



Initial guidelines for the prevention and control of Tomato Brown Rugose Fruit Virus

The Tomato Brown Rugose Fruit Virus (ToBRFV) is a virus affecting tomato and pepper plants. The virus can be found in seeds, seedlings, plants and even fruit of tomatoes and peppers and can spread very easily through contact with contaminated plant material, tools, or other equipment. There is no biological or chemical control that can be used as a cure on infected plants. Thus, hygiene is critical in order to control this virus. For further information, refer to the EPPO datasheet from the link provided below: <https://gd.eppo.int/taxon/TOBRFV/datasheet>.

As part of the Plant Protection Directorate's efforts in controlling the spread of this virus, in line with Commission Implementing Regulation (EU) 2020/1191 and its amendment Commission Implementing Regulation (EU) 2021/74, the following guidelines are being provided for farmers and professional operators producing and growing tomato and pepper plants for fruit production and seedlings.

General Guidelines

1. Familiarize yourself with the symptoms, and methods of transmission of ToBRFV.
2. Regularly inspect plants and fruit for any symptoms (Refer to the images provided at the end of the guidelines).
3. In case of suspected signs of infection, contact the Plant Protection Directorate for guidance via:

Email on: plantquarantine@gov.mt

Call on: 22926509 / 33 / 44 / 57 58 / 60

Official Winter office hours are Monday to Friday: 7:00 – 16:00

Official Summer office hours are Monday to Friday: 7:30 – 13:00



4. In the meantime, keep potential symptomatic lot isolated and take measures to avoid cross contamination by ensuring hygiene in your activity.
5. Keep records of the purchased plant material (seeds and seedlings), invoices, plant passports and other details.
6. Adopt proper hygiene protocols, including foot baths or disinfection mats at entrances or use disposable overshoes, disinfection of tools and equipment after use, wearing gloves when handling plant material. It is recommended that the disinfectants applied should have either sodium hypochlorite (bleach) or potassium peroxymonosulfate as the active ingredients.
7. Limit access and the number of persons entering the greenhouses and the production areas as much as possible.
8. Avoid entering multiple greenhouses/fields on the same day; if required, change clothes, and disinfect shoes in between.
9. Avoid visiting other farms/greenhouses, especially on the same day you are working on your site.
10. Avoid carrying watches, jewellery and mobile phones and any other items which are harder to clean, on the premises.
11. Wear clean clothes or disposable overalls while working.
12. Avoid the transfer of tools, containers between different greenhouse and/or fields of production.
13. Do not bring host plant material such as fruit onto the premises.
14. Remove weeds, which may act as reservoirs for the disease.
15. Access to animals such as domestic animals should not be allowed. In addition, it should be ensured that the presence of mice, birds, and bees in the greenhouses and production sites should be controlled.
16. Clean and disinfect the glasshouse and any equipment following the removal of plants. Soaking plastic trays in hot water for five minutes at 90°C can eliminate the virus.



17. Wash hands regularly, but, more importantly, change gloves on a regular basis. Use disposable gloves.

In the case of positive ToBRFV results on your site, apart from the previously listed guidelines, the additional measures need to be taken:

1. Lots from which positive results were obtained, must be destroyed by burning of plant material on site. This will lead to the eradication of the pest as per Commission Implementing Regulation (EU) 2020/1191 and its amendment held by Commission Implementing Regulation (EU) 2021/74. In case of lack of space to burn on site, an alternative location for burning must be established and agreed with the Directorate. It must be ensured that hygienic protocols are followed in the movement of the infected lots.
2. Other host plants, kept in the same greenhouse, must also be destroyed by burning.
3. Do not assume that asymptomatic plants are not infected. It may take several days from initial infection for symptoms to develop. In addition, some, varieties may be asymptomatic despite infection by the virus.
4. The sale of fruits from positive sites is prohibited.
5. Disinfect the whole greenhouse and all equipment in it, with detergent and follow previous hygiene protocols.
6. It is advisable to avoid the planting of susceptible hosts in the infected area for at least one year.
7. Dependent on the material of the trays for seedlings these should be treated with the appropriate disinfectants or destroyed by burning, accordingly.

In the case of positive ToBRFV results in tomato plants, grown solely for harvesting of fruits to be used for processing, the following guidelines apply, in addition to the general guidelines:

1. In case of positive findings, fruit from the infected lot can still be harvested and taken for processing.



MINISTRY FOR AGRICULTURE, FISHERIES,
FOOD AND ANIMAL RIGHTS

Rural Affairs Department

Plant Protection Directorate

110, Triq Annibale Preca Street, Lija, LJA 1915 – Malta

2. All machinery and equipment used to grow, harvest and transport the fruit to the processing plant must be thoroughly disinfected after use.
3. All fruits from an infected lot must be used for processing, with no fruit entering the Pitkali market or sold in any other manner.
4. The remaining foliage after harvest, must be destroyed on site by burning.
5. It is advisable to avoid the planting of susceptible hosts in the infected area after infection.



MINISTRY FOR AGRICULTURE, FISHERIES,
FOOD AND ANIMAL RIGHTS

Rural Affairs Department

Plant Protection Directorate
110, Triq Annibale Preca Street, Lija, LJA 1915 – Malta



Necrotic spots of ToBRFV



ToBRFV symptoms on tomatoes, showing
marbling on fruit and delay in ripening



Symptoms on pepper fruits



Symptoms on tomato leaves