



# Improving the reach of integrated pest management of vegetable crops in Ontario

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# Team

## University of Guelph

- Zach Telfer
- Tyler Blauel
- Kevin Vander Kooi
- Summer students

Collaborators: Ian Smith, Smith Gardens, Keswick

Theford- Grand Bend Growers Association

## OMAFRA

- Dennis Van Dyk
- Travis Cranmer
- Summer students



# Background

Established IPM program for vegetables in the Holland Marsh

- started 1980, since 2005, part of McDonald research program
- Fields scouted twice a week
- Information to individual growers – communication with the scouts
- Summarized information emailed and available on the web

The Holland Marsh is an intensive area of production. How can this information be extended to other growers in Ontario?





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# Ontario Crops Research Centre – Bradford (Muck Station) IPM Report 2021

This is the Muck Crops IPM Update for 9 August 2021

### Highlights

- Onion downy mildew has been found in the marsh. We are monitoring for spread of the disease and any new disease development.
- Carrot rust fly counts are over threshold in some carrot fields.
- Tip burn is common in onions throughout the marsh.
- Sclerotinia white mold has been found in carrots and there is a moderate risk for disease development.
- Harvest continues in some transplant onion fields.

### Disease Forecasting Highlight:

BOTCAST (Botrytis leaf blight)	DOWNCAST (Onion downy mildew)	BSP Cast (Stemphylium leaf blight)	White Rot on onions	Sclerotinia (White Mold) on Carrot	TOMCAST (General conditions for disease)	BREMCAS (Lettuce downy mildew)
MODERATE RISK	HIGH RISK	MODERATE RISK	LOW RISK	MODERATE RISK	HIGH RISK	MODERATE RISK

### Onion Update

#### Downy mildew

With onion downy mildew now found in the marsh applying an effective fungicide spray is recommended if you have not already done so. Rotating onion downy mildew products from different fungicide groups is very important. Our research at the Muck Station has shown that Orondis Ultra (group 40/49), Zampro (group 45/40) and Ridomil Gold MZ (group 4/M3) are the most effective products for controlling this disease. Ridomil Gold MZ also contains mancozeb which may help control both downy mildew and Stemphylium leaf blight. Orondis Ultra should be applied with a non-ionic surfactant.

Close communication between research and the IPM program allows for continuous updating of the IPM program and of research objectives.



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# Objectives

- Provide disease and insect forecasting for onions and carrots in additional growing regions: Thedford-Grand Bend and Keswick
- Determine the effectiveness of remote weather stations for delivering integrated pest management programs (IPM)
- Assess the most effective methods of delivering IPM information to growers



Dennis Van Dyk with weather station in Thedford Grand Bend marsh

# Methods

- Two 'remote' sites: Thedford Grand Bend Marsh and Keswick Marsh
- Weather stations: disease forecasting models and insect degree days
- Sporometrix spore trap
- Scouting once a week

**Onions:** downy mildew, Botrytis leaf blight, Stemphylium leaf blight, onion white rot

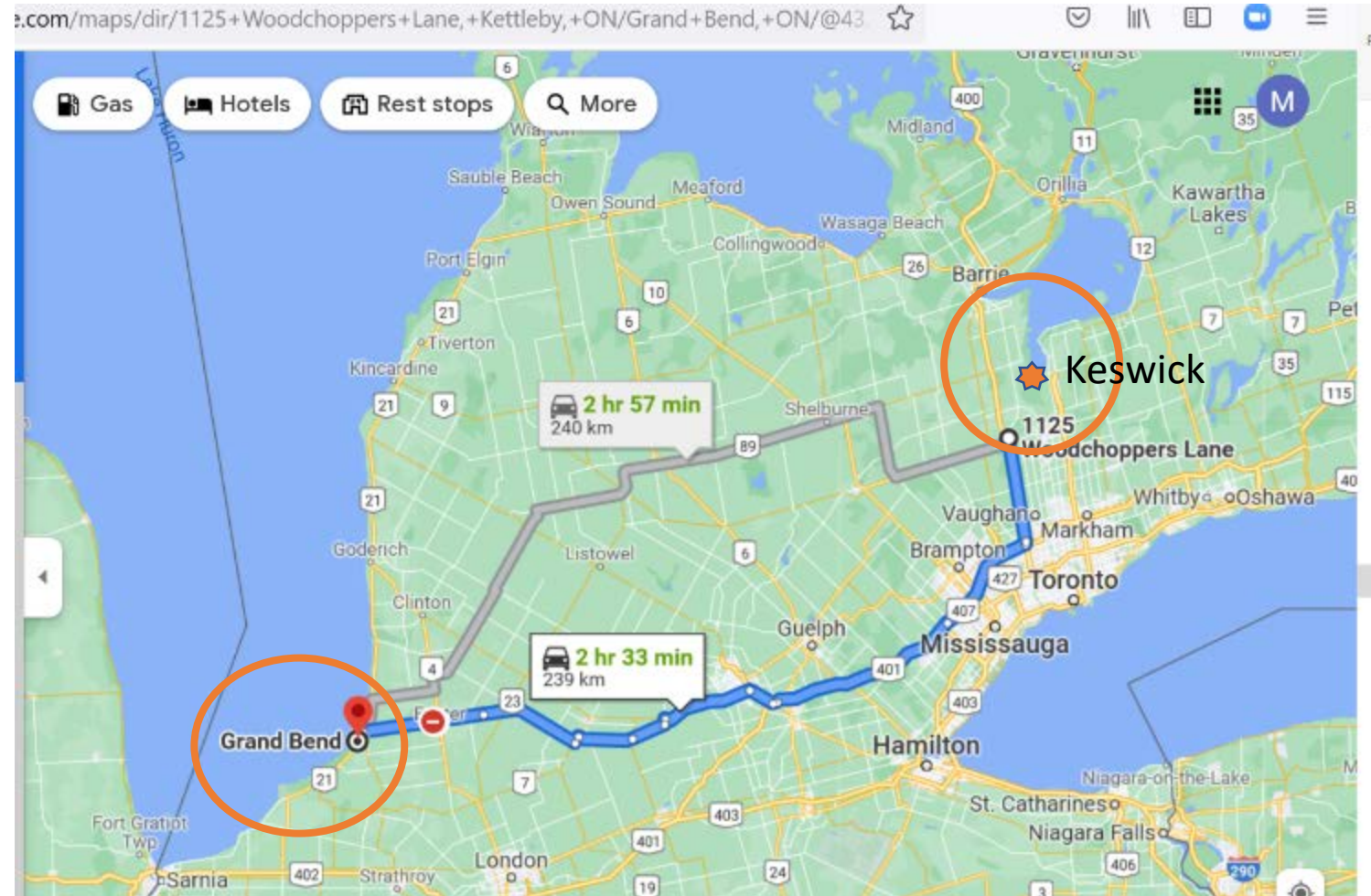
Onion thrips (also assessed onion maggot damage)

**Carrots:** carrot leaf blight, Sclerotinia white mold  
carrot weevil and carrot rust fly

## Two remote sites:

Keswick Marsh 55 km

Thedford Grand Bend  
Marshes (239 km)





Sporometrix 'Spornado'  
spore trap: downy  
mildew and Stemphylium



Weather station beside an onion field in the  
Keswick Marsh.





Symptoms of *Stemphylium* leaf blight developed in Keswich and onions died prematurely. Forecasting for downy mildew was accurate. Low thrips damage in 2021.



Some damage showing in drone image



Some Stemphylium leaf blight starting

Two fields in the Thedford Grand Bend area.

# Results and Conclusions

- Disease forecasting for onion downy mildew was accurate in both areas: no risk and no disease developed
- Stemphylium leaf blight developed. The disease forecasting program is in development (Alliance 2020-100115).
- Field scouting was necessary to check insect traps, and examine plants for onion thrips and diseases.
- Questions remain about the accuracy of the Spornado traps, spore trapping information is useful.



# Results and Conclusions

Growers in both regions were very pleased with the information.

They want to continue to receive IPM information.

Newer disease forecasting models for onion white rot and carrot white mold were incorporated into the IPM program

Growers like to receive the pest management information as an email attachment that they can access on their cell phones. Most do not spend time on computers, and rarely use social media (with the exception of about 4 growers in the Holland Marsh)



# Next steps

Funds from growers' associations to continue to provide IPM, in collaboration with OMAFRA specialists

Continue to talk with growers about best methods to deliver information and monitor use of web sites.

Continue Muck Vegetable Growers Conference and present at FVGO annual meeting.

Produce YouTube videos of important scouting and IPM topics possibly extend to cover crops and soil test interpretation.

# Acknowledgements

An aerial photograph of a vast agricultural field, likely corn, with distinct rows of crops stretching towards the horizon. The sky is overcast with soft, grey clouds. A line of trees is visible in the distance.

Ontario Agri-Food Innovation Alliance

Theford- Grand Bend Growers Association

Smith Gardens (Keswick)

OMAFRA – scouting in Theford- Grand Bend



Questions?