Exotic Pest Fact Sheet 14

Tomato Brown Rugose Fruit Virus (ToBRFV) Genus: Tobamovirus

What is it?

Tomato brown rugose fruit virus (ToBRFV) is a member of the Tobamovirus genus and is a relatively new virus closely related to Tobacco mosaic virus (TMV) and Tomato mosaic virus (ToMV). Tomato and capsicum are the main hosts. Petunia and certain weeds such as 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, infected plants, and contaminated water. Transmission by bumblebees *(Bombus* spp.) during pollination has also been reported. Volunteer crop plants and solanaceous weed species can serve as pathogen reservoirs. There is now evidence of seed transmission with the virus being transferred from infected seeds to plantlets during germination. 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 soil without losing their virulence.

Where is it present?

ToBRFV was first identified on tomatoes in Israel in 2014 and Jordan in 2015. Outbreaks have continued to occur in Europe (UK, Netherlands, France, Spain and Canary Islands, Germany, Italy, Greece, Norway), gradually spreading eastwards. ToBRFV has spread to the Middle East, Turkey, China, 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.

TomatoesNZ

Fig 1: Mosaic pattern on young leaves. Image: Piedmont Region, Plant Protection Services, https://gd.eppo.int

Fig 2: Severe mosaic pattern on older leaves. Images: Prof. Salvatore Davino, https://gd.eppo.int

Fig 3: Brown rugose fruit. Image: Diana Godinez, https://gd.eppo.int.

Fig 4: Typical fruit symptoms with yellow spots. Image: Dr Aviv Dombrovsky, https://gd.eppo.int.