

TOMATO RED SPIDER MITE (*Tetranychus evansi*)



Photo: Alain Migeon, CBGP - INRA, Monferrier-sur-Lez (FR)

What is it?

Spider mites are not insects, but a type of arachnid, relatives of spiders, ticks and scorpions. Tomato red spider mite (*Tetranychus evansi*) is a small, red coloured arachnid that feeds on the sap of plants. Identification in the field is difficult and usually requires an expert. *T. evansi* looks similar to other spider mite species, closely resembling the two-spotted mite (*T. urticae*) and bean spider mite (*T. ludeni*).

Where did it come from?

Tomato red spider mite is thought to originate in South America and has been introduced to many countries in Africa, Europe, Asia and North America including Hawaii. It was first reported in Australia in 2013. While tomato red spider mite is a significant pest, it is not technically feasible or cost beneficial to eradicate from Australia as it has a very broad host range; it is difficult to diagnose in the field; there are multiple pathways for spread. It is also difficult to detect the pest when levels of infestation are low.

What does it look like?

Mites are difficult to see without magnification. Adult tomato red spider mites are small with eight legs and may change colour during their lifecycle. They can vary in colour from light orange to deep orange red or brown. Female tomato red spider mites are approximately 0.5 mm in size and a broad oval shape. Males are much smaller (0.3 mm), orange to straw coloured and are a more elongated, triangular shape.

Eggs of tomato red spider mites are rounded and deep to pale orange in colour. They are bright and clear when newly laid becoming rust red prior to hatching. Larvae are light green or pinkish in colour, slightly larger than eggs and have six legs. Nymphs look similar to adults with eight legs but are smaller and greenish to orange red in colour.

Where is it found?

The main hosts of the tomato red spider mite are plants in the Solanaceae family including weeds such as blackberry nightshade (*Solanum nigrum*) and silverleaf nightshade (*S. elaeagnifolium*), and the native kangaroo apple (*S. aviculare*). Commodities affected by tomato red spider mite include tomato, potato, eggplant, beans, citrus, cotton, tobacco and ornamentals such as roses. Tomato red spider mite can cause damage to plants grown both outdoors and in glasshouses.

What do I look for?

Feeding damage caused by the Tomato red spider mite sucking sap appears as many shiny pale yellow marks on the top of the leaf. Eventually the leaves turn brown and die or fall off. Severe attack leads to formation of webs on the plant.



Extensive webbing on a tomato plant in a greenhouse. Photo: RSM Project, ICIPE



Spider mite feeding under the leaf produces a typical loss of colour and gradual yellowing seen from above, particularly around the main veins. Photo: Eric Boa, CABI

T. evansi is spread over short distances by wind, irrigation water, and field workers (clothing, tools). The trade of host plants can also lead to long distance spread. Feeding from the mite can result in death of the host plant within 3-5 weeks after infestation. The mite is capable of inflicting significant economic impact through reduced yields and increased control costs. There are currently no interstate movement controls in place for the pest although Western Australia have Tomato red spider mite listed as a prohibited pest which would impact product if it arrived in Western Australia in an infested state.

What can I do?

Growers can put on-farm biosecurity measures in place to reduce the chance of *T. evansi* getting into their crops

These include:

- Controlling weeds and other potential host plants on your property. Nightshade weeds are a favoured non-crop host so thorough weed management may reduce the pest risk particularly as a source of survival between cropping rotations
- Using pest-free propagation material and seedlings, sourced from a reputable supplier
- Putting up farm biosecurity signs on gates and fences to manage visitors coming onto your property
- Avoiding the sharing of equipment
- Ensure visitors and employee footwear, clothing and equipment is free from soil and plant material before entering and leaving your property
- Teaching farm workers what to look for and how to report unusual pests and diseases.

An integrated pest management approach will be needed to control Tomato red spider mite. This should involve crop hygiene through culling of nightshade and other Solanaceae weed hosts from the crop area and surrounds, the use of natural enemies such as Stethorus lady beetles, and if required registered miticides. Biological control with predatory mites such as *Phytoseiulus persimilis* and *Neoseiulus californicus* is not likely to be as effective as for two spotted mite and bean red spider mite. *T. evansi* is also resistant to many acaricides and insecticides that are registered for use in Australian cropping systems. Unfortunately specific information on the effectiveness of control of Tomato red spider mite provided by the different miticides registered for use on affected crops is not available in Australia. Growers should select a miticide suitable for the intended situation and use.

More information

For more information or advice, contact the South Australian Research and Development Institute (SARDI) on 8429 0933 or 8429 0401.