

Exotic Pest Fact Sheet 14

Tomato Brown Rugose Fruit Virus (ToBRFV)

What is it?

Tomato brown rugose fruit virus (ToBRFV) is a member of the Tobamoviruses genus and is a relatively new virus closely related to Tobacco mosaic virus (TMV) and Tomato mosaic virus (ToMV). Tomato (*Solanum lycopersicum*) and capsicum (*Capsicum annuum*) are the main hosts. Petunia (*Petunia hybrida*) and certain weeds like black nightshade (*Solanum nigrum*) and goosefoot (*Chenopodium* sp.) have been shown to be hosts in experiments and may act as reservoirs for ToBRFV.

What does it look like?

Symptoms on tomato fruits include yellow spotting and discolouration, green spots and deformations, green grooves and irregular brown spots. Fruits may be deformed and have irregular maturation. On tomato leaves, ToBRFV symptoms appear as mosaic symptoms, spots and yellowing. Leaves can also appear narrowed, puckered and deformed.

Why is it important?

Tomatoes are a primary host of ToBRFV. Crop production and tomato quality can be affected thereby significantly impacting their market value. ToBRFV is of special concern because of its ability to overcome resistance bred into conventional tomato varieties against other Tobamoviruses.

How does it spread?

ToBRFV is easily transmitted from plant to plant by mechanical means which include common cultural practices, contaminated tools, equipment, hands, clothes, soil, and infected plants. Volunteer crop plants and solanaceous weed species can serve as pathogen reservoirs. Seed transmission of ToBRFV is suspected and recent reports indicate transmission by bumblebees (*Bombus* spp.). Tobamoviruses are very persistent and can last for a long-time on host plants, and survive on inert materials (clothing, tools), in plant remains, in substrate and in soil without losing their virulence.

Where is it present?

Tomato brown rugose fruit virus (ToBRFV) was first identified on tomatoes in Israel in 2014 and Jordan in 2015. Outbreaks have recently occurred in the UK, Netherlands, Spain, Turkey, Germany, Italy, and China on tomatoes, and in Mexico on tomato and chilli peppers.

How can I protect my industry?

Check your production site frequently for the presence of new diseases and unusual symptoms. Make sure you are familiar with common pests and diseases of your industry so you can recognise something different.



Fig 1: Mosaic pattern on leaves and spotty leaves. Image: Diana Godinez, <https://gd.eppo.int>



Fig 2: Brown rugose fruits. Image: Diana Godinez, <https://gd.eppo.int>



Fig 3: Typical fruit symptoms with yellow spots. Image: Dr Aviv Dombrovsky, <https://gd.eppo.int>