

2024 IPM Update -30 July

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. | [Acknowledgme](#)

| [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)

Calculate degree-days—specify thresholds

Specify thresholds and method of calculation

Thresholds

Fahrenheit Celsius






UNIVERSITY OF CALIFORNIA
Agriculture and Natural Resources

Statewide Integrated
Pest Management Program


3

2024 Insect monitoring

- ▶ Oriental Fruit Moth (OFM): 1st Biofix 21 February
 - ▶ 1st biofix 21 February
 - ▶ 1st gen. spray timing (500 - 600DD): 12-19 April
 - ▶ 2nd gen. biofix: 14 May
 - ▶ DD accumulated (as of 7/11): 1601
 - ▶ 2nd gen spray timing (400-500): 30 May - 3 June
 - ▶ 3rd gen. biofix: 18 June
 - ▶ 3rd gen spray timing (400-500): 30 June - 3 July
 - ▶ 4th gen. biofix: 30 July
 - ▶ DD accumulated (as of 7/30): 29



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



UNIVERSITY OF CALIFORNIA
Agriculture and Natural Resources

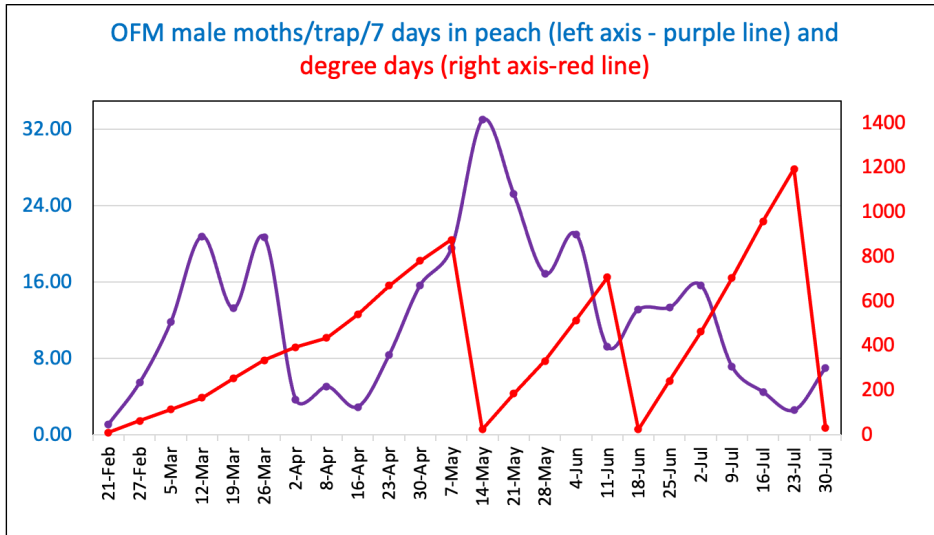
Statewide Integrated
Pest Management Program

4

2024 Insect monitoring

Oriental Fruit Moth (OFM)

1st biofix: 21 February; 2nd flight biofix: 14 May; 3rd flight biofix: 18 June; 4th flight biofix: 30 July



IA CES | Statewide Integrated Pest Management Program

5

2024 Insect monitoring

▶ Peach Twig Borer (PTB):

- ▶ 1st Biofix: 2 April
- ▶ 1st gen. spray timing (400 - 500DD): 10-15 May
- ▶ DD (1st gen, 6/11): 1050
- ▶ 2nd gen. Biofix: 11 June
 - ▶ 2nd gen. spray timing (300-400DD): 22-26 June
- ▶ 3rd gen. biofix: 23 July
 - ▶ DD accumulation (as of 7/30): 206

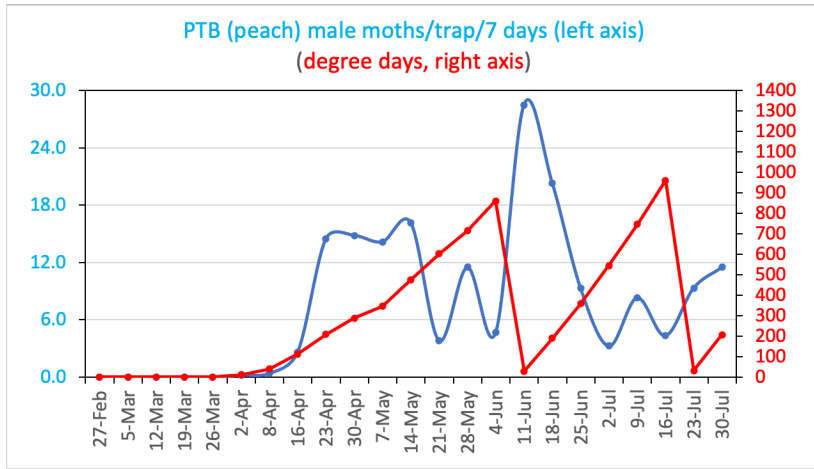
Generation Length (degree-days)			Spray Timing (degree-days)	
1st	2nd	3rd	Early Generation	Later Generations
1030	1030	1030	400-500	300-400

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

6

2024 Insect monitoring

- ▶ Peach Twig Borer (PTB):
- ▶ 1st biofix: 2 April; 2nd biofix: 11 June; 3rd biofix: 23 July



DD accumulated (3rd gen.; as of 7/30): 206

7

2024 Insect monitoring

- ▶ Codling Moth (CM): 1st flight biofix 8 April
 - 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 (2A timing: 300DD): 23 June
 - 3rd gen. biofix: 30 July
 - ▶ DD accumulation (as of 7/30): 29
 - ▶ Treatment timing (300 DD): 9 August

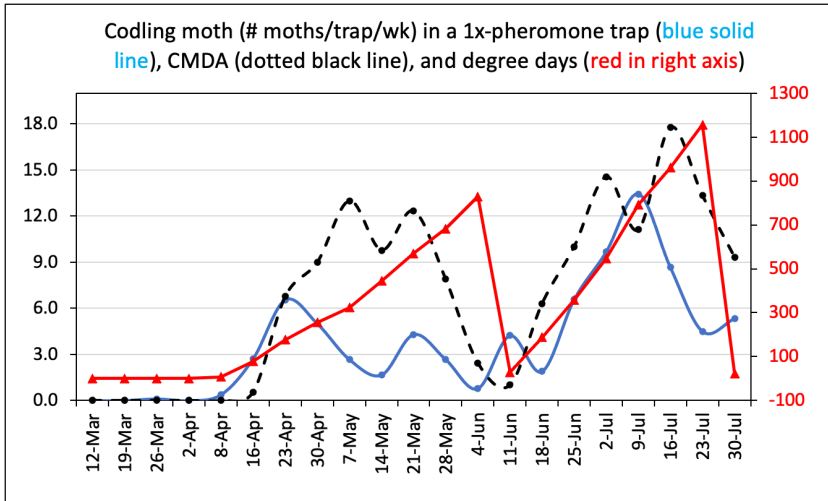
Generation Length (degree-days)			Spray Timing (degree-days)	
1st	2nd	3rd	Early generation	Later generations
1060	1100	1200	1A Peak: 300 1B Peak: 600-700	300

ewide Integrated Management Program

8

2024 Insect monitoring

- ▶ Codling Moth (CM) in Walnut: 1st biofix: 8 April; 2nd biofix: 11 June; 3rd biofix: 30 July

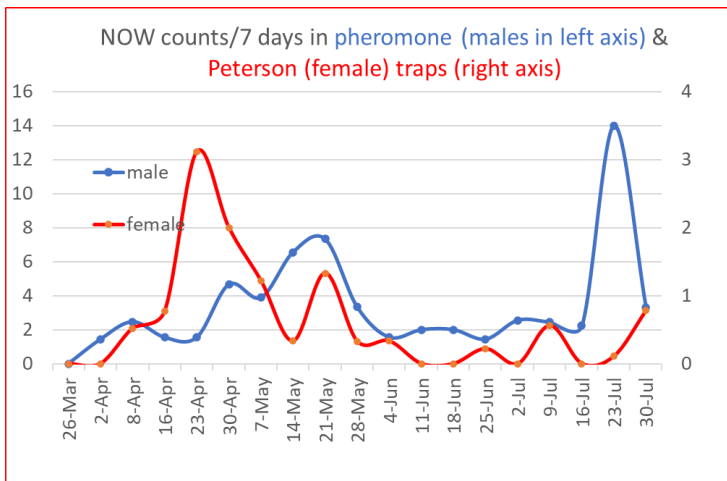


2A flight activity seems to be much higher this year.

9

2024 Insect monitoring

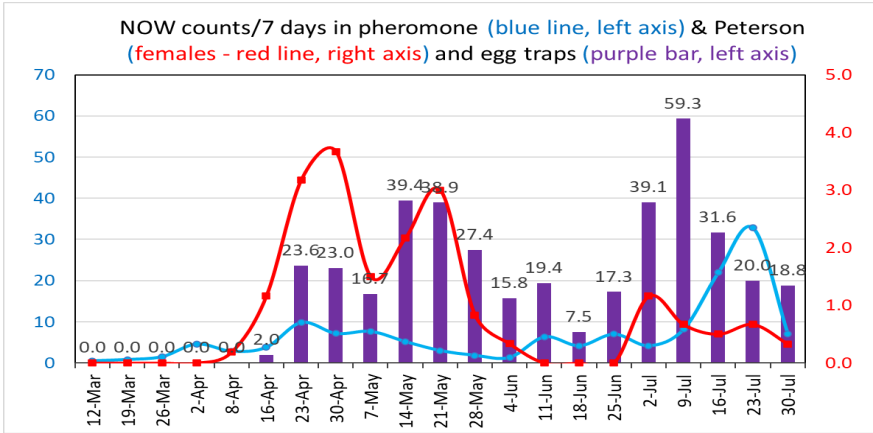
- ▶ Navel Orangeworm (NOW) in Walnuts



10

2024 Insect monitoring

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



- Spring spray timing (100DD): April 27
- Projected 2nd flight (1056 DD) was June 29

11

Date	2024 Pheromone	2024 Peterson Females	2024 Egg Traps	2023 Pheromone	2023 Peterson Females	2023 Egg Traps
15-Mar	0.0	0.0	0.0	0.0	0.0	0.0
23-Mar	0.0	0.0	0.0	0.0	0.0	0.0
4-Apr	0.0	0.0	0.0	0.0	0.0	0.0
12-Apr	0.0	0.0	0.0	0.0	0.0	0.0
18-Apr	0.0	0.0	0.0	0.0	0.0	0.0
26-Apr	0.0	0.0	0.0	5.9	0.0	0.0
2-May	2.0	1.5	0.0	20.9	3.0	20.6
9-May	10.0	3.5	23.6	43.5	4.0	43.5
17-May	10.0	4.0	23.0	55.5	3.0	55.5
23-May	8.0	2.0	16.7	77.0	4.0	77.0
30-May	5.0	3.0	39.4	59.6	3.0	59.6
6-Jun	5.0	2.0	27.4	33.9	2.0	33.9
13-Jun	3.0	1.0	15.8	9.3	1.0	9.3
20-Jun	2.0	1.0	19.4	9.3	1.0	9.3
27-Jun	2.0	1.0	7.5	38.6	1.0	38.6
6-Jul	1.0	1.0	17.3	52.8	1.0	52.8
13-Jul	1.0	1.5	39.1	63.8	1.0	63.8
20-Jul	1.0	1.0	59.3	42.9	1.0	42.9
27-Jul	2.0	1.0	31.6	12.9	1.0	12.9
3-Aug	3.0	1.0	20.0	31.7	1.0	31.7
8-Aug	2.0	0.5	18.8			
15-Aug	2.0	0.5				

2024

- Egg biofix: 16 April
- 1st gen. spray (100DD): 27 April
- Peak 1st flight: 17 May
- DD (6/20): 877
- Beginning of the 2nd gen. (1056DD): 29 June
- Predicted beginning of the 3rd gen. infested hullsplit nuts (700DD): 27 July

2023

- Egg biofix: 26 April
- 1st gen. spray (100DD): 8 May
- Peak 1st flight: 30 May
- DD (6/20): 712
- Predicted beginning of the 2nd gen. (1056DD): 5 July

12

6

**Predicted hullsplit time
(bloom date 2/14/24)**

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 calcula

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

15

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

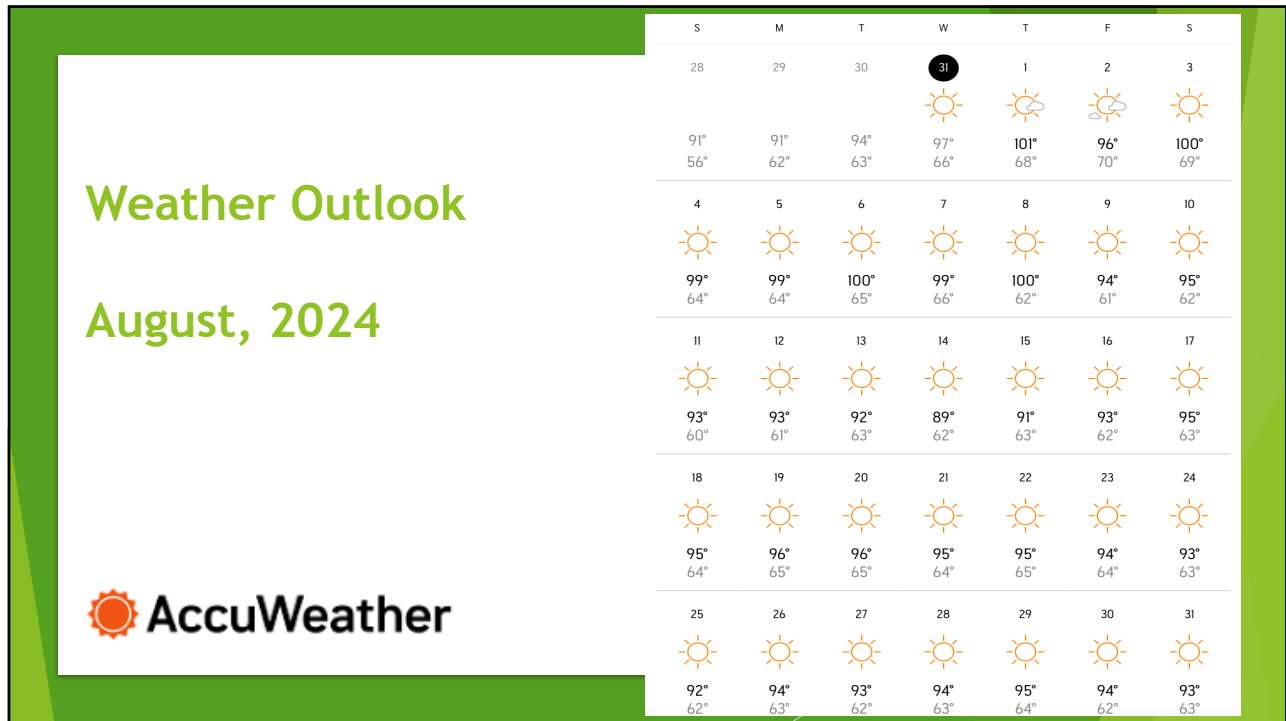
Environmental Conditions:

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

Integration with Other Pest Management Practices:

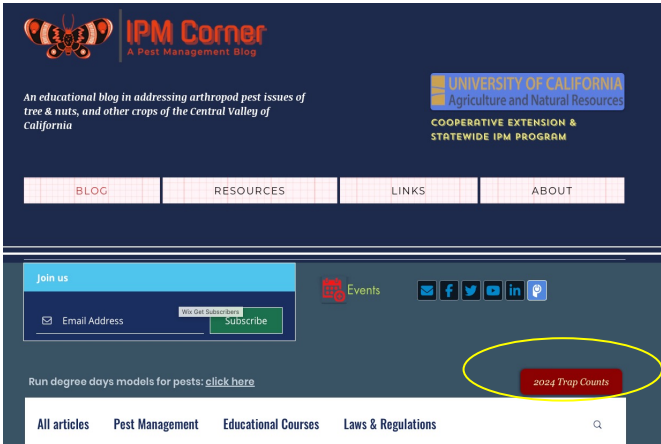
- Combining insecticide use with cultural (mummy sanitation) and biological (mating disruption) practices

16






17

Updated information is also available in 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"

18