

# 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.

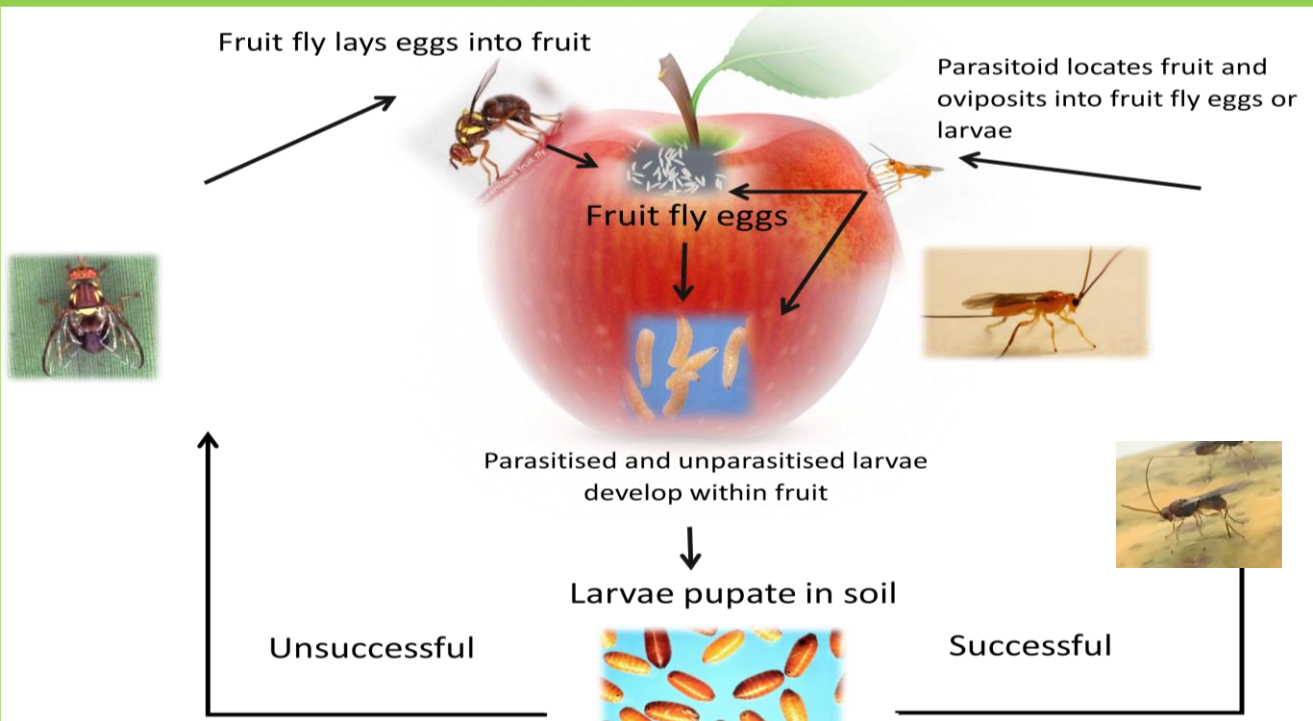
## How it works

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.

## Fruit flies and their parasites



# How to construct an augmentorium for back-yard use

An augmentorium consists of two components:

**Part A** is the solid sided container such as a compost bin or painter's bucket and **Part B** is the 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 is a suitable alternative to steel mesh - easier to work with; adaptable to multiple design options; easily available and much cheaper.



## Augmentorium using a home compost bin

1. Sew shade cloth along one edge to make a sleeve that will fit over the plastic container. Sleeve needs to be long enough to be gathered and tied securely at one end and fixed to the container at the other.
2. Cut a large hole into the lid of the compost bin.
3. Slide sleeve over the bin, leaving at 15cm of sleeve above the bin's top.
4. Place the lid on the bin, catching the 15cm excess inside under the lid.
5. Fasten the lid (and sleeve) in place using screws.
6. Pull the sleeve back up from around the bin and over the top, and then the augmentorium is ready for use. Place fruit into the container via the sleeve and then close off the sleeve with twine or similar.

The container section of the augmentorium can be made of any material except mesh, allowing for either scaling up or down. If using a compost bin, embed it at least 100mm into the soil to ensure fruit fly maggots do not crawl out the bottom.



## Augmentorium using painter's bucket



## Recommendations

- Collect affected produce daily and place in augmentorium (crop hygiene).
- Continue until your augmentorium is  $\frac{3}{4}$  full.
- Wait 2-3 weeks for all the flies to die and wasps to escape.
- Remove produce remnants (this is essentially compost by now) from augmentorium, return it to original condition and repeat process.
- Use more than one augmentorium if necessary (because of the 2-3 week gap).
- Save space and expense - turn your current compost bin into an augmentorium.
- Dual use will not affect the compost's, or the augmentorium's, efficiency.

*Place sugarcane mulch or similar absorbent material in base of bucket so the emerging wasps don't drown.*