

# Canadian Agri-Science Cluster for Horticulture 3



## Update to Industry

### Semi-Annual – Fall 2021

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

**Name of Lead Researcher:** Suzanne Blatt – AAFC-Kentville

**Names of Collaborators and Institutions:**

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**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):**

Objective 1. The activities associated with this objective were completed in March 2020.

Objective 2. The final collection of data to develop the models, using sites located in BC, ON, QC and NS concluded in 2020. Models were shared with collaborators to distribute to industry in spring of 2021. Nova Scotia, British Columbia and Ontario (Harrow) did a final year of ALCM sampling to validate/confirm the developed model. Data analysis is currently underway to validate the model against data from the 2021 field season.

Objective 3. The field experiments conducted in 2021 using host volatiles to attract leafroller species varied by location. In BC and NS, the host volatiles were used for mass trapping at 2 sites in both provinces (4 sites in total). Preliminary results are showing oblique-banded leafroller (OBLR) and eye-spotted budmoth (ESBM) to be the 2 species responding in BC. Damage to fruit was lower in the orchard where mass traps were installed and the grower reported not needing a second summer leafroller spray in that area. Data from NS are still being processed, however trap captures were low in the trials. With respect to damage, both sites showed ~3% reduction in leafroller damage where mass trapping was employed. In ON (Vineland, Simcoe and Harrow), the host volatiles were paired with acetic acid (high and low release rates) with 3 sites in each region and each treatment replicated 3 times. This was a repeat of the second set of experiments that occurred in 2020 due to the late start as a consequence of COVID. Trap captures were low in Simcoe and Vineland, but quite high in Harrow. Species captured in Harrow were oriental fruit moth (OFM) and codling moth (CM). In depth analysis of the results are in progress. In QC the host volatiles were paired with pear ester to focus on

CM captures. Acetic acid (low release rate) paired with pear ester had the highest captures of CM with equal numbers of males and females. Host volatiles added to acetic acid and pear ester had lower CM captures. OBLR were captured in traps baited with host volatiles paired with acetic acid (low release rate) showing no difference with the addition of pear ester. Pear ester alone captured the highest number of OBLR, however the large variation over the replicates rendered these results not significantly different from the control, where no OBLR were captured. Next steps are to complete analysis of the data, prepare a manuscript for submission and prepare for the final year of experiments in each region.

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

There were no extension activities reported during this reporting period.

**COVID-19 Related Challenges:**

For 2021 there were no COVID-19 related impacts on this work.

**Key Message(s):**

Host volatiles are showing variable potential for capture of leafrollers across Canada. When used for mass trapping in British Columbia they appear to be effective and reduce damage at harvest. In Ontario and Quebec, host volatiles are showing variable efficacy in trapping leafroller species. The final year of this project will serve to validate the potential of host volatiles for trapping of leafrollers across Canada.

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