

Navel Orangeworm Program 2025 – Weekly Report

Week Ending – March 21, 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 with one magazine of approximately 750,000 sterile moths being released daily over select sites in West Fresno County. Initially, CDFA will conduct ground releases at select sites until aerial releases are available later in the year. Releases will be conducted exclusively over almond sites initially and will change to being exclusively conducted over pistachio sites later in the year to prioritize periods of crop-specific vulnerability to NOW damage.

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
- Week of January 31: No traps were serviced in Zone 9 due to excessive rain and muddy conditions preventing access to trap sites; Zone 3, trap numbers 26 – 36 not serviced due to pesticide applications on site
- Week of February 7: No traps were serviced in Zones 3 and 7 due to pesticide applications on site; Zone 4, trap numbers 8 – 36 not serviced due to pesticide applications on site; No traps were serviced in Zone 6 due to

rain and muddy conditions preventing access to trap sites

- Week of February 14: No traps were serviced in Zones 3 and 7 due to pesticide applications on site
- Week of February 21: No traps were serviced in Zones 3 and 7 due to pesticide applications on site; No traps were serviced in Zone 6 due to staffing issues
- Week of March 7: No traps were serviced in Zones 2, 3, 4, and 7 due to pesticide applications on site; No traps were serviced in Zone 5 due to excessive rain and muddy conditions preventing access to trap sites
- Week of March 21: No traps were serviced in Zones 4 and 6 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	Date Added to Area Wide Project
Zone 2	Pistachio	640	TBD	February 2023
Zone 3	Almond	640	Release	February 2023
Zone 4	Almond	640	TBD	February 2023
Zone 5	Pistachio	640	TBD	March 2023
Zone 6	Pistachio	640	TBD	March 2023
Zone 7	Almond	640	TBD	April 2023
Zone 8	Almond	640	TBD	April 2023
Zone 9	Almond	600	Release	May 2024

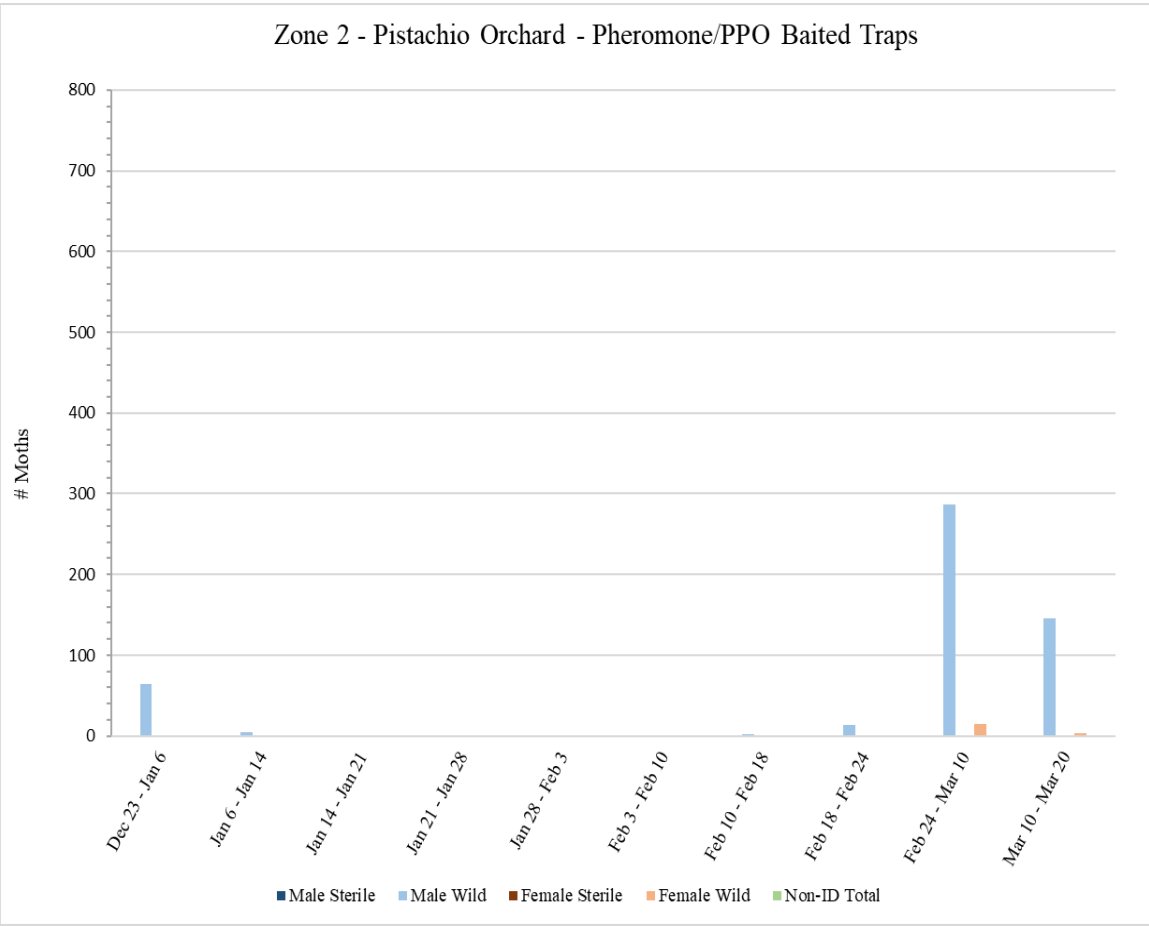
Each zone has a trap site ratio of approximately one trap site per 18 acres for a total of 36 trap sites for each 640-acre zone and 34 traps for the 600-acre zone. Each trap site has one trap baited with NOW pheromone/PPO lures. All traps are serviced on a weekly basis. Servicing includes collecting 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 March 21, 2025

Zone 2 – Pistachio Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 2 on Thursday, March 20.

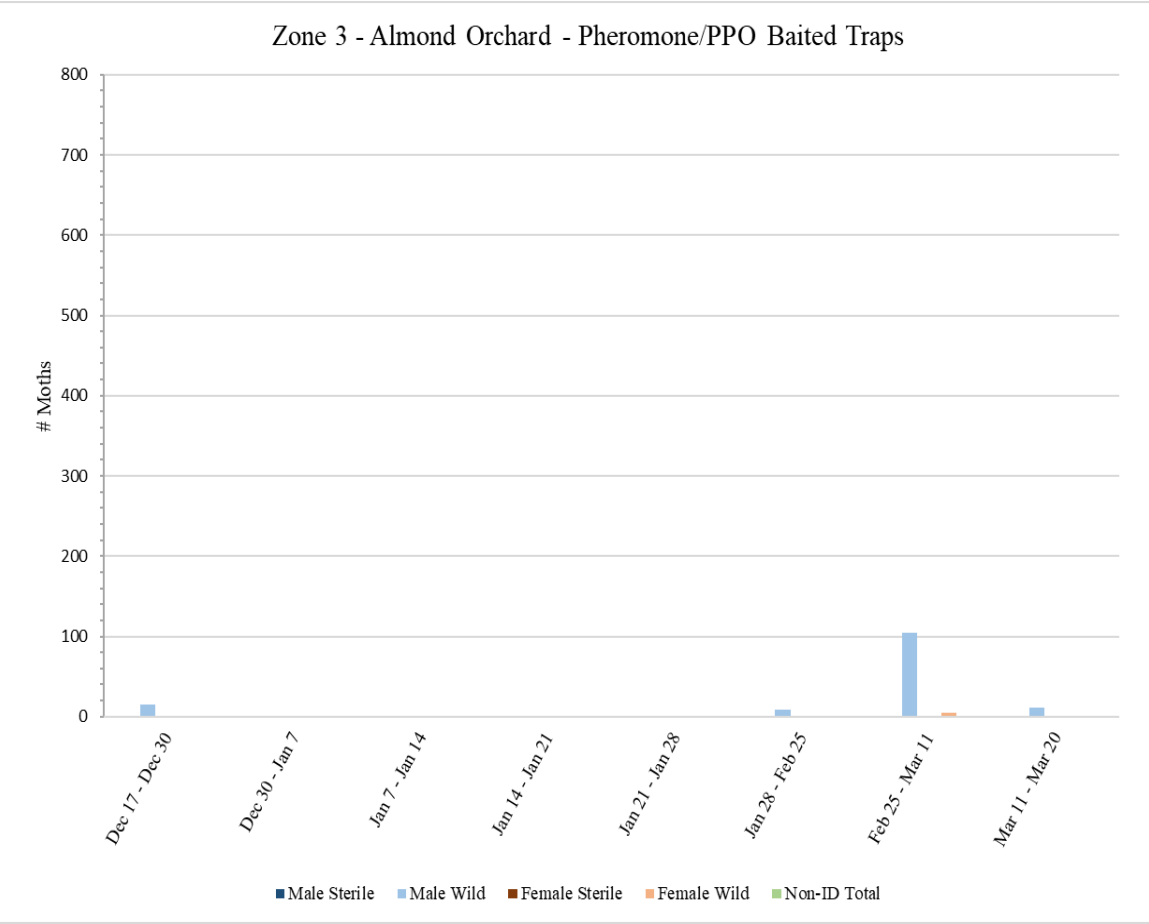
Zone 2 - Pistachio								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
¹ Dec 23 – Jan 6	0	0	65	65	0	0	0	0
Jan 6 – Jan 14	0	0	5	5	0	0	0	0
Jan 14 – Jan 21	0	0	0	0	0	0	0	0
Jan 21 – Jan 28	0	0	0	0	0	0	0	0
Jan 28 – Feb 3	0	0	0	0	0	0	0	0
Feb 3 – Feb 10	0	0	0	0	0	0	0	0
Feb 10 – Feb 18	0	0	2	2	0	0	0	0
Feb 18 – Feb 24	0	0	14	14	0	1	1	0
² Feb 24 – Mar 10	0	0	287	287	0	15	15	0
Mar 10 – Mar 20	0	0	146	146	0	4	4	0
¹ No traps were serviced in Zone 2 during the week of January 3 due to excessive rain and muddy conditions preventing access								
² No traps were serviced in Zone 2 during the week of March 7 due to pesticide applications on site								



Zone 3 – Almond Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 3 on Thursday, March 20.

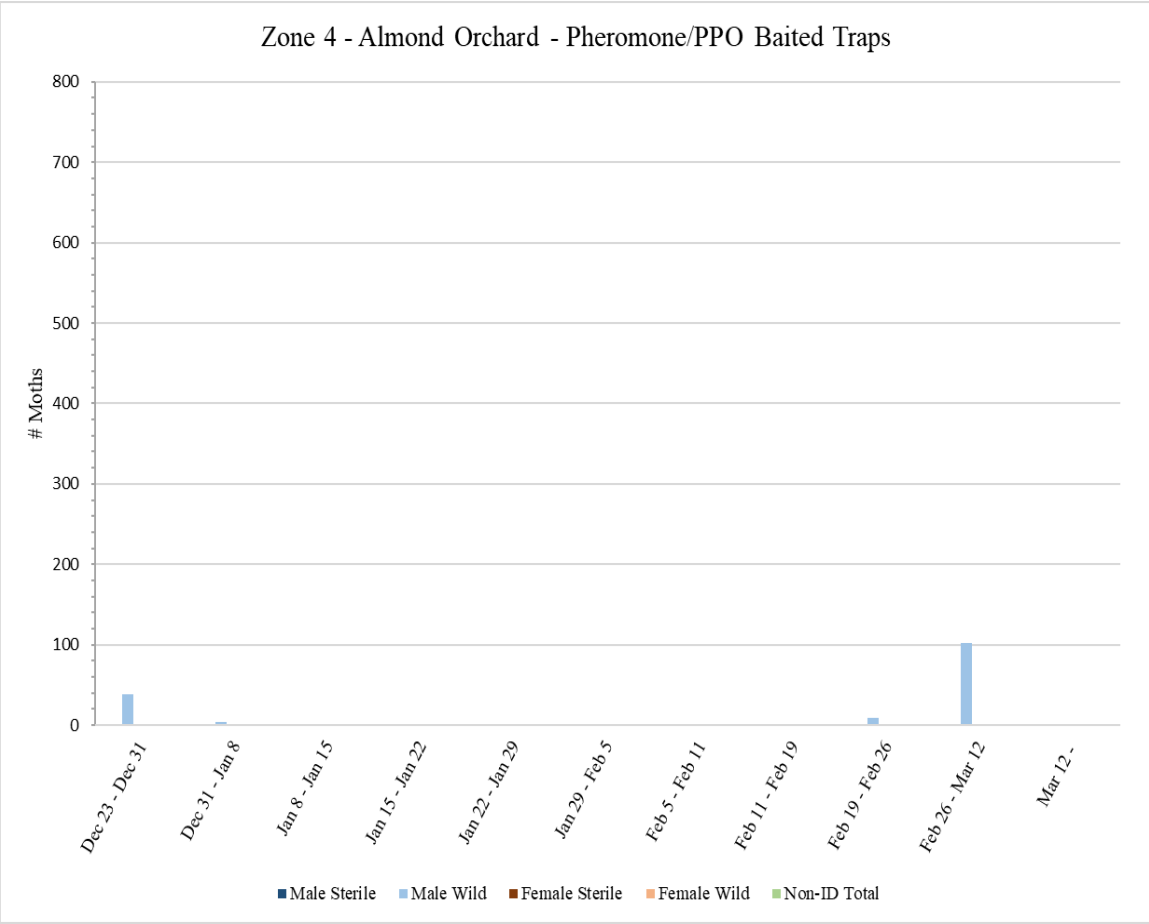
Zone 3 - Almond								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
Dec 17 – Dec 30	0	0	15	15	0	0	0	0
Dec 30 – Jan 7	0	0	0	0	0	0	0	0
Jan 7 – Jan 14	0	0	1	1	0	0	0	0
Jan 14 – Jan 21	0	0	0	0	0	0	0	0
¹ Jan 21 – Jan 28	0	0	0	0	0	0	0	0
² Jan 28 – Feb 25	0	0	9	9	0	0	0	0
³ Feb 25 – Mar 11	0	0	105	105	0	5	5	0
Mar 11 – Mar 20	0	0	11	11	0	0	0	0
¹ Trap numbers 26 - 36 not serviced in Zone 3 during the week of January 31 due to pesticide applications on site								
² No traps were serviced in Zone 3 during the weeks of February 7, February 14, and February 21 due to pesticide applications on site								
³ No traps were serviced in Zone 3 during the week of March 7 due to pesticide applications on site								



Zone 4 – Almond Orchard

No traps were collected from Zone 4 during the week of March 21 due to excessive rain and muddy conditions preventing access to the trap sites.

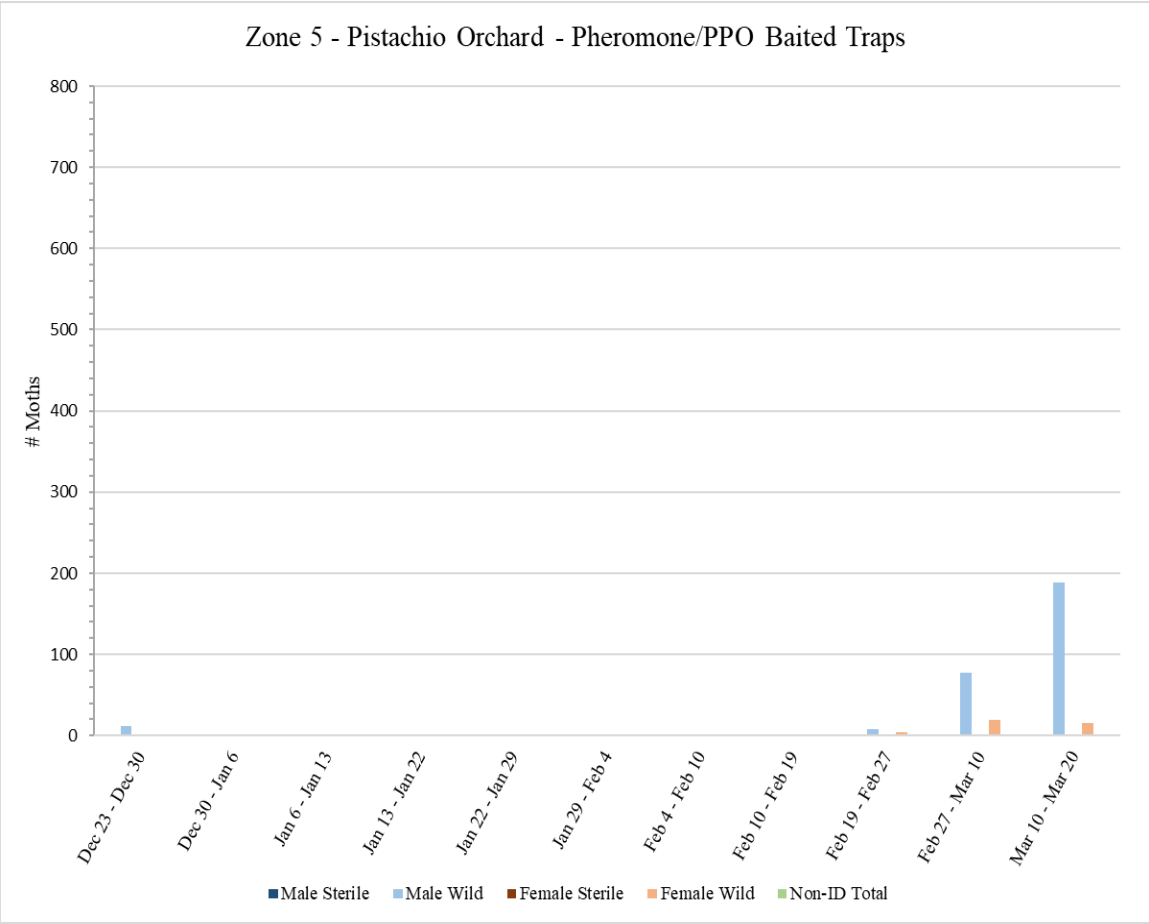
Zone 4 - Almond								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
Dec 23 – Dec 31	0	0	38	38	0	1	1	0
Dec 31 – Jan 8	0	0	4	4	0	0	0	0
Jan 8 – Jan 15	0	0	1	1	0	0	0	0
Jan 15 – Jan 22	0	0	0	0	0	0	0	0
Jan 22 – Jan 29	0	0	0	0	0	0	0	0
¹ Jan 29 – Feb 5	0	0	2	2	0	0	0	0
² Feb 5 – Feb 11	0	0	0	0	0	0	0	0
Feb 11 – Feb 19	0	0	2	2	0	0	0	0
Feb 19 – Feb 26	0	0	9	9	0	1	1	0
³ Feb 26 – Mar 12	0	0	102	102	0	0	0	0
⁴ Mar 12 -								
¹ Trap numbers 8 – 36 not serviced in Zone 4 during the week of February 7 due to pesticide applications on site								
² Trap numbers 8 – 36 in field since January 29								
³ No traps were serviced in Zone 4 during the week of March 7 due to pesticide applications on site								
⁴ No traps were serviced in Zone 4 during the week of March 21 due to excessive rain and muddy conditions preventing access								



Zone 5 – Pistachio Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 5 on Thursday, March 20.

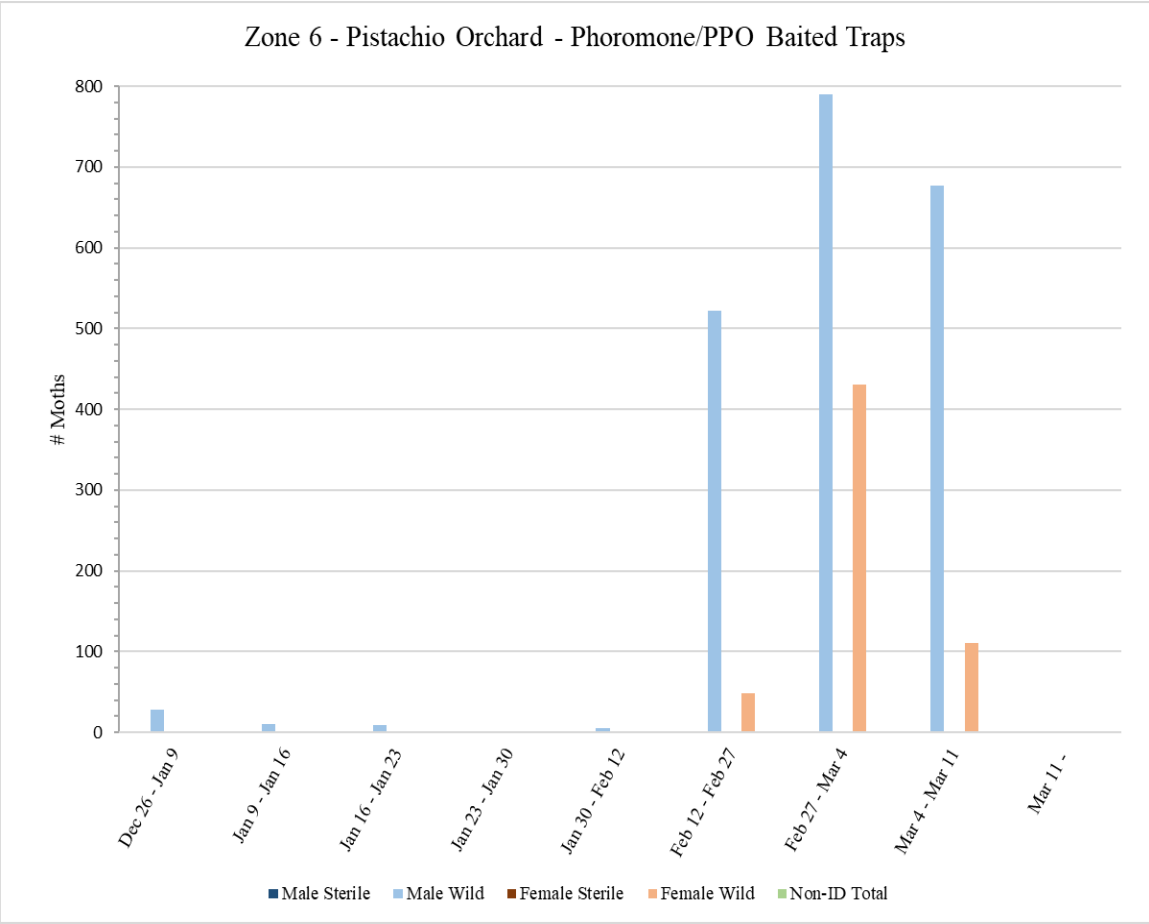
Zone 5 - Pistachio								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
Dec 23 – Dec 30	0	0	12	12	0	0	0	0
Dec 30 – Jan 6	0	0	1	1	0	0	0	0
Jan 6 – Jan 13	0	0	0	0	0	0	0	0
Jan 13 – Jan 22	0	0	0	0	0	0	0	0
Jan 22 – Jan 29	0	0	0	0	0	0	0	0
Jan 29 – Feb 4	0	0	0	0	0	0	0	0
Feb 4 – Feb 10	0	0	0	0	0	0	0	0
Feb 10 – Feb 19	0	0	0	0	0	0	0	0
Feb 19 – Feb 27	0	0	8	8	0	4	4	0
¹ Feb 27 – Mar 10	0	0	77	77	0	19	19	0
Mar 10 – Mar 20	0	0	188	188	0	15	15	0
¹ No traps were serviced in Zone 5 during the week of March 7 due to excessive rain and muddy conditions preventing access								



Zone 6 – Pistachio Orchard

No traps were collected from Zone 6 during the week of March 21 due to excessive rain and muddy conditions preventing access to the trap sites.

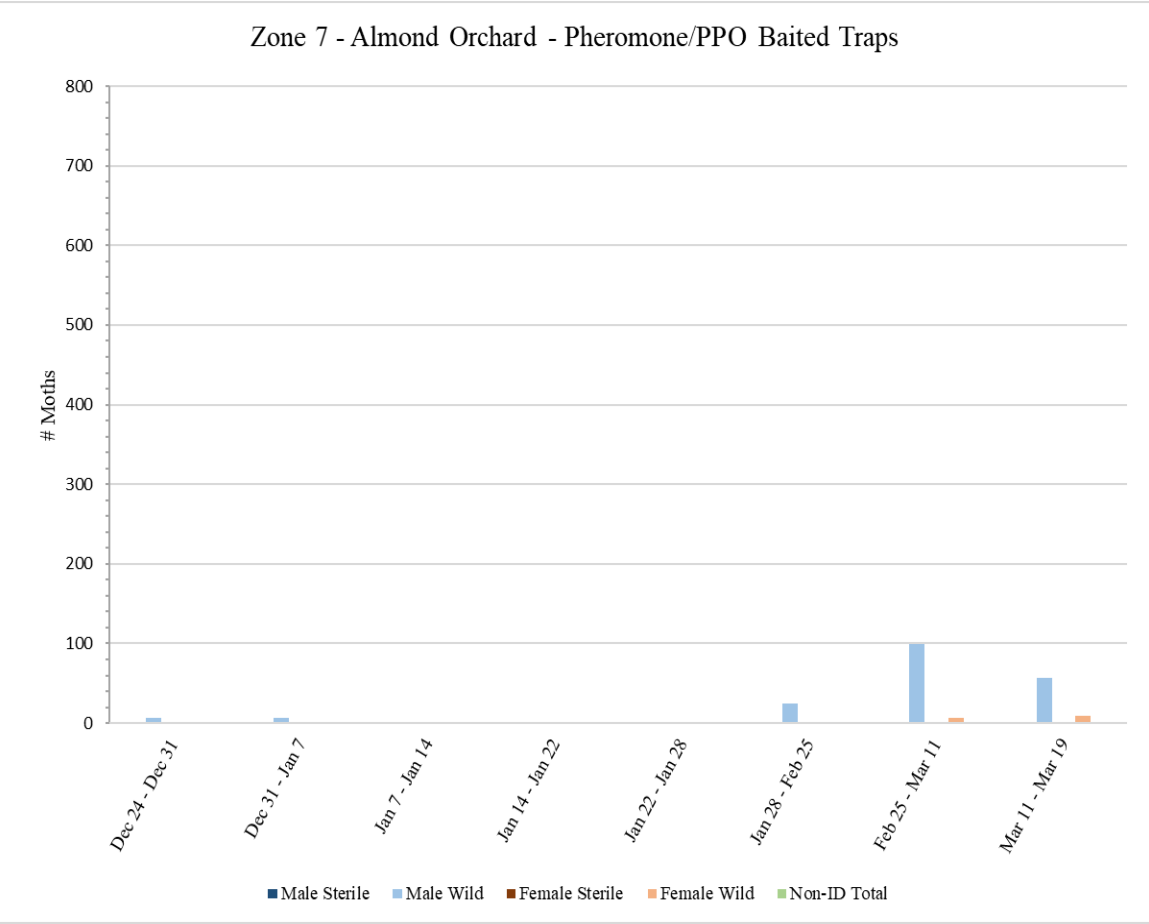
Zone 6 - Pistachio								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
¹ Dec 26 – Jan 9	0	0	28	28	0	0	0	0
Jan 9 – Jan 16	0	0	10	10	0	0	0	0
Jan 16 – Jan 23	0	0	9	9	0	0	0	0
Jan 23 – Jan 30	0	0	0	0	0	0	0	0
² Jan 30 – Feb 12	0	0	5	5	0	0	0	0
³ Feb 12 – Feb 27	0	0	522	522	0	48	48	0
Feb 27 – Mar 4	0	0	790	790	0	431	431	0
Mar 4 – Mar 11	0	0	677	677	0	111	111	1
⁴ Mar 11 -								
¹ No traps were serviced in Zone 6 during the week of January 3 due to excessive rain and muddy conditions preventing access								
² No traps were serviced in Zone 6 during the week of February 7 due to excessive rain and muddy conditions preventing access								
³ No traps were serviced in Zone 6 during the week of February 21 due to staffing issues								
⁴ No traps were serviced in Zone 6 during the week of March 21 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 Wednesday, March 19.

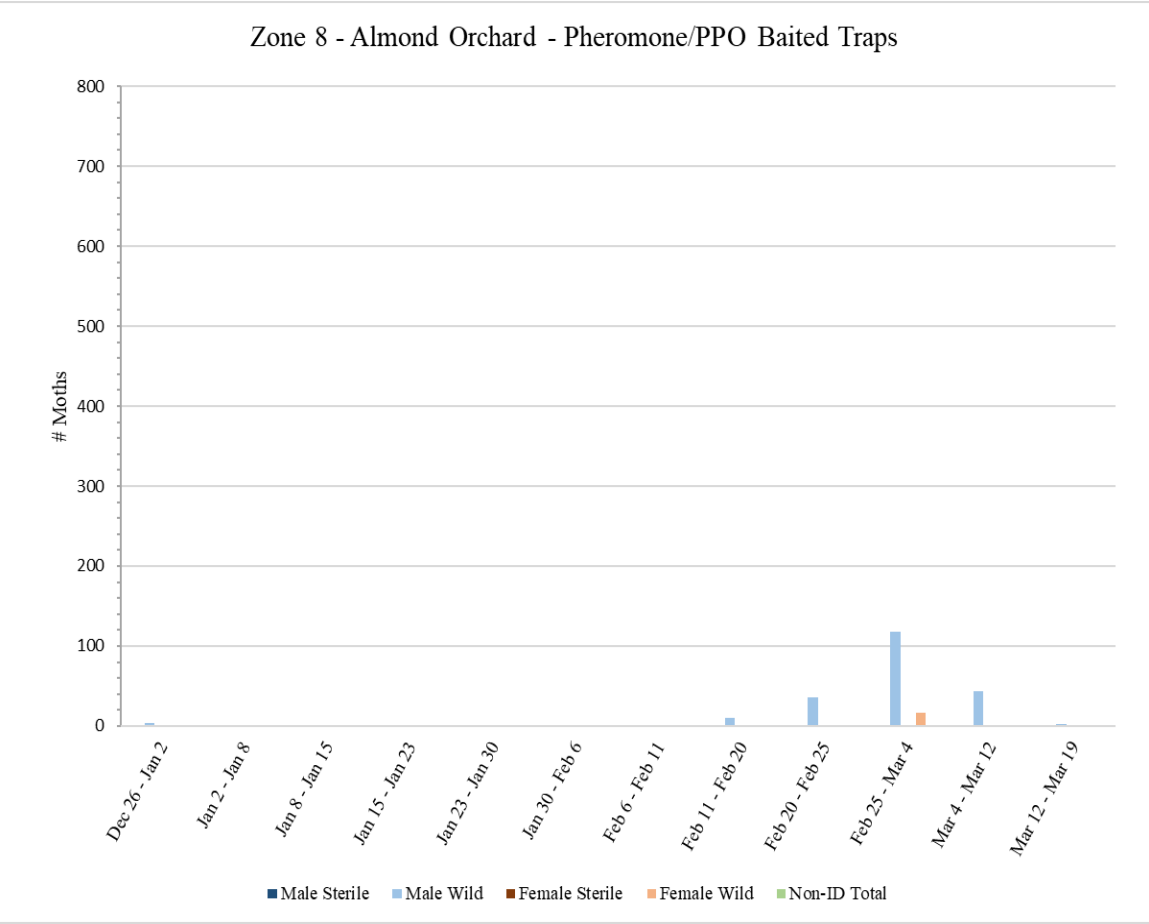
Zone 7 - Almond								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
Dec 24 – Dec 31	0	0	7	7	0	0	0	0
Dec 31 – Jan 7	0	0	6	6	0	0	0	0
Jan 7 – Jan 14	0	0	0	0	0	0	0	0
Jan 14 – Jan 22	0	0	1	1	0	0	0	0
Jan 22 – Jan 28	0	0	1	1	0	0	0	0
¹ Jan 28 – Feb 25	0	0	24	24	0	0	0	0
² Feb 25 – Mar 11	0	0	99	99	0	7	7	0
Mar 11 – Mar 19	0	0	57	57	0	9	9	0
¹ No traps were serviced in Zone 7 during the weeks of February 7, February 14, and February 21 due to pesticide applications on site								
² No traps were serviced in Zone 7 during the week of March 7 due to pesticide applications on site								



Zone 8 – Almond Orchard

A total of **36** pheromone/PPO lure-baited traps were collected from Zone 8 on Wednesday, March 19.

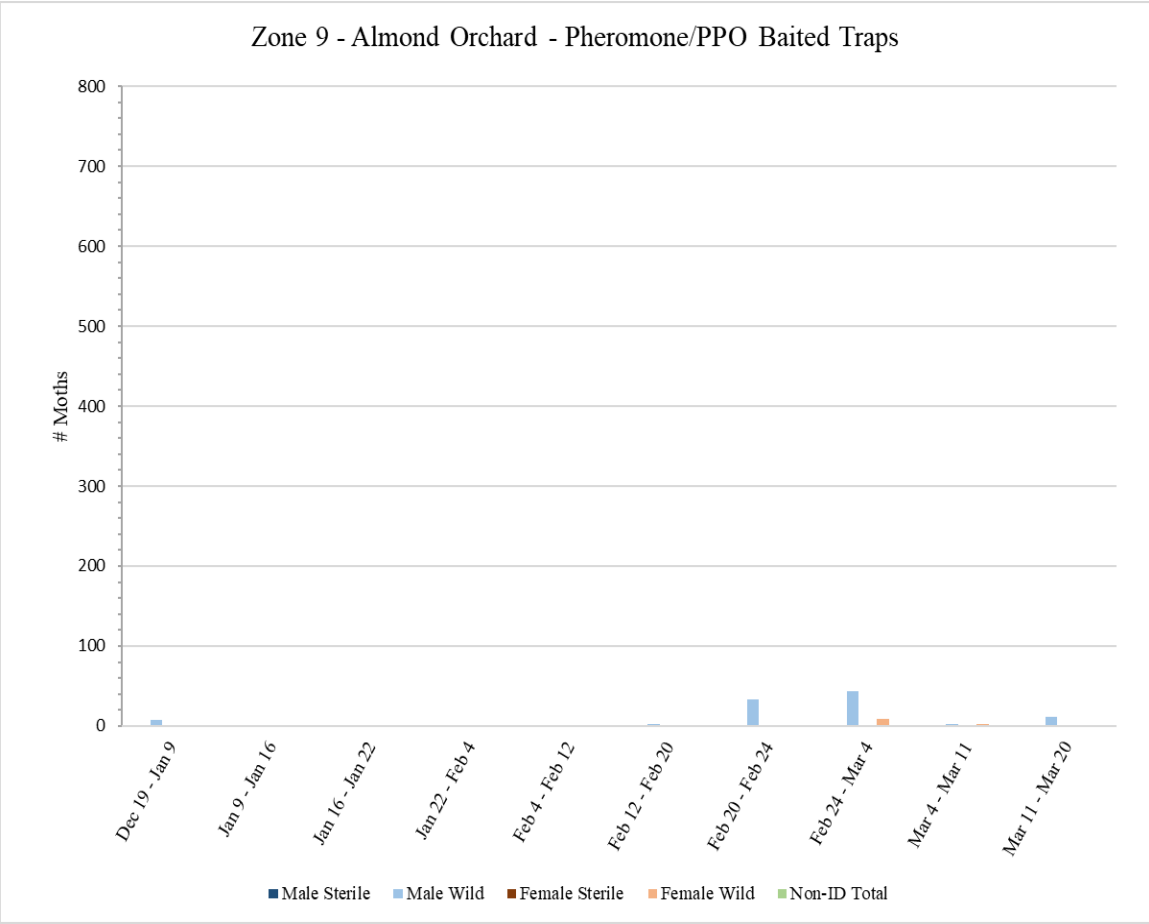
Zone 8 - Almond								
Pheromone/PPO Lure Baited Traps								
Dates Traps in Field	# of Releases During Trap Period	Male Sterile	Male Wild	Male Total	Female Sterile	Female Wild	Female Total	Non-ID Total
Dec 26 – Jan 2	0	0	4	4	0	0	0	0
Jan 2 – Jan 8	0	0	1	1	0	0	0	0
Jan 8 – Jan 15	0	0	0	0	0	0	0	0
Jan 15 – Jan 23	0	0	0	0	0	0	0	0
Jan 23 – Jan 30	0	0	0	0	0	0	0	0
Jan 30 – Feb 6	0	0	1	1	0	0	0	0
Feb 6 – Feb 11	0	0	0	0	0	0	0	0
Feb 11 – Feb 20	0	0	10	10	0	0	0	0
Feb 20 – Feb 25	0	0	36	36	0	1	1	0
Feb 25 – Mar 4	0	0	118	118	0	16	16	0
Mar 4 – Mar 12	0	0	44	44	0	1	1	0
Mar 12 – Mar 19	0	0	3	3	0	1	1	0



Zone 9 – Almond Orchard

A total of **34** pheromone/PPO lure-baited traps were collected from Zone 9 on Thursday, March 20.

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
Jan 16 – Jan 22	0	0	1	1	0	0	0	0
² Jan 22 – Feb 4	0	0	1	1	0	0	0	0
Feb 4 – Feb 12	0	0	1	1	0	0	0	0
Feb 12 – Feb 20	0	0	3	3	0	0	0	0
Feb 20 – Feb 24	0	0	33	33	0	0	0	0
Feb 24 – Mar 4	0	0	44	44	0	9	9	0
Mar 4 – Mar 11	0	0	2	2	0	2	2	0
Mar 11 – Mar 20	0	0	11	11	0	1	1	0
¹ No traps were serviced in Zone 9 during the week of January 3 due to excessive rain and muddy conditions preventing access								
² No traps were serviced in Zone 9 during the week of January 31 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
1/18/2025	30.50	60.50	0.49	18.05
1/19/2025	28.30	61.90	0.73	18.78
1/20/2025	30.00	59.40	0.32	19.10
1/21/2025	28.20	64.30	1.18	20.28
1/22/2025	26.80	62.90	0.86	21.14
1/23/2025	26.80	66.80	1.78	22.92
1/24/2025	28.60	68.00	2.59	25.51
1/25/2025	40.10	59.70	0.50	26.01
1/26/2025	34.60	51.30	0.00	26.01
1/27/2025	31.80	57.70	0.13	26.14
1/28/2025	27.30	60.20	0.43	26.57
1/29/2025	29.70	61.40	0.68	27.25
1/30/2025	32.40	60.10	0.49	27.74
1/31/2025	34.60	61.40	1.01	28.75
2/1/2025	45.20	66.90	2.92	31.67
2/2/2025	39.50	71.80	4.38	36.05
2/3/2025	39.60	69.00	3.97	40.02
2/4/2025	47.70	69.50	4.21	44.23
2/5/2025	40.30	61.10	0.90	45.13
2/6/2025	40.70	61.40	0.98	46.11
2/7/2025	40.30	60.90	0.78	46.89
2/8/2025	36.80	59.60	0.41	47.30
2/9/2025	29.90	58.40	0.20	47.50

Date	Air Temperatures (°F)		Degree Days	
	Min	Max	Daily	Accumulated
2/10/2025	28.10	58.50	0.20	47.70
2/11/2025	27.50	60.90	0.76	48.46
2/12/2025	43.50	58.10	0.45	48.91
2/13/2025	49.80	66.30	3.30	52.21
2/14/2025	43.00	61.60	0.99	53.20
2/15/2025	34.80	59.80	0.47	53.67
2/16/2025	36.00	66.80	2.52	56.19
2/17/2025	41.80	63.30	1.49	57.68
2/18/2025	38.40	64.90	2.97	60.65
2/19/2025	52.90	77.90	9.10	69.75
2/20/2025	43.90	63.60	1.58	71.33
2/21/2025	34.70	67.80	2.64	73.97
2/22/2025	38.50	73.60	5.23	79.20
2/23/2025	42.30	77.10	7.66	86.86
2/24/2025	47.70	77.80	8.59	95.45
2/25/2025	47.40	69.20	3.89	99.34
2/26/2025	37.30	73.40	4.97	104.31
2/27/2025	41.10	78.70	8.12	112.43
2/28/2025	46.70	75.10	6.75	119.18
3/1/2025	43.50	78.90	7.55	126.73
3/2/2025	38.30	59.50	0.49	127.22
3/3/2025	39.40	64.10	1.60	128.82
3/4/2025	36.80	66.60	2.44	131.26
3/5/2025	40.90	53.70	0.00	131.26
3/6/2025	39.60	55.80	0.02	131.28
3/7/2025	37.60	61.40	0.83	132.11
3/8/2025	35.80	68.50	2.78	134.89
3/9/2025	35.70	74.50	5.30	140.19
3/10/2025	41.10	70.30	4.15	144.34
3/11/2025	43.00	69.90	4.46	148.80
3/12/2025	46.70	66.70	2.98	151.78
3/13/2025	39.70	56.20	0.04	151.82
3/14/2025	38.50	54.70	0.00	151.82
3/15/2025	35.40	63.60	1.37	153.19
3/16/2025	37.70	69.20	3.98	157.17
3/17/2025	48.00	61.10	1.18	158.35
3/18/2025	41.30	62.20	1.10	159.45
3/19/2025	35.30	66.80	2.72	162.17
3/20/2025	45.30	67.20	3.03	165.20
3/21/2025	39.20	69.70	3.87	169.07

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