

# EASY AS 1-2-3: MELON FLY

## Fruit Fly Suppression for the Commercial Grower



**W**elcome to the HAW-FLYPM team! Our goal is to promote a sustainable suppression program using an “area-wide” approach to managing fruit flies, while introducing environmentally acceptable and cost-effective technologies that address grower needs. Through HAW-FLYPM, we intend to increase economic benefits to growers, the community, and the state of Hawaii through expanded opportunities in diversified agriculture.

We hope that you will use this simple guide to learn about fruit flies and help manage these pests in your farm. Fruit fly suppression can be as simple as 1-2-3: Sanitation, Monitoring and Protein Bait!

## MELON FLY IDENTIFICATION & BEHAVIOR

*It's important to know which species of fruit fly you have in your farm.  
Incorrect identification can result in ineffective pest control measures.*

### MELON FLY

#### Identifiable Traits:

- Black spot at wing tips
- Black streak on wings

*Common at  
sea level to 1500-foot  
elevations*



#### Hosts

- Cucumber
- Gourds
- Guava
- Eggplant
- Melon
- Papaya
- Pepper
- Pumpkin
- Squash
- Tomato

#### Melon Fly Behavior

Melon fly adults spend considerable time on favored wild hosts and certain crop plants in and outside of crop fields. Adult fly behavior is affected by temperature. On cooler mornings, flies warm-up on top of leaves. In warmer temperatures, flies tend to avoid the sun and stay inside foliage. Fruit flies are active from after sunrise to mid-day, up until mid-afternoon depending on the temperature. They usually mate late in the afternoon as the light intensity drops and sleep among the leaves in the evening.

## GENERAL FRUIT FLY LIFECYCLE

### ADULT STAGE

Flies emerge from pupae between 7-10:00 in the morning and become sexually mature in 25-35 days. Once they have mated, females sting produce to deposit their eggs and the cycle begins again.



4+ months

### EGG STAGE

Eggs are deposited by the adult female in the fruit or vegetable. One female melon fly can lay 400 eggs in batches of 1-2 up to a several dozen. Eggs hatch within 24-72 hours.



1-3 days

### PUPAL STAGE

In the soil, larvae form a puparium which protects the insect until it develops into an adult.



9-11 days

### LARVAL STAGE

Larvae hatch from eggs and tunnel through host fruits and vegetables. Larvae emerge from the fruit and burrow in soil.



5-15 days

*We're online! Visit us at [www.fruitfly.hawaii.edu](http://www.fruitfly.hawaii.edu) for more information*

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Suppression  
Tactic

#1

# FIELD SANITATION

Sanitation is the disposing of infested fruit so fruit fly eggs and larvae do not survive. It is one of the easiest suppression methods, and a very important one for two reasons: 1) An infested fruit may hold hundreds of larvae and/or eggs; by getting rid of that one fruit, you are eliminating future fruit fly swarms, 2) Pesticides applied to fruit do not kill larvae and eggs. Sanitation destroys infested fruit to KILL FRUIT FLIES.

## Sanitation Techniques



**Plow** the field 1 week after crop harvest



**Bag** culls in thick plastic bags



**Bury** infested fruit 18 inches deep



**Feed** but do not leave leftovers around for over a day

Suppression  
Tactic

#2

# MONITORING TRAPS

Monitoring helps growers make good pest management decisions. Fly catches in monitoring traps not only determine fruit fly populations in the area, but also help reduce the number of flies in your farm area!

The keys to successful monitoring: 1) Correct lure, 2) Good trap placement, 3) Timely trap maintenance

## Number of Traps



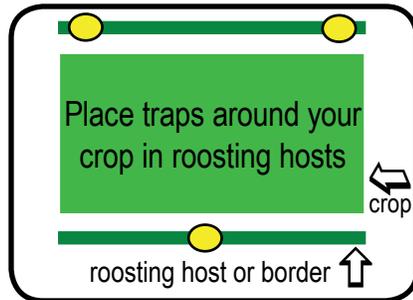
**2-3 traps/acre**  
(5-8 traps/hectare)

## Male Lure



**Cue Lure**  
in basket

## Trap Placement



Hang traps at least a foot off the ground, best at eye level

## Trap Service



Replace lures every 10 months, or after 1 year if in shade

Suppression  
Tactic

#3

# PROTEIN BAIT SPRAYS

Fruit flies need sugars for energy and proteinaceous food to mature and reproduce. In nature, they turn to nectars (sugar) and bird feces and yeasts (protein). Protein baits attract and poison feeding male and female fruit flies. Such sprays are intended for fruit fly control and are most effective when used with other suppression methods. **GF-120 Fruit Fly Bait Concentrate®**, a combination of protein bait and spinosad insecticide is very safe to humans. Not labeled as a restricted-use chemical, GF-120 NF is listed for use in organic production.



## Protein Bait Preparation

GF-120 is designed for low volume and low toxicity application. The recommended dilution ratio ranges:

**1 part GF-120 to 4 to 10 parts water**

The GF-120 solutions are used as sprays. They should not be stored for future applications as the mixture quickly breaks down. Spray bottles should be washed thoroughly after each use to prevent clogging.

## Application Rates

Roosting host/border crop sprays:

-Several spot sprays per 10 feet of foliage  
-1/4-1 oz. GF-120 solution per 10-foot border crop

Don't forget to follow GF-120 label instructions

## Protein Bait Application

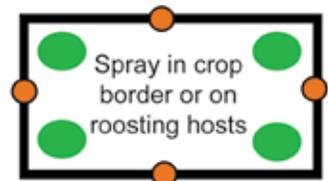
Growers apply approximately 1/4-1 ounce of spray every 10 feet in border crops or roosting hosts. Adjust the amount of spray according to severity of infestation and amount of foliage requiring spray coverage.

The thicker GF-120 mixture at 1 part GF-120 to 4 parts water may be "painted" inside lightweight buckets and hung upside-down in very humid, rainy areas. These buckets require cleaning and bait re-application should the bait become moldy.

## Recommended Roosting Hosts

Fruit fly-preferred hosts include Cassava, Castor Bean\*, Christmas Berry, Cocklebur, Corn\*, Hibiscus, Panax, Sudex\*, Ti and Wiliwili.

\*Most preferred roosting hosts



Protein bait works best when applied to the underside of leaves every 7 days. Re-apply after rain.

