



# Fruit fly destroys citrus crops

**Bait spraying is the most reliable and integrated pest management friendly way to reduce Queensland fruit fly numbers in a citrus orchard.**

**By suppressing the population in your orchard you also help suppress numbers across the whole district.**

### **What is a bait application?**

A bait for Queensland fruit fly (Qfly) contains a food attractant (protein) and a toxicant (insecticide). The bait mixture is applied as a low-volume spray onto tree foliage or bark. Queensland fruit flies are attracted by the protein in the bait. Insecticide mixed with the protein kills flies that feed on the protein. Using a bait, control is achieved with only a very small amount of insecticide, without applying any chemical to the fruit.

### **Why apply bait, when the orchard is already treated to control other insect pests?**

Management of citrus pests usually focusses on targeted sprays against scale, thrips or other pest insects in spring, and possibly again in late summer, with few cover sprays required in other months.

Cover sprays are not necessarily the best way to control Qfly, for the following reasons:

- Queensland fruit fly is active in citrus orchards from colour break until after harvest, which is outside the optimum windows for treatment of most citrus pests.

- Not all cover sprays kill adult Qfly, or are registered for use to control Qfly. Always read and follow **Directions for Use** on the product label.
- Even if a cover spray does kill adult Qfly that are active at the time of spraying, it is unlikely to kill larvae in fruit and will not persist to kill the next generation of Qfly. This is why bait spraying should be resumed within 7-14 days after applying a cover spray.

Make sure you continue the weekly Qfly bait spray program if the cover sprays you use in your orchard are not registered for control of Qfly.

Bait applications are compatible with integrated pest management because the bait does not attract beneficial insects.

### **How should bait be applied?**

Bait is applied to tree bark or foliage as a coarse spot spray or as a band spray. Apply the bait to trees in every second row. Do not allow the bait to contact fruit.

Bait is applied in very low spray volumes, varying between products from 6-20L/ha once mixed. Refer to labels for directions.

Some growers add gum to the bait mixture to help it persist longer in the orchard. If you are adding gum, dissolve the gum in water for 24 hours before adding it to the bait mixture.

## When do I start bait spraying?

The date you start baiting depends on whether you need to follow protocols for Interstate Certification Assurance (ICA) or export markets and whether you had Qfly last season.

If you had Qfly last season, start bait spraying in early-mid spring to kill Qfly present in the orchard.

If you didn't have Qfly last season, you may not need to bait preventively, but it is critical that you install monitoring traps in early spring.

- Check traps weekly
- As soon as Qfly appears, begin bait spraying and continue baiting weekly until after harvest

Keep checking traps after each bait application. If Qfly are still present in traps despite applying bait, consider a cover spray.

If fruit remains on trees or the ground after harvest and there has been Qfly activity in the season, consider a post-harvest application.

**In regions where fruit fly are established Citrus Australia recommends routine bait spraying commencing in Spring; traps should be monitored to detect spikes in populations.**



## Monitoring – Queensland fruit fly has become established in parts of Victoria and southern NSW.

Monitoring for presence (or absence) of Qfly is now an essential component of your pest management program.

Monitoring lets you know when fruit fly populations are building up, and therefore when to start baiting.

Monitoring also shows you whether treatment has been effective.

Many brands of traps are available. They all contain an attractant and either a small dose of pesticide or a liquid in which the fly drowns.

Recommendations:

- Set monitoring traps out by mid-August
- Place a trap every 400m across the orchard
- Follow label instructions about trap recharging and replacement
- Check traps weekly for fruit fly. Check fruit for sting marks or larval damage
- If you employ a scout, add fruit fly monitoring to their duties
- If flies are found in traps or in fruit, start baiting or, if necessary, apply a cover spray (following label instructions)



## Active ingredients and trade names extracted from the Agricultural Pesticides and Veterinary Medicines Authority (APVMA) database in May 2020.

The list includes products that were registered, or permitted under permit, for control of Qfly in citrus, in NSW and Victoria, in May 2020.

Chemical labels and the status of registration or permits can change. Refer to label **Direction for Use** for application rates and restrictions on use.

### 1. Bait – Spot spray or band spray weekly onto foliage or bark. Avoid contact with fruit.

PURPOSE	ACTIVE INGREDIENT	PRODUCT NAME	COMMENT
A food source in the bait mixture attracts Qfly	Protein	Fruition® Natflav® 500 yeast bait	Add insecticide
		Hym-Lure® Protein Bait	
		Bugs for Bugs Fruit Fly Lure Yeast Autolysate	
		Cera Bait® hydrolyzed protein	
An insecticide in the bait kills Qfly that feed on the protein or yeast	Chlorpyrifos	Lorsban 750 WG, Pyrigran (NSW and Qld)	Add protein attractant
	Maldison	Fyfanon® 440, Fyfanon® 1000, Hy Mal®	
	Trichlorfon	Lepidex® 500, Dipterex® 500, Tyranex® 500 SL Surefire Trepidex 500, AC Tripster500 SL	
	Abamectin	PER 14932 allows use of abamectin as Vertimec Insecticide/Miticide or Vantal Upgrade Miticide/insecticide as band sprays	
Some bait products contain a food source and insecticide as a pre-mix	Protein + sugar + spinosad	Amgrow organix fruit fly control	This is a pre-mix of attractant and an organic insecticide
		Eco-naturalure® fruit fly bait concentrate	
		Naturalure® fruit fly bait	

### 2. Cover spraying – If fruit has sting marks, or numbers of flies in traps increase, a cover spray may be warranted. Follow the product label **Directions for Use**. Wet the canopy to run-off.




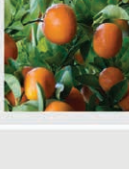
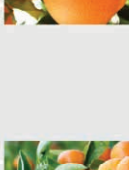


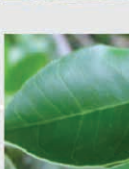





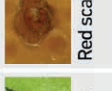
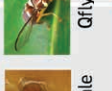


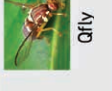
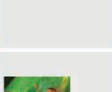
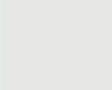
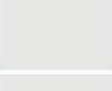

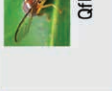


























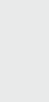











PURPOSE	ACTIVE INGREDIENT	PRODUCT NAME	COMMENT
Foliar cover spray	Dimethoate	Dimethoate ®400, Danadim, Saboteur	Labels include Directions for Use for cover spraying
	Maldison	Fyfanon ®440 EW	
Foliar cover spray for removal of adult insects immediately prior to harvest	Pyrethrins	PyGanic Organic Insecticide	Dimethoate has re-entry restrictions  Withholding periods must be sufficient to meet export and domestic maximum residue limit

### 3. Post-harvest applications – Permit (PER13859) allows treatment of ground under the fruiting crop, or the foliage, after harvest.

PURPOSE	ACTIVE INGREDIENT	PRODUCT NAME	COMMENT
Apply as a foliar and/or ground cover spray to both fallen and retained fruit	Dimethoate	Permit PER13859 applies to registered products containing 400 g/L dimethoate as their only active constituent	DO NOT apply more than 2 applications after harvest Re-entry periods apply

**Disclaimer:** Always read and follow the label before using any of the products mentioned. Off label use is not recommended. We do not guarantee that this publication is without flaw of any kind or is wholly appropriate for your particular purposes, and therefore disclaim all liability for any error, loss or other consequence which may arise from you relying on the any information in this publication.

# An example of integrating Qfly bait spraying into your pest management program.

	January	February	March	April	May	June	July	August	September	October	November	December	
<b>Growth stage</b>	<b>Golf ball</b> 	<b>Colour break</b> 	<b>Maturation</b> 	<b>Harvest</b> 	<b>Harvest</b> 	<b>Harvest</b> 	<b>Bud break</b> 	<b>Leaf expansion</b> 	<b>Flowering</b> 	<b>Fruit set/drop</b> 			
<b>Pest</b>	Light brown apple moth 	Mealybug 	Thrips 	Red scale 	Qfly 	Weevil 	Qfly 	Spine citrus bug 	Qfly 	Thrips 	Gall wasp 	Red scale 	Light brown apple moth 
<b>Monitoring</b>													
<b>Qfly bait spray</b>													
<b>Cover spray</b>													
	<b>Bait spray Lemons or Valencias only</b>					<b>Weekly baiting early Navels starts</b>			<b>Weekly baiting late Navels and start of Valencias</b>				



## Install traps



Install monitoring traps in early spring and check them for flies each week.  
Refresh or replace traps as per label.



## Check traps for Qfly and check fruit for sting marks or larvae.



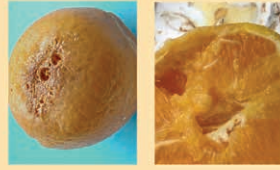
The adult Qfly is about 7 mm long and is reddish-brown in colour with distinct yellow markings.



Check traps weekly for Qfly. There are various traps available commercially.



Sting marks or wounds can be seen on the outside of fruit. The fruit also starts to rot.



Larvae are 1.5 to 9 mm long, creamy white in colour and eat the fruit.



## Qfly bait spray



Apply bait to the trunk or foliage. Avoid contact with fruit. Applying bait early in the morning when Qfly are likely to feed is most successful.



## Cover spray



Pest management in orchards focusses on strategically timed controls of pests. However, not all cover sprays for other pests kill adult Qfly or are registered for use to control Qfly. Make sure you continue the weekly Qfly bait spray program if the cover sprays you use in your orchard are not registered for control of Qfly.

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