

# Canadian Agri-Science Cluster for Horticulture 3



## Update to Industry

### 2020-21 – Semi-Annual

**Activity title:**

Activity 2: “Sustainable Control Practices for Apple Pests in Canada”

**Name of Lead Researcher:**

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**Names of Collaborators and Institutions:** Michelle Cortens, Perennia, Jean-Philippe Parent, AAFC – St-Jean-sur-Richelieu, Justin Renkema – AAFC-London, Hannah Fraser – OMAFRA, Kristy Grigg-McGuffin – OMAFRA, Susannah Acheampong – BCAGRI, Tracy Hueppelsheuser – BCAGRI, Daniel Cormier – IRDA, Gérald Chouinard – IRDA, Gaétan Bourgeois, AAFC-St. Jean sur Richelieu

**Activity Objectives (as per approved workplan):**

The activity has 3 objectives:

1. to compare four currently used commercially available pesticide products (Exirel, Imidan, Assail and Calypso) for apple maggot control and determine how many sprays are required to effect control,
2. to provide producers a model specific to their region to predict when apple leaf curling midge will be flying in their orchards and
3. Evaluate the efficacy of host volatiles to capture both males and females of various leafroller species across apple growing regions in Canada.

**Research Progress to Date (use plain language, not to exceed 500 words):**

For Objective 1: this objective was completed in March 2020. Results confirmed that reduction in the number of sprays of any of the currently available products (Exirel, Imidan 70 WP, Assail 70 WP and Calypso 480 SC) would not ensure control of apple maggot. Continued use of each product as per label recommendations is the conclusion of this work.

For Objective 2: the 2020 growing season was the last data collection season for this objective. There were 6 sites in NS (checked from early June – October), 5 sites in ON (Simcoe – checked May - October), 3 sites in ON (Harrow – checked May - October), 7 sites in Quebec (checked April – October) and 3 sites in British Columbia (checked April – October). Data is being collated and sent to Quebec for analysis and inclusion in the models being developed. Models for evaluation will be distributed to all apple producing regions in time for the 2021 field season. These models will be added to the CIPRA database of models and available for use by March 2021.

For Objective 3: experiments continued in BC, ON and QC during 2020. British Columbia set up a repeat of the perimeter trapping study conducted in 2019: using the host volatiles between a cherry planting and young apple orchard (3 sites). Target species were oblique-banded leafroller and eye-spotted budmoth. ON (Simcoe) and ON (Vineland) set up their first host volatile experiment to determine which species would be attracted to the traps. ON (Harrow) used pheromone lures in 3 sites to identify populations for use in field trials during 2021. Tufted apple budworm, oriental fruitmoth, variegated leafroller and eyespotted budworm are species present at these sites. All data is being compiled and analyzed with future trials to be determined based on results.

**Extension Activities (presentations to growers, articles, poster presentations, etc.):**

There were 2 presentations to growers: 1. at the Nova Scotia Fruit Growers Association Annual Convention in January 2020, Dr. Blatt presented results from this activity to apple producers from Nova Scotia, New Brunswick and Prince Edward Island (“Research update: Insects, diseases and storage”) and 2. Kristy Grigg-McGuffin presented results from this activity to producers attending the Great Lakes Fruit Workers meeting in March 2020 (“Parasitism and degree-day modeling for apple leafcurling midge in Canadian orchards”).

**COVID-19 Related Challenges:**

There were only 2 modifications to the work plan due to COVID-19. 1. For Objective 2, traps were delayed being set up in Nova Scotia due to Federal requirements to remain at home. Traps were installed part-way through the first generation, but did capture the 2<sup>nd</sup> and 3<sup>rd</sup> generations in this province. 2. For Objective 3, the planned experiment in Nova Scotia needed to be set up during the month of May and this was not possible due to Federal requirements to remain at home. There were no changes to these objectives in any other province.

**Key Message(s):**

Current conventional products for control of apple maggot need to be used at full strength and multiple times to effect control. Regional models for apple leafcurling midge are needed to best represent the flight patterns observed. Host volatiles are showing variable results after two seasons of testing in Quebec, Nova Scotia and British Columbia.

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