



Doug Bragg Enterprises, Wild Blueberry Producers Associations and the Dalhousie Agricultural Campus (DAC) recognized the need for the development of integrated harvesting technologies to reduce the fruit loss in wild blueberry fields. Team led by Dr. Qamar Zaman from the DAC launched an initiative to develop innovative harvesting technologies in Atlantic wild blueberries. These technologies will allow improved harvesting techniques to increase harvestable berry yield and will ultimately lead to a more sustainable industry with the following objectives:

- Develop cost-effective and reliable integrated harvesting system to enhance harvestable berry recovery and quality.
- Develop farm-level harvesting recommendations for Canadian blueberry cropping systems to increase berry picking efficiency and fruit quality.

Contact Us

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Precision Agriculture Research Program (PHASE-II)

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Cost-Effective Sensor Fusion System

An automated sensor fusion system (SFS) comprising of a digital color camera, ultrasonic sensor, RTK-GPS, slope sensor, custom software and laptop was developed and mounted on a blueberry harvester to map pre-harvest yield, plant characteristics and topographic features in real-time.



The SFS increases our ability to manage harvestable berries based on estimation of overall loss and to suggest factors responsible for losses and quality damage during harvesting.

Innovative Techniques to Quantify Fruit Loss during Harvesting

Mapping of selected yield plots to collect the total fruit yield, multiple fruit losses and soil/crop characteristics using RTK-GPS and overlaying in GIS will allow us to understand the relationships between field and plant characteristics, weather conditions matching with the fruit yield variability and losses providing strong evidence in determining the

factors affecting the berry recovery during harvesting.



Bio-System Modeling to Identify Sources of Fruit Loss

Bio-system modeling to couple mechanical, biological and environmental processes will enable us to identify the sensitive factors responsible for increased losses.



This approach will implement the various aspects of harvesting, i.e., quantification, prediction, classification, optimization of the efficiency and quality damage during harvesting. The results of the modeling are expected to provide essential details for the optimal design.

Design Analysis of Harvester Heads

Principally different heads mounted on the harvester will be compared to examine the berry recovery and quality in variable fields. The tip velocities, tangential and radial forces, patterns and paths of the operating harvester along with the capacities of the internal and external conveyor of the harvester will be calculated to examine their impact on picking efficiency and berry quality.



On-line recommendations for precise berry harvesting

The data collected through this long term project will be integrated to develop an interface using Visual Studio and C++ programming. The developed integrated system will provide the farmers an opportunity to choose machine operating parameters corresponding to the variability in crop characteristics, soil properties, seasonal and weather conditions for picking effectiveness and berry recovery of the blueberry harvester.