

# ORIENTAL FRUIT FLY QUARANTINE



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Emergency Quarantine Response Program  
Plant Health & Pest Prevention Services  
California Department of Food & Agriculture

# BACKGROUND

- Invasive pest that feeds on over 250 different fruits & vegetables.
- OFF multiplies and spreads rapidly
- Native to Southeast Asia, spread to Hawaii.
- Larvae feed inside the fruit making it inedible



# What Triggers a Fruit Fly Quarantine ?

- ❑ One mated female, larvae or pupae - It's an evidence of a breeding population

Quarantine is also triggered by number of adult flies captured--  
*within three miles of each other in one life cycle*

- Mediterranean , Melon, Caribbean Fruit Fly – 2
- Mexican Fruit Fly – 5
- Oriental, Guava, Peach Fruit Fly – 6 in Host Production area or 8 in Urban area
  
- Other Exotic Fruit Flies – 2

# Current Fruit Fly Quarantines in Northern California

- Contra Costa County
  - Oriental Fruit Fly – *Bactrocera dorsalis*
  - 99 sq. mi. in Brentwood
  - Quarantine enacted on October 6, 2023
- Sacramento County
  - Oriental Fruit Fly – *Bactrocera dorsalis*
  - 106 sq. mi. in Rancho Cordova
  - Quarantine enacted on September 20, 2023
- Santa Clara County
  - Oriental Fruit Fly – *Bactrocera dorsalis*
  - 112 sq. mi. in Santa Clara
  - Quarantine enacted on September 20, 2023

# Current Fruit Fly Quarantines in Southern California

- Los Angeles County
  - Mediterranean Fruit Fly – *Ceratitis capitata*
  - 69 sq. mi. in Los Angeles
  - Quarantine enacted on September 27, 2023
- Los Angeles County
  - Tau Fly – *Zeugodacus tau*
  - 110 sq. mi. in Stevensen Ranch
  - Quarantine enacted on October 21, 2023
- Riverside County and San Bernardino County
  - Oriental Fruit Fly – *Bactrocera dorsalis*
  - 137 sq. mi. in Redlands
  - Quarantine enacted on October 17, 2023
- Ventura County
  - Queensland Fruit Fly – *Bactrocera tryoni*
  - 76 sq. mi. in Thousand Oaks
  - Quarantine enacted on October 9, 2023

# Top Ten Years With Most Flies Trapped

1. 2023 – 704 flies
2. 1993 – 496 flies
3. 1974 – 386 flies
4. 1992 – 379 flies
5. 2002 – 323 flies
6. 1989 – 273 flies
7. 1980 – 230 flies
8. 1998 – 217 flies
9. 1981 – 212 flies
10. 1983 – 184 flies

# Why a Quarantine?

- Contain a Known Pest Infestation until Eradication is Achieved
- Maintain Movement and Free Trade of Pest Free Agricultural Commodities Originating/Transiting from within a quarantine Area
- Reduce Domestic and Global Pressure from Trading Partners

# Fruit Fly Quarantine is a Cooperative Project Between.....

**United States Department of Agriculture (USDA)**

International and Interstate Shipments

California Department of Food and Agriculture (CDFA)

Intrastate, Inter-County and Intra-County Coordination

County Agricultural Commissioners

Intra-County and Local Government Outreach



# CALIFORNIA'S COOPERATIVE QUARANTINE RESPONSE PROGRAM



CDFA/USDA

(Incident Command System)

County Ag. Commissioners

University of California

Major local commodities groups: Calif. Avocado Commission, Calif. Citrus Mutual, Citrus Research Board, Calif. Association of Nurseries and Garden Centers, etc.

Industry/Public/Others

***Communication, Coordination and Cooperation***

# Quarantine Regulations

State Interior Quarantine

California Code of Regulation 3423

<https://pi.cdfa.ca.gov/pqm/manual/pdf/410.pdf>

Federal Domestic Quarantine

Code of Federal Regulation 301.32

<https://pi.cdfa.ca.gov/pqm/manual/pdf/227.pdf>

# If Fruit Flies Are Established in California

- If Exotic Fruit Flies were to establish a foothold in the continental United States, trade would be negatively impacted.
  - Many of our fruits, vegetables and other ag. commodities would not be permitted to be exported, affecting local and/or national economy.
- Our environment could suffer as additional pesticides would be required for eradication.

# If Fruit Flies Are Established in California

- Many fruits, nuts and vegetables would drop and rot before they were ripe
- Farmers and home gardeners would need to use more pesticides to keep crops free of fruit fly maggots. Successful organic gardening would not be feasible in such areas
- Consumers - and that's all of us - would pay more for fruits and vegetables because of higher production costs and reduced yields
- Farmers would find their incomes & livelihoods in jeopardy

# Quarantine Boundaries

## ► Core:

► One half mile radius from each find site. The small RED dots represent the find sites

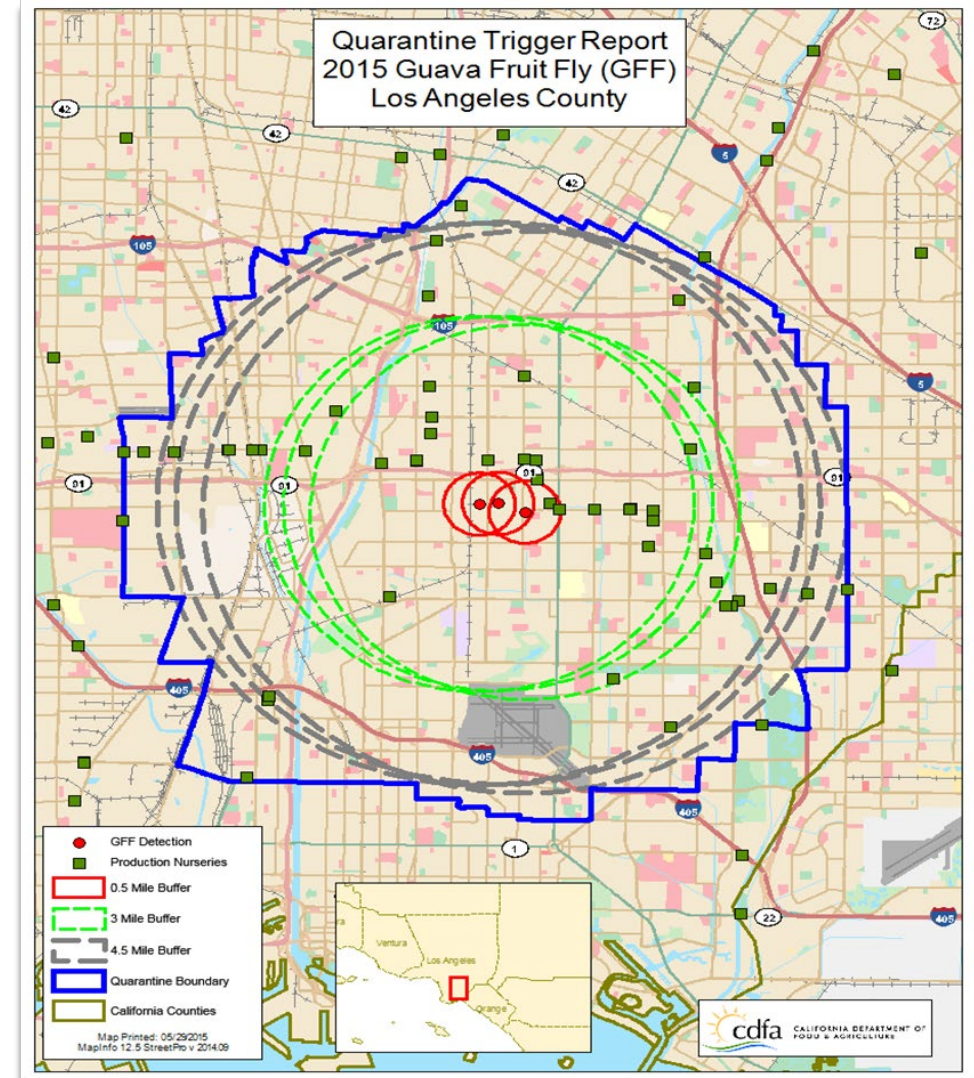
## ► Three-mile buffer:

► Three-mile radius from each find site **GREEN**; multiple flies are considered part of the same infestation when detected within same life cycle

## ► Four & Half mile buffer:

► From the find site where quarantine boundary get established

<http://www.cdffa.ca.gov/plant/off/regulation.html>



# California Regulatory Program Works?

- In conjunction with trapping, treatment and other eradication programs- SUCCESS

## *Indicators*-----

- Exotic fruit flies are NOT established in CA
- FFHM from the Q. area to domestic and international markets - No interruptions
- No reports of larvae detections at destination
- No new infestations from the original established Q. area

# Duration of the Quarantine

- If no additional life stages are detected for 3 life cycles after the last detection
- Life cycle is based on a heat degree day temperature driven model.
- Warmer the weather shorter the life cycle and visa versa

CURRENT PROJECTED F3 date is JUNE 2024 subject to extension based on the last fly find date

# GROWER INFORMATION



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# REGULATORY PROGRAM

- Host crops **grown** and/or **handled** inside the quarantine area are regulated.
  - Must have USDA/CDFR Compliance Agreement, Exhibits and Harvest Certificates to harvest, transport, & pack or process crops.
  - Enforcement activities conducted by CDFR/USDA/COUNTY.
- Host crops **grown** and/or **handled** outside the quarantine area are not regulated.

Regulatory Process if You Grow  
Host Crops within the Oriental  
Fruit Fly Quarantine Area ...

# COMPLIANCE AGREEMENTS/CERTIFICATES

**Follow the Oriental Fruit Fly Project protocol.**

- **Obtain Project issued Compliance Agreement and Exhibits which state the specific requirements for harvesting, transporting, selling, packing or processing host crops.**
- **Obtain Project issued Harvest Certificates which allow growers to harvest and move their host crops off the growing site under the terms of the Compliance Agreement and Exhibits.**

# COMPLIANCE AGREEMENTS

- **All growers (in Oriental fruit fly quarantine area) must obtain the “Grower/Grove Manager” Compliance Agreement (C.A.) and Exhibits.**
  - If conducting your own harvesting, obtain the “Harvester” exhibit.
  - If conduct your own transporting, obtain the “Transporter” exhibit.
  - If packing on site, obtain the “Packing House” and “Diamond Stamp” exhibits.
  - If processing on site, obtain the “Processor” exhibits.
  - If selling on site, obtain the “Fruit Seller” exhibit.
- **If the harvesting or transporting are conducted by contractors, then the contractor obtains a C.A. and exhibit(s).**
- **Packing Houses receiving host fruit from inside the quarantine area must obtain a C.A. and the “Packing House” and “Diamond Stamp” exhibits.**
- **Processors receiving host fruit from inside the quarantine area must obtain a C.A. and the “Processor” exhibit.**

# PRE-HARVEST BAIT TREATMENT PROTOCOL

The core area is 0.5 miles from any fly find or larval find site.

- Groves, orchards and fields located outside the “Core Area” are eligible for the pre-harvest bait treatment program.
- Groves, orchards and fields located inside the “Core Area” are not eligible for the pre-harvest bait treatment program.
- Groves, orchards and fields initially located outside the “Core Area,” but due to recent fly or larval finds are now located inside the “Core Area” are no longer eligible for the pre-harvest bait treatment program.

# PRE-HARVEST BAIT TREATMENTS

- Obtain a Pre-harvest Treatment Agreement.

Must apply a minimum of 4 treatments approximately once a week for one life cycle (minimum 30 days, often longer) prior to harvest (follow Bait Treatment and Harvest schedule).

- Treatment period is temperature dependent and updated continually.
- Be sure to check the treatment schedule regularly (CDFA/Ag Commissioner Web Page)
- Each treatment must be monitored by the Project (CDFA/USDA). No charge.
- The Project will issue “Harvest Certificates” after completing the required number of treatments.

# Bait Treatment and Harvest Schedule

BAIT TREATMENT AND HARVEST SCHEDULES FOR  
2023 OFF SAN BERNARDINO/RIVERSIDE - REDLANDS:

START DATE	DAY COUNT	END DATE
18-Sep-23	30	18-Oct-23
19-Sep-23	30	19-Oct-23
20-Sep-23	30	20-Oct-23
21-Sep-23	30	21-Oct-23
22-Sep-23	30	22-Oct-23
23-Sep-23	30	23-Oct-23
24-Sep-23	30	24-Oct-23
25-Sep-23	30	25-Oct-23
26-Sep-23	30	26-Oct-23
27-Sep-23	30	27-Oct-23
28-Sep-23	30	28-Oct-23
29-Sep-23	30	29-Oct-23
30-Sep-23	30	30-Oct-23
01-Oct-23	30	31-Oct-23
02-Oct-23	30	01-Nov-23
03-Oct-23	30	02-Nov-23
04-Oct-23	30	03-Nov-23
05-Oct-23	30	04-Nov-23
06-Oct-23	30	05-Nov-23
07-Oct-23	30	06-Nov-23
08-Oct-23	30	07-Nov-23
09-Oct-23	30	08-Nov-23
10-Oct-23	30	09-Nov-23
11-Oct-23	30	10-Nov-23
12-Oct-23	30	11-Nov-23
13-Oct-23	30	12-Nov-23

START DATE	DAY COUNT	END DATE
02-Nov-23	43	15-Dec-23
03-Nov-23	46	19-Dec-23
04-Nov-23	50	24-Dec-23
05-Nov-23	54	29-Dec-23
06-Nov-23	57	02-Jan-24
07-Nov-23	60	06-Jan-24
08-Nov-23	62	09-Jan-24
09-Nov-23	64	12-Jan-24
10-Nov-23	66	15-Jan-24
11-Nov-23	68	18-Jan-24
12-Nov-23	70	21-Jan-24
13-Nov-23	72	24-Jan-24
14-Nov-23	73	26-Jan-24
15-Nov-23	75	29-Jan-24
16-Nov-23	76	31-Jan-24
17-Nov-23	77	02-Feb-24
18-Nov-23	78	04-Feb-24
19-Nov-23	79	06-Feb-24
20-Nov-23	80	08-Feb-24
21-Nov-23	81	10-Feb-24
22-Nov-23	82	12-Feb-24
23-Nov-23	82	13-Feb-24
24-Nov-23	83	15-Feb-24
25-Nov-23	83	16-Feb-24
26-Nov-23	84	18-Feb-24
27-Nov-23	84	19-Feb-24

# APPROVED PRE-HARVEST BAIT TREATMENTS

Malathion + Nu-Lure  
8 Aquamul      Insect Bait

- EPA Reg. #34704-474.
- Ground or air applications.
- Malathion mixed with NU-Lure bait.
- Ground applications are spot applications in canopy of the trees.
- Air applications are broadcast applications.

GF-120 NF  
Naturlyte

- EPA Reg. #62719-498.
- Ground or air applications.
- Naturalyte contains bait.
- Ground applications are spot applications in canopy of the trees.
- Air applications are broadcast applications.



# TREATMENT MAP

For a 100 trees/acre @ 20' X 20'  
spacing approx. 60 trees sprayed

X	X	X	X	X	X	X	X	X	X
X				X				X	X
X		X				X			X
X	X			X				X	X
X		X				X			X
X				X				X	X
X		X				X			X
X	X			X				X	X
X		X				X			X
X	X	X	X	X	X	X	X	X	X

**Spot  
Treatment**

**All Perimeter  
trees  
sprayed**

**Inside grove:  
every other  
tree of every  
other row  
sprayed**

# SUMMARY

- 1. Obtain:**
  - (a) Compliance Agreement;**
  - (b) Treatment Agreement;**
  - (c) Harvest Certificates.**
- 2. Check the treatment schedule and begin treatments in time to meet your harvest date.**
- 3. Make sure each treatment is monitored by CDFA/USDA.**
- 4. Stay on schedule! If you miss a scheduled spray, due to your negligence, the treatments start over.**
- 5. When harvesting, transporting, or processing; follow the compliance agreement and exhibits.**

# PROJECT CONTACTS

- To report a Oriental fruit fly sighting, contact CDFA Exotic Pest Hotline (800) 491-1899
- Vince Arellano  
Vince.Arellano@cdfa.ca.gov  
(916) 812-4403

- Post-harvest Treatment Options
  - When is too late to start a bait treatment cycle and finish it in the minimum required timeframe (~4 treatments in 30 days)
  - When inside the regulatory core (within 0.5 mile of find site)
  - When is not feasible to do the bait treatments
    - No qualified staff available
    - No equipment
    - Etc.

Post harvest options available for fresh commercial host material depend on the crop itself.

- Methyl Bromide Fumigation options available for:
  - Avocados – T101-c-1 MB at NAP, waiting on confirmation...
  - Tomatoes - D301.32-10(d-1) — MB at NAP
  - Looking into other potential options for other crops...
- Challenges and Limitations with MB fumigations:
  - Limited fumigation providers (San Diego + Los Angeles)
  - Complicated logistics (transport to fumigation facilities, etc.)
  - May need receiving County permission to receive untreated material
  - MB may injure some commodities depending on the temperature and dosage
  - Costs are high

## Other post-harvest options

- Juicing
  - Host material can move to an approved juicing facility under project issued Limited Permit
  - Host material must be covered and safeguarded while in transit
  - Juicer must comply with safeguard regulations to receive this material – up to them to determine if they would like to do that or not.
- All costs associated with the harvest, transport, and treatment will be furnished by the grower/processor.

## Other post-harvest options

- Fresh host fruits and vegetables may not move from any property in the quarantine area, unless they have been processed in a manner that eliminates the risk of spreading any life stages of exotic fruit flies outside the quarantined areas.
  - Processing methods may include:
    - Cooking/Baking
    - Freezing
    - Canning
    - Crushing/Grinding
    - Completely Drying or dehydrating
    - Grinding up or Liquefying
- Check first with Project staff to determine if a particular method of fruit or vegetables processing satisfies the quarantine restrictions.

- Every situation could be different.
- We can address your specific concerns and specific situation separately.
- We will need everybody's cooperation to get through this.
- Thank you.