

Protecting crops against tomato brown rugose fruit virus with HPNow Systems

HPNow keeps the virus away in tomato greenhouses

Understanding the impact of Tomato Brown Rugose Brown Virus (ToBRFV) in Solanaceans – an introduction

The rugose brown virus is a disease that affects plants in the Solanaceae family, such as tomatoes, peppers, and eggplants, also known as the Tomato brown rugose fruit virus (ToBRFV), an RNA virus that spreads mainly through seeds, direct contact with infected plants, and insect vectors.

Symptoms of rugose brown virus infection include brown spots on leaves, fruit growth distortion, deformities, and roughness on the surface. This can lead to a decrease in crop quality and reduce yield.



Tomato leaves, plants and fruits infected by ToBRFV

The rugose virus primarily affects this family and can cause severe losses in plantations. It spreads rapidly through infected seeds, insects, and contaminated tools. Once detected in a plantation, it is difficult to control and may require the destruction of entire crops to prevent its spread.



The main effects of the rugose virus in solanaceous plants are:

1. Spots and deformations on the leaves: The leaves of infected plants present yellow or tan spots, which may spread and cause deformations in the leaf blade.
2. Growth delay: Plants infected by the rugose virus in solanaceous tend to show slower and less vigorous growth than healthy plants.
3. General decline of the plant: As the infection progresses, a general weakening of the plant can be observed, with a reduction in fruit size and lower production.
4. Necrosis and wilting: The virus can cause necrosis and wilting in different parts of the plant, such as flowers, fruits, or stems.
5. Transmission through insects: The rugose virus in solanaceous is mainly transmitted by vector insects, such as thrips and aphids. These insects feed on infected plants and subsequently transmit the virus to healthy plants.

Peroxide Ultrapure™ is a product used in agriculture for crop protection against various diseases and pests. Peroxide Ultrapure™ is exclusively manufactured by the HPNow GOgen system at the greenhouse itself, and injected into the irrigation lines. Specifically, for the control of the rugose virus, Peroxide Ultrapure™ has been proven to be very effective.

Peroxide Ultrapure™ is injected into the irrigation system of plantations as a strategy to control the disease. The benefits of this practice are:

1. Reduces viral load: Peroxide Ultrapure™ controls the spread of the viral load. By minimizing the presence of the virus in the water, the spread of the disease in plants is reduced.
2. Controls virus spores: Peroxide UltraPure™ also prevents the spread of spores that may be present in the soil or on plants. This helps prevent the infection of new plants and the spread of the disease.
3. Improves plant resistance: Peroxide UltraPure™ increases water dissolved oxygen levels, which can stimulate the defense system of plants, making them more resistant to diseases. By strengthening the natural defenses of plants, the likelihood of them being infected by the rugose virus is reduced.



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CÓDIGO CLIENTE: <input type="text"/> CLIENTE: <input type="text"/> DIRECCIÓN: <input type="text"/> C.P.: <input type="text"/> POBLACIÓN: ALICANTE TELÉFONO: <input type="text"/>	*MUESTREO EXTERNO TIPO DE MUESTRA (#): AGUA CONTINENTAL NO DESCRIPCIÓN KUDAM: AGUA CONTINENTAL NO CANTIDAD DE MUESTRA: 1500 ml. EN ENVASE DE PLÁSTICO
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REFERENCIA CLIENTE (#): DRENAJE RUGOSO

Nº MUESTRA/INFORME: 817986 

ANÁLISIS SOLICITADO (menú servicios R-356/7): PCR015

INFORME DE ENSAYO

* El laboratorio no se responsabiliza de la información facilitada por el cliente sobre la muestra objeto de ensayo

DETERMINACIÓN	Resultado	Unidades	Incertidumbre	Metodo
Investigación Tomato Brown Rugose Fruit Virus (ToBRFV) qPCR	No detectado	/100mL	-	PCR/VIR001

Certified laboratory water analysis of a sample obtained from a tomato greenhouse, the sample is taken from the drains, there is highest risk of virus contamination. A GOgen system is installed in this greenhouse, which produces Peroxide UltraPure™ and is injected into the irrigation network.



Virus-free crop in a 5 ha tomato and a 6 ha pepper greenhouse that have an HPNow GOgen system installed.





It's essential to emphasize that our GOgen system enables the on-site generation of Peroxide UltraPure™, producing hydrogen peroxide of very high purity directly at the facility. Adhering to the manufacturer's guidelines significantly benefits agricultural practices. This system is effective not only in managing viruses, bacteria, fungi, and spores but also in enhancing the levels of dissolved oxygen and managing biofilm within the irrigation infrastructure. Consequently, this leads to improvements in both the quality and quantity of production.

In summary, the application of Peroxide UltraPure™ through the irrigation network presents a viable method for managing the rugose virus in crops. This approach contributes to sustaining a healthy crop environment and bolstering plant resilience.



Tomato and eggplant greenhouse (6 ha) with an HPNow GoGen system installed near Almería, Spain.