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RESEARCH & INNOVATION CENTRE

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Enhancing Growers' Competitiveness One Step at a Time

Sovereign Coronation grapes are the most widely grown table grapes in Niagara and with a short harvest window, from late summer to early fall, growers face a local market saturated with other produce. Increasing grape storability will help growers enhance their competitiveness.

In 2014, Vineland Research and Innovation Centre's (Vineland) postharvest team investigated the use of sulphur dioxide-generating pads during storage of Coronation grapes. Sulphur dioxide is released from the pads when exposed to humidity in the air and works to inhibit mould and reduce stem browning until the active ingredient in the pads is depleted. In the study, grapes were stored with two different types of pads or with no pad at all. The grapes were removed from storage at various time intervals, followed by three days at room temperature to simulate shelf life conditions. They were then evaluated for marketability.

Vineland scientists demonstrated that Coronation grapes could be successfully stored at -1˚C to 0˚C and 90 to 95% relative humidity for at least five weeks, using dual release sulphur dioxide-generating pads with six grams of active ingredient. The grapes stored with no sulphur treatment were completely unmarketable after three weeks storage time.

The next step is to evaluate the potential of using sulphur dioxide fumigation during storage to produce a richer concentration of active ingredients around the grapes, rather than utilizing only sulphur dioxide-generating pads.

Funding for this project was provided by the Ontario Fresh Grape Growers' Marketing Board and the Ontario Farm Innovation Program through *Growing Forward 2 (GF2)*, a federal-provincial-territorial initiative. The Agricultural Adaptation Council assists in the delivery of *GF2* in Ontario. Thank you also to Eduardo Maldonado of Infruta S.A. for providing sulphur pads and to Carlos and Gayle Crisosto for their expertise.

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Biocontrol - Past, Present and Future

Consumers in 2015 are more concerned than ever about where their food is coming from and how it is produced. Fortunately, in North America many greenhouse growers utilize biocontrol programs with minimal use of pesticides. Dr. Rose Buitenhuis, Research Scientist, Biological Control at Vineland Research and Innovation Centre has published a guide on quality control assessments upon biocontrol delivery to further support these programs, which is available to growers. This research was funded by Flowers Canada (Ontario), Association of Natural Biocontrol Producers, IPM Florida, USDA, National Institute of Food and Agriculture, Extension IPM.

Biocontrol programs using high quality natural predators are essential to managing greenhouse crop pests. When used correctly they can be as effective as pesticides, or better, at pest management. They also offer many benefits including reduced health and environmental risks and no chance of pesticide resistance.

Until recently, growers had no easy way to test the quality of biocontrol products. Quality control checks are always completed by suppliers before a shipment is sent to a grower, however, many factors during shipping can directly affect the quality of biocontrol agents including higher than normal population density and temperature extremes. "Successful biocontrol starts with healthy biocontrol agents," said Dr. Buitenhuis. "The three main elements are choosing the right bios, keeping them happy and providing suppliers with feedback." The quality assurance guide aims to improve two-way communication making constructive feedback possible.

The use of biocontrol agents has become an industry standard in greenhouse crop growing. Dr. Buitenhuis sees future research adapting the system for outdoor crops. "We know how to make it work in greenhouses and I can see the demand for it in outdoor crops," said Dr. Buitenhuis. There will obviously be many factors to consider when establishing a system for using biocontrol outdoors, but Dr. Buitenhuis and the Vineland team believe it is a real possibility for the future of biocontrol. The implementation of the quality assurance guide in all greenhouses is certainly a step in the right direction.

Vineland's research program - ***The Right Tools: Integrating Biocontrol Systems for Impact and Results*** - is developing effective biocontrol strategies for the control of insect pests and plant pathogens in greenhouse and nursery settings and offering growers best management practices integrating conventional and novel approaches.

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Written by Danielle Gordon, graduate of the Public Relations program at Mohawk College.

The Right Tools: Integrating Biocontrol Systems for Impact and Results.

Vineland Welcomes New Stakeholder Advisory Committee Members

Vineland's Stakeholder Advisory Committee provides guidance and advice to ensure industry sector-specific opportunities are identified and explored to benefit the horticulture industry.

Our Stakeholder Advisory Committee includes 14 individuals from different areas of the horticulture industry. Our three newest members are:

Norm Beal

Norm Beal is Executive Director of Food and Beverage Ontario. This role comes after serving the organization for two years as President and, prior to that, as member of the Board of Directors. Norm is both President and founder of Peninsula Ridge Estates.

Guillaume Grégoire

Guillaume Grégoire is ornamental horticulture lead for research and innovation supporting associations affiliated with the Fédération interdisciplinaire de l'horticulture ornementale du Québec (FIHOQ). He is also a Research Professional at the Université Laval in the faculty of Agriculture and Food Sciences.

Gerard Schouwenaar

Gerard Schouwenaar is President and member of the Board of Directors for Flowers Canada (Ontario) and sits on the Board of Directors of The Ontario Greenhouse Alliance (TOGA). Gerard is also President of Orchard Park Growers, Canada's largest potted gerbera propagator.

Stakeholder Advisory Committee Members

John Bakker
Landscape Ontario & Canadian Nursery Landscape Association

Norm Beal
Food and Beverage Ontario & Peninsula Ridge Estates Winery

Paul-André Bosc
Board of Directors for Vineland Research and Innovation Centre & Château des Charmes

Stewart Cressman
Agricultural Research Institute of Ontario

Tony DiGiovanni
Landscape Ontario Horticultural Trades Association

Guillaume Grégoire
FIHOQ & Université Laval

Chris Hedges
Ontario Orchard Supply & Martin's Apples

Brad Huisman
Niagara Peninsula Fruit & Vegetable Growers' Association

Dr. John Kelly
Ontario Fruit and Vegetable Growers' Association

Ian MacKenzie
Ontario Produce Marketing Association

Michael Murray
Canadian Nursery Landscape Association

Joe Pillitteri
Lakeview Vineyard Equipment Inc.

Gerard Schouwenaar
Flowers Canada (Ontario) & The Ontario Greenhouse Alliance & Orchard Park Growers

Bob Seguin
Niagara Region Economic Development

Jason Verkaik
Ontario Fruit and Vegetable Growers' Association & Carron Farms Ltd.

Jamie Warner
Board of Directors for Vineland Research and Innovation Centre & Warner Orchards

Will Willemsen
SUNRIPE

Research Updates: The Canadian Hardy Rose Breeding Program

In collaboration with the Canadian Nursery Landscape Association, Vineland's Canadian Hardy Rose Breeding Program is again in full bloom.

Research updates for this program include:

- 50 new roses with commercial potential are propagated for the Pan-Canadian testing network which started its work last summer.
- The 2014 hybridization cycle has been completed with more than 55,000 hybrid seeds planted in Vineland's greenhouse. 2015 crossing activities are also in full swing.
- Thanks to the federal AgriInnovation Program funding, new planting and testing at Vineland's research farm are taking place this season:
  - More than 16,000 hybrids, planted in 2014, are currently being evaluated in field trials at Vineland against eight specific criteria.
  - 13,500 new hybrids have been prepared for planting this spring/summer.
- Vineland is establishing an elite rose block (plot where plants selected for either commercial development or further breeding are preserved for long-term purposes) with the first 230 in-house bred and selected genotypes planted this past May.
- The parental germplasm for the rose breeding program has been enhanced this spring with over 150 new genotypes, mostly from Europe and the U.S.A., to be planted and tested in trials at Vineland's Victoria Avenue farm.
- Vineland is initiating research for establishing DNA markers for cold tolerance in garden roses that will be used in future breeding.
- DNA markers are now mapped for black spot resistance using multidisciplinary approaches.

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Growing Forward 2
A federal-provincial-territorial initiative
Ontario
Canada