

# Black Fig Fly (*Silba adipata*) in California

## Biology and Management



**Melissa ‘Mel’ Thayer and Houston Wilson**

Wilson lab in the Department of Entomology,

University of California – Riverside

[mthay002@ucr.edu](mailto:mthay002@ucr.edu)

# Black Fig Fly

Diptera: Lonchaeidae: *Silba adipata*

## Research and Extension Team



**Phoebe Gordon**  
Orchard Crops Farm Advisor  
Madera/Merced Co.



**Sonia Rios**  
Area Subtropical Hort. Advisor  
Riverside/Inland Empire



**Ben Faber**  
Farm Advisor  
Ventura Co.



**Neil McRoberts**  
Assoc. Professor  
Dept. Plant Pathology  
UC Davis



**David Haviland**  
Ento. Farm Advisor  
Kern County



**2021-2022**  
**Kadie Britt**  
Postdoctoral Scholar  
Dept. Entomology  
UC Riverside



**2022-2024**  
**Valeh Ebrahimi**  
Postdoctoral Scholar  
Dept. Entomology  
UC Riverside



**2024-present**  
**Melissa Thayer**  
Ph.D. Student  
Dept. Entomology  
UC Riverside

# **Black Fig Fly**

## **Presentation Overview**

- 1. Meet the black fig fly**
- 2. The black fig fly's spread**
- 3. Response in California**
- 4. Biology, ecology and signs of infestation**
- 5. Management options**
- 6. Future research**

# 1. Meet the black fig fly

# Black Fig Fly (*Silba adipata*)

## Introduction

- Order: Diptera
- Family: Lonchaeidae
- Completes its lifecycle in common figs
- Four life stages
  1. Eggs
  2. Larva
  3. Pupa
  4. Adult
- Adults are a black-green metallic color
  - 1-2 mm long



## 2. The black fig fly's spread

# Black Fig Fly



## Global Spread



# Black Fig Fly

## California Spread

**Main Fig producers:** Throughout Southern California

- *Merced – 630 acres* 
- *Madera – 6,131 acres*
- *Fresno – 121 acres* 

**Central Coast:**

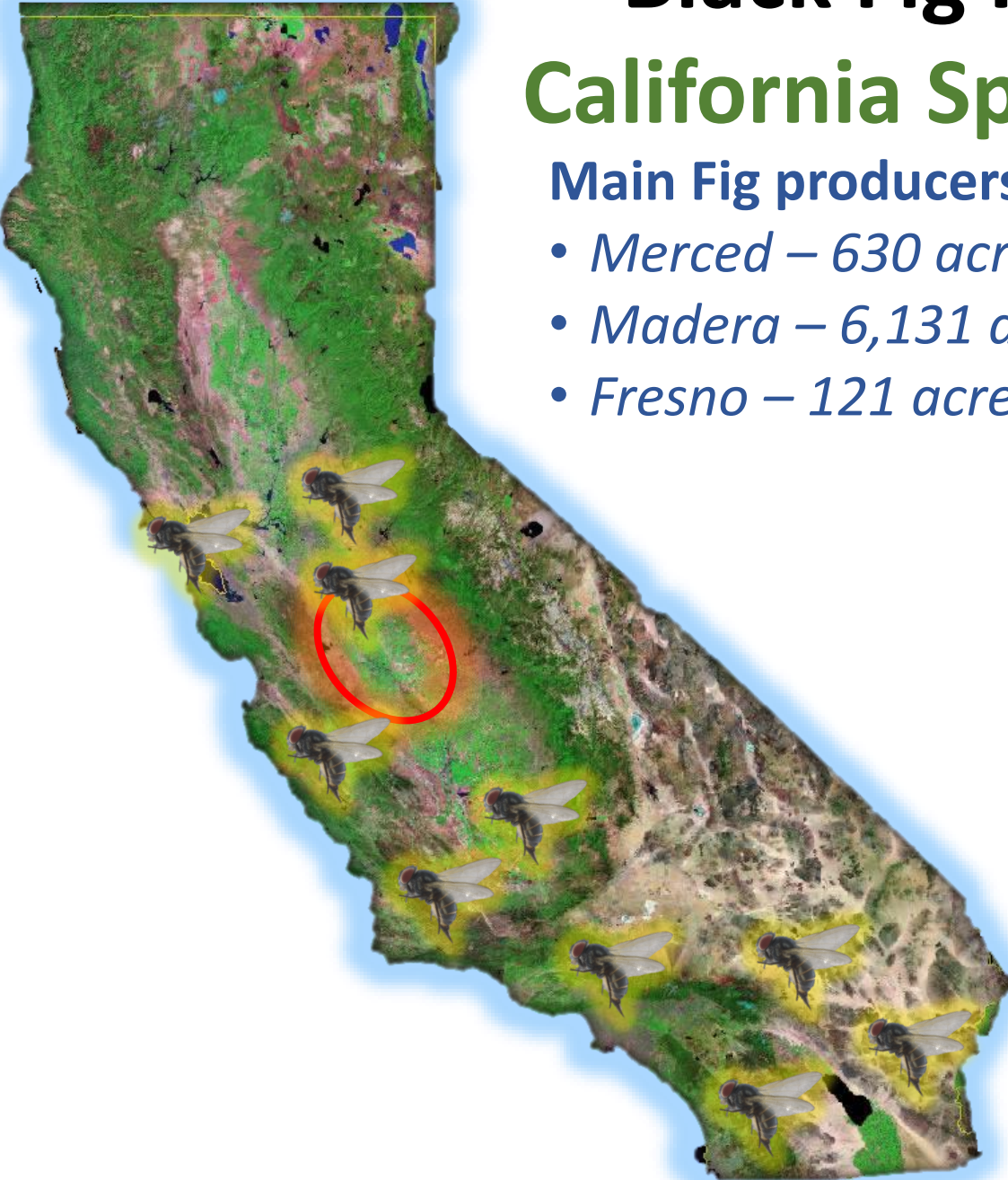
- Ventura
- Santa Barbara
- San Luis Obispo
- San Benito
- Santa Cruz

**Bay Area:**

- Alameda
- Contra Costa
- San Mateo
- Santa Clara
- Marin

**Central Valley:**

- Kern
- Sacramento
- Merced
- Fresno



# 3. Response in California

# Black Fig Fly

Diptera: Lonchaeidae: *Silba adipata*

## Timeline of Initial Events

### 2019-2020

- Reports from Mexico 2019/2020
- APHIS increased irradiation of incoming fig fruits

### Spring/Summer 2021

- Reports of infested fruit from Southern California
- Initial surveys in Ventura + Santa Barbara counties

# Black Fig Fly

## Diptera: Lonchaeidae: *Silba adipata*

### Surveys in Southern California



Kadie Britt (Post doc., UCR) and Ben Faber (Farm advisor, Ventura County) surveying for black fig fly in Ventura County.

# Black Fig Fly

Diptera: Lonchaeidae: *Silba adipata*

## Timeline of Initial Events

### 2019-2020

- Reports from Mexico 2019/2020
- APHIS increased irradiation of incoming fig fruits

### Spring/Summer 2021

- Reports of infested fruit from Southern California
- Initial surveys in Ventura + Santa Barbara counties

### Summer/Fall 2021

- Created a “Black Fig Fly Pest Alert” + website

# Black Fig Fly

Diptera: Lonchaeidae: *Silba adipata*

UC ANR – “BFF Pest Alert” and webpage

University of California  
Agriculture and Natural Resources

**PEST ALERT – Black Fig Fly**  
(Diptera: Lonchaeidae: *Silba adipata*)  
Updated: October 2025

Invasive Fig Pest Initially Discovered in Southern California Has Now Spread to the Central Coast, Bay Area and Central Valley Regions



**Overview:** Fig growers need to be aware of the black fig fly (BFF), an invasive insect that was initially discovered infesting figs throughout southern California in 2021. Since then, the BFF has expanded into the Central Coast, Bay Area and Central Valley regions (Fig. 1). To date, BFF infestations have been reported in the following counties: Alameda, Contra Costa, Los Angeles, Merced, Orange, Riverside, San Benito, San Bernardino, San Diego, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, and Ventura. Movement of fig fruits and/or potted fig plants out of these counties is not recommended, as it may lead to additional artificial spread of BFF to other areas of the state. Personnel with University of California Cooperative Extension (UCCE) and UC Riverside are currently working with the California Department of Food and Agriculture to further monitor populations, as well as develop improved trapping and management strategies.



Figure 1. Counties with a black fig fly infestation confirmed by CDFA as of October 2025.



Black fig fly UC ANR webpage

# Black Fig Fly

Diptera: Lonchaeidae: *Silba adipata*

## Timeline of Initial Events

### 2019-2020

- Reports from Mexico 2019/2020
- APHIS increased irradiation of incoming fig fruits

### Spring/Summer 2021

- Reports of infested fruit from Southern California
- Initial surveys in Ventura + Santa Barbara counties

### Summer/Fall 2021

- Created a “Black Fig Fly Pest Alert” + website

### 2022-2026

- Regional delineation + modeling
- Trap/lure studies + spray trials\*

# 4. Biology, ecology, and Signs of Infestation

# Black Fig Fly

Diptera: Lonchaeidae: *Silba adipata*

## Biology and Ecology

Eggs in Ostiole



Female Ovipositing into Ostiole

### Lifecycle

- Overwinters as pupae in the soil
- Adults oviposit into unripe fig ostiole
- Larvae feed on fig syconium
- Emerge from fruit, drop to soil, pupate
- 4-6 generations/year in Medtrn. climate
- Degree-days unknown, likely similar in CA



Pupa



Feeding Damage



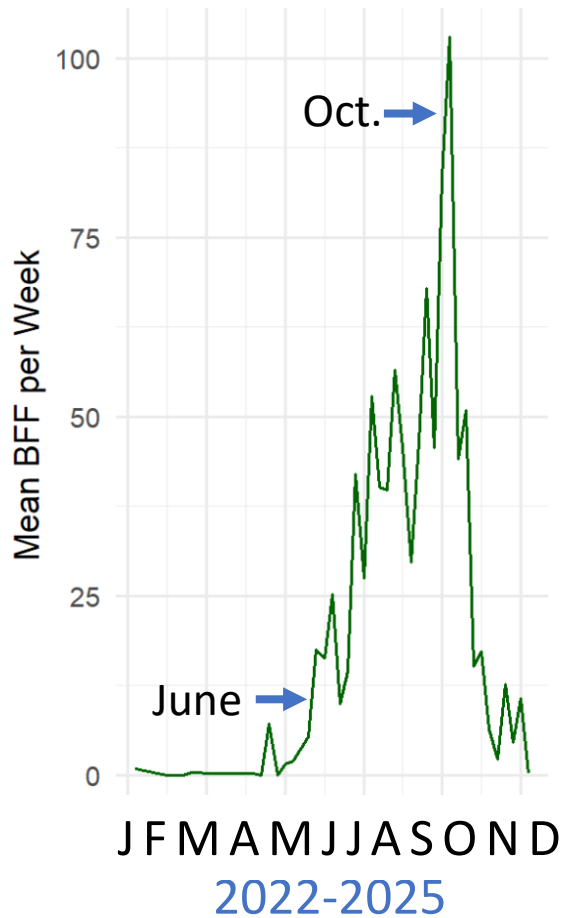
Larval Exit Hole

# Black Fig Fly

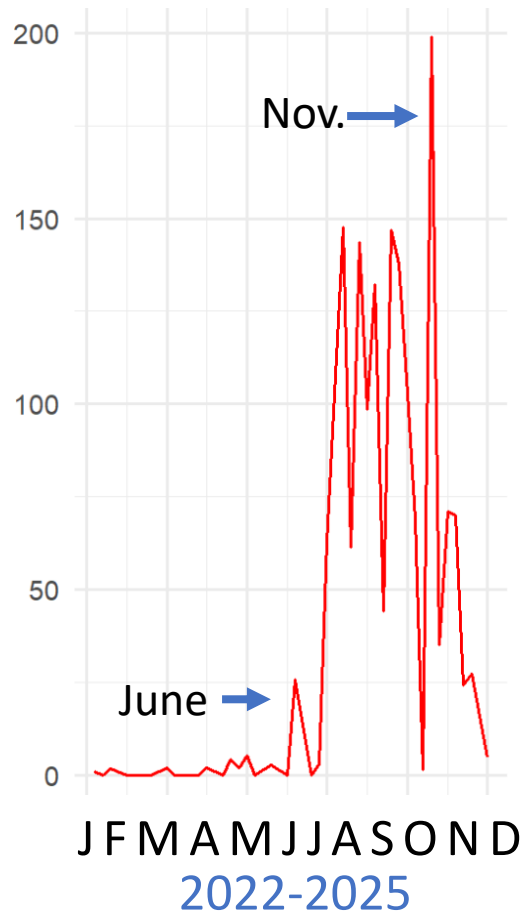
Diptera: Lonchaeidae: *Silba adipata*

## Biology and Ecology

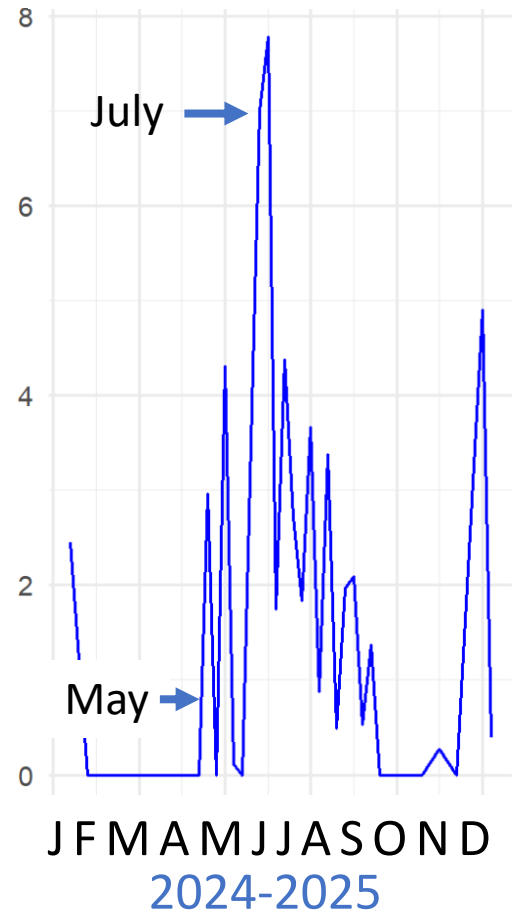
### Southern California



### Central Coast



### Central Valley



# Black Fig Fly

Diptera: Lonchaeidae: *Silba adipata*

Signs of damage and infestation



- Eggs in ostiole

- Larvae in the fruit
- Tunneling or damage in the flesh

# Black Fig Fly

Diptera: Lonchaeidae: *Silba adipata*

## Signs of damage and infestation



**Infested fruit on the tree:**

- Small (~1-2 inches)
- Ripe color while unripe
- Exit hole(s)
- Easily fall off

Larval tunneling

# Black Fig Fly

Diptera: Lonchaeidae: *Silba adipata*

Signs of damage and infestation



**Infested fruit on the tree:**

- Small (~1-2 inches)
- Ripe color while unripe
- Exit hole(s)
- Easily fall off

# Black Fig Fly

Diptera: Lonchaeidae: *Silba adipata*

Signs of damage and infestation



# Black Fig Fly

Diptera: Lonchaeidae: *Silba adipata*

## Signs of damage and infestation



### Premature fruit drop

- Less drop in the breba (based on observations in Southern California)

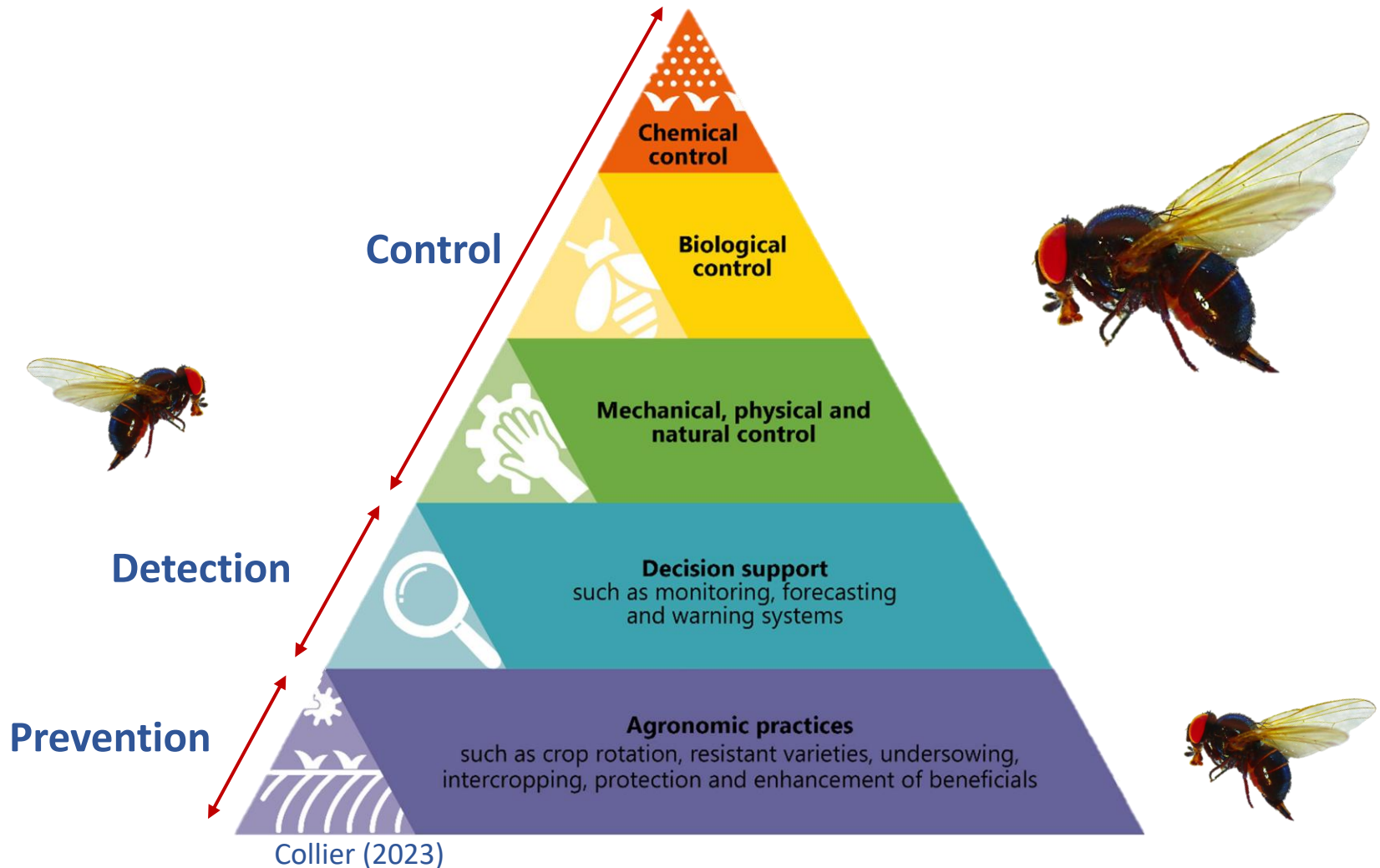
### Infested fruit:

- Small (~1-2 inches)
- Turning a ripe color while unripe
- Exit holes

# 5. BFF Management

# Black Fig Fly

## An Integrated Pest Management Approach



# Black Fig Fly

## Prevention & Cultural Control

**Overall goal:**

**To make your figs inaccessible and to physically disrupt the BFF**

### Exclusion:

- Netting trees
- Bagging individual fruit
- Tarps underneath trees

### Sanitation:

- Picking up fallen fruit
- Proper disposal
  - Freezing, microwaving, and destroying
  - Compost?



# Black Fig Fly

Diptera: Lonchaeidae: *Silba adipata*

## Monitoring and Management

### Traps and Baits

- McPhail-type Traps
- Torula Yeast (4 tabs per 400 ml)
- 2% ammonium sulfate + 2 ml fig sap (300 ml) + hexanol (24 ml)



*McPhail-type Trap*



*Torula yeast baits*



*Hexanol filter (modified film can)*

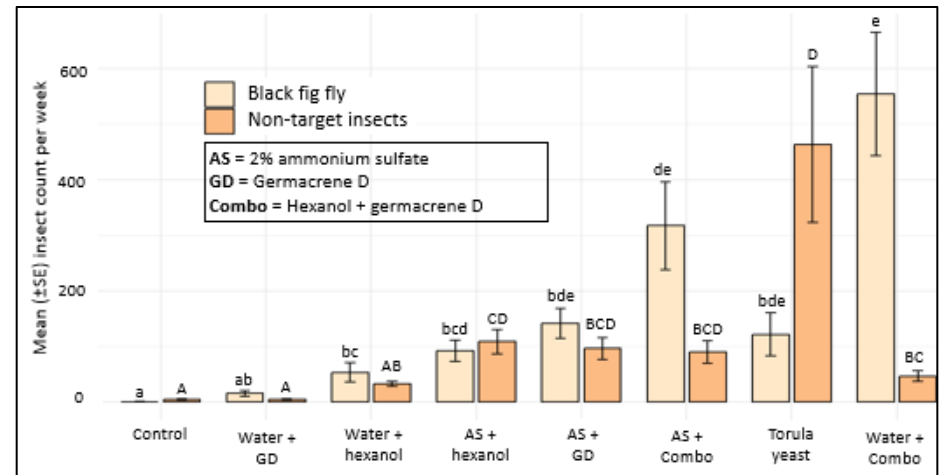
# Black Fig Fly

Diptera: Lonchaeidae: *Silba adipata*

## Monitoring Research

### 2025 Lure study results:

- Testing fig sap volatiles
- Torula yeast attracts BFF
  - High non-target insects
- Combination of two volatiles (germacrene D and hexanol) is attractive AND selective



Torula Yeast



AS + germacrene D + hexanol

# Black Fig Fly

Diptera: Lonchaeidae: *Silba adipata*

## Chemical Control

### Possible chemical controls?

- Proteinaceous baits - target adults
  - GF-120 (spinosad) (OMRI certified)
  - Delegate 250 (spinetoram)
- Spray trials have yielded inconsistent results



**GF-120 Fruit Fly Bait**  
with Qalcova™ active

GROUP	5	INSECTICIDE
-------	---	-------------

Attracts and controls cherry fruit flies, including cherry fruit fly, western cherry fruit fly, and black cherry fruit fly in cherries, blueberry maggot in blueberries, apple maggot on apples and walnut husk fly on walnut trees



**DELEGATE™ 250 WG**

INSECTICIDE

REG. NO. L8392 ACT No. 36 of 1947 / WET Nr. 36 van 1947  
N-AR 1502

A WATER DISPERSIBLE GRANULE CONTACT AND STOMACH INSECTICIDE FOR THE CONTROL OF INSECTS ON AGRICULTURAL CROPS AS LISTED.	'N WATER DISPERGEERBARE KORREL- EN MAAGINSEKODER VIR DIE BEHEER VAN INSEKPLAE IN LANDBOUGEWASSE SOOS AANGEDUI.
---	--

IRAC: INSECTICIDE GROUP CODE 5A IRAC: INSEKODER GROEP KODE

Active Ingredient/Aktiewe Bestanddeel

Spinetoram ..... 250 g/kg ..... Spinetoram

Net mass ..... g ..... Netto massa

# 6. Future research

# Black Fig Fly

Diptera: Lonchaeidae: *Silba adipata*

## Future Research

- Refine the trap and lure system
  - Low bycatch
  - Ease of use
- Characterizing biology
  - Soil factors affecting pupation success
- Exploration of infestation phenology based on fruit physiology



# Thank You!!

## Acknowledgements

**Postdocs and Lab Assts:** Ananya Nibu, Leah Breeze, Valeh Ebrahimi, Amanda Clark, Lucas Raymond

**UCCE:** Stephanie Rill (SRA, UCCE Kern Co.), David Haviland (Entomology Farm Advisor, UCCE Kern Co.)

**UC Davis:** Neil McRoberts

## Funding Sources

- California Department of Food and Agriculture
- USDA Animal Plant Health Inspection Service (APHIS)
- California Fig Institute
- IR-4

Mel Thayer, Ph.D. Student  
mthay002@ucr.edu  
<https://treecrops.ucr.edu/>

