

Tomato Brown Rugose Fruit Virus

Tomato brown rugose fruit virus (ToBRFV) is a stable and highly infectious virus that is very easily spread by mechanical means and through low rates of seed transmission, which allows both local and long distance spread.

The virus belongs to the tobamovirus group of plant viruses which also includes Tobacco, Tomato and Cucumber green mottle mosaic viruses. The stability of the virus in the environment and the ability to overcome *Tm* resistance genes in tomato and *L* resistance genes in capsicum makes management of the virus difficult.

ToBRFV causes yellow and brown spots to appear on fruit, making it unmarketable.

This virus has recently been detected in South Australia, and poses a biosecurity risk to Australian tomato and capsicum industries. Growers need to be aware of symptoms for early detection.

Leaves infected with ToBRFV show (Figure 1):

- yellowing
- mosaic patterns
- mottling
- leaf narrowing (occasionally).

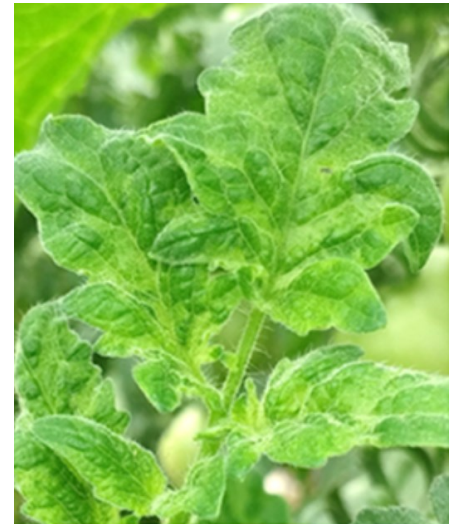


Figure 1: ToBRFV on a tomato leaf



Figure 2: Necrotic spots of ToBRFV



Figure 3: ToBRFV on fruit



Figure 4: ToBRFV on mature fruit

Fruit infected with ToBRFV (Figures 2, 3, and 4):

- show brown or yellow spots
- deformation
- ripen irregularly, making it unmarketable.

Symptoms can vary depending on the variety of tomato. Tomatoes with the *Tm-22* resistance gene (used against other Tobamoviruses) are susceptible to ToBRFV. Symptoms on fruit could be confused with tomato spotted wilt virus (TSWV).



Figure 5: Symptoms of ToBRFV on capsicum fruits and leaves

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Spread of disease

ToBRFV can be transmitted through propagation materials such as:

- seeds
- plants for planting
- grafts
- cuttings.

It can survive in seeds, plant debris and contaminate soil for months. The virus can be also be transmitted through contact with equipment and clothing.

Managing disease

To safeguard your crops from ToBRFV:

- practice good plant hygiene
- source seed, seedlings and graft material that is free of ToBRFV from a reliable supplier
- test a proportion of seed and seedlings for ToBRFV
- monitor crops regularly for ToBRFV
- make sure staff and visitors comply with on-farm biosecurity and hygiene practices
- disinfect tools, propagating material and equipment with sodium hypochlorite (1% solution of a 12 per cent concentrate of pool chlorine)
- remove volunteer or wild tomato plants that could act as reservoirs for the virus, such as fat hen (*Chenopodium murale*), quinoa (*Chenopodium quinoa*), Petunia hybrids (garden plants) and black nightshade (*Solanum nigrum*).

Reporting an unusual plant pest or disease

Report any unusual plant pest or disease immediately using the online reporting system for your state department of agriculture, or by calling the Exotic Plant Pest Hotline on [1800 084 881](tel:1800084881). Early reporting increases the chance of effective control and eradication.

Please take multiple good quality photos of the pests or damage to include in your report where possible, as this is essential for rapid pest and disease diagnosis and response.

Your report will be responded to by an experienced staff member who may seek more information about the detection and explain next steps

Photo credits

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