



# BC Wine Grape Council

PO Box 1089 Stn. Main Penticton BC V2A 6J9

Tel: 250-809.7107

Email: [info@bcwgc.org](mailto:info@bcwgc.org) Website: [www.bcwgc.org](http://www.bcwgc.org)

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## British Columbia Wine Grape Council Research Priority Framework

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- Sustainability**
  - Conservation and sustainability in the vineyard ecosystem and winery (air, water, energy, etc.)
  - Sustainable Wine Growing BC - certification and program enhancement
  - Ecosystem services and the monetary and non-monetary evaluation of Ecosystem services
- Pest management**
  - Leafhoppers, cutworm, mealybug and scale (bio-controls, organic control, soft chemical controls, and vegetation management).
  - Virus vector management (monitoring, chemical controls and secondary impacts)
  - New emerging pests (e.g. marmorated stink bug)
- Disease management**
  - 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
- Vegetation management**
  - Herbicide alternatives (in-row cover cropping, cultivation, mulching, mowing) impacts on wine quality
  - Impacts on beneficials, soil fertility and soil microbial ecosystems
  - Impact of vegetation management on fungal diseases and sour rot
  - Impacts on microclimate and fruit quality
  - Bio-control of weeds (field bind weed (morning glory), quack grass etc.)
- Soil, Nutrients and Water Management**
  - Tailored to soil types and challenges (fine vs coarse textured soils, high pH soils, tractor disease, compaction, vineyard age), options for automation
  - Tailored to selected rootstocks
  - Impacts on wine sensory quality (e.g. N effects on vegetative aromas)
  - Impacts on anthocyanins of water stress before and after veraison
  - Impacts on flavour components of water stress before during and after veraison
  - Management to reduce berry/juice pH
  - Vine nutrition impacts on winery nutrient management
  - Soil amendments and health promoting products effect on grape productivity and quality

- Subsoil C and N dynamics on vine overall health
  - Soil health measurements, field toolkit development and its monitoring for long-term productivity, profitability and environmental sustainability
  - pH adjustment in high pH soils; impact on wine sensory attributes?
  - Wine stability and crystal formation - How is calcium contributing to crystal formation in wine? Are there tactics that can be implemented in the vineyard to mitigate calcium tartrates in wine? The pH shift; how does removing water stress support pH challenges; vineyard strategies for pH management.
  - Relationship of soil ecosystem (tilth, microbiology, organic matter etc to wine yield and composition.
  - Factors affecting the management, development, and maintenance of the soil ecosystem.
- Vine balance and canopy management**
- Effects on fruit maturation and compositional quality (timing and level of crop adjustment, leaf removal, shoot positioning, hedging, etc. with and without water stress)
  - To mitigate seasonal weather extremes (extreme cool vs warm seasons)
- Cold damage resistance and hardiness improvement**
- Influences of vine health and management practices on hardiness and impacts (virus, crown gall, crop load etc.)
  - Plant protection techniques (physical and chemical)
  - Suppression of ice nucleating bacteria for frost reduction
- Terroir impacts and climate adaptation**
- Influences of terroir on vine development and fruit quality components (e.g. tannins, flavor and aroma)
  - Long-term climate change impacts
- Smoke taint assessment**
- Development of markers to support base-line GIS mapping
  - Understanding smoke-taint variables (exposure duration and temperature, location, grape maturity, fire proximity, weather patterns, etc.)
  - Grape varietal susceptibility
  - Monitoring, detection and mitigation strategies
  - Impacts and benefits of ash removal through fruit washing
  - Understanding how compounds change over time – from early production to bottle maturity
- Enology**
- Optimizing nutrient use in the winery (e.g. to prevent stuck fermentations)
  - Management of acidity and pH (wine stability, quality improvement)
  - Role of amino acids in fermentations
  - Spontaneous fermentations
  - Indigenous yeast isolation and characterization
  - Co-inoculations to achieve simultaneous primary and malolactic fermentations, and management of diacetyl production
  - Rapid, inexpensive tests for wine composition.
- Waste management education**

- Biomass recovery, means of dealing with winery waste
- Recyclable materials and the challenges of dealing with them; how to convert them to a recyclable state
- Proper handling of waste and waste materials
- Waste water management

**Technology, tools and engineering**

- Drone and robotic technologies
- Automation
- Analysis technologies
- Labour saving devices
- Crop estimation

**Economic Review and Analysis**

- Analysis and interpretation of the economic impact of BCWGC Research & Development projects