



BugVision

5 Things to know about Two Spotted Spider Mite (*Tetranychus urticae*)

Note : Two Spotted Spider Mite will be replaced by TSSM in this article.

Like spiders, TSSM has 4 pairs of legs at adult stage. As larvae, they have six legs.
It is classified as a pest because it is one of the phytophagous mites present in crop production.



Credit: Matthew Gates ZENTHANOL

1. Habitat

TSSM lives on the underside of plant leaves.

Mature females often overwinter in the greenhouse and can produce males with unfertilized eggs, and females with fertilized eggs. Only one female is needed for a colony.

TSSM **develops better in hot dry (low humidity) weather** (summer and fall) because dry conditions can reduce fungi pressure (*Neozygites* sp) that usually keep them below economical damage.

Also low humidity allows them to remove waste from their body through evaporation increasing feeding and reproduction.

2. Lifecycle/Biology

Lifecycle

The full lifecycle varies between **7 days and 19 days** according to environmental conditions (optimal conditions = 80°F).

The lifecycle is composed of 5 stages (egg > larvae > 2n nymphal stages (protonymph and deutonymph) > adult) :

- **Eggs** are shiny and usually attached to fine self webbing and hatch in 3-4 days
- **Larvae** stage has 3 pairs of legs
- **Nymphal** stage is 8 legged, look like adult but not sexually mature
- **Adult** : female is 0,4 mm long and male is 0,3 mm long

Females live 2-4 weeks and can produce a couple hundred of eggs under hot dry weather

TSSM molt 3 times before becoming an adult

Biology

TSSM Body is composed of :

gnathosoma = mouthparts
idiosoma = rest of the body

Its oval shape body is less than a millimetre and can be brown or orange/red (overwintering female) or green/yellow (more common)

The 2 spots on dorsal part of the abdomen are the accumulation of body waste and may not be visible on young stages.

3. Crop Damage

Crops are damaged by sucking mouthparts that pierce the cell walls of leaves and suck the cell content. **When Chloroplasts are destroyed, photosynthesis decrease and stomata closes and transpiration decreases.**

Cells become non-functional for the plant (cannot participate in plant growth anymore) and is visible as a small chlorotic spot form at each sucking site. Complete defoliation can happen if not controlled.

TSSM is usually found on the underside of the leaf.

TSSM can affect 200 species of plants. Some of them are: Tomato, Cucumber, Eggplant, Squash, Chrysanthemum, Azalea, and Camellia.

4. Scouting

Plant inspection is mandatory as you won't find TSSM on yellow sticky card (for Plant Inspection good practices, refer to our [previous article](#))

It is so tiny that you often find damage before seeing a TSSM.

A magnification glass is mandatory and the best is to look at the bottom side of the leaves for mites, webs and exoskeletons.

A good technique is tapping plant leaves on a white paper to dislodge the mites for observation.

Be aware that you can spread them in the field/greenhouse (start with less infested areas, change clothes when leaving an infested area)

5. Pest management/Control

If there is TSSM presence, consider that you have all life stages.

Usually development is local, so it is very important to locate the hot spots and track them over time. Referring to our previous article on [Plant Inspection](#) it is good practice to flag plants.

As Biological control, you can use :

Phytoseiulus persimilis, *Mesoseiulus longipes*, *Neoseiulus californicus*, *Galendromus occidentalis* and *Amblyseius fallicus*.

Phytoseiulus is the more active species producing 20 eggs or 5 adults per day and it is important to release them as soon as TSSM is identified in the greenhouse.

Controlling weeds in the greenhouse is very important to reduce overwintering and start clean.

TSSM have developed resistance to most acaricides.
Miticides are not effective on eggs but it is possible to do 2 or more application of miticides with 5 days intervals against older stages

Conclusion

TSSM is one of the pests you cannot monitor on yellow sticky cards and requires a trained eye to identify hot spots as early as possible. Flag hot spots to follow up the development of the TSSM population.

Pay more attention to it during the hot dry months the summer.

Comment or questions?

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This article has been kindly reviewed by Matthew Gates from Zenthanol.

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