

Updates from the Salinas Valley pest monitoring network and IPM Program

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Agriculture and Natural Resources



Outline

- Valley-wide monitoring of thrips, aphid, and diamondback moth populations
- Survey of lettuce fields to determine the presence and abundance of major predators and parasitoids of lettuce pests
- Insecticide Efficacy Trial for diamondback moth larvae



Valley-wide monitoring of thrips, aphid, and diamondback moth populations

- Aphids-
 - Contamination
 - Virus Vectors
- Thrips-
 - Vectors of Impatiens Necrotic Spot Virus (INSV)



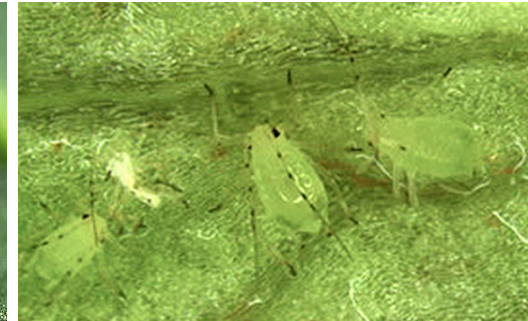
Lettuce Aphid



Green Peach Aphid



Potato Aphid



Foxglove Aphid



Western Flower Thrips

Diamondback Moth (DBM) Biology

- *Plutella xylostella*
- Feeds exclusively on Brassicas and Crucifers



DBM Damage



DBM Damage



Valley-wide monitoring of thrips, aphid, and diamondback moth populations

- Ongoing since 2020
- Collaboration between UCANR, USDA, and UC Davis



Alejandro Del Pozo,
Formerly UCANR



Daniel Hasegawa,
USDA-ARS



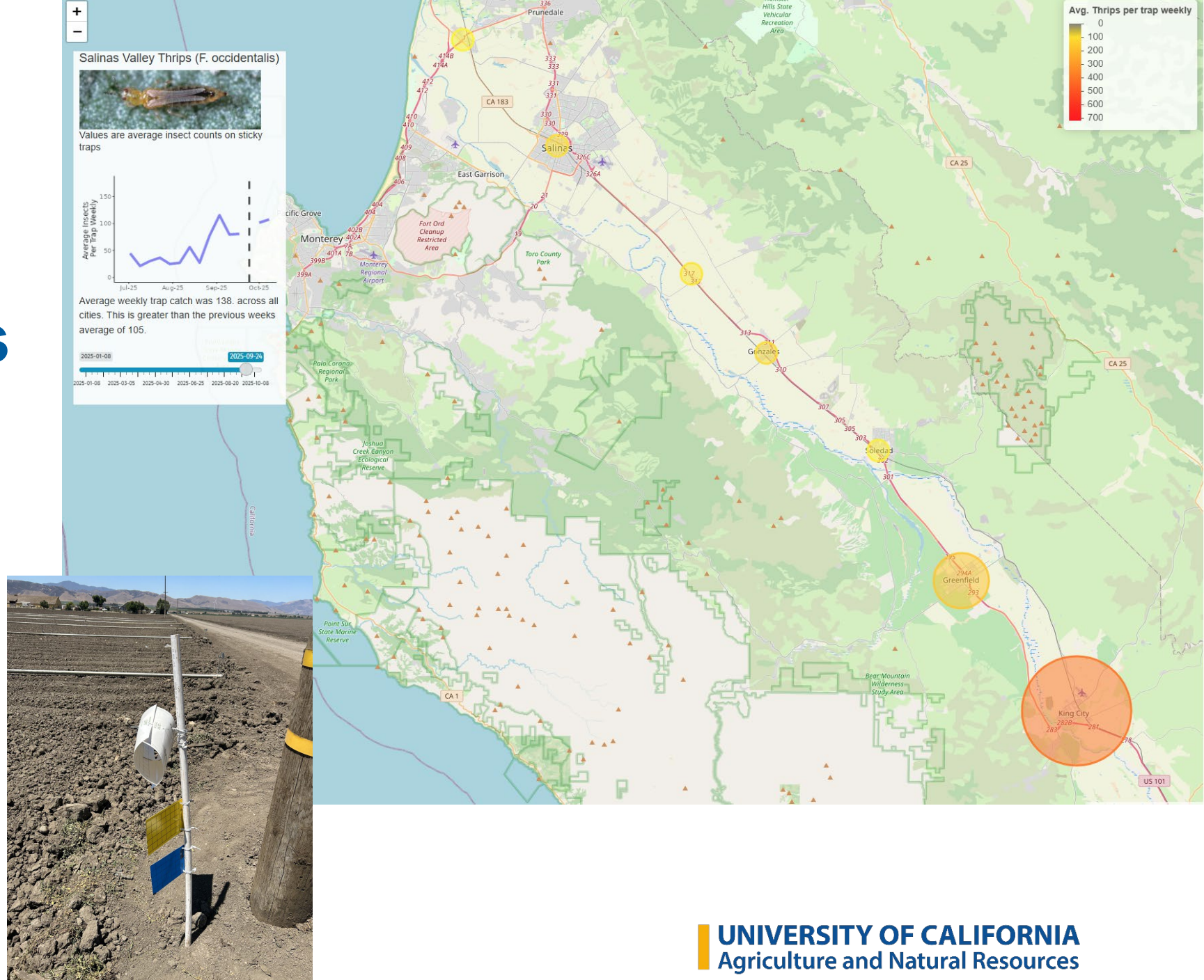
Kirsten Pearsons,
Formerly UCANR



Ian Grettenberger,
UC Davis

Valley-wide monitoring of thrips, aphid, and diamondback moth populations

- 21 trap locations between Castroville and King City
- Fixed locations close to Lettuce fields
- Traps collected and replaced weekly



Salinas Valley Lettuce Pest Mapping Tool

- Online and Mobile App
- Maps Thrips, Aphid, and Diamondback Moth Captures



Ian Grettenberger,
UC Davis



Benjamin Lee,
CDFA



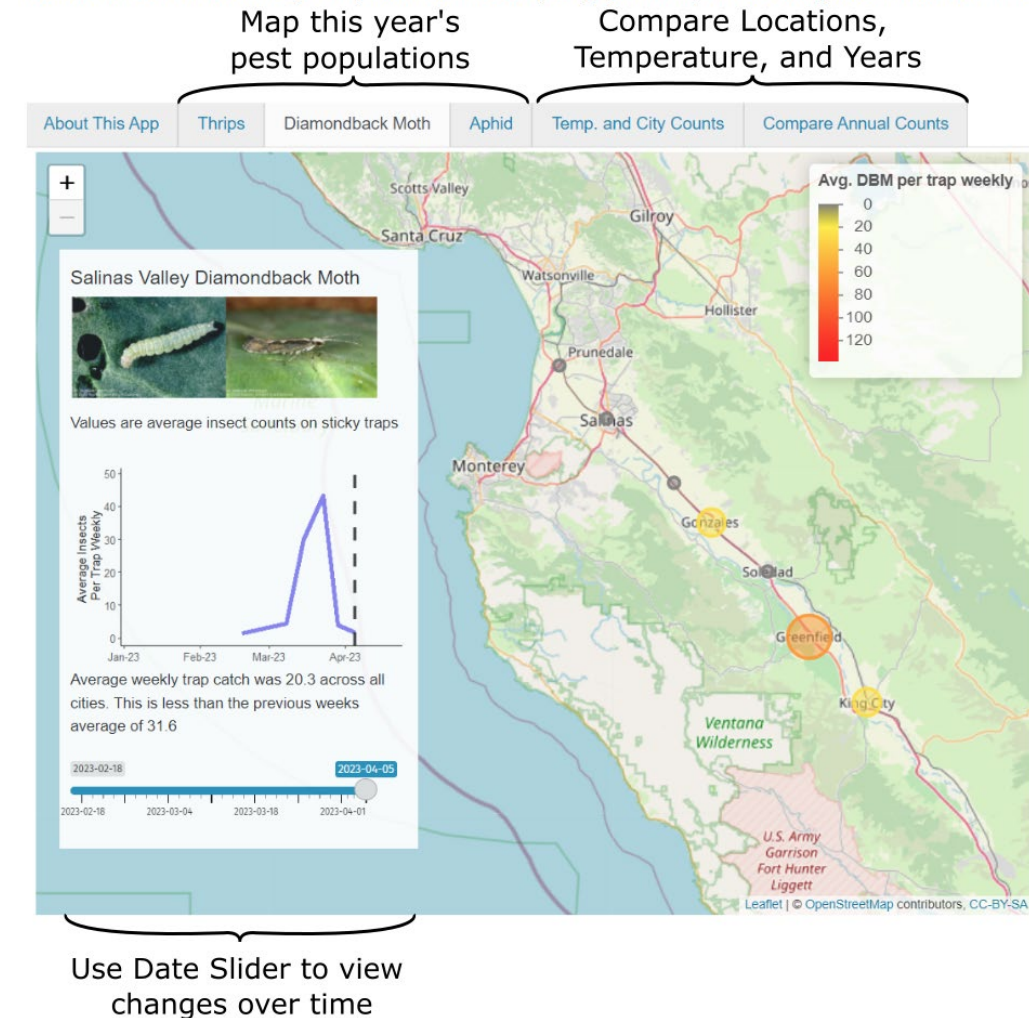
About This App Thrips Diamondback Moth Aphid Temp. and City Counts Compare Annual Counts

Salinas Valley Lettuce Pest Mapping Tool

Desktop Version: If maps are scaled incorrectly, try the [Mobile Version Here](#)

How to use this tool

This app was designed to visualize up-to-date lettuce pest sampling data in the Salinas Valley. Select a pest populations have shifted throughout the season and hover your mouse over circles to get average counts for breakdowns and how average temperatures affected pest populations, or the 'Compare Annual Counts' Tab

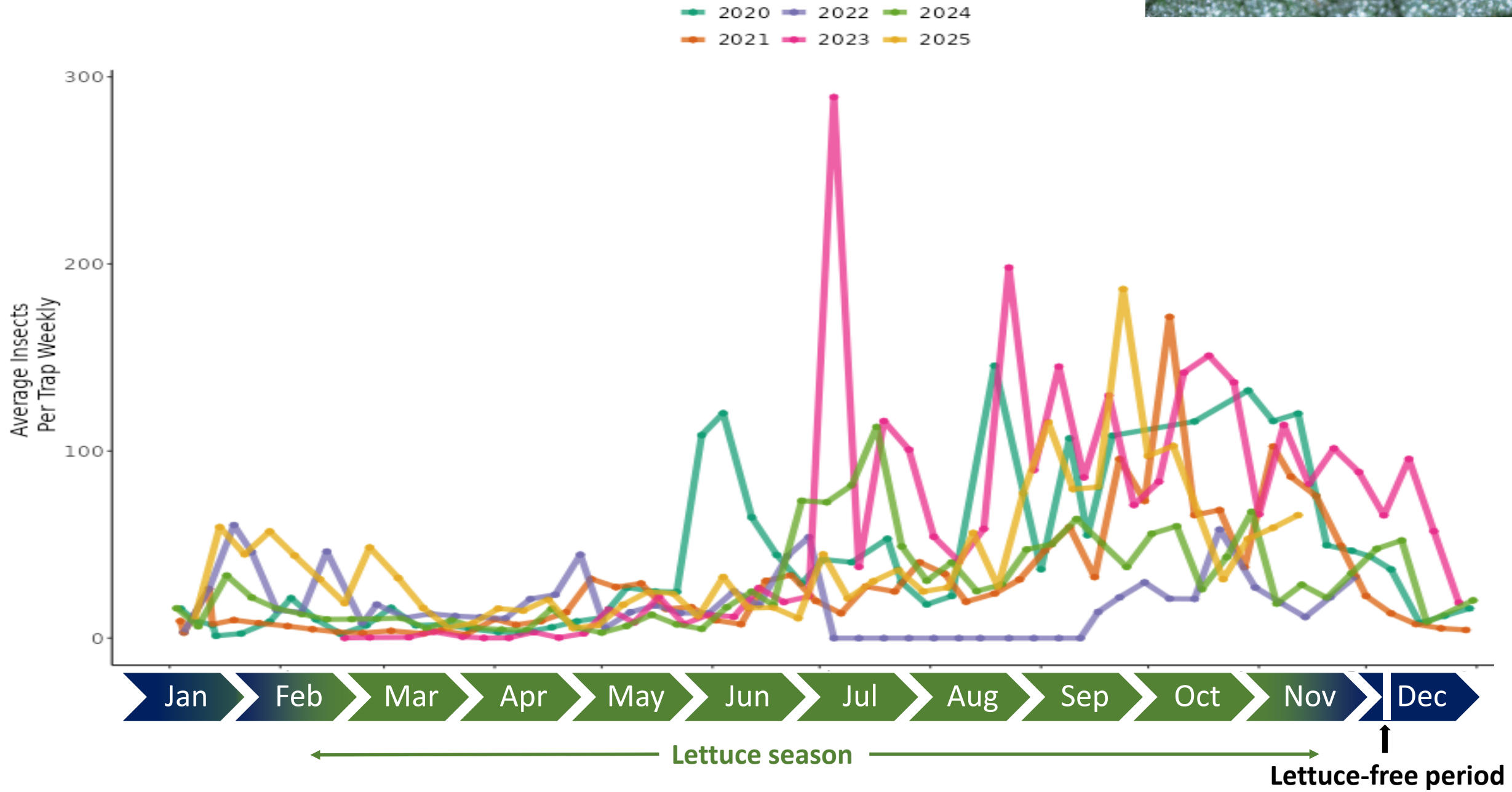


Desktop version: <https://salinaspestmap.shinyapps.io/salinas-pestmap/>

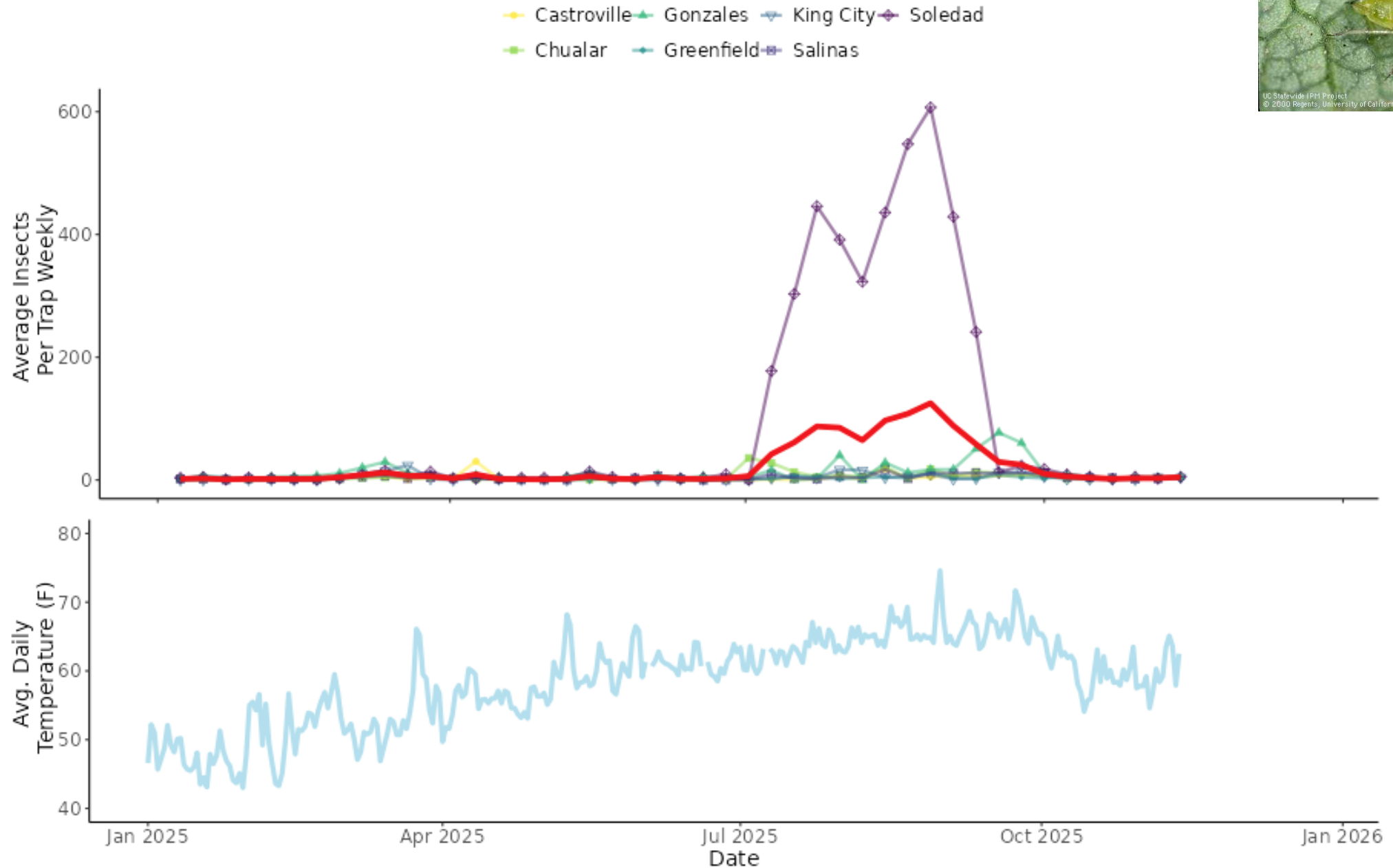
Mobile version: <https://salinaspestmap.shinyapps.io/salinas-pestmap-mobile/>

Figure 1 consists of two vertically stacked line graphs sharing a common x-axis representing time from January 2025 to January 2026. The top graph, titled 'Average Insects Per Trap Weekly', shows the weekly average number of insects caught per trap. The y-axis ranges from 0 to 600. Multiple colored lines represent different insect species, with a prominent purple line showing several peaks, notably around February 2025 (reaching ~220) and September 2025 (reaching ~700). Other species shown include red, green, yellow, and blue lines, all generally remaining below 200 insects per trap. The bottom graph, titled 'Avg. Daily Temperature (F)', shows the average daily temperature in Fahrenheit. The y-axis ranges from 40 to 80. A single light blue line shows a seasonal trend, starting around 50°F in January 2025, peaking at approximately 75°F in late September 2025, and then declining towards 60°F by January 2026.

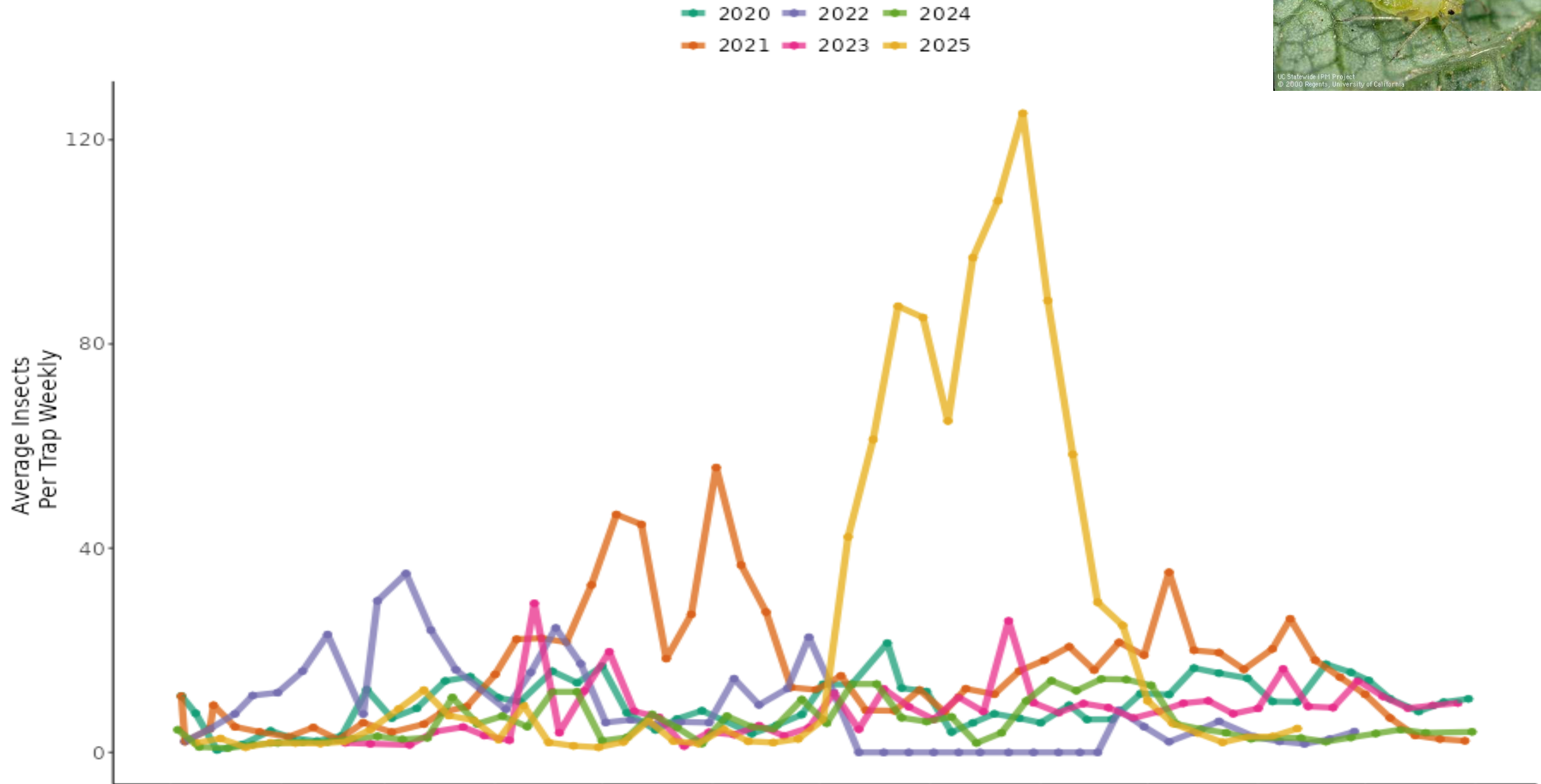
Thrips monitoring: 2020-2025



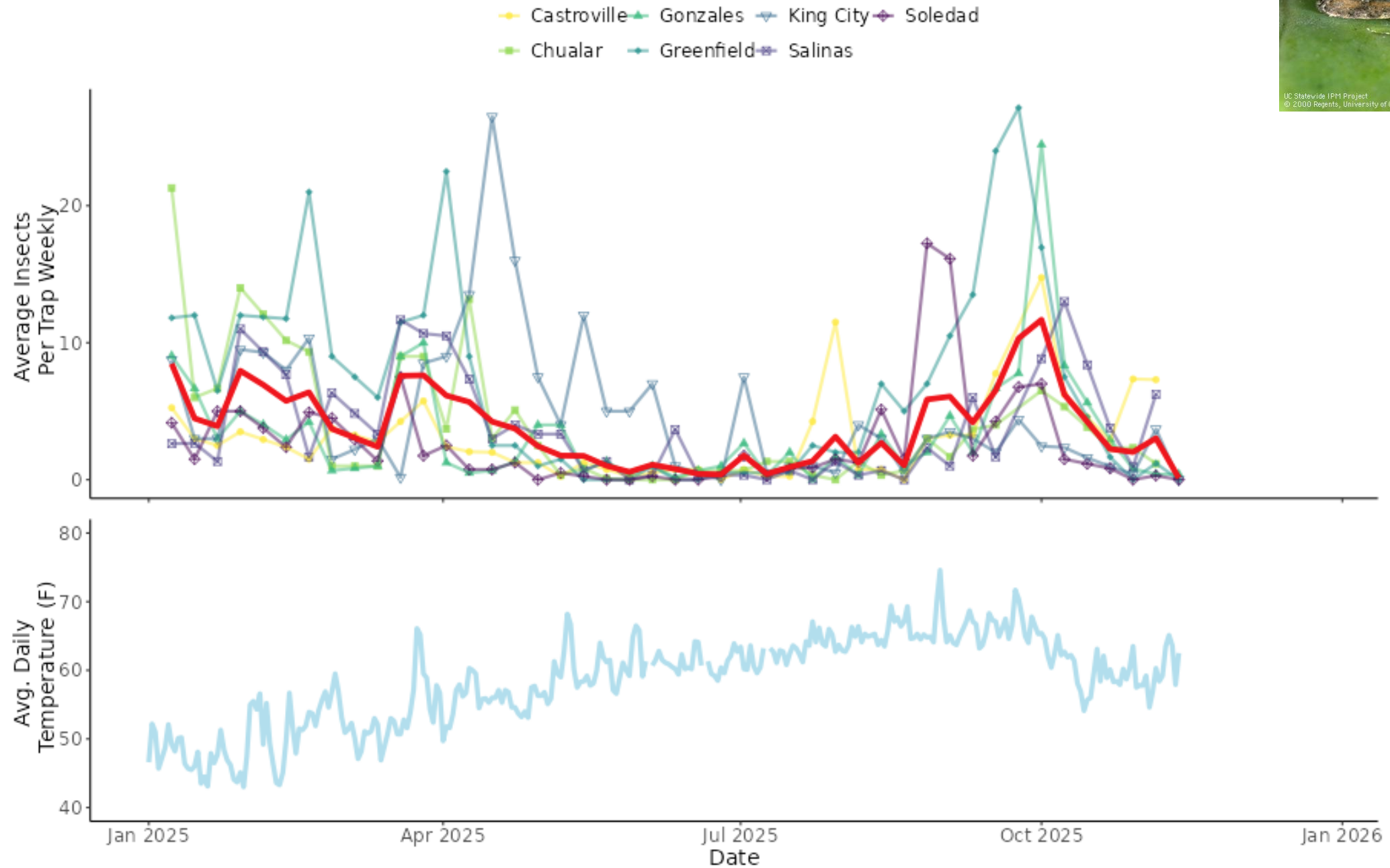
Aphid monitoring: 2025



Aphid monitoring: 2020-2025



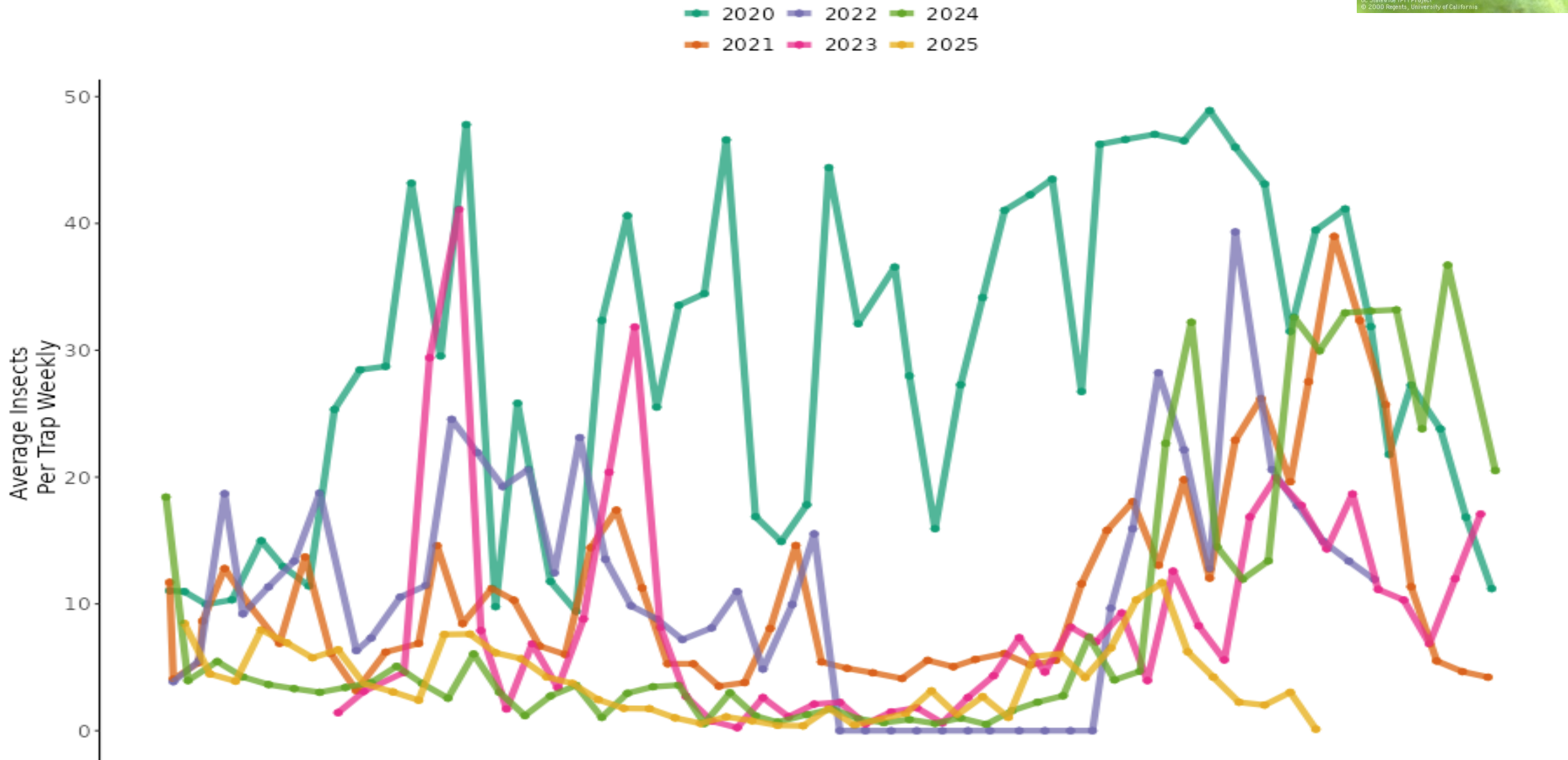
Diamondback Moth monitoring: 2025



Diamondback Moth monitoring: 2020-2025



Average Weekly DBM capture per trap across years



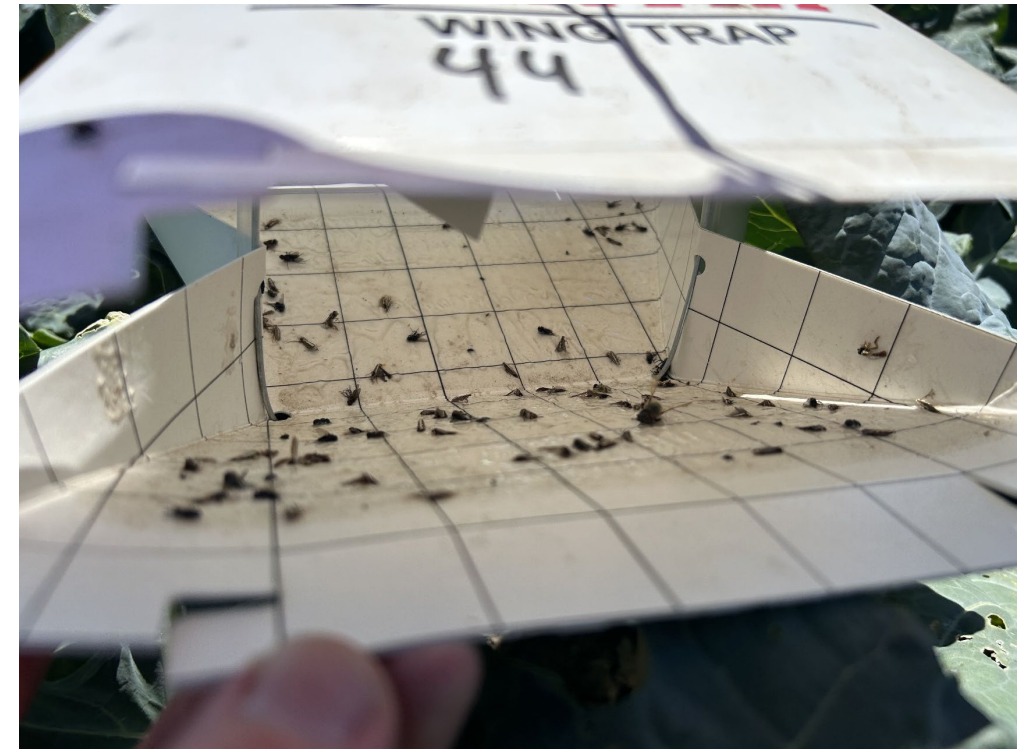
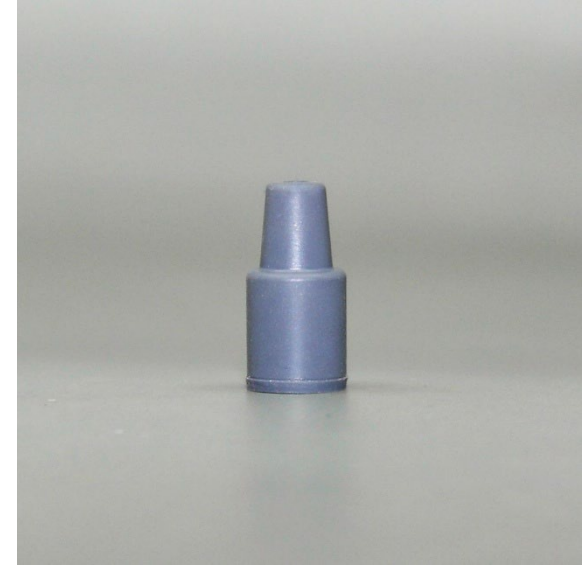
Trapping Network Disconnect

- Current Trap locations are static.
- Diamondback moth are brassica specialists
- Crop Rotation = varying distance between DBM traps and brassicas for each site.



2026 Plans for Monitoring Network

- Continue Thrips and Aphid Monitoring in current locations
- Couple new DBM Traps to Brassica Plantings
- DBM Pheromone Lure Efficacy Trial



Lettuce Pest Natural Enemy Survey

- Importance of Syrphid larvae (Smith and Chaney 2007, Smith et al. 2008, Karp et al. 2016)
- What role do other natural enemies play?
 - Lacewing Larvae
 - Lady Beetle Larvae and Adults
 - Minute Pirate Bugs



Lettuce Pest Natural Enemy Survey

- Fall 2025 Survey
- Organic Romaine Fields
 - Hollister- 3 field sites
 - San Lucas- 2 field sites

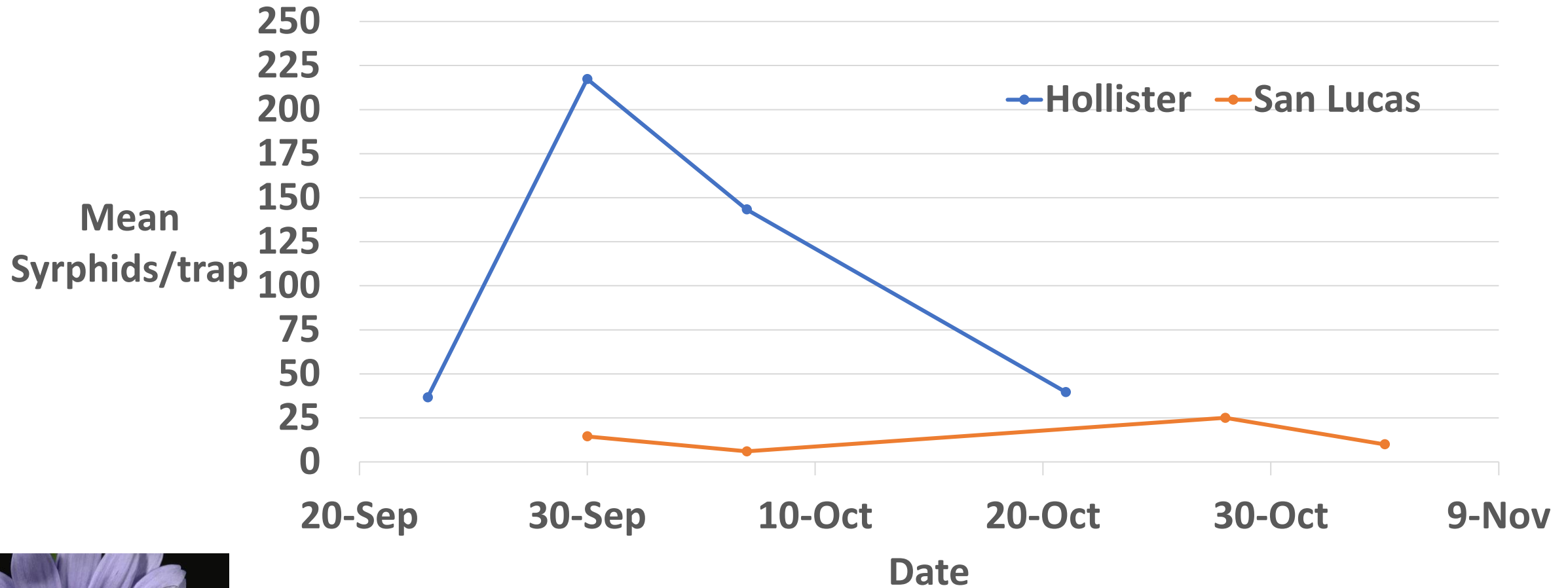


Lettuce Pest Natural Enemy Survey

- Sampling Methods:
 - Weekly Blue and Yellow Sticky Traps
 - Lettuce Sampling
 - Rosette Stage
 - Near Harvest



2025 Fall Natural Enemy Survey (sticky traps)



Lettuce Pest Natural Enemy Survey

- 2nd Survey Planned for Early Spring 2026
- Additional Sampling Locations
 - Salinas
 - Chualar
 - Gonzales
 - King City



Fall 2025 DBM Insecticide Efficacy Trial

- Goal: Establish baseline efficacy for four Salinas Valley standard insecticides for diamondback moth larvae
- Assess early in crop cycle.



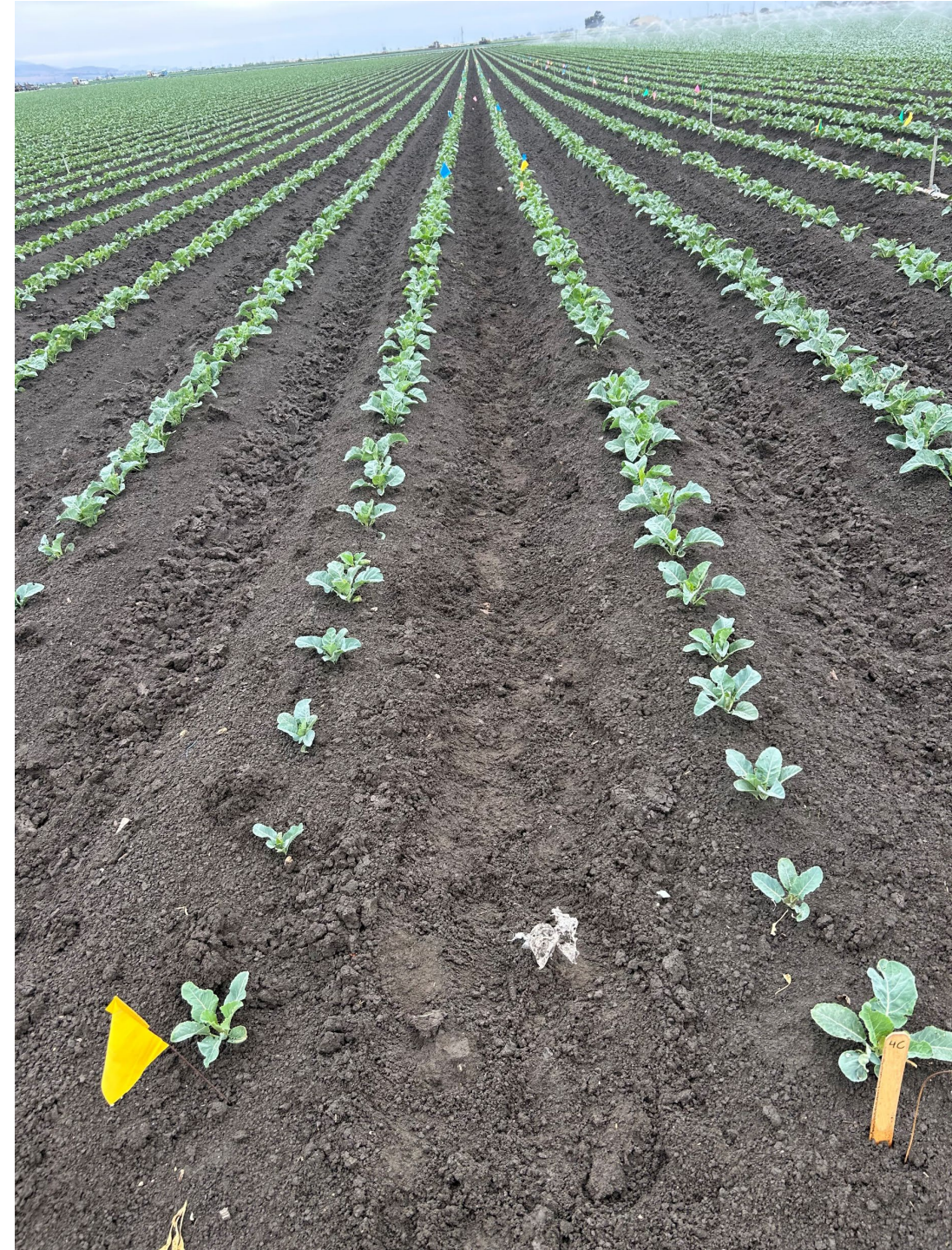
(Virginia Tech)

2025 DBM Insecticide Efficacy Trial

Treatment	Active Ingredient	IRAC Group	Rate
Untreated Control	-	-	-
Xentari	<i>Bacillus thuringiensis</i> var. <i>aizawai</i>	11A	1.5 lb/acre
Proclaim	Emamectin benzoate	6	4.8 oz/acre
Radiant	Spinetoram	5	10 fluid oz/acre
Exirel	Cyantraniliprole	28	13.5 fluid oz/acre

Fall 2025 DBM Insecticide Efficacy Trial

- Four replicated blocks per treatment
- One replicate = Two 40 inch Cauliflower beds x 35 feet



2025 Efficacy Trial- Application and Sampling Schedule

**Transplant
Date:
August 16**

**Application 1:
August 30**

**Application 2:
September 6**

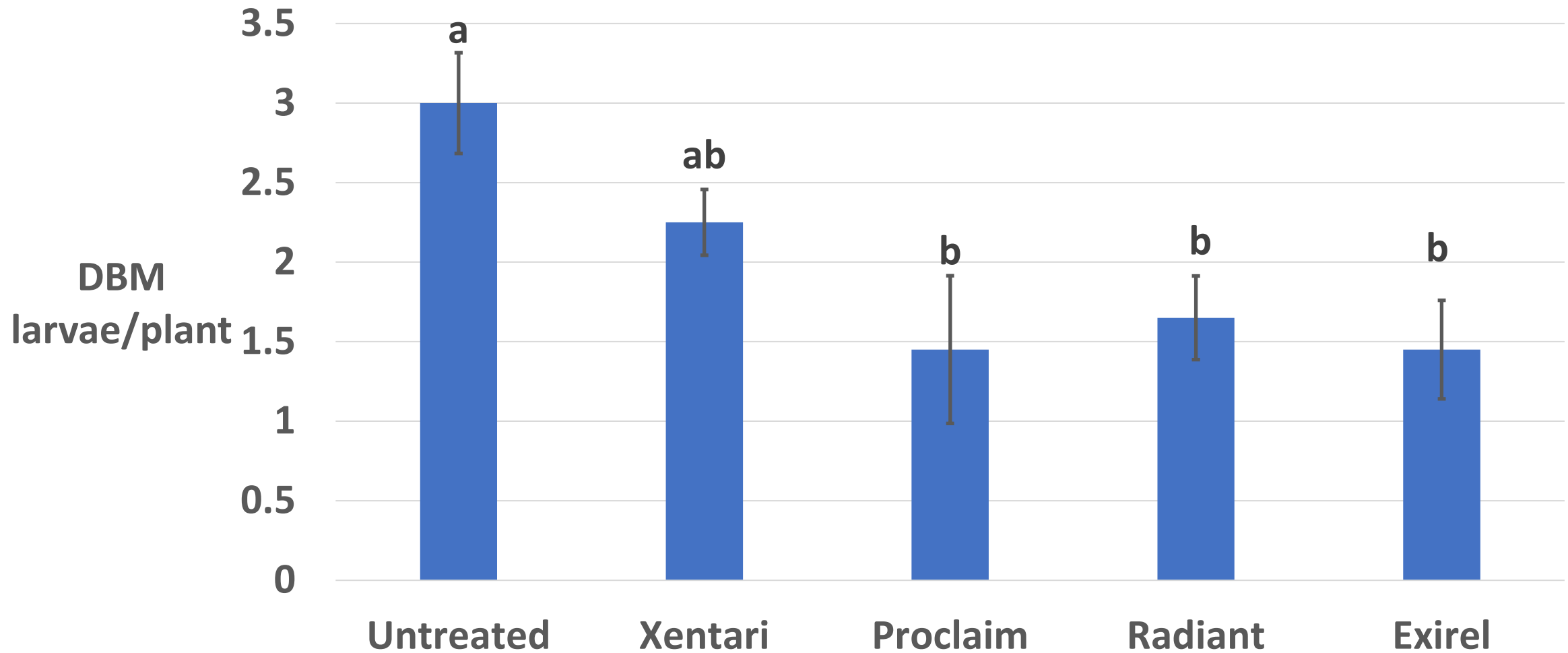


**Pre-Trial
Sampling:
August 29**

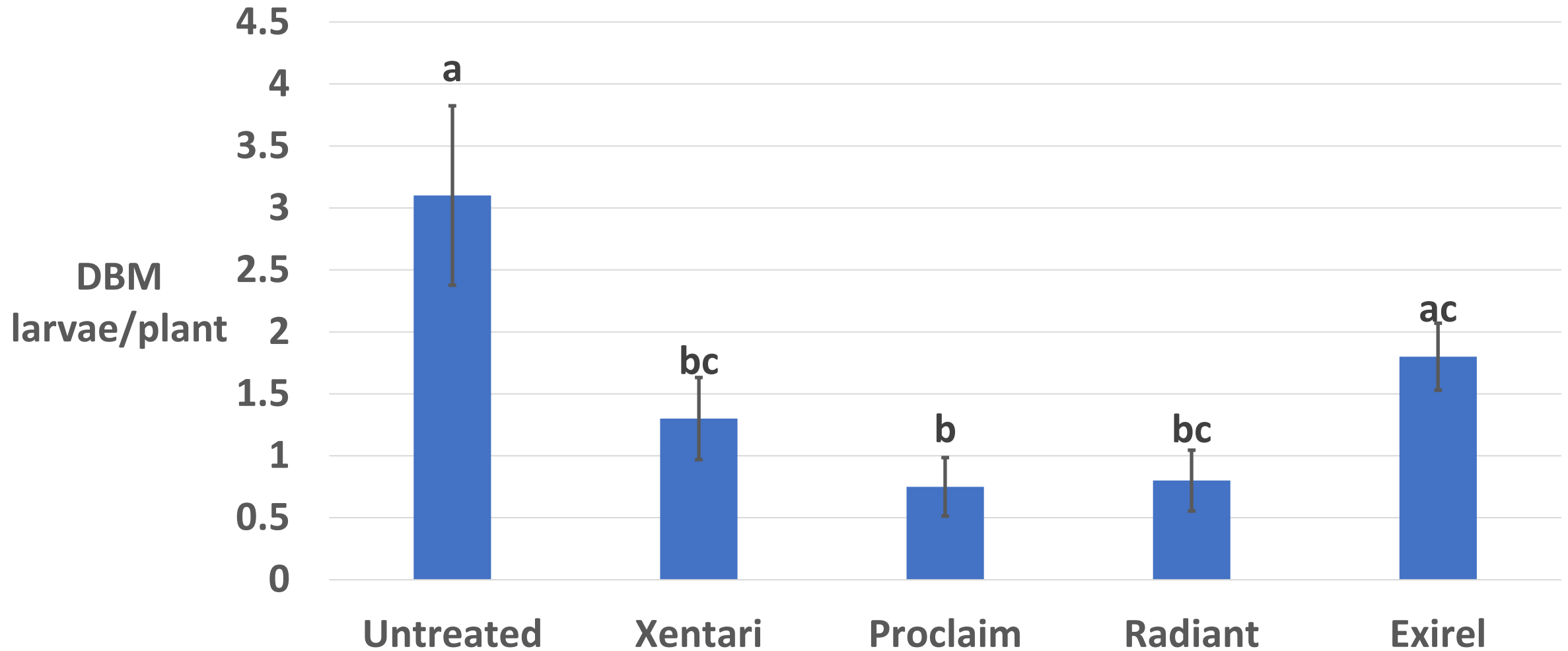
**Larval
Sampling 1:
September 5**

**Larval
Sampling 2:
September 12**

Six Days after 1st Application



Six Days after 2nd Application (12 Days after 1st Application)



2025 Insecticide Trial

- **Xentari- *B. thurigiensis aizawai***
 - ~2-5 days to kill
 - Potential delayed efficacy?
- **Exirel- Cyantraniliprole**
 - Transplants pre-treated with **Verimark (Cyantraniliprole)**
- IRAC Group 28 Treatment window (max of two applications per 30 days)



2025 Insecticide Trial

- Genetic Variation in Insecticide Resistance and variable coverage?
- Sampled Larvae often found in developing cauliflower heads.
- Effective insecticide products may be still be insufficient when tolerance is < 1 larvae/plant.



Next Steps- Potential follow-up trials

- Trial new insecticide products
 - **Incipio**
(Isocycloseram/Plinazolin)
 - **Lepigen**
- Early season rotations in a seasonal insecticide program compared to grower standard.



Thank you

Special thanks to:

USDA and UCANR field interns

Hasegawa Lab

Grettenberger Lab

Grower and PCA Collaborators

Kim Horton, Taylor Farms

Mark Mason, Huntington Farms

Clara, Huntington Farms 2025 Intern

Mark Pisoni, Pisoni Family Vineyards

Benjamin Lee, CDFA

California Leafy Greens Research Board

