

Plain Language Research Summary - AgriScience Grape & Wine Cluster 2023-2024

Activity 9: Influence of temperature and heat-stress mitigation strategies on grape quality in British Columbia vineyards

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1. What is the overall focus of this research activity?

This project aims to assess the effects of heat stress on grape production and on developing new strategies to mitigate heat stress effects in vineyards. We will elucidate whether varying irrigation levels influences the response to a heatwave in Okanagan Valley vineyards and study the capacity of bio-stimulants and an anti-transpirant to mitigate heat stress and heatwaves in vineyards. We will also assess how eight major grape cultivars grown in BC are susceptible to heat stress and which cultivars better recover from heat stress. Finally, we will conduct a regional-scale study of temperature effects on grape quality (sugars, acids, and aroma) in the Okanagan Valley, and model optimal environmental conditions for grape quality.

2. What are the main progress updates/milestones in terms of work that was done on this research activity this year?

This year we established the contacts with industry partners and selected potential vineyards where to conduct the experiments. We have also ordered new, virus free plant material for the experiments in controlled environments. We started the knowledge transfer activity by presenting our research plan to the BC wine industry and community, and to the international scientific community.

3. What is this research activity's intended impact on the Canadian grape and wine industry? What benefits could/will the growers, wineries, consumers, etc. see as a result of this research?

This study will allow us to identify the effects of heatwaves on canopy function (photosynthesis and transpiration) and grape quality and to assess the impact of irrigation regimes on heatwave effects. The study will also assess the sensitivity of BC grape cultivars to heatwave events and

the impact of climate-change mitigation strategies on grapevine canopy function and grape quality in major grape cultivars cultivated in BC.

We will also model the effects of temperatures on grape quality. These models will allow us to make future predictions for the regional suitability and quality of aromatic cultivars. This information may also be useful to aid growers in seasonal management decisions.

- 4. Do you have any communications materials, publications, or other content related to this research activity that you would like CGCN-RCCV to share? If so, please provide a brief description here and either link it here or send the file as an attachment along with this summary.**

We presented results related to this project to the BC wine industry and community and at international conferences. These presentations cannot be shared at the moment as results are preliminary and publications have not been finalized.