

Canadian Agri-Science Cluster for Horticulture 3



Update to Industry

2018-2019

<p>Activity title: Reduced production cost and enhanced labour efficiency using the Guelph Intelligent Greenhouse Automation System</p>
<p>Name of Lead Researcher: Medhat Moussa, University of Guelph</p>
<p>Names of Collaborators and Institutions: University of Guelph, Ontario Greenhouse Vegetable Growers Association, BC Greenhouse Vegetable Growers association, AMCO farm.</p>
<p>Activity Objectives (as per approved workplan): The overall objective of this project is to develop, and field test an autonomous integrated prototype for a harvesting/de-leafing robot in vegetable greenhouses. The specific objectives are:</p> <ul style="list-style-type: none"> • Large scale field testing of a plant monitoring and labour quality assurance system • Large scale field testing of tomato and pepper fruits detection and localization under occlusion and various environmental conditions. • Large scale field testing of harvesting operations. This will focus on beefsteak tomato and sweet pepper and expand later to cucumber and cluster tomato. • Large scale field testing of de-leafing operation in tomato greenhouses • Knowledge transfer and commercialization of the technology.
<p>Research Progress to Date: During the 2018-2019 year we focused on developing and testing scouting prototypes for the robotics system in commercial greenhouses during production season. We have completed two field trials and in the process of starting a new one for this year. Results are very encouraging but much work remains before these system can be operational in a commercial greenhouse. We have also developed new relationships with stakeholders through knowledge transfer activities. We presented our work in an automation workshop held in Leamington to a mix of growers and automation companies. The results of this presentation was overwhelming positive and enabled us to reach out to new partners.</p>

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

We did one presentation to growers in leamington during a workshop on automation. We continue to visit new facilities and currently preparing for additional field trails and interaction with stakeholders.

Early Outcomes (if any) or Challenges:

Key Message(s):

We are making significant progress towards development of a robotics system for greenhouse automation.

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