

Augmentoria

natural fruit fly control devices

THE PROBLEM

Fruit flies are a problem for home gardeners as well as commercial producers. Fruit flies cause damage by laying eggs into maturing and ripe fruit and vegetables. Fruit fly infestations make the produce unsaleable, and often inedible.

THE SOLUTION

Augmentoria provide a simple and effective solution to combining two types of sustainable fruit fly control: **crop hygiene** and the use of **natural enemies**. Crop hygiene is the removal and destruction of any fruit fly infested produce. Natural enemies are small wasps that lay their eggs in fruit fly eggs and maggots, eventually killing them. Augmentoria allow the destruction of infested fruit, stopping the next fruit fly cycle, while not destroying the natural enemies which also reduce fruit fly populations.

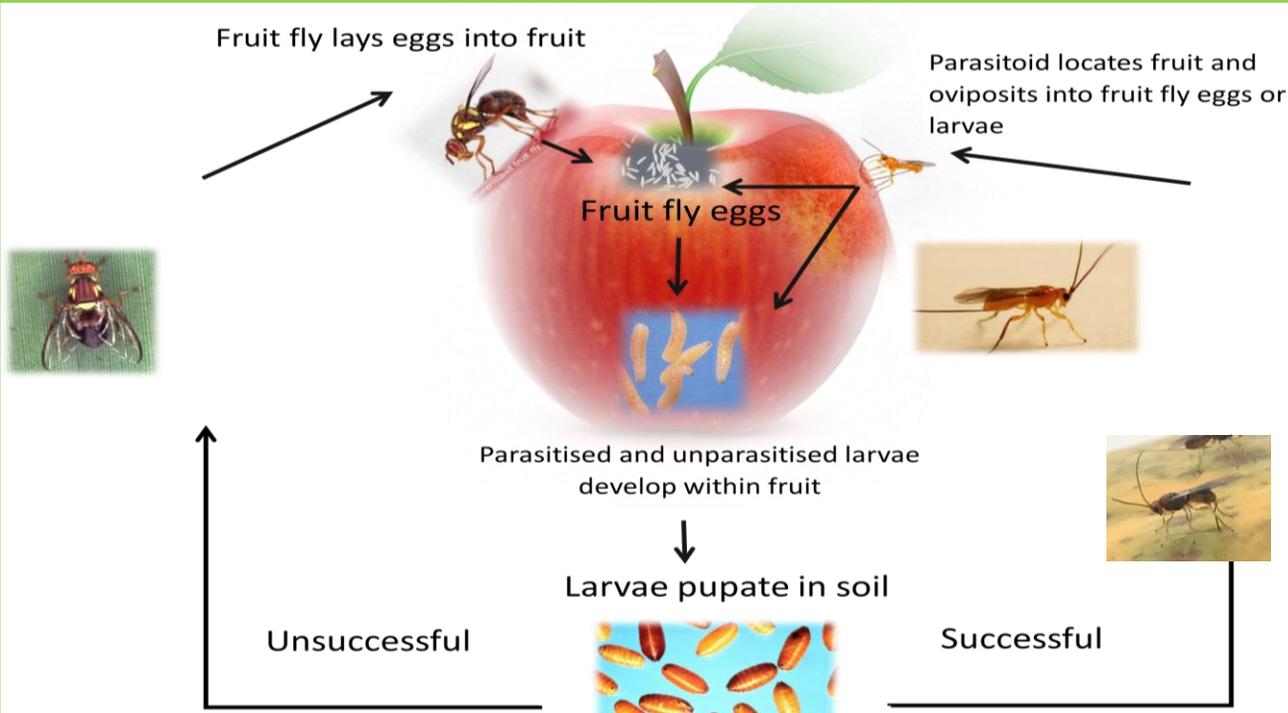
How it works

Crop hygiene is the destruction of produce suspected of being fruit fly infested by mechanical breakage, burial, solarisation or offsite disposal (landfill). This disrupts the breeding cycle, destroying the new generation. However, crop hygiene also destroys a key natural enemy of the fly: small parasitoid wasps which are developing inside the fly maggot.

Augmentoria are designed to concurrently kill fruit flies while releasing the parasitoid wasps. This is achieved by using a mesh cover that tops the augmentorium, trapping the flies inside while allowing the smaller wasps to escape and parasitise any remaining flies. The critical mesh size has been determined through detailed research.

Augmentoria size is scalable, therefore usable by back-yarders through to commercial growers. They require limited maintenance and no chemicals, all the while enhancing natural biocontrol agents (parasitoid wasps) to do the work for you, and augmenting their numbers in the locality.

Fruit flies and their parasites



Using an augmentorium at home

An augmentorium consists of two components: a solid-sided container such as a compost bin or painter's bucket and a mesh top.

The mesh needs to be of appropriate size to **trap fruit flies** but **allow wasps to escape**. Research shows that a **2mm aperture** is suitable and that commercially-available 50% UV cover shade cloth in white, green or black is a suitable material - easy to work with; adaptable to multiple design options; easily available and cheap.

Augmentorium using painter's bucket



Drawstring opening

Correct mesh size

**Removable cover for easy emptying.
Reusable every year**

**Easily-available portable bucket
(potentially free)**

- Using this system will reduce the QFF population year after year.
- Using a male pheromone with a rapid kill insecticide gives greater immediate success – good idea to use this all year round. Available from garden centres.

Recommendations for using augmentorium (augie)

1. Place sugarcane mulch or similar absorbent material, and soil or compost in base of bucket so the emerging wasps don't drown.
2. Collect affected produce daily and place in augmentorium (crop hygiene).
 - It's a good idea to place **all** uneaten raw fruit into the augie or give to chooks.
 - Don't put it in bin or compost, or bury it – fruit fly may hatch and wasps may die.
3. Continue until your augmentorium is $\frac{3}{4}$ full (or until it is too wet and smelly).
4. Wait at least 3 weeks for any unparasitised fruit flies to die and wasps to escape.
5. Remove produce remnants (this is essentially compost by now) from augmentorium, return it to original condition and repeat process.
6. You will need two augmentoria alternating every 3 weeks or so (see 4.)

How to inoculate your garden with the parasitoid wasps prior to QFF season

Wild tobacco plants produce fruit all year round and have a fruit fly that attracts the same parasitoid wasp. This can be used year-round to build up the parasitoid wasp population before QFF season.

- Locate a source of wild tobacco and watch for it to ripen (fruits turn yellow)
- Place ripe wild tobacco fruit in an **unlidded** plastic container with no holes in base and with 25mm of soil.
- Put container where it won't get rained on/in (so the larvae won't drown).
- After 3 weeks, bag the entire contents and put into rubbish bin. Wasps will have emerged by then.
- You may notice fruit flies emerging; don't panic as *these particular fruit flies only infest wild tobacco*.
- **Do not** put wild tobacco into your compost bin or augie - it is a serious weed.