Project Title: "Wild Blueberry Environment and Production Risk Mitigation System"
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Wild blueberries (*Vaccinium angustifolium* Ait.) are a vital crop to the Canadian Maritime provinces, Quebec and Maine with berry production and farm gate values now exceeding 110 million kg•year^{-1} and $150 million respectively being produced on an estimated 56 thousand ha. Research and development activities were undertaken from 2011 to 2013 to develop a novel, automated and integrated field operations system that would reduce agrochemical usage and associated pest pressures; increase operator and input use efficiency, improve traceability and safety; promote more uniform plant growth and development, and increase yields and product quality and consistency. To achieve this, the technologies that were developed included: (i) field-level, real-time, environment and plant sensing techniques used in tandem with GIS/GPS technologies for judicious delivery of agrochemicals to optimize plant growth and development; and (ii) new field sanitation technologies that reduce the dependency on burning wild blueberry fields with straw and/or an oil fired burner.

The project was successful in the development of environment and plant sensing technologies including sensors that could estimate berry yield, slope, soil characteristics and vegetation characteristics. The precision agriculture components of the project were also successful in integrating these plant and environmental variables through the use of GIS/GPS technologies and generating site specific maps that could ultimately be used with the application of agrochemicals including granular fertilizers and pest control products. This coincided with the development of a 45', precision boom sprayer equipped with a real-time, foreoptic, micro-eye sensing system that allowed pest control products to be applied in an accurate and variable manner, and also the development of a retrofitted variable rate, air induction granular fertilizer applicator system. Patents have been generated for these technologies and efforts are now underway to have these technologies commercially developed.

With respect to the field sanitation component of the project, they included identifying the nature, scope and magnitude of material that needed to be treated in wild blueberry fields (i.e., no advantage of a soil treatment and the need to treat all prunings and debris above the soil surface) and successfully designing a mower that effectively pruned the plants, removed all prunings and field debris and placed them in a contained environment for sanitizing heat treatments. Despite setbacks associated with various microwave technologies, the project was successful in designing and building a field sanitation unit for use in wild blueberry fields. The project concluded with the identification of a more efficient and practical heat source for treating the prunings and field debris. Efforts are now underway to re-evaluate this field sanitation unit and to assess the main and interactive effects of these technologies with other abiotic and biotic technologies to reduce pest pressures prior to the start of a growing season.

Therefore, overall, the project was successful in undertaking research and development activities as envisioned at the start of the project. However, the project could have been undertaken more efficiently and achieved more success if the funding could have been received in a more timely manner for the invoices and associated claims that were submitted. The resulting precision agriculture and field sanitation technology based products and processes will assist the wild blueberry industry in remaining competitive in an increasingly global economy.