



## Novel Approaches for the Management of Tomato Brown Rugose Fruit Virus (ToBRFV)



LEAD RESEARCHER

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Researchers are working to stop Tomato Brown Rugose Fruit Virus (ToBRFV) from threatening Canadian greenhouse tomatoes and peppers. This research activity is studying the infection process and working to develop novel genetic resistance to ToBRFV. Researchers want to better understand how ToBRFV overcomes broad-spectrum resistance given by Tm-22 and bring back Tm-22-mediated resistance to ToBRFV.

To date, researchers have been able to create a tomato mutant population with more than 10,000 plants screened. There have been some promising lines found that are showing resistance or tolerance to ToBRFV infection. The ToBRFV coding sequences for P1, MP and CP have been cloned with four full-length cDNA clones created and confirmed as all being infectious on *Nicotiana benthamiana* model plant and tomato plants.



Tomato plants infected with tomato brown rugose fruit virus (ToBRFV).

### KEY TAKEAWAYS:

- This research activity is happening at four sites including the AAFC London Research and Development Center in Ontario, AAFC Harrow Research and Development Center in Ontario, Vineland Research Farm in Ontario, and AAFC St-Jean-sur-Richelieu Research and Development Center in Quebec.
- Tomato leaf samples were collected at two tomato greenhouses in Quebec and sampling was also done at two tomato greenhouses in Ontario. The samples collected will be used to determine ToBRFV diversity.
- There have been promising tomato mutant lines with resistance or tolerance to ToBRFV identified.



Tomato plants infected with typical tomato brown rugose fruit virus (ToBRFV) symptoms.

Photos: Aiming Wang

