

## Reference case

### UV-C treatment of Tomato brown rugose fruit virus

#### The background

ToBRFV (Tomato brown rugose fruit virus) is a relatively new species of plant pathogens that spread quickly from Jordan and Israel to Europe since 2015. The virus causes leaf discolorations and wrinkling of tomatoes and peppers which makes the products unmarketable. Currently this is an important and threatening virus for horticulture. Since it has many ways to spread and is highly infectious a good solution for disinfections of these and other pathogens without chemistry or product degradation is highly sought after in the market.

#### The case

Van Remmen UV was asked to bring their experience in this field and help to investigate the disinfection of this virus. The base question is to investigate the required disinfection dose needed to inactivate the ToBRFV in water and the effect thereof on inoculated tomato plants.

#### The solution

Reliable disinfection of recirculated drain water is crucial. Not only the virus ToBRFV but also other plant pathogens can be transmitted through water.

The circulating water stream is already disinfected by UV-c solutions in many greenhouses in order to save on water and fertilizers that can be reused. Validating that

ToBRFV is also disinfected is an important step to offer safety to the tomato growers. This study to determine the needed UV-c dose for disinfecting ToBRFV is performed by Groen Agro Control and Van Remmen.

#### Facts

**Contractor**

Ridder Growing Solutions

**Location**

The Netherlands,  
Maasdijk

**Purpose**

UV-C treatment of Tomato  
brown rugose fruit virus

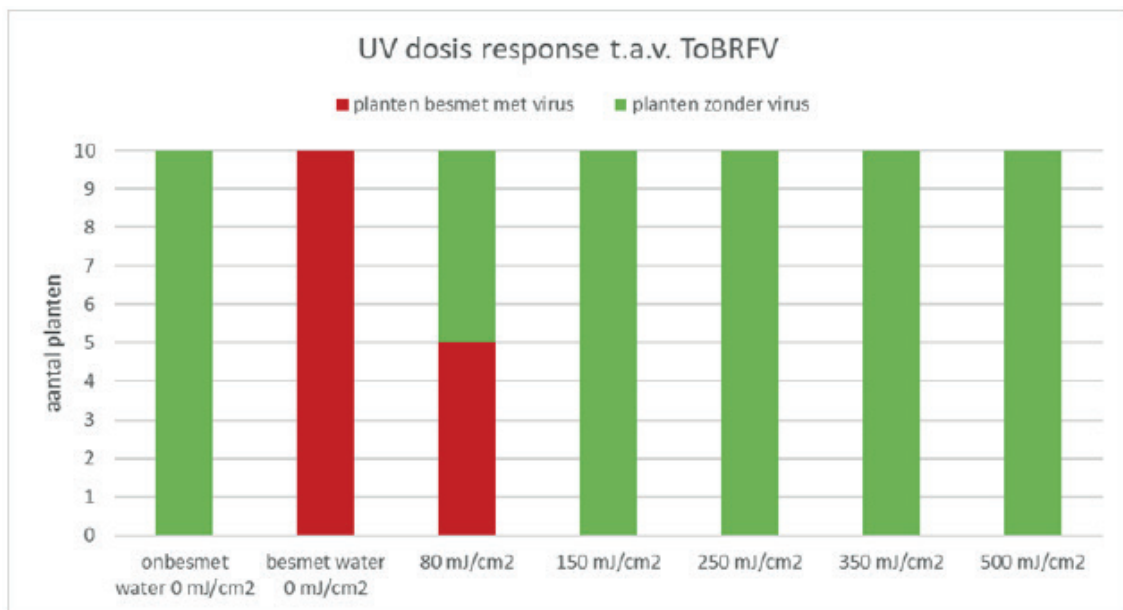
**Solution**

VitaLite

## Results

This study researched the virus behaviour when given different UV-c doses. The tomato plants that were fed with ToBRFV free water showed no symptoms, as expected. Untreated water with ToBRFV showed infection in all cases. Also the water treated with a comparatively low UV-c dose of 80mJ/cm<sup>2</sup> showed infection in half of the treated plants.

All tests with a higher dose showed no infection, a clear indication that UV-c doses, applied with a validated system, above 150mJ/cm<sup>2</sup> disinfect ToBRFV to a degree that infection through water is prevented.



*Test results of ToBRFV contaminated water treated with increasing UV-c doses on tomato plants; red is infected, green are unaffected plants.*

### Customer quote:

Adriaan Vermunt, Groen Agro Control: "Van Remmen is a great company to work with. Their expertise in UV disinfection is highly appreciated."