



December 2, 2021

The next round of Federal funding under the Canadian Agricultural Partnership (C.A.P.) program is set to commence in spring 2023. The structure of this program is anticipated to be consistent with the last round of funding which follows the National Cluster model administered through the Canadian Grapevine Certification Network (CGCN). Between 2018 – 2023 the BCWGC contributed slightly less than \$1,000,000 towards research conducted under the CAP program; these funds were leveraged an average of 3.2:1 by the federal government and enabled the BCWGC to meet its mandate to coordinate, facilitate, and fund research and education on viticulture and enology.

High-level priorities for the 2023 – 2028 CAP funding program are as follows:

CLIMATE CHANGE & ENVIRONMENT [30 40%]

AgriScience renewal could prioritize areas that address climate change and environmental sustainability, to position the sector in contributing to the Government of Canada's 2030 and 2050 targets. This would focus on GHG emissions reductions and carbon sequestration, as well as other environmental areas including soil health, water quality, air quality, biodiversity, and plastics.

ECONOMIC GROWTH [40 50%]

AgriScience renewal could help to drive an ambitious approach to investments targeting economic growth, including:

- Focus on emerging technologies to address labour challenges, create more value-added products, and increase productivity.
- Research to improve productivity, develop new or improved product attributes and production systems.
- Proposal selection will consider: treatment of emerging sectors vs established commodities; participation of value chain partners; and potential impact relative to cost.

SECTOR RESILIENCE [20%]

AgriScience renewal could prioritize areas and include undertaking research aimed at improving sector resilience in response to market and societal pressures, including mental health.

The requirement for submission is expected to be similar to how it was conducted in the past, requiring the formation of a Science Advisory Board (for each cluster) to oversee the project selection and execution, as well as peer review of each submission. Each province will collect and approve submissions through their own funding body (e.g. BCWGC), independently and these will be grouped into a national cluster package which will be submitted.

In some cases, collaboration between researchers across the country will make sense and be encouraged, although this is not the general expectation. However, we will ask that all applicants touch base with their colleagues in central and eastern Canada to make sure we do not submit very similar projects from both BC and other provinces.



CALL FOR PROPOSALS AND APPLICATION SUBMISSION TIMING:

The overall CAP submission is expected to be due summer 2022, so the timeline for us is as follows:

October and November 2021: Priority setting

December 2021: Call for Letters of Intent (LOI)

January 15, 2022 – Deadline for researchers to submit Letters of Intent (LOI). LOI should include:

- ✓ Abstract
- ✓ Background
- ✓ Project Overview
- ✓ Project Participants
- ✓ Project Anticipated Timeline
- ✓ High-level Project Budget

February 15, 2022 – Proposal short list created, and feedback submitted to researchers

March 15, 2022 – Full proposals received.

The R&D Screening Project Committee will rate proposals based on their:

- ✓ Relevance to the industry
- ✓ Quality of the research proposed
- ✓ Possibility for success
- ✓ Value relative to the funding requested.

Criteria for review:

- ✓ Priority to industry needs
- ✓ Similar projects that may be happening concurrently.
- ✓ Applicability to our mainland British Columbia grape & wine industry
- ✓ Other funding partners.
- ✓ How quickly project results can be implemented within the industry.

April 15, 2022 – Final list of accepted BC proposals submitted to CGCN. Notice provided to successful researchers.

Attached is the priority list compiled from R&D Committee meetings hosted in October and November 2021. Researchers are invited to submit Letters of Intent to pursue projects that align with the C.A.P. funding priorities listed above and meet the BCWGC R&D priorities listed below. **LOI's should be submitted to info@bcwgc.org by January 15, 2022**

***Note – LOI's must be submitted by an accredited research facility, educational institution or consulting group and should not be submitted by private for-profit corporations seeking to commercialize their technology. Private:Public partnerships are welcome but the Letter of Intent should be submitted by the researcher directly.**



British Columbia Wine Grape Council Research Priorities for the Federal Canadian Agricultural Partnership (C.A.P.) 2023 – 2028.

The main headers below represent priority themes for the BC wine and grape industry. Project topics are listed below each theme and can support research in both viticulture and enology that are relevant to the theme.

Climate Change Impacts and Mitigation Strategies

a) Research related to extreme heat and plant stress:

- Impact on biological controls such as biofungicides and beneficial insects
- Using bio-stimulants to help protect and recover from heat stress
- Aromatic impacts on wine from dehydration and early season frost
- Rootstock research – looking for increased drought tolerance
- Nutrient uptake, size of root-zone
- Tolerance to soil borne pests and alkalinity
- Mycorrhizae and Trichoderma sp.
- Syrah decline management
- Use of ground cover and sprinkler irrigation for vineyard cooling with the goal of protecting vine/soil health and obtaining yield/quality targets. Reduce **berry softening**.

b) Biovigilance strategies to develop resilience to extreme weather - IPM

c) Using of organic and sustainable amendments for as a tool for enhancing resilience to climate change and enhancing yield stability.

Continuation of Cold damage resistance and hardiness improvement

a) Influences of vine health and management practices on hardiness and impacts (virus, crown gall, crop load etc.)

b) Plant protection techniques (physical and chemical).

c) Suppression of ice nucleating bacteria for frost reduction (*Pseudomonas syringae*)

d) Measurement of stored carbohydrate (simple sugars and oligosaccharides) reserves in woody tissue. Potential cryoprotectant effect.

Biovigilance:

a) Support monitoring, modelling, and education for new emerging pests and potential new threats not yet present in BC vineyards.

Smoke taint prevention and mitigation:

a) Smoke-taint mitigation - post-harvest processing and post-fermentation

b) Smoke-taint prevention and risk factors (in vineyard).



Smoke taint detection:

- a) Smoke taint detection-improvements to existing analysis procedures
- b) Benchmarking concentrations of smoke marker compounds in the Okanagan
- c) Development of a rapid, field-usable risk assessment tool.

Smoke-taint research:

- a) Consumer smoke taint identification studies/trials. Identification of sensory threshold(s) for different segments of consumers. [This is a good idea; could also include studies on how varietal characteristics (or their loss) influence perception of taint].
- b) Basic plant biochemistry--how are smoke-derived phenols chemically trapped in-planta?
- c) Varietal susceptibility

Robotics and New Technologies for:

- a) Disease, pest and weed detection and management
- b) Multi and hyper spectral imaging for vineyard Codiagnostics (GIS)
- c) Estimating aromas and wine quality
- d) Sensory analysis of wines
- e) Continuation of GIS projects

Insect Pest management

- a) Leafhoppers, cutworm, mealybug and scale (bio-controls, organic control, soft chemical controls, and vegetation management). Cultural practices to enhance natural biological controls through vineyard ground cover, insectaries; greater understanding and use of native biological control agents
- b) Assessment of existing IPM practices, and development of more effective IPM practices for improved virus vector management (monitoring, chemical controls, biological control and secondary impacts).
- c) Investigate possible relationship between Volatile Organic Compounds emitted by grapevines and attraction of insect pests (leafhoppers, cutworms, etc.) for the potential of *attract and kill* application.
- d) Research on biodegradable vaccines that protect crops from pathogens including insect pests

Disease management

- a) Crown gall:
 - Developing primers and protocols to include crown gall (*Allorhizobium vitis*) in High Throughput Sequencing (HTS) diagnostics of grapevine viruses.



- Investigate and potentially develop Crown Gall biocontrol options.
 - b) A single diagnostic test for serious pathogens in plant material
 - c) **Continuation of virus and disease research including:**
 - Clean plant program (free of: virus, crown gall, and trunk and root pathogens)
 - Sustainable and organic controls
 - Application of molecular and genomics tools for diagnostics and forecasting
 - Disease impacts on wine quality (virus, powdery mildew, rots)
 - Virus diseases, especially leaf roll (economics, elimination planning)
 - Trunk diseases (prevention, cultural management)
 - Fungal diseases (risk modelling)
 - New and emerging diseases
 - d) Evaluating biocontrol fungicides (such as Serenade opti - *Bacillus subtilis* and Serifel, *Bacillus amyloliquefaciens* MBI600) colonization, efficacy, resiliency under varying temperature and humidity conditions; alone and in common tank mixes, application timing and spray intervals
 - e) Research on biodegradable vaccines that protect crops from virus and disease related pathogens
- Vegetation management**
- a) Herbicide alternatives (in-row cover cropping, cultivation, mulching, mowing), impacts on wine quality
 - b) Impacts on beneficials, soil fertility and soil microbial ecosystems
 - c) Impact of vegetation management on fungal diseases and sour rot
 - d) Impacts on microclimate and fruit quality
- Vine balance and canopy management**
- a) Effects on fruit maturation and compositional quality (timing and level of crop adjustment, leaf removal, shoot positioning, hedging, etc., with and without water stress)
- Soil Health, Ground Cover and Vine Nutrition**
- a) Carbon sequestration
 - b) Soil compaction and physical limitations
 - c) Biodiversity, generating diversity pockets or corridors, role of native species
 - d) Better mowing decisions for vineyard floors to maximize cover crop (native or seeded) root development, soil conditioning, and carbon sequestration
 - e) Nutrient diagnosis tools, leaf vs blade and timing of sampling, understanding types of petiole analysis including how best to manage fertilizer input. Plus, potential value



of sap analysis and/or SPAD (Soil Plant Analysis Development) chlorophyll meter –
To enhance understanding actual vine nutrient status including factors affecting
nitrogen metabolism. and fine tune fertilizer practices.

- f) Foliar vs fertigation vs soil application
 - g) Organic sources of nutrients and their efficacy and management, nutrient management and ground cover interactions, synergies among nutrients and impact of balance nutrients on resilience of vineyards
 - h) Subsoil feeding as a tool for enhancing vineyards resilience
 - i) Greater understanding of vine nutrition including how to effectively balance long-term plant health while optimizing yield. This could include variable rate fertilizer application to increase intra-block uniformity.
 - j) Potential herbicide alternatives (under-vine cover crops, cultivation, mulching, mowing, non-glyphosate herbicide options). Impacts on soil health and wine quality.
- Enology**
- a) Organoleptic influence of nearby vegetation and atmosphere
 - b) Indigenous yeast isolation and characterization