

# Controlling Olive Fruit Fly in Non-Commercial Orchards

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Olive Fruit Fly was discovered in Los Angeles in 1998 and had spread rapidly to where it can virtually be found anywhere olives are grown in California. The Olive Fly (1) lays eggs in the fruit which hatch and tunnel through the fruit (2). Infested fruit are unsuitable for the production of table olives and olive oil quality is reduced as bacteria and fungi rot the damaged fruit (3).

If uncontrolled, olive fly populations can build rapidly to extremely high levels to where 100 percent of the fruit is infested. The Olive Fly female can lay 200 to 500 eggs per generation and there can be three to five generations per year depending on the climate. The olive fly is a strong flyer and can readily disperse to the surrounding area. Uncontrolled populations in non commercial trees represent a grave threat to the Sacramento Valley table olive industries which have a total estimated value of 175 million dollars in Glenn and Tehama Counties. High populations developing in non commercial trees and dispersing to commercial orchards could potentially overwhelm the ability of commercial growers to control them.



**Figure 1.** Female Laying Eggs



**Figure 2.** Mature larva in green fruit



**Figure 3.** Olive fly pupa in fruit

## Methods of Control

Because the Olive Fly can only lay its eggs in olive fruit, anything which results in the elimination of the fruit will prevent any contribution to the problem.

1. **Tree removal.** Tree removal of unwanted or uncared for trees is the best answer for long term olive fruit fly control. This will be a one time expense and will eliminate concerns of contributing to the problem and also eliminate problems with messy fruit falling and creating a nuisance. If trees are cut down, the stumps will have to be removed or treated to prevent regrowth. If you live in Glenn County, contact the Olive Pest Control District (934-6501 or 865-1133) for assistance in tree removal.

2. **Fruitless olives.** If you like the look of olive trees, but are not interested in the fruit, you can plant or have mature trees grafted to fruitless varieties such as "Swan Hill", "Majestic Beauty", or "Little Ollie". These olives will have little or no fruit and will eliminate or reduce the concerns related to fruiting olives. Another suitable replacement in the landscape could be an evergreen oak such as cork oak.
3. **Fruit removal.** Olives can be sprayed at bloom to remove all or most of the fruit. Two products are available, Florel and Fruit Stop. Follow label directions. These products may not result in complete fruit removal, in which case it will be necessary to remove the remaining fruit by hand.
4. **Spray with Spinosad.** If you want to use the fruit for oil or table olives, you can spray with a product such as GF-120 which contains the active ingredient Spinosad. GF 120 can be purchased from a licensed pesticide dealer if the invoice is stamped "No Operator ID Required". GF-120 is formulated with a bait that attracts the OLF to the spray. It is mixed with water at the rate of 1 to 1.5 to 4. The higher dilution will reduce clogging problems, but may not persist in the environment for as long. Ideally the trees would be sprayed weekly or at least once every two weeks from about two weeks before the olive pits harden until the fruit is removed or until the first frost. It may be possible to lengthen out spray intervals during hot periods. About one ounce of spray mix per tree should be applied per tree. Spinosad can also be purchased in an unbaited formulation such Monterey Garden Insect Spray. In this case it will have to be applied as a full coverage spray or a bait such as Nu-Lure will have to be added..
5. **Kaolin clay (Surround WP, Surround At Home).** This product is a repellent rather than an insecticide. It is applied as a full coverage spray at the rate of  $\frac{1}{4}$  lb. of surround per 1 gallon of water. It dries as a white powder which may affect the decorative value of the trees (4). It should be applied three times during the season beginning in early June and continuing at 5-6 week intervals.
6. **Attract and Kill Traps.** Hopefully these traps will be available to homeowners for the summer of 2005. They are a cardboard trap with a food and sex attractant that is impregnated with an insecticide (5). The flies are attracted to the traps and then killed by the insecticide. These traps can be hung in early June and should be effective for about 6 months. They will probably not provide stand alone control under heavy populations. Hang a least one trap per two trees.



**Figure 4.** Surround



**Figure 5.** Attract and Kill Trap

7. **Mass trapping.** Mass trapping works simply by catching the flies before they are able to lay eggs in the fruit. It requires consistent trap maintenance to insure that the traps are in good working order. It is probably less effective than some of the methods described above. It will work better if applied to a larger area, encourage your neighbors with olive trees to trap their trees. There are three types of traps which can be used: 1.) The McPhail trap (6) uses Torula yeast dissolved in a water reservoir from which the flies can not escape. A pheromone attractant can also be added. 2.) Yellow sticky trap with a pheromone and a food attractant bait (7). 3.) The OLIPE trap which is made using 1.5 to 2 liter plastic soda bottles with torula yeast dissolved in water with 11/64 to 13/64 inch holes melted into the shoulder of the bottle (8). Hang one trap per tree in the upper half the tree in a shady location.



**Figure 6.** McPhail Trap

8. **Cultural Practices.** Harvest early to reduce the opportunity population development. Remove or destroy infested fruit that falls from the tree. This fruit should be placed in a plastic bag and placed in a sanitary landfill or buried at least 4 inches. Removing all remaining fruit from the tree prior to March 1st will eliminate oviposition sites for flies that return to the trees in the spring.



**Figure 7.** Yellow Sticky Trap

#### For Additional Information:

Web sites: [ceglen.ucdavis.edu](http://ceglen.ucdavis.edu)      [cesonoma.ucdavis.edu](http://cesonoma.ucdavis.edu)  
[www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu)      [fruitsandnuts.ucdavis.edu](http://fruitsandnuts.ucdavis.edu)

#### Contacts:

Butte County U.C.C.E. 530-538-7201  
Glenn County U.C.C.E. 530-865-1107  
Glenn County OLF Pest Control District 530-865-1133  
Tehama County OLF Pest Control District  
California Olive Committee 559-456-9096



**Figure 8.** Olipe Trap

To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products that are not mentioned.

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## **Vendors of OLF Traps and Controls:**

Check with local pesticide and fertilizer dealers for olive fly trapping supplies. Listed below are sources of trapping materials if they are not available locally.

Better World Manufacturing Inc.  
(559) 291-4276  
E-mail [bettertrap@aol.com](mailto:bettertrap@aol.com)  
McPhail traps and torula yeast.

989-268-5693  
[www.greatlakesipm.com](http://www.greatlakesipm.com)  
Yellow plastic McPhail-type traps, torula yeast, and yellow sticky traps.

Trece Inc.  
Adair, OK  
918-785-3061  
[www.trece.com](http://www.trece.com).  
Yellow sticky traps.

Monterey Ag Resources,  
Fresno  
(559)499-2100  
E-mail [info@montereyagresources.com](mailto:info@montereyagresources.com).

Gardens Alive!  
(513) 354-1483  
[www.gardensalive.com](http://www.gardensalive.com)  
Surround at Home in 5, 10 & 25 lb. packages

Monterey Garden Insect Spray (Spinosad)  
Attract and Kills Traps and Florel (fruit drop)

Suterra LLC, Bend, OR  
866-326-6737  
[www.suterra.com](http://www.suterra.com)  
Yellow sticky traps.

Scentry Biologicals  
(406)248-5856  
[www.scentry.com](http://www.scentry.com)  
Pheromone/bait lures

ISCA Technologies, Inc.  
Riverside, CA  
909-686-5008  
[www.iscatech.com](http://www.iscatech.com)  
Yellow Multipher McPhail-type traps, yellow sticky traps and torula yeast (sold by the lb.)

Purity Products  
(707)546-2585  
GF-120, Surround WP

Harmony Farm Supply  
(707)823-9125  
GF-120, Surround WP, yellow sticky traps

## **Great Lakes IPM**

### **WARNING ON THE USE OF CHEMICALS**

Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in their original labeled containers in a locked cabinet or shed, away from foods or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Confine pesticides to the property being treated. Avoid drift onto neighboring properties or gardens containing fruits and/or vegetables ready to be picked.

Dispose of empty containers carefully. Follow label instructions for disposal. Never reuse the containers. Make sure empty containers are not accessible to children or animals. Never dispose of containers where they may contaminate water supplies or natural waterways. Do not pour down sink or toilet. Consult your county agricultural commissioner for correct ways of disposing of excess pesticides. **Never burn pesticide containers.**

**PHYTOTOXICITY:** Certain chemicals may cause plant injury if used at the wrong stage of plant development or when temperatures are too high. Injury may also result from excessive amounts or the wrong formulation or from mixing incompatible materials. Inert ingredients, such as wetters, spreaders, emulsifiers, diluents, and solvents, can cause plant injury. Since formulations are often changed by manufacturers, it is possible that plant injury may occur, even though no injury was noted in previous seasons.