vineland
RESEARCH & INNOVATION CENTRE

Summer 2017

## IN THIS ISSUE



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# New Free-Air System for Appassimento Winemaking Launched

Introducing Vineland's latest innovation for Appassimento winemaking.

We've launched an efficient, economical and scalable system for drying cool climate wine grapes.

Vineland's patented vertical airflow technology (plenum) provides even airflow through grapes, ensuring consistent drying and minimized spoilage.

The system uses fresh air to provide optimal conditions for drying and offers lower up-front and operational costs.

The technology promotes higher density drying using reduced floor spacing compared to conventional methods. It is scalable in four-metric tonne increments by adding plenums as capacity needs increase. At the end of the drying season, plenums and control units can be removed as they are portable and stackable. To view the system's fact sheet, visit: https://tinyurl.com/y9oqddkn

With new innovation comes a new partnership. Beamsville-based Central Fabricating, ideally situated in Niagara's wine country, is a great technology partner. Their experienced staff can provide full service from pre-sale and installation to maintenance.

For more information, contact:
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**New Free-Air System for cool climate Appassimento winemaking operating at Big Head Wines.**

# Greening the Canadian Landscape: The Turf Story

Growing a healthy lawn means using the correct type of grass along with good care practices including cutting, feeding, aerating, seeding and watering. This turf will be less susceptible to pests and diseases and more resilient to weather events such as drought and extreme heat/cold.

"Our research shows new perennial ryegrass and tall fescue varieties have superior root systems to access water and nutrients more efficiently from the soil than traditional fescues and ryegrasses," said Michael Brownbridge, PhD, Vineland's Research Director, Horticultural Production Systems. "They also have an aesthetically-pleasing appearance similar to the popular Kentucky bluegrass."

In addition, some new cultivars harbour naturally-occurring endophytic fungi that produce alkaloids conferring higher levels of resistance against pests.

"The high alkaloid ryegrass, Natural Knit perennial ryegrass, Natural Knit tall fescue, and insect-resistant mixes incorporating high alkaloid ryegrass were found to be the most resistant against hairy chinch bugs. European chafer grubs also avoided feeding on the insect-resistant mixes," said Brownbridge.

**Correct grass variety + biocontrol agents = healthy lawn**

The Vineland team found when applied in late August/early September, two nematodes, *Heterorhabditis bacteriophora* and *Steinernema glaseri*, consistently provided 50 per cent control of European chafer. Later applications, or those in the spring, were ineffective. A new nematode, *Steinernema scarabaei*, is also showing promise.

The nematode *Steinernema carpocapsae*, rosemary oil and a sprayable formulation of the fungus *Metarhizium anisopliae* are effective against chinch bugs when used in July.

This research was supported by the Ontario Turfgrass Research Foundation, the Quebec-Ontario Cooperation for Agri-Food Research, Agricultural Adaptation Council, the Cosmetic Use Pesticides Research and Innovation (CUPRI) program, Landscape Ontario and the Canadian Ornamental Horticulture Research and Innovation Cluster (COHA).

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**New high endophyte-containing ryegrass (right) accesses water and nutrients more efficiently than the commonly used Kentucky bluegrass (left).**

# Biopesticides a Critical Tool for Greenhouse Growers

Plant treatments with biopesticides can prevent or mitigate root-borne diseases. Vineland is investigating the integration of biopesticides into production systems to improve plant resilience, enhance biological control and increase plant productivity.

Vineland's Plant Pathologist, Anissa Poleatewich, PhD, conducted three-year experiments starting in 2014 to evaluate the efficacy of 10 biopesticides on root pathogens *Pythium* and *Fusarium* but the research did not stop there. Biopesticides can also induce plant defences by activating the plant's "immune system". This led to the question as to whether induced defence responses make a plant more or less susceptible to pests. Increased resistance to pests improves pest control while increased susceptibility may require additional mitigation steps.

"We found biopesticide performance to be highly variable. Root rot was suppressed 40 to 80 per cent of the time. The top performing products used reduced root disease by 25 to 37 per cent and were more effective than traditional fungicides," said Rose Buitenhuis, PhD, Vineland's Research Scientist, Biological Control.

**Hydroponically-grown commercial tomato cultivars tested with different biopesticide treatments to the roots.**

Additionally, marked differences in the response of two-spotted spider mite and greenhouse whitefly were observed, varying according to the biopesticide applied. Spider mite and whitefly populations were 40 per cent lower on plants treated with biopesticides which also performed well against root pathogens.

"This research gives growers the information they need to successfully utilize biopesticides in managing key root pathogens," said Buitenhuis. "We also found all biopesticides increased root development and some enhanced defences in the above-ground portion of the plant, making it more resistant to pests."

Results of this three-year study were presented at two grower seminars in March 2017 with 70 per cent of attendees saying they would change their practices based on the information presented. The next steps in this project will assess these products for pest/disease suppression and the effects on plant performance.

This project was funded in part through *Growing Forward 2* (*GF2*), a federal-provincial-territorial initiative. The Agricultural Adaptation Council assists in the delivery of *GF2* in Ontario.

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# What's Happening at Vineland

## What's Growin' On Research Farm Open House 2017

Mark your calendar for What's Growin' On Open House Wednesday, July 26 at 6 pm at Vineland's Victoria Avenue Farm.

This is a great opportunity to learn about Vineland's latest horticultural research developments.

Registration on vinelandresearch.com will open in early June.

For more information, please contact Shelby VanderEnde at shelby.vanderende@vinelandresearch.com

**What's Growin' On 2016**

## Colours of the Summer Open House 2017

Colours of the Summer open house is back Thursday, August 10 from 1 to 3 pm. This free event will showcase bedding plant container trials with more than 200 unique vegetative and seed flower cultivars.

Location - The Potting Shed, Vineland Research and Innovation Centre 4890 Victoria Avenue North, Vineland Station

For more information, please contact Cathy Gray at cathy.gray@vinelandresearch.com

**Colours of the Summer 2015**

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