

# 2024 IPM Update -26 June

Jhalendra Rijal, Ph.D.  
Area IPM Advisor  
UC Cooperative Extension - San Joaquin, Stanislaus, Merced

1

## Monitoring

- ▶ Use traps to monitor insect pests
- ▶ Keep trapping records
- ▶ Use biofix, *UCIPM guidelines*
- ▶ Use degree day models for making treatment decisions



Or google "Run Degree Days UCIPM"

### Note:

- All trapping data reported in this presentation were collected from 2-4 commercial orchards in Stanislaus County. The weather station used for calculating degree days was CIMIS Station #206, Denair.
- Therefore, the information provided here should be used as a general reference, this is not a recommendation of any kind. All growers/PCAs should have their monitoring systems and tools in place, and use that information in making pest management decisions as "every orchard is different"

2

## Degree-day models: UCIPM

**UC IPM**  
Statewide Integrated Pest Management Program

**HOME**

**SEARCH**

**ON THIS SITE**

- What is IPM?
- Home & landscape pests
- Agricultural pests
- Natural environment pests
- Exotic & invasive pests
- Weed gallery
- Natural enemies gallery
- Weather, models & degree-days
- Pesticide information
- Research
- Publications
- Events & training
- Links
- Glossary
- About us

### How to Manage Pests

#### Run Models and Calculate Degree-Days

Our degree-day calculator has two branches. You can run preset models as recommended in our pest man... Or, you can specify thresholds and method of calculation to calculate any degree-days. Weather data for th... come from the UC IPM database for California, a file you supply, or data you enter online. | [Acknowledge](#)

| [Using this calculator](#) | [Reference degree-day tables](#) | [About degree-days](#) |

[Run models](#)  
[Calculate degree-days](#)

**Run models**—using degree-days, as recommended by UC Cooperative Extension

**Select an organism and preset thresholds**

- Beet armyworm (Lower=54 F)
- California red scale (Lower=53 F)
- Codling moth (Lower=50 F, Upper=88)
- Conspere stink bug (Lower=53.6 F)
- Cotton (Lower=60 F)
- Elm leaf beetle (Lower=52 F)
- Fuller rose beetle (Lower=51 F)
- Lygus bug (Lower=54 F)


- [Reference degree-day tables](#) for accumulating de
- [Other models](#) of plants, pests, and beneficials—u (unknown validation)

[Continue](#) [Clear Selections](#)

**Calculate degree-days**—specify thresholds

**Specify thresholds and method of calculation**

**Thresholds**  
 Fahrenheit  Celsius



<http://ipm.ucanr.edu/WEATHER/ddretrievetext.html>

**UNIVERSITY OF CALIFORNIA**  
Agriculture and Natural Resources

Statewide Integrated  
Pest Management Program

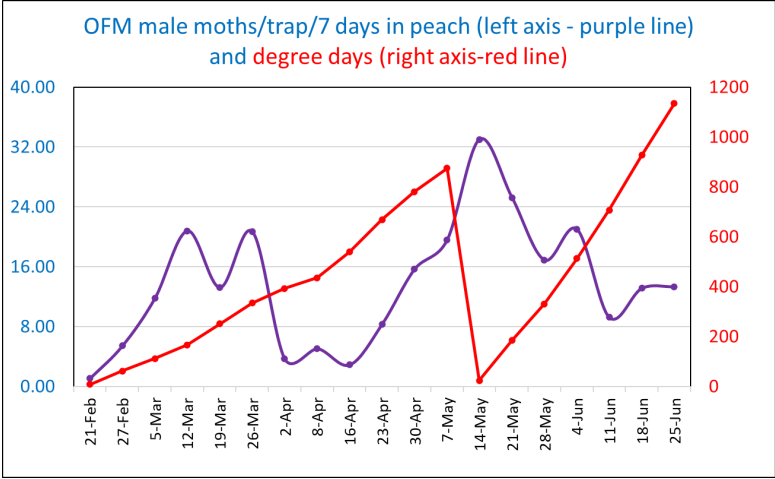
3

## 2024 Insect monitoring

### Oriental Fruit Moth (OFM)

1<sup>st</sup> biofix: 21 February; 2<sup>nd</sup> flight biofix: 14 May; 3<sup>rd</sup> flight biofix: 18 June

OFM male moths/trap/7 days in peach (left axis - purple line)  
and degree days (right axis-red line)



Date	OFM male moths/trap/7 days (Purple line)	Degree Days (Red line)
21-Feb	0.00	0
27-Feb	4.00	20
5-Mar	10.00	40
12-Mar	20.00	60
19-Mar	12.00	80
26-Mar	20.00	100
2-Apr	4.00	120
8-Apr	5.00	140
16-Apr	4.00	160
23-Apr	10.00	180
30-Apr	16.00	200
7-May	22.00	220
14-May	0.00	240
21-May	10.00	260
28-May	16.00	280
4-Jun	20.00	300
11-Jun	8.00	320
18-Jun	12.00	340
25-Jun	12.00	360

**UNIVERSITY OF CALIFORNIA**  
Agriculture and Natural Resources

Statewide Integrated  
Pest Management Program

4

## 2024 Insect monitoring

- ▶ Oriental Fruit Moth (OFM): 1st Biofix 21 February
  - ▶ 1st biofix 21 February
  - ▶ 1st gen. spray timing (500 - 600DD): 12-19 April
  - ▶ 2<sup>nd</sup> gen. biofix: 14 May
  - ▶ DD accumulated (as of 6/18): 920
  - ▶ 2<sup>nd</sup> gen spray timing (400-500): 30 May - 3 June
  - ▶ 3<sup>rd</sup> gen biofix: 18 June
  - ▶ 3<sup>rd</sup> flight spray timing: 30 June- 4 July



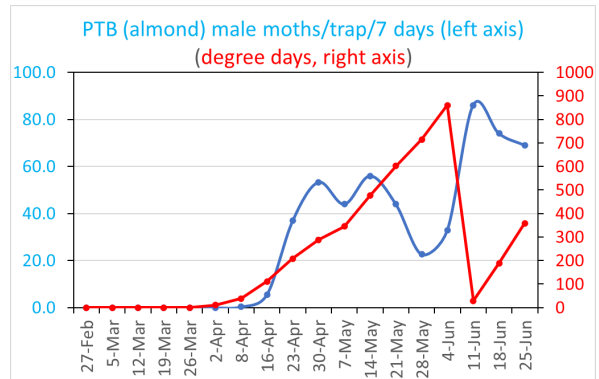
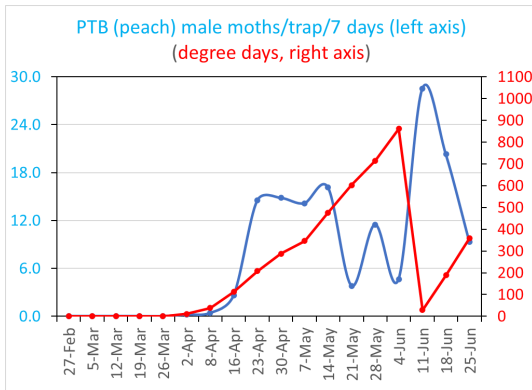
Generation Length (degree-days)			Spray Timing (degree-days)	
1st	2nd	3rd	Early generation	Later generations
920-1010	920-1010	920-1010	500-600	400-500

UC IPM UNIVERSITY OF CALIFORNIA Agriculture and Natural Resources Integrated Pest Management Program

5

## 2024 Insect monitoring

- ▶ Peach Twig Borer (PTB):
- ▶ 1<sup>st</sup> Biofix: 2 April; 2<sup>nd</sup> Biofix: 11 June



6

## 2024 Insect monitoring

### ▶ Peach Twig Borer (PTB):

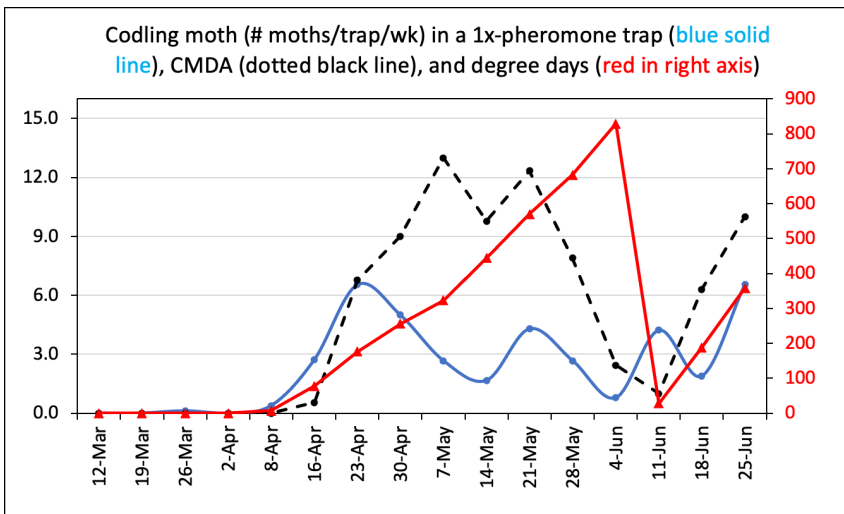
- ▶ 1<sup>st</sup> Biofix: 2 April
- ▶ 1st gen. spray timing (400 - 500DD): 10-15 May
- ▶ DD (1<sup>st</sup> gen, 6/11): 1050
- ▶ **2<sup>nd</sup> gen. Biofix: 11 June**
- ▶ DD (2<sup>nd</sup> gen, 6/26): 358
- ▶ 2<sup>nd</sup> gen. spray timing (300-400DD): **22-26 June**

Generation Length (degree-days)			Spray Timing (degree-days)	
1st	2nd	3rd	Early Generation	Later Generations
1030	1030	1030	400-500	300-400

7

## 2024 Insect monitoring

### ▶ Codling Moth (CM) in Walnut: 1<sup>st</sup> Biofix: 8 April; **2<sup>nd</sup> biofix: 11 June**



8

## 2024 Insect monitoring

- ▶ Codling Moth (CM): 1<sup>st</sup> flight biofix 8 April
  - DD accumulation (as of 6/11): 1008
  - 1st gen. spray timing:
    - 1A flight (300 DD): 4 May
    - 1B flight (600 - 700 DD): 23 May - 28 May
  - 2nd gen. biofix: 11 June
  - 2nd gen. spray timing (300DD): 23 June

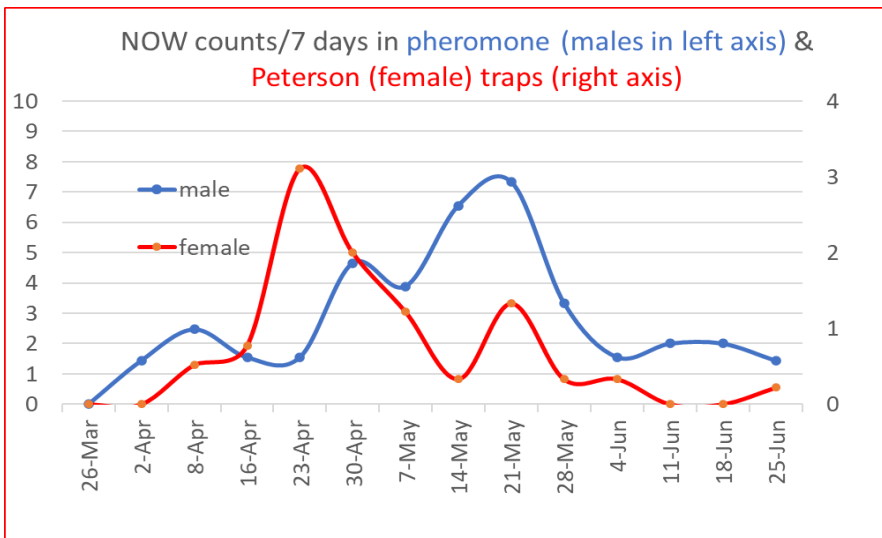
Generation Length (degree-days)			Spray Timing (degree-days)	
1st	2nd	3rd	Early generation	Later generations
1060	1100	1200	1A Peak: 300 1B Peak: 600-700	300

Statewide Integrated Management Program

9

## 2024 Insect monitoring

- ▶ Navel Orangeworm (NOW) in Walnuts

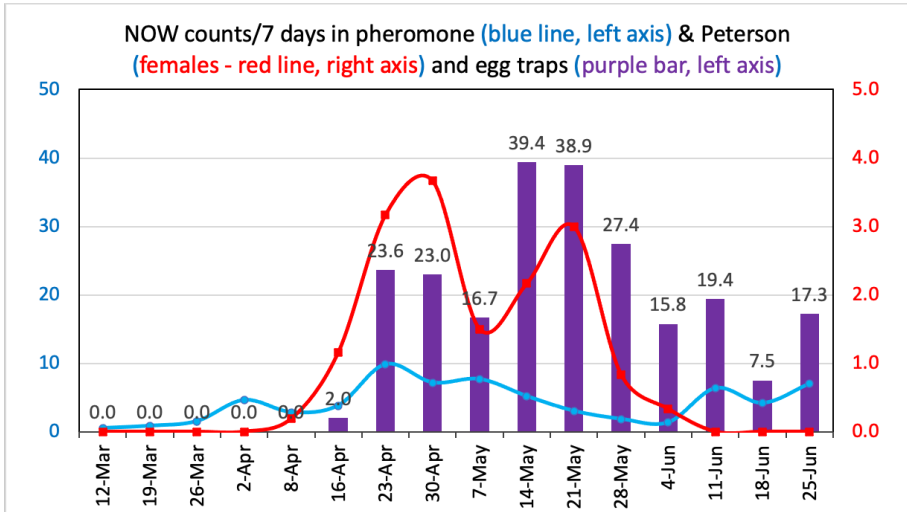


CALIFORNIA Statewide Integrated Pest Management Program  
Agriculture and Natural Resources

10

# 2024 Insect monitoring

► Navel Orangeworm (NOW) in almonds: Egg laying biofix: 16 April



- Projected spring spray timing (100DD): April 27
- Projected 2<sup>nd</sup> flight (1056 DD): June 29
- Notice the increased egg-laying from 18 June to 25 June - an indication of the beginning of the 2<sup>nd</sup> generation.

11

**2024**

Date	Pheromone	Females	Egg Traps
12-Mar	0.0	0.0	0.0
19-Mar	0.0	0.0	0.0
26-Mar	0.0	0.0	0.0
2-Apr	0.0	0.0	0.0
8-Apr	0.0	0.0	0.0
16-Apr	2.0	1.0	2.0
23-Apr	10.0	3.0	23.6
30-Apr	8.0	3.8	23.0
7-May	8.0	1.5	16.7
14-May	5.0	2.5	39.4
21-May	4.0	3.0	38.9
28-May	3.0	1.0	27.4
4-Jun	2.0	0.5	15.8
11-Jun	6.0	0.2	19.4
18-Jun	4.0	0.1	7.5
25-Jun	6.0	0.1	17.3

► Egg biofix: 16 April

► 1st gen. spray (100DD): 27 April

► Peak 1<sup>st</sup> flight: 17 May

► DD (6/20): 877

► Predicted 2<sup>nd</sup> gen. (1056DD): 29 June

**2023**

Date	Pheromone	Females	Egg Traps
15-Mar	0.0	0.0	0.0
23-Mar	0.0	0.0	0.0
4-Apr	0.0	0.0	0.0
12-Apr	0.0	0.0	0.0
18-Apr	0.0	0.0	0.0
26-Apr	5.9	1.0	20.9
2-May	10.0	3.0	20.6
9-May	10.0	3.5	43.5
17-May	10.0	4.0	55.5
23-May	10.0	4.5	77.0
30-May	10.0	4.0	59.6
6-Jun	10.0	3.0	33.9
13-Jun	10.0	2.0	9.3
20-Jun	10.0	1.0	0.0

► Egg biofix: 26 April

► 1st gen. spray (100DD): 8 May

► Peak 1<sup>st</sup> flight: 30 May

► DD (6/20): 712

► Predicted 2<sup>nd</sup> gen. (1056DD): 5 July

2024  
vs.  
2023

12

## Predicted hullsplit time (bloom date 2/24/24)

### Hull Split Calculator

Please Select a Station  
Full Bloom Date 2/24/2024  
CIMIS Station 206 Denair

Cultivar	2024	2023	2022	2021	2020	2019	2018
NonPareil	07/14	07/19	07/11	07/13	07/12	07/12	07/15
Sonora	07/29	08/05	07/25	07/28	07/26	07/26	07/31
Price	08/01	08/08	07/29	07/31	07/30	07/30	08/03
Wood Colony	08/12	08/17	08/09	08/11	08/10	08/10	08/13
Winters	08/12	08/19	08/09	08/11	08/10	08/10	08/14
Aldrich	08/13	08/18	08/10	08/12	08/11	08/11	08/14
Padre	08/15	08/22	08/12	08/14	08/13	08/13	08/17
Butte	08/18	08/23	08/16	08/18	08/17	08/17	08/20
Ruby	08/23	08/28	08/20	08/22	08/21	08/21	08/24
Carmel	08/24	08/29	08/22	08/24	08/23	08/23	08/26
Monterey	08/25	09/01	08/22	08/24	08/23	08/23	08/27
Mission	08/27	09/01	08/24	08/26	08/25	08/25	08/28

You must wait until 90 days after bloom for this calculator



**Stages of hull split**

- a. unsplit hull;
- b1. initial separation;
- b2. deep V split; b3. deep V split, but nut pops when squeezed;
- c. split, but less than 1 cm;
- d. split, more than 1 cm;
- e. initial drying stages;
- f. completely dry

Statewide Integrated Pest Management Program

13

## Factors affecting insecticide efficacy for NOW -2022

### Timing of Application:

- Aligning insecticide application with the most vulnerable stages of the crop and NOW life cycle

### Coverage and Application Method:

- Using appropriate equipment and techniques, speed, etc., ensure thorough tree coverage, including nuts.

### Resistance Management:

- Rotating insecticides with different modes of action. Do not apply insecticide with documented resistance

### Environmental Conditions:

- Considering weather factors like temperature, humidity, wind to prevent rapid degradation

### Integration with Other Pest Management Practices:


- Combining insecticide use with cultural (mummy sanitation) and biological (mating disruption) practices

14



# Weather Outlook

## July 2024

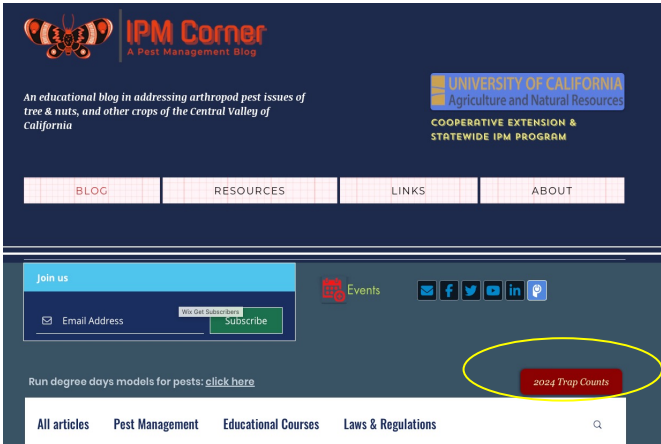


July 2024 DAILY →

S	M	T	W	T	F	S
30 ☀️ 98° 66°	1 ☀️ 102° 71°	2 🌡️ 108° 72°	3 🌡️ 108° 71°	4 🌡️ 108° 69°	5 🌡️ 106° 70°	6 🌡️ 110° 73°
7 🌡️ 108° 73°	8 🌡️ 107° 70°	9 ☀️ 101° 66°	10 ☀️ 102° 63°	11 ☁️ 102° 64°	12 ☀️ 101° 65°	13 ☀️ 102° 71°
14 ☀️ 98° 65°	15 ☀️ 96° 63°	16 ☀️ 94° 62°	17 ☀️ 92° 61°	18 ☀️ 96° 63°	19 ☀️ 97° 64°	20 ☀️ 97° 64°
21 ☀️ 96° 63°	22 ☀️ 97° 64°	23 ☀️ 97° 65°	24 ☀️ 96° 65°	25 ☀️ 97° 64°	26 ☀️ 98° 66°	27 ☀️ 98° 65°


15

Updated information is also available in [www.IPMCorner.com](http://www.IPMCorner.com) website as well.



**Disclaimer/Note**

- All trapping data reported in this presentation were collected from 2-4 commercial orchards in Stanislaus County. The weather station used for calculating degree days was CIMIS Station #206, Denair.
- Therefore, the information provided here should be taken as a general reference; this is not a recommendation. All growers/PCAs should have their monitoring systems and tools in place and use that information in making pest management decisions as "every orchard is different"



**UNIVERSITY OF CALIFORNIA**  
Agriculture and Natural Resources

Statewide Integrated  
Pest Management Program

16