

Fall 2020

ccovinews

A newsletter from
the Cool Climate Oenology
and Viticulture Institute



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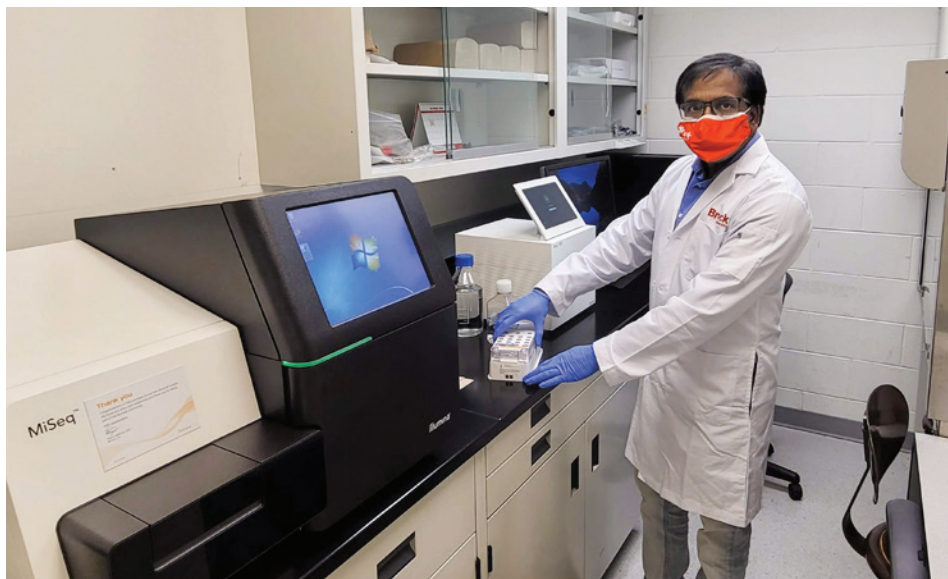
Brock University

CCOVI to co-lead \$6.2-million national research program supporting clean plant program for grapevines

A \$6.2-million multi-partner funding commitment will allow CCOVI to support the Canadian Food Inspection Agency (CFIA) and Canadian Grapevine Certification Network (CGCN-RCCV) to fast-track the certification of grapevine planting material as virus-free.

Under Genome Canada's Genomic Applications Partnership Program (GAPP), CLEANSEd (CLEan pAnt extraction SEquencing Diagnostics) is a jointly funded initiative between Brock, CFIA, CGCN-RCCV, University of Victoria, Université de Sherbrooke, Genome Canada, Genome BC, Genome Quebec, Ontario Genomics, Agriculture and Agri Food Canada (AAFC), Compute Canada, Conseil des vins du Québec and Illumina. CLEANSEd utilizes High-Throughput Sequencing (HTS) technology with improved sensitivity to simultaneously detect multiple viruses in a grapevine. This genomic-based solution would replace more than 30 tests currently being performed on grapevines to look for diseases. This one genomic test can speed up the release of virus-free grapevine material from three years to one year (or less), providing rapid access to valuable new varieties. CGCN-RCCV will use this genomic test for testing and monitoring domestically propagated vines, ensuring grape growers have faster and more affordable access to clean vines.

"This funding will allow grape growers to rapidly improve the health of their vineyards and boost the domestic capacity in the supply of much needed virus-free grapevine plant material in Canada," says CCOVI Senior Scientist Sudarsana Poojari, who is leading the academic team of scientists.



CCOVI Senior Scientist Sudarsana Poojari.

The end users of the research are CFIA and CGCN-RCCV, which will implement CLEANSEd to ensure that Canadian grapevines start clean and stay clean. CFIA ensures that grapevine imports, exports and new domestic grapevine varieties for commercialization in Canada are free of regulated viruses and all non-regulated viruses of economic concern, while CGCN will approve and commercialize CLEANSEd for testing grapevines in a national domestic clean plant program.

"The CFIA is pleased to co-lead this project that will implement genomic technologies in support of a leading-edge national 'clean plant' program and diagnostics at the Sidney Centre for Plant Health. The solid science of the project will help our grape growers to quickly access healthy plants of diverse new varieties, resulting in increased

production. Such approaches will be able to facilitate adaptation of Canadian and world agriculture to climate change," says Jaspinder Komal, Vice-President, Science Branch, CFIA.

The research is a collaborative effort between academia, government, and industry to tackle grapevine virus disease management, which has been identified as the top priority for long-term sustainability of the \$9-billion Canadian grape and wine industry. Grape growers currently lose an estimated \$23 million per year due to grapevine virus infections. In order to both replace infected material and maintain routine vine replacement and modest expansion, growers currently need access to an estimated 6.7 million affordable, virus-free vines.

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High cost and convoluted testing methods, however, are currently hindering the ability of growers to obtain those vines, says CGCN Vice Chair and grape grower Bill Schenck.

"As growers across the country continue to deal with viruses that effect crop quality and vine health, the timing could not be more perfect than now for this project," he says. "The industry needs to have a Canadian source of clean vines that have been tested for viruses, and a program that can show the vines are true to type."

He says this work will standardize and validate high throughput sequence (HTS) screening protocols, allowing it to be implemented into a clean grapevine program driven by the industry it benefits. Mike Rott, Receptor Project Leader and CFIA Scientist, says reducing the time and cost of testing, while at the same time improving sensitivity and accuracy

through CLEANSED, is "critical in a highly competitive international market."

Allowing growers to gain faster access to clean plant material, he adds, both advances the CFIA's import/ export mandate and allows Canadian growers to develop a made-in-Canada solution to a common goal.

"By working together, we are able to develop a complete, interlinked set of programs that ensures grapevines entering, propagated, sold, grown in Canada and exported, remain disease free."

CCOVI Director Debbie Inglis says this announcement is the culmination of three years of collaborative work to tackle this priority issue, including previously developed Memorandums of Understanding between CCOVI and AAFC, CFIA and CGCN to support a clean plant program for grapevines in Canada.

"We're always looking for rapid, sensitive

cost-efficient ways to prove that plant material is devoid from disease, and the application of this research is a milestone for Canada," she says. "Grapevine is leading the way for the first official clean plant program in the country, where we can be assured that the plants we're propagating and putting into the ground are free from disease."

Brock Vice-President, Research Tim Kenyon says that "CCOVI consistently brings together major stakeholders in the grape and wine sector to produce breakthrough policies, programs and services in the industry, generating major contributions to local and national economies.

"This significant grant from Genome Canada shows the confidence stakeholders place in CCOVI's leadership, research and innovation, one example being the leading-edge CLEANSED virus detection tool."

CCOVI research is helping Niagara vineyards

CCOVI Director Debbie Inglis, CCOVI Scientist Belinda Kemp, and Brock Assistant Professor Jim Willwerth recently completed a study on the impact that different grapevine leaf removal treatments have on Cabernet Franc and Pinot noir grapes and wine. Malcolm Lawrie, who owns the Niagara-on-the-Lake vineyard where the research took place, has now implemented CCOVI's findings into the canopy management strategy used for his sparkling wine grapes.

"For me, the trial is about helping growers see whether the practices in the field, when tested in a lab, are working the way they think," he says. "It's a challenge getting consistency in quality with annual weather variation and this type of research enables growers to better understand the effects of different techniques. It's really fascinating."

Leaf removal exposes the grapes to more sunlight, can help improve air circulation and the penetration of fungicides and insecticides, and improve flavour compounds, colour and bud fertility. In cool climate regions, removal of leaves in the fruit zone of the vine has also been shown to decrease disease and improve grape and wine flavour. Before CCOVI's study, however, there was limited research

that examined the impact of leaf removal on sparkling wine, something that was requested specifically by the local grape and wine industry. Many Canadian grape growers have also invested in mechanical leaf removal equipment in recent years, making the comparison between mechanical and by-hand removal another important component of the research.

A total of seven leaf removal treatments and one control (where no leaves were removed) were investigated in the vineyard during the study. Researchers then examined the impact that the timing, severity and method of removal had on the chemical and sensory differences exhibited in the wines made from those grapes. The study found that hand-removing 33 per cent of the leaves throughout the grapevine canopy when the grapes begin to form into clusters (known as bunch closure) provided the most benefit to Lawrie's sparkling wine grapes. By removing about a third of the vine's leaves, the treatment allowed for photosynthesis to still ripen the grapes, while also minimizing the presence of certain phenolic compounds that are less desirable in sparkling wine. The result is a healthy and productive vine that produces grapes which are perfectly suited for sparkling wine.



CCOVI's leaf removal research findings are being implemented at a N-O-T-L vineyard.

Kemp says the research will help grape growers tailor their grapevine canopy management strategy to each particular type of grape and wine style and will ultimately benefit the entire grape and wine value chain.

This research is part of a larger project, 'Adaptation and Innovation: An integrative research program to improve grapevine health, wine quality, competitiveness and sustainability of the Canadian wine grape industry.' It is supported by a Natural Sciences and Engineering Research Council of Canada (NSERC) Collaborative Research and Development (CRD) Grant, Ontario Grape & Wine Research Inc (OGWRI), as well as in-kind contributions from industry partners.

WHAT'S HAPPENING AT CCOVI

CCOVI postpones Triggs Lecture Series to 2022



Vaughn Bell, Senior Scientist at the New Zealand Institute for Plant and Food Research, pictured, was the international viticulture expert for the 2019 Triggs Lecture Series.

CCOVI has made the difficult decision to postpone its biennial Triggs International Premium Vinifera Lecture Series until 2022 due to the COVID-19 pandemic. As August is the most optimal time to be in the vineyard discussing viticulture topics, the goal is to hold the event in August of 2022.

Barb Tatarnic, CCOVI's Outreach Manager, says delaying the event will ensure the availability of an international speaker as well as a safe environment in which to host the same high-quality, educational networking experience the industry looks forward to every two years.

"While we are disappointed that we will not be able to bring our industry together to learn from our expert speakers, we continue to put everyone's health, safety and networking ability above all else. We can't wait to welcome you all back to learn between the vines together again soon."

The Series began in 2004 thanks to a generous endowment from industry leaders Donald and Elaine Triggs and takes place every other year in vineyards in Niagara and British Columbia.

Continuing Education Courses

Cider & Perry Production- Foundation (online)
February 10 - May 26

Certificate in Ontario Wines (online)
February 12 - March 19

WSET Level 1 Award in Wine (online)
January 11 - February 7
February 22 - March 21

WSET Level 2 Award in Wine (online)
January 11 - February 14
January 25 - February 28
February 1 - March 7
February 22 - March 28

WSET Level 1 Award in Spirits (online)
January 11 - February 7

WSET Level 2 Award in Spirits (online)
January 11 - February 14

CCOVI gets funding boost for Cuvée 2020 Online Experience

The Cuvée 2020 Online Experience has received \$11,000 in funding support from the provincial government's Celebrate Ontario program.

In 2020, the Celebrate Ontario grant supported festival and event organizers with events that had to be rescheduled, postponed or reprogrammed in light of the pandemic. Cuvée gained its support due to its ability to quickly pivot and provide both a unique experience for its guests, as well as a platform to showcase and support the grape and wine industry.

As they were unable to host the in-person gala this year, Cuvée organizers launched an online platform that featured 48 wineries, 12 culinary partners and headline band Jonesy. More than 1,300 online visitors tuned in to the online programming, and the "Winemakers' Favourites" videos featured on the platform gathered more than 900 views on YouTube.

Cuvée Manager Barb Tatarnic says the grant support solidifies the important role that events like Cuvée play in supporting students, the grape and wine industry, and the provincial economy.

"This funding supported us in the development of a fun and innovative platform to safely celebrate excellence in VQA winemaking in the face of the unprecedented challenges presented by COVID-19," she says. "Every year, Cuvée highlights the talents of our amazing grape and wine community. In 2020, it also showcased that industry's extraordinary capacity for passion, resilience and fortitude, while giving us the ability to connect with one another — even if only virtually — which is so important right now."



CCOVI Director Debbie Inglis says that "we are grateful that we could develop an innovative way to still host Cuvée in 2020. This funding support is a testament to the hard work done by our event organizers, the value our guests place in Cuvée, and its contribution to supporting the province's thriving grape and wine industry."

Please visit cuvée.ca and follow @cuvéeandtasting on social media for more information.



Future Vineland winery to support Brock OEVI students



Robert Harold (OEVC '20), right, and Steven Trussler, CCOVI Senior Lab Instructor, stand among the grape-growing vines that Hanck Vineyards will be donating to Brock's OEVI program.

A group of Brock University graduates is fulfilling the dream of adding a boutique winery to their vineyard operation — helping out students in the process.

Spouses Robert (OEVC '20) and Liz Harold (BA '12), along with Tracey Schenck (MA '16) and her husband Joe Schenck (also Liz's brother), currently own and operate Hanck Vineyards in Vineland on the Twenty Mile Bench. The group planted their first vines in 2004 and began exploring the art of winemaking a few years later, with plans to open their own boutique winery in Summer 2021.

As their way of giving back and supporting those who share their passion, the team has dedicated two rows of their Gewürztraminer grapes to be used by students in Brock's Oenology and Viticulture program.

Steven Trussler, Senior Lab Instructor for Brock's Cool Climate Oenology and Viticulture Institute (CCOVI) and one of Robert's former instructors, says an important mandate for the program and the research institute is to strengthen industry connections through partnerships like this one.

"We're always so happy to see our graduates succeed in their careers after

leaving our programs," he says. "Not only are they launching an amazing new venture, but they're also giving back to the next generation of grape growers and winemakers and continuing to build a great network of Brock alumni within our industry."

Robert says he enrolled at Brock to expand his education and gain more confidence in the vineyard.

"I learned that viticulture and winemaking is both an art and a science and Brock taught me to look holistically from the vineyard to the final product in the bottle," he says, "They also taught me to be focused, optimistic and patient from vintage to vintage. I now have a deeper understanding of the viticulture and winemaking continuum — that's all thanks to the world-class faculty, staff and instructors at Brock."

Robert and the team would also like to utilize the research and outreach programs offered by CCOVI to support their operations in the future.

"There's so much expertise at Brock," Robert says.

PUBLICATIONS & BRIEFS

- Kelly, J.M., Inglis, D.L., and Pickering, G.J. 2020. Sensorial and volatile analysis of wines made from partially dehydrated grapes: An Ontario case study. Accepted to Journal of Food Quality, Dec. 1, 2020.
- Hébert-Haché A, Inglis D, Kemp B and Willwerth JJ. 2021. Clone and Rootstock Interactions Influence the Cold Hardiness of *Vitis vinifera* cvs. Riesling and Sauvignon blanc. American Journal of Enology and Viticulture 72. Accepted November 3, 2020.
- Baozhong Meng, Diaz-Lara A, Klaassen V, Stevens K, Sudarshana MR, Rowhani A, Maree HJ, et al. 2018) Characterization of grapevine leafroll associated virus 3 genetic variants and application towards RT-qPCR assay design. PLoS ONE 13(12): e0208862. <https://doi.org/10.1371/journal.pone.0208862>
- Huogen Xiao, Caihong Li, Maher Al Rwahnih, Valerian Dolja, and Baozhong Meng. Metagenomic Analysis of Riesling Grapevine Reveals a Complex Virome Including Two New and Divergent Variants of Grapevine leafroll-associated virus 3. <https://doi.org/10.1094/PDIS-09-18-1503-RE>
- Huogen Xiao, Mehdi Shabanian, Clayton Moore, Caihong Li and Baozhong Meng. Survey for major viruses in commercial *Vitis vinifera* wine grapes in Ontario. <https://doi.org/10.1186/s12985-018-1036-1>
- Mehdi Shabanian & Huogen Xiao & Baozhong Meng. Seasonal dynamics and tissue distribution of two major viruses associated with grapevine Leafroll under cool climate condition. <https://doi.org/10.1007/s10658-020-02137-z>

PRESENTATIONS

- Kemp, B. (2020) Making sparkling cider. Cider & Perry Production: Carbonation. Cider Institute of North America (CNIA). 22nd September 2020. (Online presentation).
- Kettle, Keri and Antonia Mantonakis (October, 2020), "Look for the Signature: Personal Signatures on Marketing Stimuli affect Preference." Association for Consumer Research Conference, Paris, France (Virtual Conference).
- Inglis, D.L. (2020). The Brock University Retirees Association Wine Tasting: A sampling across the Niagara Region. September 29, 2020. (Online presentation).
- Inglis, D.L. (2020). CCOVI Director's Report on Activities since May 2019. September 16, 2020. CCOVI Executive Committee. (Online presentation).
- Inglis, D.L. (2020). CCOVI: A year in review: Fiscal 19/20. November 5, 2020. CCOVI Executive Committee. (Online presentation).
- Inglis, D.L. (2020). CCOVI: A year in review Fiscal 19/20; Grant Programs Update Present and Future; COVID 19 and the Impact on CCOVI Activities. November 30, 2020. CCOVI Advisory Council. (Online presentation).