

Broad Mite

Polyphagotarsonemus latus (Banks)
Tarsonemidae, ACARINA

Description and life cycle

The egg stage is the most easily identified microscopically, they are clear, oval shaped with the surface covered in white pimples or tubercles making a spotted pattern. They are usually found in the growing tips on the underside of newly formed leaves and under the calyx of flowers and fruit or in protected depressions. The life cycle through egg, two nymphal stages to adult takes between 4 to 10 days depending on temperature, with up to 20-30 generations a year if conditions are favourable. Adults are oval, tapering slightly toward the rear end. Females are very small approx 0.3mm long, barely visible without magnification, males are slightly smaller, they are both transparent to yellowish green in colour, stationary when feeding, moving slowly when disturbed, the nymphal stages resemble the adults. Adult broad mite only live from 5 to 13 days the female broad mites laying 30 to 76 eggs over this period.



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Crops attacked and problems caused

Broad mite is a major pest in the warmer parts of Australia and favours capsicum plants. It is a minor pest in temperate Australia but will cause severe damage when conditions are favourable. Broad mite usually attacks the young growth of a wide variety of vegetable crop plants especially capsicums or peppers and many ornamentals by injecting a toxin from their saliva as they feed so that a few mites can cause a lot of damage. It has been known for many years as a pest in glasshouses and of summer grown vegetables and ornamentals. Mite damage is often reported when conditions are warm and humid. High humidity (80 to 90%) and temperatures above 25oC are favourable.

Feeding by the mite may cause leaves to bronze and thicken, become brittle, corky or cupped downward and narrower than normal. Young stem growth may be distorted and stunted with young terminal buds so distorted that flowers do not open; heavy feeding can cause young terminal buds to die and drop off. Severely damaged plants could die. The symptoms of broad mite feeding are often confused with viral symptoms or hormonal herbicide damage.

Be aware of early symptoms, with careful crop inspection so that action can be taken quickly. With effective treatment to control the mites new plant growth is healthy with no long term damage unless an initial severe infestation has seriously weakened the plants.

Reducing the threat of invasion and attack

Reduce the chance of pest invasions by managing potential sources of outbreaks by thoroughly controlling/removing weeds and infested plants. **DO NOT LEAVE OLD CROPS, ESPECIALLY IF THEY ARE ALREADY INFESTED WITH PESTS THAT CAN COLONISE NEW CROPS.**

Broad mites are so small (~0.3mm) that they are difficult to see even with a good hand lens but they tend to crowd into crevices and buds. They can enter the crop undetected from nearby host plants or infected plant material imported into the crop. Infested plants are usually not noticed until damage is severe and by this time the mites could have moved onto other plants. Citrus is a very good host.

- Be aware of early symptoms, with careful crop inspection so that action can be taken early
- Avoid introducing infested plant material into the crop, either with seedling plants
- Avoid moved mites around the crop on staff moving from infested to clean areas.
- Use a fallow period, if possible, when no crop is grown to clear pest populations
- Use seedlings that have been grown away from infested areas, i.e. start with a clean crop

- Monitor pest levels to act early for control. Control is simpler and less expensive when plants are young and spray coverage is not an issue.

Crop monitoring:

MAKE INSPECTIONS ROUTINE AND KEEP GOOD RECORDS !

These mites are too small for the naked eye to see, but changes in the growing tips of plants are a tell tale sign:

- Get into the habit of walking right through your crops in a set pattern (a M or Z)
- Check about (about 1%) of your plants very carefully
- Look at the growing crown for signs of distortion and mottling (will not see feeding spots as for TSM). Large numbers are not required for damage to be visible.
- Keep good records of pest levels and treatments used

Note:

- *If you can spot isolated hot spots early you may only need to spray a small area!*
- *Plan to introduce biological control agents as soon as thrips are found*

Chemical control

Chemical control of Broad mite is not difficult but problems are encountered because there are only a few chemicals registered. Most registered chemicals do not kill the egg stage or have enough residual to kill hatching larvae. Two applications should be used at about 5 days apart to kill all stages. The chlorinated chemical dicofol and abamectin are the most effective.

Include a resistance management strategy into your spray program to reduce the chance of resistance. If monitoring indicates the need to spray earlier, then insecticide resistance, inappropriate spray application or inadequate farm hygiene should be suspected and expert advice sought.

Relevant beneficial insects

Natural enemies have been investigated and biological control programs using predaceous mites and plant bugs have been investigated. Predatory mites are now available for use in greenhouses.

The predatory mite *Neoseiulus cucumeris* is now available in Australia at Biological Services at Loxton; <http://biologicalservices.com.au/> and Goodbugs; <http://www.goodbugs.org.au/>.

The suppliers on this page will help you develop an IPM program suitable for your crop and situation. Many also provide IPM monitoring services.

Broad mites are also preyed upon by lacewing larvae, and other general predators. As with WFT you can also boost the numbers of beneficial insects in your crop naturally by holding back on broad spectrum insecticides, providing safe plant species as habitat near the crop and maintaining higher levels of organic soil carbon.