

Victoriensis

Predatory mite

(under development)

Biocontrol organism

☞ *Euseius* (= *Amblyseius*) *victoriensis*

Phytoseiid mites comprise a large and diverse family of predatory mites, which often play a key role in controlling pest mites in a range of crops. *Euseius victoriensis* is a widespread naturally occurring species that has been recorded in sub-coastal areas from north Queensland to South Australia. It occurs commonly in citrus orchards throughout inland areas of eastern Australia.

Victoriensis is teardrop-shaped and ranges in appearance from clear to honey-coloured. After feeding, the mites often take on the colour of their prey. They have four pairs of legs placed forward



Plate 38: Victoriensis predatory mite

on the body; the first pair is so well forward as to give the appearance of a set of antennae. Like most phytoseiid mites, victoriensis moves quickly in a distinctive random searching pattern.

Victoriensis is believed to be mainly nocturnal, and by day prefers to rest on the underside of leaves deep within the canopy, or under the calyx of a fruit. When exposed to direct sunlight it soon becomes agitated and starts to move rapidly.

Target pests

- ☞ Brown citrus rust mite *Tegolophus australis*
- ☞ Citrus rust mite *Phyllocoptruta oleivora*
- ☞ Broad mite *Polyphagotarsonemus latus*

Rust mites feed on leaves and fruit, causing a characteristic rust-like blemish. They can complete their life cycle in just one week under warm conditions. They can therefore build up in numbers and cause damage very rapidly. Victoriensis is very well adapted to feeding on brown citrus rust mite and can give excellent control of this pest. It is less well adapted to feeding on the cosmopolitan citrus rust mite and is unlikely to 'catch up' on a large established pest population. However, if large numbers of the predatory mites establish early in the season there is a good chance that chemical control of citrus rust mite will not be necessary.

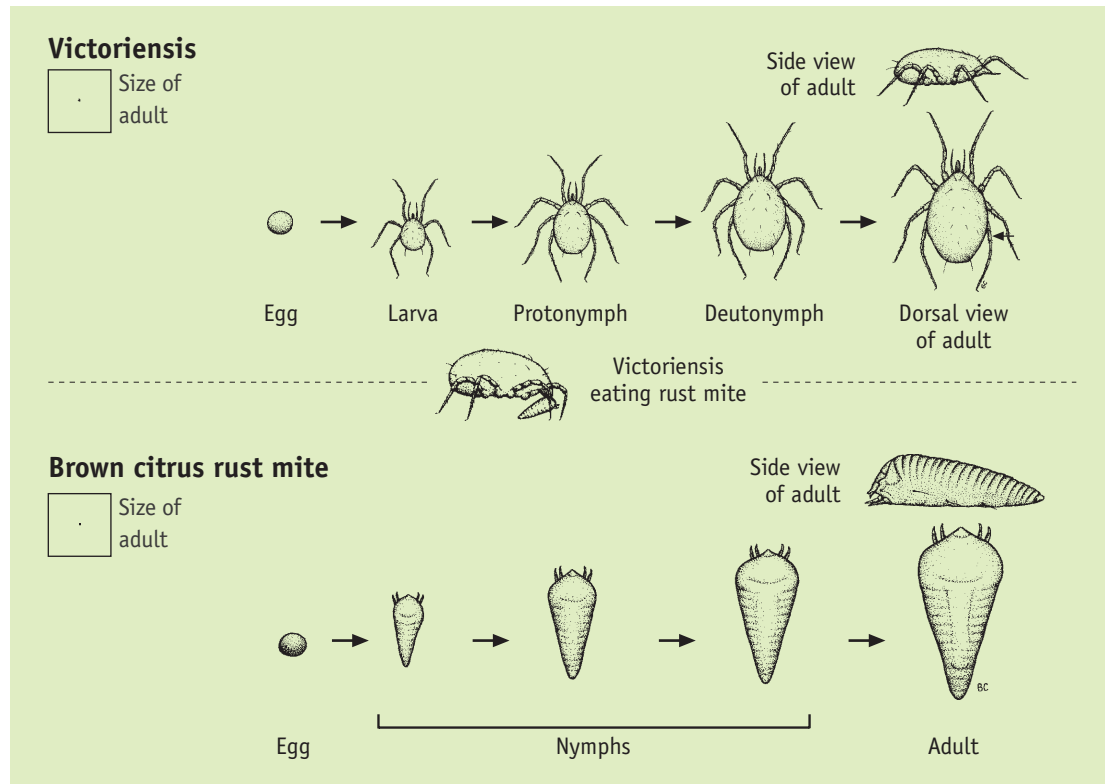


Figure 9: Life cycles of victoriensis and brown citrus rust mite



Plate 39: Broad mite adults (yellow), nymphs (white) and eggs which are covered with white 'studs' (bottom right)

Broad mite prefers to feed on young shoots or fruit. It too has a very short generation time and can damage crops very quickly. Observations suggest that victoriensis will assist greatly in the control of broad mite, but that it may not be sufficient to provide full protection in high-risk crops such as lemons during critical periods.

All three of these mite pests are difficult to control chemically. Mites are quick to develop resistance to miticides, and it is difficult to achieve adequate coverage by spraying.

Suitable crops/environments

Victoriensis thrives on citrus, grapevines and a wide variety of trees and shrubs. It also benefits from well-irrigated orchards with abundant pollen sources.

Before release

Victoriensis should be released annually before pest mites have built up to damaging levels. Multiple releases will increase the chance of successful establishment and control. After disruptive sprays have been applied, releases of predatory mites can help re-establish beneficial populations.

Victoriensis overwinter as adults, but egg-laying is greatly reduced during cooler weather. For this reason numbers are typically very low in early spring. The build-up of phytoseiid populations in the new season depends on rainfall and alternative food sources such as pollen.

Plan to start releases of victoriensis in early spring, first making sure there are no harmful residues in the crop. Although the chemical toxicity table does not include victoriensis, other predatory mites can be used as a guide.

At release

When commercially available, victoriensis is mass reared on bean plants, with pollen as a food source. The mites should be released by securing a wad of leaves within the tree canopy at minimum densities of 10 000–20 000 mites per hectare.

Cultural practices to aid predatory mite establishment

Phytoseiid mites prefer crops with leaves that provide ample protection. They have the ability to feed on alternative food sources, especially pollen, and this allows them to thrive even in the absence of their natural prey. In orchard environments the presence of pollen-producing

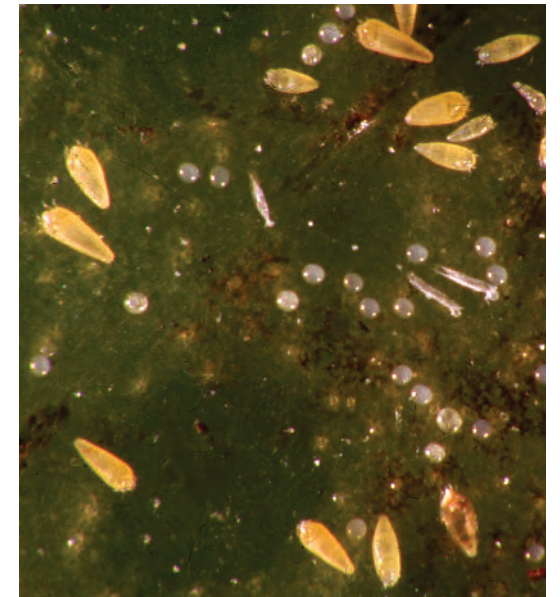


Plate 40: Citrus rust mite adults, nymphs and eggs

plants such as Rhodes grass *Chloris gayana* can greatly enhance populations of phytoseiid mites. Other species of pollen-producing plants can be expected to act similarly in other regions. Typically, overhead-irrigated orchards support larger populations of phytoseiid mites because of the enhanced inter-row vegetation and reduced dust.

Chemical use

Certain chemicals that may be used in an orchard environment can harm victoriensis. Many organophosphate and carbamate insecticides are toxic, as are many fungicides. The dithiocarbamate and benzimidazole fungicides, especially, can have long-term detrimental effects on this mite.