NSW GOVERNMENT Department of Primary Industries

FACTSHEET

Queensland Fruit Fly (QFF): control strategies for the home gardener

Plant Biosecurity Orange

By taking effective action to control fruit flies in your home garden you can minimise damage to the fresh fruit and vegetables you produce and contribute to regional management strategies for fruit fly control.

Fruit fly behaviour

The activities of Queensland fruit fly (QFF) change with the seasons. Table 1 shows what QFF is likely to be doing in spring, summer, autumn and winter.

Background

QFF (*Bactrocera tryoni*) and Mediterranean fruit fly (*Ceratitis capitata*) both cause economic damage to a wide range of fruit and fruiting vegetables.

This Primefact discusses fruit fly control strategies for QFF. Mediterranean fruit fly is not present in New South Wales.

Table 1. Queensland fruit fly seasonal activity

Season	Activity
Spring September to November	• Fruit fly populations increase as temperatures warm and suitable hosts become available • In late winter and early spring overwintering adult flies become active and females sting and lay eggs in maturing fruit • Maggots develop in infested fruit • Maggots emerge from infested fruit to pupate in the ground • Adults emerge from the ground after about 10 days • If control is not started at this time, fruit fly populations will increase and cause more problems later in spring, summer and autumn
Summer December to February	• Fruit flies are usually most active from late spring to early autumn • Adult flies search for fruit suitable for feeding and breeding • Female flies lay batches of eggs in host fruit • Eggs and maggots develop in fruit and fruiting vegetables • Maggots emerge from fallen fruit to pupate in the ground • Adults emerge from the ground after about 10 days • Populations build up as successions of suitable fruit become infested
Autumn March to May	• Fruit flies are active in autumn if suitable host fruit is available • Fruit fly numbers generally decrease in cooler weather • The time taken for life cycle development lengthens
Winter June to August	• Fruit flies usually do not infest host fruit in winter • Some fruit flies can overwinter as adults in sheltered locations or as pupae in mummified fruit or in the ground or as eggs and maggots in fallen fruit if temperatures are not too severe • Overwintering adult flies may become active on warmer days

Methods for controlling fruit fly

A range of fruit fly control and prevention methods can be used by home gardeners.

Exclusion

Exclusion is a preventative method that uses physical barriers to stop female fruit flies from reaching your fruit and vegetables. Typical barriers that can be used around the home garden are nets, insect gauze, bags and sleeves.

Trapping

Trapping is used to monitor for fruit fly activity. Traps use an attractant to draw adult flies into a container. Attractants can be pheromones, food scents or visual cues. Once captured the trapped flies are unable to escape and are either killed by an insecticide or drowned in a liquid.

Traps can be used to help reduce fruit fly numbers. They are generally not recommended as a long term control method because trapping only captures some of the adult flies while leaving others to infest your crop.

Baiting

Baiting is a control method used to help reduce adult fruit fly numbers in your garden. Baits are generally sprayed onto the foliage and trunks of trees and plants.

Both male and female adult flies are attracted to the baits while foraging over the leaves for food or sheltering near the tree trunk and are poisoned after feeding on the spray droplets.

Cover spraying

Cover spraying is a control method which kills adult fruit flies on contact and destroys eggs and maggots within fruit. Cover sprays contain either contact or systemic insecticides and are generally applied to foliage and developing fruit.

Sanitation

Garden hygiene is essential because fruit trees with fallen and rotting fruit around them are a major source of uncontrolled fruit fly infestations.

Sanitation may help to prevent fruit fly eggs and maggots from developing in infested fruit.

All fallen and unwanted fruit should be collected and destroyed. Destroying this fruit ensures that maggots do not survive to pupate in the ground to later emerge as adult flies.

Fallen and unwanted fruit should not be left in a waste heap or added to compost. Infested fruit can be collected into black plastic bags and left in the sun for three to five days to kill the maggots, then disposed of in the garbage collection. Infested fruit can be deep buried by covering with more than 30 cm of compacted soil. Small amounts of infested fruit can be micro waved to kill the maggots.

Early harvesting

Fruit fly infestations may be avoided by picking your fruit and vegetables early.

Early harvests can also be achieved by planting early fruiting varieties which crop before fruit fly populations build up.

Pruning

Pruning your fruit trees to a manageable size makes it easier to harvest fruit and implement fruit fly control methods such as netting and cover spraying.

Host plant removal

The physical removal of unwanted fruit fly host plants and trees from your garden can help prevent the build up of fruit flies.

Encouraging your council to remove neglected fruit trees such as those on vacant blocks or growing beside public roads can add to the level of fruit fly control across the district.

Alternative plants

Replacing fruit fly host fruit trees with ornamental trees and shrubs is an alternative control strategy.

Control for each season

Control strategies that home gardeners can apply in particular seasons of the year and at different plant growth stages are shown in Tables 2 and 3. Some control methods will be ongoing, depending on crop growth, fruiting and fruit fly numbers.

Maggots in fruit

There are actions you can take to control fruit fly but it is still disappointing to discover maggots in your ripening fruit.

Whether you can save some of your crop is dependent on factors such as the level of infestation and the development stage of the fruit. Table 4 presents three situations and some actions that can be taken in each case.

Table 2. Seasonal control strategies

Control strategy	Spring	Summer	Autumn	Winter
Prevent QFF attack	Exclusion Sanitation Host plant removal Alternative plants	Exclusion Sanitation Host plant removal Alternative plants	Exclusion Sanitation Host plant removal Alternative plants	Pruning Host plant removal Alternative plants Sanitation
Monitor for QFF	Trapping	Trapping	Trapping	Trapping
Reduce QFF numbers	Sanitation Trapping Baiting	Sanitation Trapping Baiting Early harvesting Cover spraying	Sanitation Trapping Baiting Early harvesting Cover spraying	Sanitation Pruning
Control QFF	Sanitation Cover spraying	Sanitation Cover spraying	Sanitation Cover spraying	Pruning

Table 3. Control strategies plant growth stages

Control strategy	Vegetative growth	Flowering	Fruit formation	Harvest	End of season
Prevent QFF attack		Exclusion Alternative plants	Exclusion Sanitation	Exclusion Sanitation Early harvest	Pruning Host plant removal
Monitor for QFF	Trapping	Trapping	Trapping	Trapping	Trapping
Reduce QFF numbers	Sanitation Trapping Baiting Pruning	Sanitation Trapping Baiting	Sanitation Trapping Baiting Cover spraying	Sanitation Trapping Baiting Early harvest Cover spraying	Sanitation Trapping Pruning
Control QFF		Sanitation Cover spraying	Sanitation Cover spraying	Sanitation Cover spraying	Pruning

Table 4. Finding fruit flies in your garden

When you find that…	Then you should…
Your crop may have just been attacked by fruit fly	• Consider cover spraying your crop to protect it from further fruit fly attack and to control any eggs and maggots in fruit • Decide on a control strategy to protect other crops for the rest of the season
After picking or cutting a few fruit to inspect them, some are infested with maggots	• Use the sanitation method to collect and destroy all infested fruit • Cover spray your remaining crop to protect it from attack and to control eggs and maggots within it
Your current fruiting crop is infested but you have other crops in the garden that are in the early stages of fruit development	• Use the sanitation method to collect and destroy all infested fruit • Decide on a control strategy to protect your developing crops for the rest of the season

Further information

Department of Primary Industries (2012) NSW Primefact 1186: *Queensland Fruit Fly (QFF)*

Department of Primary Industries (2012) NSW Primefact 1187: *Queensland Fruit Fly (QFF) and the home gardener*

Acknowledgements

Advice for gardeners in Australia 'Fruit fly and the Home Garden'

www.preventfruitfly.com.au

This Primefact replaces Primefact 518.

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