



# Snail Mail



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## Introduction

Welcome to the first snail newsletter of the year! This newsletter aims to keep citrus growers and packers up to date on the latest information available on snail control and will be produced quarterly, throughout the year.

The Citrus Market Development Group funded a 2 year project in 1999 to investigate the biology and control of the small brown snail in citrus and this newsletter reports on the findings of this project.



Small Brown Snail, *Microxeromagna vestita*, 7mm diameter

The small brown snail is an actionable snail on oranges exported to the United States, which means that any interceptions of the snail by U.S. quarantine will result in the fruit being destroyed, or reshipped.

With citrus sales to the U.S. valued at 49 million U.S. dollars last financial year, it has become increasingly important to keep this snail under control.

The first step in learning how to control the small brown snail is working out its lifecycle. With this information, we can then determine the best time to use baits and other control methods to have the greatest effect.

## Snail Lifecycle

Sampling began in June 1999 to determine the lifecycle of the small brown snail. Every 4-6 weeks soil and leaf litter samples are taken

from orchards which have a high snail population in the Riverland and Sunraysia districts.

These samples are then sorted and the number of snails are counted. This shows the small brown snail density for the orchard.

The diameter of these snails are measured, and each snail is allocated to a size range. The small brown snail density in 1999 for one orchard is shown in Table 1 below.

**Table 1: Snail density for 1999**

Month	June	July	August	October
Snails per square metre	38	562	882	232

In July, August and September large numbers of small brown snails under 2mm in shell diameter were collected. This suggests that breeding had occurred in May/June. By dissecting snails throughout the year, we can determine whether they are sexually mature and capable of laying eggs. This can give us an early indication of the start of the breeding season.

The lifecycle below is a general lifecycle, based on other snails related to the small brown snail. Sampling will continue throughout 2000 to help build a lifecycle profile for the small brown snail.

### Generalised lifecycle



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# Crop Monitoring

## Ground Monitoring

Monitoring for snails is an essential tool for good control. The small brown snail only grows to approximately 7mm in diameter, so unless you are actively looking for them it is unlikely that you will notice a problem.

Snails are most likely to be found in the leaf litter under the tree. The small brown snail feeds on decaying leaves and prefers a cool, damp environment. In high numbers the small brown snail can often be seen when the leaf litter is lifted away from the soil. The snails also find shelter in the centre of rolled up leaves and on the undersides of twigs. It is important when monitoring to unroll a few curled leaves to check for sheltering snails. They prefer older leaves over freshly dropped.

Irrigation sprinkler heads and piping can also provide a cool, damp environment, and snails can often be found in these areas.

Placing cardboard under the canopy and then



collecting it a week later can also provide an indicator of what species are present in your block. Most snails will find shelter underneath.

## Canopy Monitoring

The small brown snail can also be found in the canopy of the citrus tree. The colour and patterns of the small brown snail camouflage well against the tree trunks and branches, often making detection difficult.

The small brown snail tends to be found sheltering in knot holes, tree wounds, and in the crevices between branches. Snails have been seen as high as 2 metres in the tree canopy, and although they are most commonly seen on the trunk and branches, they can also shelter on the underside of leaves and between touching fruit.

## Snail of the Month

There are approximately 6 snails that you are likely to come across in the orchard. Each issue, one of these snails will be profiled to show its main characteristics.



### **Common Name**

Small pointed Snail

### **Scientific Name**

*Cochlicella barbara*

### **Size**

Up to approx. 10mm in height

### **Distinguishing Features**

Conical, short and broad shape, light and dark brown in colour.

### **Life cycle**

The biology of this snail is not fully understood in orchards, but preliminary sampling indicates that it may be similar to the small brown snail.

### **Monitoring locations**

Leaf litter, tree trunks and branches, under cardboard/paper

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## **Next Issue**

- Preliminary baiting results
- Breeding Season, what to look for.
- Snail of the Month – common white snail