

Instruction Sheet
AMMONIUM CARBONATE LURE (IT079A) or PHEROMONE LURE (IT079B)
with **YELLOW STICKY TRAP (AR914)** for
OLIVE FRUIT FLY MANAGEMENT

BACKGROUND

The olive industry in California has been threatened by an olive fruit fly infestation which was first found in 1998. Since then it has spread throughout much of California and more than \$1.5 million (since 2002) has been spent in an effort to stop the spread of this pest. The adult female can lay 50-400 eggs, usually one in each fruit. The immature olive fruit fly (maggot) tunnels throughout the fruit destroying the pulp promoting the growth of bacteria and fungi which increases the acidity of the olive oil.

The olive fruit fly has three and perhaps as many as five generations a year. Adults from the season's first generation appear as early as June coinciding with pit hardening. The second generation appears in August. In the summer season these flies can complete a generation in as little as one month. In most cases, the greatest damage occurs as the fruit begins to soften and turn color (September to November).¹

Olive fruit fly management measures should be implemented no later than 1st June. Considerations for the timing of the first treatment can be found at the Olive Oil Source website :
http://www.oliveoilsource.com/olive_fly.htm .

INSTRUCTIONS**Preparing the yellow sticky trap :**

1. Open the yellow sticky trap by peeling open the cardboard panel (like opening a book) exposing the sticky adhesive material inside.
2. Carefully fold the panel back onto itself so it is again folded in half; this time the sticky surface is exposed on both sides of the panel and the non-sticky surface of the panel is now on the inside of the fold.
3. Fold the pre-punched tabs (shape of an arrow) from one side of this panel so the barbed tip passes through the square opening on the other side. These tabs help to maintain the panel in an open position.



Yellow sticky trap hung from an olive tree.



The lure capsule can be hung between the sticky surfaces.

¹ http://cesonoma.ucdavis.edu/HORTIC/olive_fly/olive_fruit_fly.pdf

Activating capsule, attaching to yellow sticky trap and trap placement :

1. **Puncturing capsule :** Before hanging capsule containing either the ammonium carbonate lure or pheromone lure to sticky panel trap, puncture the top lid of capsule by *using a small Phillips screw driver (1/8" or 3mm diameter shank) an ice pick or any other device that will leave a small puncture hole (1/16"–1/8" or 2–3mm) in the lid of the capsule.*
2. **Attaching capsule to sticky panel trap :** There is a hole punched into the center top & bottom of the panel. Pass the wire tie (or any string can be used instead) through both holes on either the top or bottom of the panel. Then thread the wire tie through the plastic hinge of the capsule (hinge attaches the lure capsule lid to the capsule). The lure capsule can be positioned between the panels of the trap, hung from the wire tie.

Create a small loop with the end of the wire tie and twist to secure the capsule and panel trap together. When creating this loop remember to leave the majority of the wire tie to secure the assembly to a branch on the olive tree.

3. **Trap placement on tree and spacing in field :** Traps are hung on the south side of the tree in winter and on the north side in the summer. Place the panel trap on the inside of the canopy in trees with fruit, in open shade, with 8-10 inches of clearance from foliage at the edge of the grove. Traps should be replaced when it becomes over crowded with insects and/or dirt.

For monitoring purposes, it is suggested that traps be spaced at a rate of about 8-10 per acre in the early part of the season and doubled in October if sting levels go above the monitoring threshold of 3%. For mass trapping purposes, depending on the level of infestation, a density of 1 to 2 traps per tree is suggested.

4. **Duration of lure :** Depending upon weather conditions, the olive fruit fly pheromone lure (40 mg) is designed to last about 8 to 10 weeks, and the ammonium carbonate lure is designed to last about 6 to 8 weeks in the field.

STORAGE INFORMATION

1. Unopened pheromone lures and ammonium carbonate lures should be stored in air-tight bags e.g. Ziploc bags, and placed in the refrigerator, or preferably in the freezer. In a refrigerator, the shelf life is approximately 1 to 2 years, and in the freezer, the shelf life is more than 2 years.
2. Unused yellow sticky traps should be stored in a cool, dry place, preferably in a closed box to prevent dust build up.

RESEARCH BASIS AND OTHER INFORMATION

1. The olive fruit fly can fly as far as 2.5 miles to locate a host fruit. If a plot has olive trees in the vicinity, it is important that these trees are also treated. Effectiveness will be negatively affected if nearby trees are not successfully treated.
2. The olive fruit fly lives all of its life stages solely in the olive fruit. It over-winters and emerges as a winged adult in the early spring from unpicked or dropped fruit. Hence, post season management should include removal of unpicked fruits from trees and dropped fruits to prevent over-wintering. Olives

left on the ground may contain larvae that can complete their development in the ground. Dispose of unwanted olives in sealed plastic bags.

3. The UC Extension and ISCA Technologies conduct on-going research on the olive fruit fly. You should periodically check for updated research information regarding the olive fruit fly, which can be found over the internet and the ISCA Customer Support website : <http://www.iscotech.com/exec/index.htm> . Instruction sheets are periodically updated to incorporate latest research information. You can review the latest instruction sheets at this website.
4. Environmentally friendly olive fruit fly management solutions such as the use olive fruit fly pheromone and ammonium carbonate lures are effective for managing low to medium levels of fruit fly infestation. At high levels of infestation, additional methods of management (for example GF120 spraying) may be needed to supplement the environmentally friendly solutions. The olive fruit fly pheromone lure is species specific and attracts male olive fruit flies. The ammonium carbonate lure is less species specific and attracts both male and female olive fruit flies.
5. Related research sources :

The University of California Cooperative Extension (UCCE) has conducted many research efforts in practical olive fruit fly control methods in California. Much of the olive fruit fly management information and recommendations in this instruction sheet are based on UCCE research results. ISCA Technologies also often coordinates its R&D efforts with UCCE and donates to its research efforts.

Mazomenos, Basilios E., et al. 2002. "Attract and kill of the olive fruit fly *Bactrocera oleae* in Greece as a part of an integrated control system." IOBC wprs Bulletin Vol. 25.

Alfonso Montiel Bueno and Owen Jones. 2002. "Alternative methods for controlling the olive fly, *Bactrocera oleae*, involving semiochemicals." IOBC wprs Bulletin Vol. 25.

6. The standard disclaimer for the information and use of ISCA's products can be found in the ISCA Technologies Standard Terms and Conditions of Sale. You may request that a copy be sent to you or you can view this at the ISCA website at : <http://www.iscotech.com/exec/sales.htm> .
7. Please feel free to view the latest ISCA Olive Fruit Fly Management Products catalog and other customer support material at the ISCA website : <http://www.iscotech.com/exec/customersupport.htm> .

