

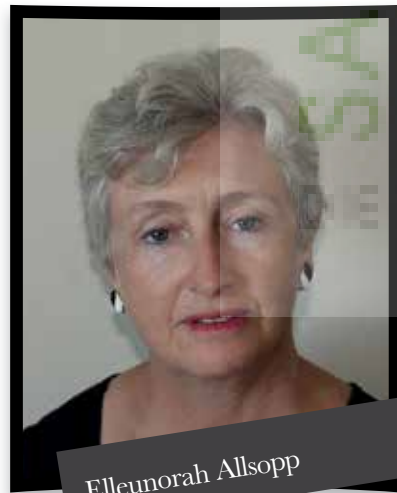
Spider Mites

PART 1
of a three-part series on mites

Not all mites are equal. By Davina Saccaggi, Elleunorah Allsopp and Edward Ueckermann (CRI, ARC Infruitec-Nietvoorbij, North-West University)



Mite pests are a huge problem on many crops around the world. However, this hasn't led to them being well-managed pests. We believe this may be largely due to many cases of mistaken identity. Not all mites are spider mites, nor do all spider mites belong to one species.

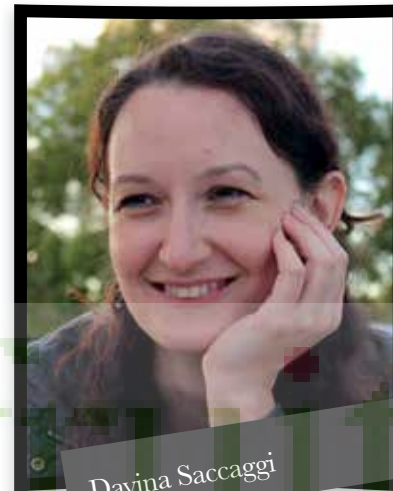


Elleunorah Allsopp

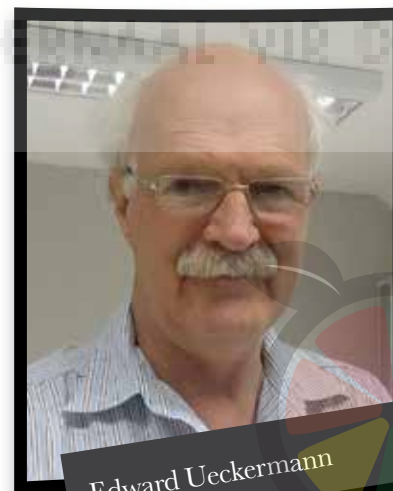
"Spider mite" is actually the generic name for an entire family of mites, called Tetranychidae, with over 1 200 species. There are 221 known spider mite species in SA.

Why are spider mites so difficult to control?

Warm, dry weather and spray programmes that kill predatory mites can contribute to a rapid increase of spider mite populations. Chemical control is hit-and-miss, as spider mites are remarkable in their ability to quickly develop resistance to pesticides. In species that spin webbing, the protective and water-repellent nature of the webbing protects spider mites from pesticides. The release of predatory mites can be a very effective strategy to control spider



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mite populations, but this needs to be implemented smartly to be successful.

Why does biocontrol sometimes fail?

The silk webbing spun by many spider mite species acts as a sticky trap for predators. Different predators are better (or worse) at dealing with webs. Specialised predators have the ability to cut through the webbing or walk on the strands without getting stuck. You have to release the right predatory mite species at the right time, since different spider mites spin different webs, and webs



Figure 1 a-d. Red spider mite or two-spotted spider mite, *Tetranychus urticae*, adult females on leaves of strawberry (a and c), bell pepper (b) and an ornamental plant (d). Note the colour variations. Figure 2. European red mite, *Panonychus ulmi*, with stout body hairs set on white bumps. Figure 3. Citrus red mite, *Panonychus citri*, with body hairs set on bumps the same colour as the body.



become denser as the population increases. For biological control to succeed it is crucial to identify which spider mite species is present in the crop, so that the appropriate predator can be selected.

Common spider mites in South African agriculture

It is incredibly difficult to differentiate between spider mites in the field. Rather, collect specimens for identification by an expert. In general, female spider mites can be seen with the naked eye as small brown or red "dots", around 1 mm big, most commonly seen on the underside of leaves. Examination with a magnifying glass will show a round body with the fore and hind legs well separated, with two pairs facing forward and two pairs facing backwards.

Tetranychus urticae is the most common spider mite in SA, as well as the most common worldwide (Figure 1). It is variously known as red spider mite (RSM), two-spotted spider mite, glasshouse



Figure 4. Lowveld citrus mite, *Eutetranychus orientalis*, is dark green to brown with short, stout body hairs similar in colour to the body. Figure 5. Bryobia mite, *Bryobia praetiosa*, with very long front legs.



Warm, dry weather and spray programmes that kill predatory mites contribute to the rapid increase of mite populations.

Take-home message

- Many spider mites occur on crops and species can easily be confused with each other.
- Consult an expert acarologist for accurate identification.
- Biological control of spider mites will only succeed if:
 - o the spider mite species is identified correctly, and
 - o the right species of predatory mite is released for the specific pest mite present.

spider mite or carmine spider mite (red form, previously known as *T. cinnabarinus*). It has over 1 100 host plant species, including all major crops and ornamentals, and is particularly problematic in greenhouses. Its colour can vary between green, brown and red, typically with two blotchy spots at the sides of the body. Long, fine hairs cover the body and legs. When numbers are high, a very dense webbing is visible.

Panonychus ulmi (Figure 2), commonly known as red mite or European red mite (ERM), occurs throughout SA, but is more commonly problematic on stone and pome fruit in the Western Cape. It is usually dark-red to brownish with fairly thick body hairs set on

bumps that are clearly lighter than the rest of the body (usually almost white). They produce visible webbing that is usually not very dense.

Panonychus citri (Figure 3), commonly known as citrus red mite, is distributed throughout SA, and occurs most commonly on citrus. Citrus red mites are usually dark-red to brownish, with fairly thick body hairs set on bumps that are the same colour as the rest of the body. Webbing is visible, but not dense.

Eutetranychus orientalis (Figure 4), lowveld citrus mite or oriental spider mite, occurs only in the eastern hemisphere and is absent from the Americas and Europe. In SA it is found mostly in the lowveld areas. This

mite is commonly found on pome and stone fruit, citrus, legumes and vegetable crops. Its colour ranges from dark-green to brown with yellow-brown legs and short, stout body hairs. These mites produce sparse webbing.

Bryobia rubrioculus and *Bryobia praetiosa* (Figure 5), commonly known as fruit-tree mites or Bryobia mites, occur throughout SA, but are particularly common in the Western Cape. They are pests of pome and stone fruit, with *B. rubrioculus* being the more common species on fruit trees. Bryobia mites are usually brownish-green with long pale legs. The first pair of legs is at least as long as the body (typical of the Bryobiinae subfamily), and they do not produce any webbing. 🍌

For more information, contact:

- Dr Davina Saccaggi (CRI) for spider mite and other pest mite identification and general advice: davinas@cri.co.za
- Dr Elleunorah Allsopp (ARC) for general advice and mite control in the field: allsoppe@arc.agric.za
- Prof Edward Ueckermann (NWU) for predatory mite and pest mite identification: edalbert@lantic.net



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