

2018 Research Report

Enhancing Late Blight Management in Tomatoes

Prepared for the Ontario Tomato Research Committee (OTRI)
November 1, 2018

Research Team:

- Cheryl Trueman, Ph.D., College Research Professor, University of Guelph – Ridgetown Campus
- Ed & Joe Tomecek, Tomecek Agronomic Services

Highlights/Summary:

- The objective of this research was to evaluate the potential of the Spornado passive spore trap to detect the presence of *P. infestans*, causal agent of late blight, in one of the Ontario processing tomato production regions. This was a continuation of a pilot project in 2017 where two traps were evaluated. In 2018, the network was expanded to include four traps.
- The Spornado detected the presence of *P. infestans* one week prior to first detection of late blight symptoms. This suggests there is potential for the passive spore trap to serve as an early warning system for late blight. Early warning of late blight inoculum in a region could act as a decision support tool for growers contemplating the use of broad-spectrum fungicide such as chlorothalonil and mancozeb versus highly effective, but more specific late blight fungicides.
- Additional validation of the spore trapping system is required prior to industry adoption. The following points are important considerations:
 - Early detection of *P. infestans* occurred in only one of four traps in 2018, and in 2017, the traps did not detect *P. infestans* prior to symptom detection. Therefore, trap density and type may be important and should be considered in future research.
 - The trapping efficiency of the Spornado, a passive spore trap that relies on natural air movement to catch air particles, compared to an active spore trap such as silicone Rotorods or optics technology like the SporeCam (www.scanitech.com), is unknown. Active spore traps may be more efficient since a consistent volume of air passes through or over the area collecting spores.
 - More rigorous validation of the spore trapping network is required. It would also be beneficial to compare initiation of high-risk fungicide programs using the Spornado versus other methods (i.e. first symptom detection in Ontario, Michigan, or Ohio, prediction model, detection with other types of spore traps) in field trials using late blight susceptible and resistant processing varieties.

Funding:

- Ontario Tomato Research Institute
- Ridgetown Campus, University of Guelph