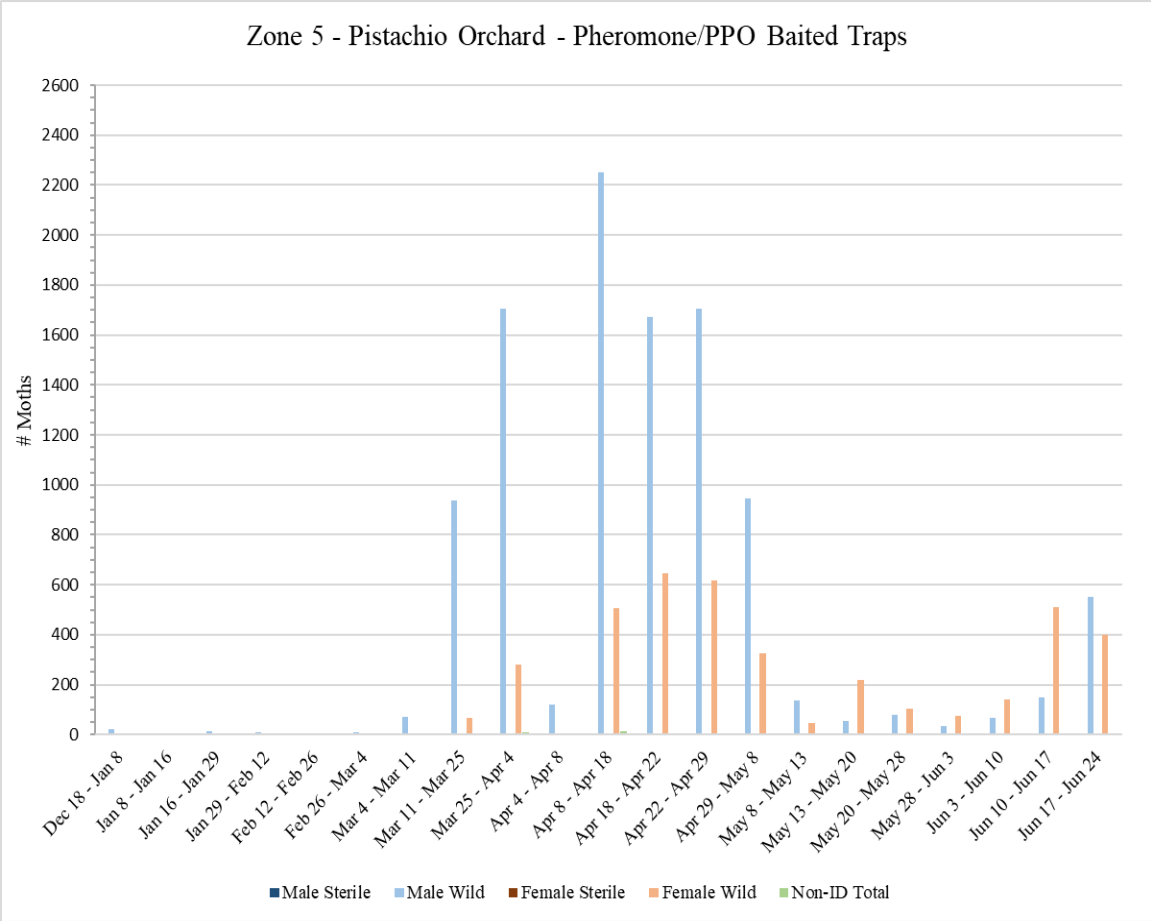
Zone 4 - Almond								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
[1]Dec 14 – Jan 18	0	0	20	20	0	1	1	0
[2]Jan 18 – Jan 30	0	0	4	4	0	0	0	0
[3]Jan 30 – Feb 22	0	0	3	3	0	0	0	1
Feb 22 – Feb 29	0	0	10	10	0	0	0	0
[4]Feb 29 – Mar 20	0	0	35	35	0	0	0	0
[5]Mar 20 – Apr 11	0	0	170	170	0	16	16	0
Apr 11 – Apr 18	0	0	274	274	0	37	37	0
Apr 18 – Apr 25	0	0	575	575	0	246	246	0
Apr 25 – May 2	0	0	573	573	0	311	311	2
May 2 – May 9	0	0	383	383	0	139	139	0
May 9 – May 16	0	0	778	778	0	383	383	9
May 16 – May 23	0	0	490	490	0	501	501	6
May 23 – May 30	0	0	319	319	0	151	151	3
May 30 – Jun 7	0	0	85	85	0	43	43	0
Jun 7 – Jun 13	0	0	99	99	0	8	8	0
Jun 13 – Jun 20	0	0	60	60	0	35	35	0
Jun 20 – Jun 27	**0**	**0**	**69**	**69**	**0**	**58**	**58**	**0**
[1]No traps were serviced in Zone 4 during the weeks of December 22, December 29, January 5, and January 12 due to excessive rain and muddy conditions preventing access								
[2]No traps were serviced in Zone 4 during the week of January 26 due to excessive rain and muddy conditions preventing access								
[3]No traps were serviced in Zone 4 during the weeks of February 9 and February 16 due to excessive rain and muddy conditions preventing access								
[4]No traps were serviced in Zone 4 during the week of March 8 due to excessive rain and muddy conditions preventing access; No traps were serviced in Zone 4 during the week of March 15 due to pesticide applications on site								
[5]No traps were serviced in Zone 4 during the week of March 29 due to pesticide applications on site; No traps were serviced in Zone 4 during the week of April 5 due to staffing issues								


Zone 4 - Almond Orchard - Pheromone/PPO Baited Traps
Moths
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Dec 14 - Jan 18
Jan 18 - Jan 30
Jan 30 - Feb 22
Feb 22 - Feb 29
Feb 29 - Mar 20
Mar 20 - Apr 11
Apr 11 - Apr 18
Apr 18 - Apr 25
Apr 25 - May 2
May 2 - May 9
May 9 - May 16
May 16 - May 23
May 23 - May 30
May 30 - Jun 7
Jun 7 - Jun 13
Jun 13 - Jun 20
Jun 20 - Jun 27
Male Sterile
Male Wild
Female Sterile
Female Wild
Non-ID Total

Zone 5 – Pistachio Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 5 on Monday, June 24.

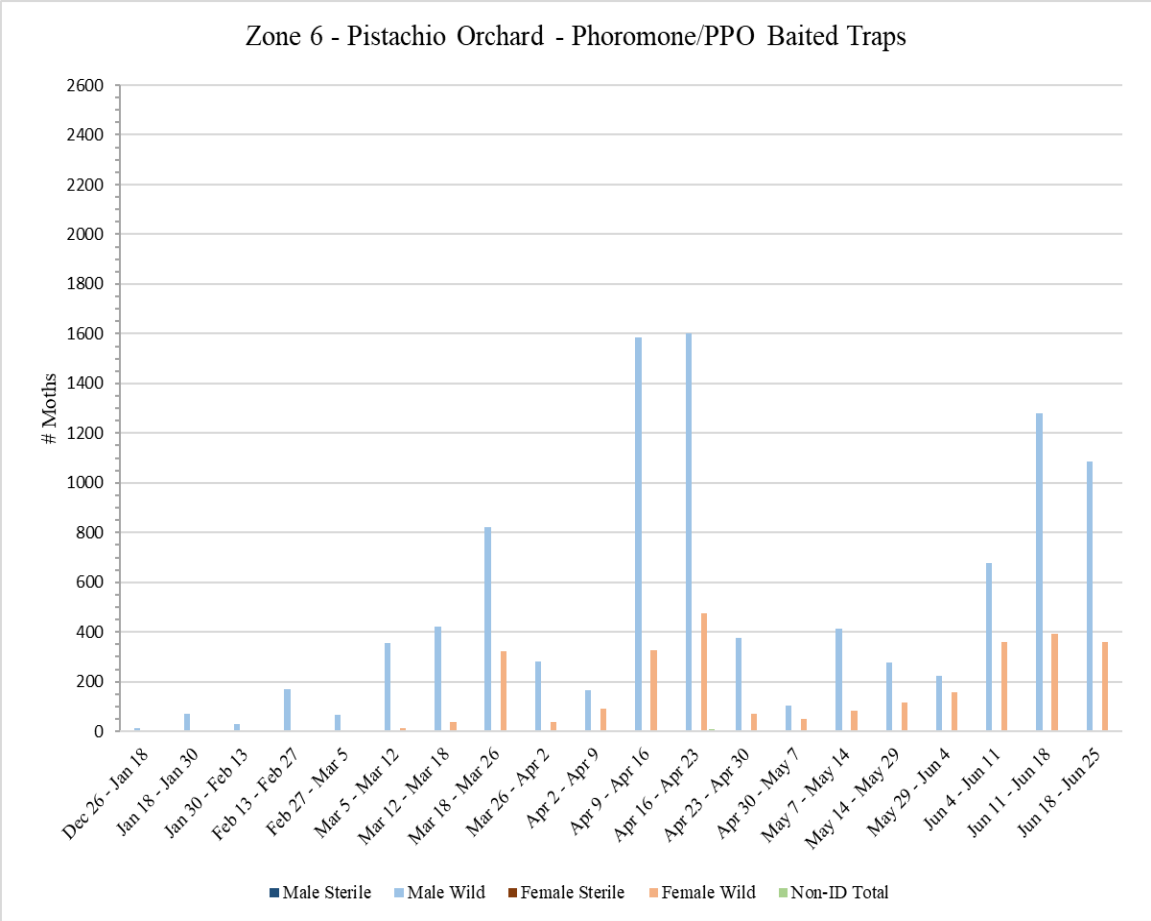
Zone 5 - Pistachio								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
[1]Dec 18 – Jan 8	0	0	21	21	0	0	0	0
Jan 8 – Jan 16	0	0	2	2	0	0	0	0
[2]Jan 16 – Jan 29	0	0	14	14	0	1	1	0
[3]Jan 29 – Feb 12	0	0	8	8	0	0	0	0
[4]Feb 12 – Feb 26	0	0	0	0	0	0	0	0
Feb 26 – Mar 4	0	0	11	11	0	0	0	0
Mar 4 – Mar 11	0	0	70	70	0	1	1	0
[5]Mar 11 – Mar 25	0	0	938	938	0	68	68	0
Mar 25 – Apr 4	0	0	1707	1707	0	281	281	9
Apr 4 – Apr 8	0	0	119	119	0	7	7	0
Apr 8 – Apr 18	0	0	2250	2250	0	507	507	13
Apr 18 – Apr 22	0	0	1672	1672	0	647	647	0
Apr 22 – Apr 29	0	0	1707	1707	0	617	617	0
Apr 29 – May 8	0	0	945	945	0	325	325	2
May 8 – May 13	0	0	137	137	0	45	45	0
May 13 – May 20	0	0	55	55	1	219	220	2
May 20 – May 28	0	0	79	79	0	103	103	0
May 28 – Jun 3	0	0	33	33	0	74	74	0
Jun 3 – Jun 10	0	0	68	68	0	141	141	3
Jun 10 – Jun 17	0	0	150	150	0	510	510	1
Jun 17 – Jun 24	**0**	**0**	**550**	**550**	**0**	**398**	**398**	**0**
[1]No traps were serviced in Zone 5 during the weeks of December 29 and January 5 due to excessive rain and muddy conditions preventing access								
[2]No traps were serviced in Zone 5 during the week of January 26 due to excessive rain and muddy conditions preventing access								
[3]No traps were serviced in Zone 5 during the week of February 9 due to excessive rain and muddy conditions preventing access								
[4]No traps were serviced in Zone 5 during the week of February 23 due to excessive rain and muddy conditions preventing access								
[5]No traps were serviced in Zone 5 during the week of March 22 due to pesticide applications on site								


Zone 5 - Pistachio Orchard - Pheromone/PPO Baited Traps
Moths
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Dec 18 - Jan 8
Jan 8 - Jan 16
Jan 16 - Jan 29
Jan 29 - Feb 12
Feb 12 - Feb 26
Feb 26 - Mar 4
Mar 4 - Mar 11
Mar 11 - Mar 25
Mar 25 - Apr 4
Apr 4 - Apr 8
Apr 8 - Apr 18
Apr 18 - Apr 22
Apr 22 - Apr 29
Apr 29 - May 8
May 8 - May 13
May 13 - May 20
May 20 - May 28
May 28 - Jun 3
Jun 3 - Jun 10
Jun 10 - Jun 17
Jun 17 - Jun 24
Male Sterile
Male Wild
Female Sterile
Female Wild
Non-ID Total

Zone 6 – Pistachio Orchard

A total of **35** pheromone/PPO lure-baited traps were collected from Zone 6 on Tuesday, June 25. Trap number 23 was missing.

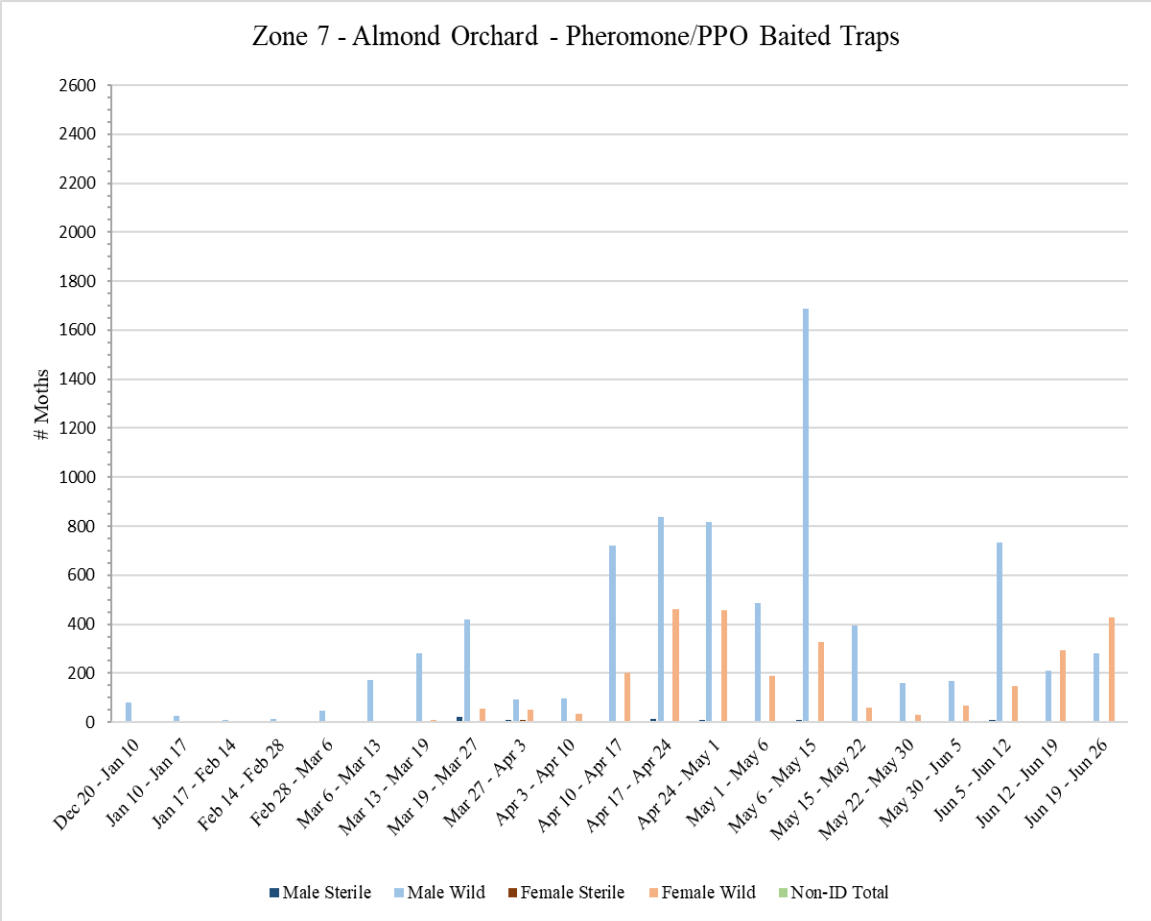
Zone 6 - Pistachio								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
[1]Dec 26 – Jan 18	0	0	14	14	0	0	0	0
[2]Jan 18 – Jan 30	0	0	71	71	0	0	0	0
[3]Jan 30 – Feb 13	0	0	28	28	0	2	2	0
[4]Feb 13 – Feb 27	0	0	172	172	0	1	1	0
Feb 27 – Mar 5	0	0	68	68	0	2	2	1
Mar 5 – Mar 12	0	0	355	355	0	13	13	0
Mar 12 – Mar 18	0	0	422	422	0	36	36	0
Mar 18 – Mar 26	0	0	823	823	0	321	321	2
Mar 26 – Apr 2	0	0	283	283	0	39	39	0
Apr 2 – Apr 9	0	0	167	167	0	92	92	0
Apr 9 – Apr 16	0	0	1587	1587	0	328	328	4
Apr 16 – Apr 23	0	0	1601	1601	0	477	477	11
Apr 23 – Apr 30	0	0	375	375	0	70	70	0
Apr 30 – May 7	0	0	103	103	0	51	51	0
May 7 – May 14	0	0	414	414	0	82	82	1
[5]May 14 – May 29	0	0	278	278	0	116	116	0
May 29 – Jun 4	0	0	222	222	0	156	156	2
Jun 4 – Jun 11	0	0	676	676	0	361	361	0
Jun 11 – Jun 18	0	0	1278	1278	0	393	393	0
Jun 18 – Jun 25	**0**	**0**	**1085**	**1085**	**0**	**361**	**361**	**2**
[1]No traps were serviced in Zone 6 during the weeks of January 5 and January 12 due to excessive rain and muddy conditions preventing access								
[2]No traps were serviced in Zone 6 during the week of January 26 due to excessive rain and muddy conditions preventing access								
[3]No traps were serviced in Zone 6 during the week of February 9 due to excessive rain and muddy conditions preventing access								
[4]No traps were serviced in Zone 6 during the week of February 23 due to excessive rain and muddy conditions preventing access								
[5]No traps were serviced in Zone 6 during the week of May 24 due to pesticide applications on site								


Zone 6 - Pistachio Orchard - Phoromone/PPO Baited Traps
Moths
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Dec 26 - Jan 18
Jan 18 - Jan 30
Jan 30 - Feb 13
Feb 13 - Feb 27
Feb 27 - Mar 5
Mar 5 - Mar 12
Mar 12 - Mar 18
Mar 18 - Mar 26
Mar 26 - Apr 2
Apr 2 - Apr 9
Apr 9 - Apr 16
Apr 16 - Apr 23
Apr 23 - Apr 30
Apr 30 - May 7
May 7 - May 14
May 14 - May 29
May 29 - Jun 4
Jun 4 - Jun 11
Jun 11 - Jun 18
Jun 18 - Jun 25
Male Sterile
Male Wild
Female Sterile
Female Wild
Non-ID Total

Zone 7 – Almond Orchard

A total of **35** pheromone/PPO lure-baited traps were collected from Zone 7 on Wednesday, June 26. Trap number 30 was missing.

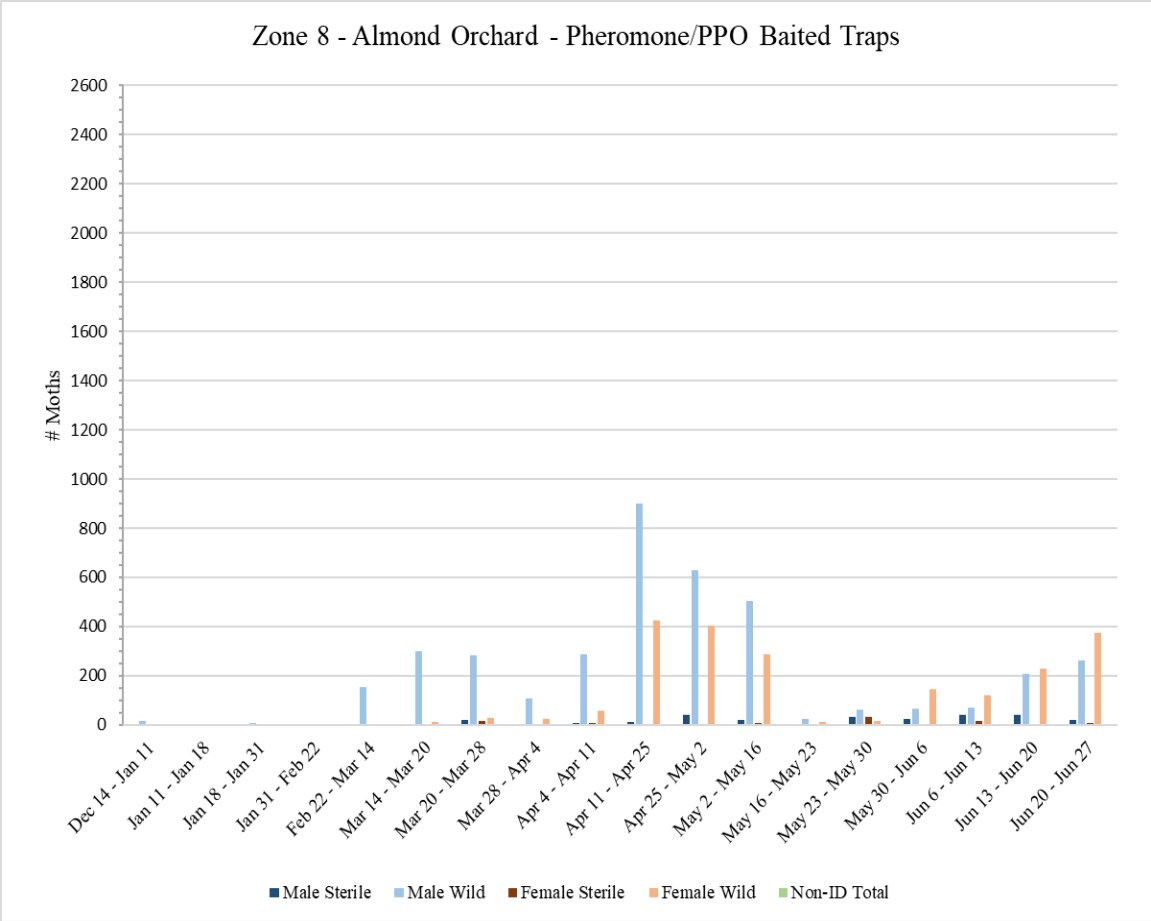
Zone 7 - Almond								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
[1]Dec 20 – Jan 10	0	0	81	81	0	0	0	0
Jan 10 – Jan 17	0	0	24	24	0	1	1	0
[2]Jan 17 – Feb 14	0	0	8	8	0	0	0	0
[3]Feb 14 – Feb 28	0	0	14	14	0	0	0	0
Feb 28 – Mar 6	0	0	46	46	0	0	0	0
Mar 6 – Mar 13	0	0	173	173	0	0	0	0
Mar 13 – Mar 19	0	0	280	280	0	10	10	0
Mar 19 – Mar 27	3	23	419	442	3	53	56	0
Mar 27 – Apr 3	3	11	93	104	7	51	58	0
Apr 3 – Apr 10	6	3	98	101	5	34	39	0
Apr 10 – Apr 17	8	3	719	722	0	203	203	1
Apr 17 – Apr 24	8	12	837	849	0	461	461	2
Apr 24 – May 1	8	10	817	827	1	455	456	2
May 1 – May 6	6	2	487	489	0	190	190	1
May 6 – May 15	9	8	1689	1697	3	327	330	6
May 15 – May 22	7	1	395	396	0	60	60	2
May 22 – May 30	8	4	161	165	1	30	31	0
May 30 – Jun 5	7	0	167	167	0	67	67	0
Jun 5 – Jun 12	7	8	731	739	0	145	145	1
Jun 12 – Jun 19	7	6	210	216	2	294	296	0
Jun 19 – Jun 26	**7**	**5**	**282**	**287**	**3**	**426**	**429**	**1**
[1]No traps were serviced in Zone 7 during the weeks of December 29 and January 5 due to excessive rain and muddy conditions preventing access								
[2]No traps were serviced in Zone 7 during the weeks of January 26 and February 9 due to excessive rain and muddy conditions preventing access; No traps were serviced in Zone 7 during the week of February 2 due to pesticide applications on site								
[3]No traps were serviced in Zone 7 during the week of February 23 due to excessive rain and muddy conditions preventing access								


Zone 7 - Almond Orchard - Pheromone/PPO Baited Traps
Moths
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Dec 20 - Jan 10
Jan 10 - Jan 17
Jan 17 - Feb 14
Feb 14 - Feb 28
Feb 28 - Mar 6
Mar 6 - Mar 13
Mar 13 - Mar 19
Mar 19 - Mar 27
Mar 27 - Apr 3
Apr 3 - Apr 10
Apr 10 - Apr 17
Apr 17 - Apr 24
Apr 24 - May 1
May 1 - May 6
May 6 - May 15
May 15 - May 22
May 22 - May 30
May 30 - Jun 5
Jun 5 - Jun 12
Jun 12 - Jun 19
Jun 19 - Jun 26
Male Sterile
Male Wild
Female Sterile
Female Wild
Non-ID Total

Zone 8 – Almond Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 8 on Thursday, June 27.

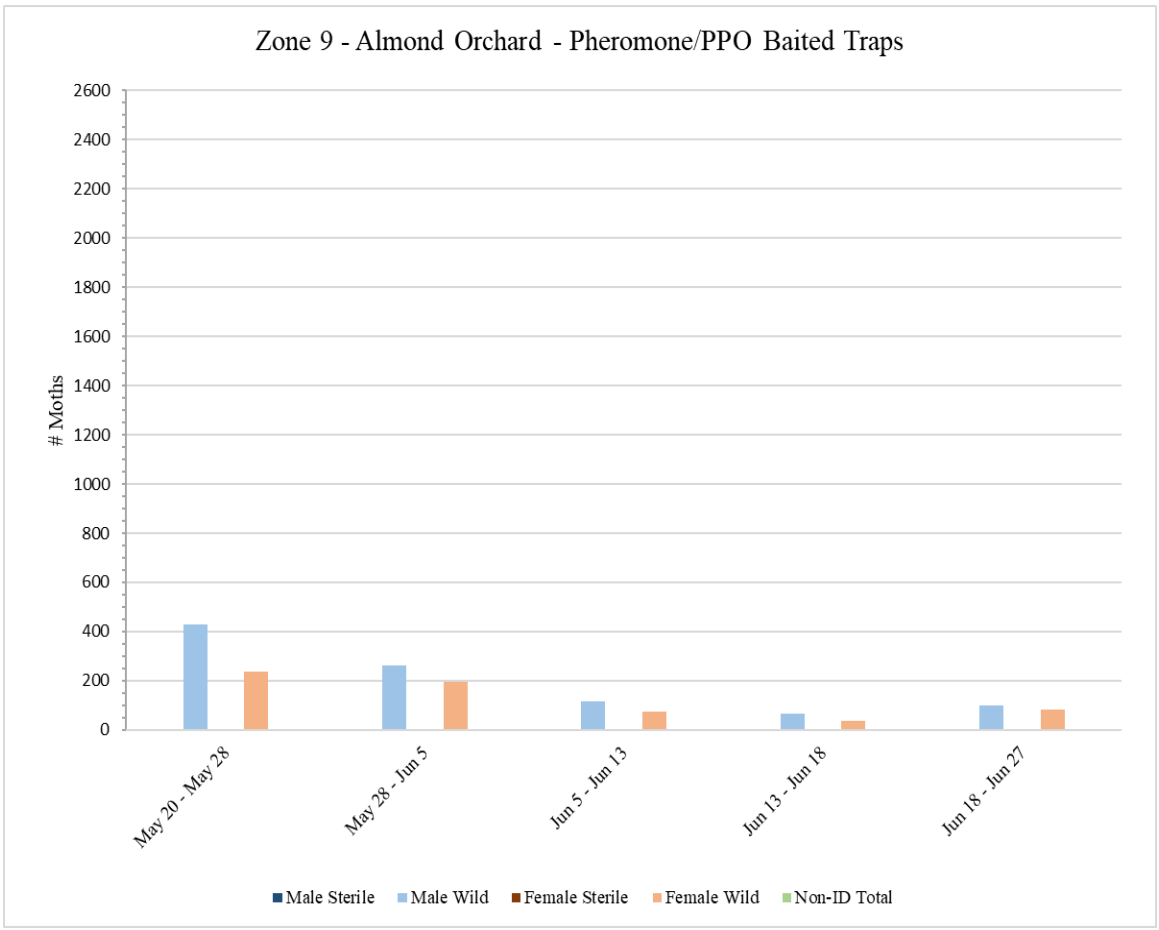
Zone 8 - Almond								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
[1]Dec 14 – Jan 11	0	0	16	16	0	0	0	0
Jan 11 – Jan 18	0	0	3	3	0	0	0	0
[2]Jan 18 – Jan 31	0	0	6	6	0	0	0	0
[3]Jan 31 – Feb 22	0	0	2	2	0	0	0	0
[4]Feb 22 – Mar 14	0	0	153	153	0	1	1	0
Mar 14 – Mar 20	0	0	299	299	0	11	11	0
Mar 20 – Mar 28	3	22	281	303	17	27	44	1
Mar 28 – Apr 4	3	5	108	113	3	23	26	0
Apr 4 – Apr 11	6	7	286	293	8	59	67	0
[5]Apr 11 – Apr 25	15	12	901	913	1	426	427	5
Apr 25 – May 2	8	40	631	671	5	404	409	0
[6]May 2 – May 16	14	20	506	526	7	289	296	0
May 16 – May 23	7	1	24	25	1	14	15	0
May 23 – May 30	8	32	63	95	31	17	48	0
May 30 – Jun 6	7	23	68	91	2	144	146	0
Jun 6 – Jun 13	8	43	70	113	17	121	138	1
Jun 13 – Jun 20	7	43	206	249	4	229	233	0
Jun 20 – Jun 27	**8**	**22**	**261**	**283**	**9**	**376**	**385**	**0**
[1]No traps were serviced in Zone 8 during the weeks of December 22, December 29, and January 5 due to excessive rain and muddy conditions preventing access								
[2]No traps were serviced in Zone 8 during the week of January 26 due to excessive rain and muddy conditions preventing access								
[3]No traps were serviced in Zone 8 during the weeks of February 9 and February 16 due to excessive rain and muddy conditions preventing access								
[4]No traps were serviced in Zone 8 during the week of March 1 due to pesticide applications on site; No traps were serviced in Zone 8 during the week of March 8 due to excessive rain and muddy conditions preventing access								
[5]No traps were serviced in Zone 8 during the week of April 19 due to pesticide applications on site								
[6]No traps were serviced in Zone 8 during the week of May 10 due to pesticide applications on site								


Zone 8 - Almond Orchard - Pheromone/PPO Baited Traps
Moths
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Dec 14 - Jan 11
Jan 11 - Jan 18
Jan 18 - Jan 31
Jan 31 - Feb 22
Feb 22 - Mar 14
Mar 14 - Mar 20
Mar 20 - Mar 28
Mar 28 - Apr 4
Apr 4 - Apr 11
Apr 11 - Apr 25
Apr 25 - May 2
May 2 - May 16
May 16 - May 23
May 23 - May 30
May 30 - Jun 6
Jun 6 - Jun 13
Jun 13 - Jun 20
Jun 20 - Jun 27
Male Sterile
Male Wild
Female Sterile
Female Wild
Non-ID Total

Zone 9 – Almond Orchard

A total of **34** pheromone/PPO lure-baited traps were collected from Zone 9 on Thursday, June 27.

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
May 20 – May 28	0	0	427	427	0	239	239	1
May 28 – Jun 5	0	0	262	262	0	197	197	0
Jun 5 – Jun 13	0	0	117	117	0	75	75	0
Jun 13 – Jun 18	0	0	65	65	0	36	36	0
Jun 18 – Jun 27	**0**	**0**	**99**	**99**	**0**	**83**	**83**	**0**


Zone 9 - Almond Orchard - Pheromone/PPO Baited Traps
Moths
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
May 20 - May 28
May 28 - Jun 5
Jun 5 - Jun 13
Jun 13 - Jun 18
Jun 18 - Jun 27
Male Sterile
Male Wild
Female Sterile
Female Wild
Non-ID Total

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, 2024. 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
1/1/2024	43	57	0.15	0.15
1/2/2024	44	53	0.00	0.15
1/3/2024	42	58	0.25	0.40
1/4/2024	37	54	0.00	0.40
1/5/2024	37	56	0.02	0.42
1/6/2024	34	50	0.00	0.42
1/7/2024	33	52	0.00	0.42
1/8/2024	29	53	0.00	0.42
1/9/2024	28	56	0.04	0.46
1/10/2024	47	59	0.48	0.93
1/11/2024	31	54	0.00	0.93
1/12/2024	26	54	0.00	0.93
1/13/2024	34	51	0.00	0.93
1/14/2024	40	62	1.32	2.26
1/15/2024	46	56	0.05	2.30
1/16/2024	45	51	0.00	2.30
1/17/2024	37	57	0.10	2.41
1/18/2024	38	59	0.46	2.86
1/19/2024	44	62	1.91	4.77
1/20/2024	52	64	2.44	7.21
1/21/2024	37	56	0.05	7.26
1/22/2024	49	60	1.09	8.34
1/23/2024	48	62	1.75	10.09
1/24/2024	48	57	0.18	10.28
1/25/2024	43	62	1.20	11.48
1/26/2024	40	63	1.50	12.97
1/27/2024	43	62	1.26	14.23
1/28/2024	42	68	3.19	17.42
1/29/2024	41	73	4.85	22.27
1/30/2024	38	61	1.29	23.56
1/31/2024	51	71	5.87	29.42
2/1/2024	47	62	1.50	30.92
2/2/2024	44	60	0.69	31.61
2/3/2024	39	55	0.00	31.61
2/4/2024	47	59	0.62	32.23
2/5/2024	45	63	1.78	34.01
2/6/2024	45	58	0.31	34.31
2/7/2024	41	56	0.03	34.34
2/8/2024	39	53	0.00	34.34
2/9/2024	35	55	0.00	34.34

Date	Air Temperatures (°F)		Degree Days	
	Min	Max	Daily	Accumulated
2/10/2024	36	56	0.02	34.37
2/11/2024	31	61	0.63	35.00
2/12/2024	34	62	0.91	35.91
2/13/2024	36	63	1.26	37.17
2/14/2024	39	65	2.15	39.32
2/15/2024	44	60	0.76	40.08
2/16/2024	43	62	1.52	41.60
2/17/2024	48	61	1.38	42.98
2/18/2024	48	67	4.01	46.99
2/19/2024	50	67	3.92	50.91
2/20/2024	47	66	2.76	53.67
2/21/2024	40	65	2.04	55.71
2/22/2024	41	65	2.13	57.84
2/23/2024	42	64	1.84	59.68
2/24/2024	42	71	4.27	63.95
2/25/2024	40	72	4.84	68.79
2/26/2024	44	61	1.06	69.85
2/27/2024	44	62	1.19	71.04
2/28/2024	38	69	3.33	74.37
2/29/2024	41	66	2.59	76.95
3/1/2024	44	66	3.06	80.01
3/2/2024	48	56	0.05	80.06
3/3/2024	43	60	0.65	80.71
3/4/2024	38	60	0.73	81.44
3/5/2024	46	66	2.83	84.27
3/6/2024	43	66	2.91	87.18
3/7/2024	47	63	1.67	88.84
3/8/2024	39	67	2.67	91.51
3/9/2024	41	68	3.40	94.92
3/10/2024	45	68	3.46	98.38
3/11/2024	42	68	3.74	102.12
3/12/2024	48	67	3.33	105.45
3/13/2024	42	65	2.09	107.54
3/14/2024	40	68	3.13	110.67
3/15/2024	42	70	3.71	114.38
3/16/2024	37	73	4.86	119.25
3/17/2024	42	74	5.64	124.89
3/18/2024	42	77	7.36	132.25
3/19/2024	46	79	8.73	140.98
3/20/2024	46	79	8.73	149.70
3/21/2024	46	74	6.69	156.40
3/22/2024	48	79	8.65	165.04
3/23/2024	43	64	1.81	166.85
3/24/2024	40	62	1.07	167.92
3/25/2024	38	67	2.48	170.40
3/26/2024	38	68	2.92	173.32
3/27/2024	40	73	6.14	179.45
3/28/2024	51	65	3.10	182.56
3/29/2024	46	63	1.83	184.39
3/30/2024	45	64	2.03	186.42
3/31/2024	43	66	2.69	189.11

Date	Air Temperatures (°F)		Degree Days	
	Min	Max	Daily	Accumulated
4/1/2024	44	73	5.59	194.69
4/2/2024	44	77	7.57	202.26
4/3/2024	46	81	9.52	211.79
4/4/2024	45	59	0.48	212.26
4/5/2024	38	56	0.02	212.29
4/6/2024	32	63	1.24	213.53
4/7/2024	41	65	2.00	215.53
4/8/2024	39	70	3.75	219.29
4/9/2024	41	77	7.14	226.43
4/10/2024	45	82	10.29	236.71
4/11/2024	48	86	13.39	250.10
4/12/2024	52	82	10.75	260.85
4/13/2024	43	64	1.93	262.78
4/14/2024	43	61	1.03	263.81
4/15/2024	44	67	3.28	267.09
4/16/2024	46	74	8.47	275.56
4/17/2024	57	81	12.83	288.39
4/18/2024	52	85	14.32	302.71
4/19/2024	55	83	13.13	315.83
4/20/2024	51	86	13.19	329.02
4/21/2024	48	86	13.60	342.62
4/22/2024	53	89	15.63	358.26
4/23/2024	51	77	8.98	367.23
4/24/2024	49	71	5.58	372.81
4/25/2024	47	77	8.51	381.32
4/26/2024	50	75	7.13	388.45
4/27/2024	43	76	7.02	395.46
4/28/2024	46	80	8.94	404.40
4/29/2024	44	80	8.80	413.20
4/30/2024	45	81	9.98	423.18
5/1/2024	49	80	9.26	432.44
5/2/2024	43	83	10.66	443.11
5/3/2024	49	84	11.14	454.24
5/4/2024	43	68	3.10	457.34
5/5/2024	38	66	2.24	459.58
5/6/2024	40	72	4.84	464.42
5/7/2024	44	77	7.99	472.41
5/8/2024	49	79	8.91	481.32
5/9/2024	44	87	12.87	494.20
5/10/2024	50	91	16.43	510.63
5/11/2024	53	93	18.28	528.91
5/12/2024	54	95	18.23	547.14
5/13/2024	53	91	17.05	564.19
5/14/2024	53	92	18.28	582.47
5/15/2024	56	92	19.25	601.72
5/16/2024	57	93	19.03	620.74
5/17/2024	53	84	14.03	634.78
5/18/2024	55	89	16.31	651.09
5/19/2024	52	86	13.07	664.16
5/20/2024	46	85	12.02	676.18
5/21/2024	49	87	13.66	689.83

Date	Air Temperatures (°F)		Degree Days	
	Min	Max	Daily	Accumulated
5/22/2024	50	90	15.93	705.77
5/23/2024	53	85	13.11	718.88
5/24/2024	48	85	12.00	730.88
5/25/2024	47	80	9.78	740.66
5/26/2024	49	84	12.58	753.23
5/27/2024	52	91	17.56	770.79
5/28/2024	56	93	18.55	789.35
5/29/2024	52	89	15.62	804.97
5/30/2024	52	93	18.30	823.27
5/31/2024	55	95	19.15	842.43
6/1/2024	56	96	18.68	861.10
6/2/2024	55	88	17.50	878.60
6/3/2024	59	86	17.00	895.60
6/4/2024	57	92	21.50	917.10
6/5/2024	65	100	20.47	937.57
6/6/2024	67	104	17.84	955.41
6/7/2024	61	102	17.55	972.96
6/8/2024	58	93	20.00	992.96
6/9/2024	56	94	20.15	1013.11
6/10/2024	57	95	21.25	1034.36
6/11/2024	63	101	19.48	1053.84
6/12/2024	66	105	17.44	1071.28
6/13/2024	62	96	20.44	1091.72
6/14/2024	57	95	20.79	1112.51
6/15/2024	61	90	18.76	1131.27
6/16/2024	54	91	19.26	1150.52
6/17/2024	61	84	14.93	1165.46
6/18/2024	50	87	14.03	1179.49
6/19/2024	51	92	17.35	1196.84
6/20/2024	54	92	18.51	1215.35
6/21/2024	56	96	19.79	1235.13
6/22/2024	60	102	18.41	1253.54
6/23/2024	65	106	17.6	1271.14
6/24/2024	71	101	21.09	1292.23
6/25/2024	73	104	18.75	1310.98
6/26/2024	66	98	21.41	1332.39
6/27/2024	64	94	21.88	1354.27
6/28/2024	**56**	**95**	**19.39**	**1373.66**

V. Quality Control

QC tests are performed on samples taken from each shipment of sterile NOW moths. These tests include: zero-hour mortality rates, zero-hour mating dissections, forty-eight-hour mating dissections, seven-day longevity monitoring, and crush tests. Throughout the span of a week, Monday through Sunday, the results of each test are averaged. Below are the QC results from samples of sterile NOW moths for Mag 1, primarily released over Zones 7 and 8, during the week of Monday, June 17, 2024 to Sunday, June 23, 2024:

- 1% of moths from samples found dead at zero hour
- 2% of moths from samples found to have mated at zero hour
- 70% of moths from samples found to have mated after forty-eight hours
- 83% of moths from samples remained alive after seven days in BioChamber
- 99% of moths from samples found to have distinct red dye markings