

# Berryfruit IPM program (raspberry, blackberries, blueberries)

## Overview

Increased areas of raspberries, blueberries and blackberries have been planted in Australia in recent years to meet consumer demands. These berry crops do not appear to be as complex with pest issues as strawberries, and very successful IPM programs with minimal chemical application can be achieved. Biological Services has worked with growers across the country to deliver successful IPM programs in this group of berry crops.

## Two spotted mites (TSM)

TSM are a major pest of raspberry and blackberry crops, but are not normally a pest of blueberries. They are extremely damaging to foliage and seriously damage plant health if not well controlled. The key to the raspberry and blackberry IPM programs is to firstly control TSM by using *Phytoseiulus persimilis* (Persimilis) predatory mites. Persimilis used in raspberries and blackberries is released pure, in bottles containing 10,000 mites and mixed with vermiculite. This form of Persimilis is free from any pest contamination, and will not cause TSM hotspots to develop from release points (which can sometimes occur from releases on leaf if the predator to prey balance is not right).

## Secondary Pests

Raspberries, blueberries and blackberries are also affected by secondary pests such as a range of caterpillars, some beetles, Rutherglen bugs, mirids, slugs, red berry mite, snails and some other sap sucking bugs. There are several IPM compatible treatments that can be utilised for these pests if they are used carefully, and only when needed. It is recommended to contact your Biological Services consultant prior to applying treatments for other pests.

## Release rates

### 1 Persimilis

Initially release 5 bottles (50,000 predators) of Persimilis per hectare of raspberry/blackberry plants early in the growing period either prior to or as soon as the very first mites appear. Repeat this release rate a few weeks later and then as required during the season, depending on pest pressure. Extra predators should be released into more heavily affected areas (hotspots) as soon as they are detected. If mites numbers are high prior to the first release, increase the rate to 2 bottles/10,000 plants.

### 2 Hypoaspis

Where plants are grown in bags hydroponically, fungus gnats can be problematical especially in early growth stages. Release 25 litres of Hypoaspis mix per hectare as a once off release into first year plantings as soon as plants are planted.

### 3 Aphidius

Where aphids are present or known to be problematical, regularly release low levels of Aphid Parasite Mix to known hotspots or distribute evenly on a preventative basis at 1000 parasites/ha.

### 4 Encarsia/Eretmocerus

Greenhouse whitefly can be a pest of raspberries. If detected release Encarsia and Eretmocerus @ 1/m<sup>2</sup> on a weekly basis until parasitism is detected in 80% of whitefly scales. Releases should start prior to whitefly becoming firmly established.