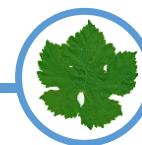


# Summerland Research & Development Centre Wine Grape Research



## Grapevine Bud Hardiness Testing

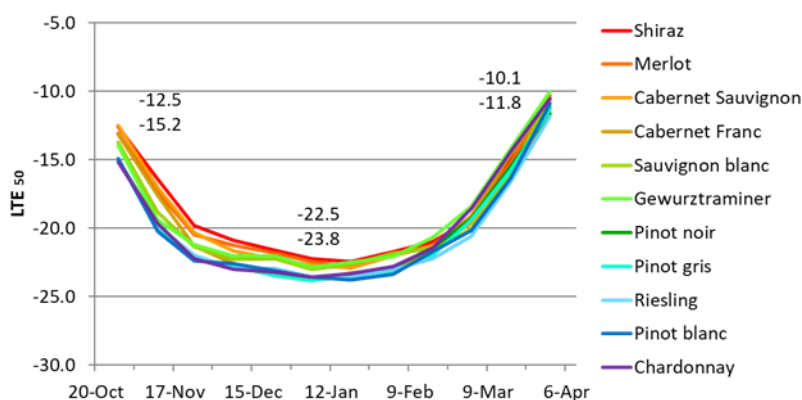
*Carl Bogdanoff, Summerland Research & Development Centre, Agriculture & Agri-Food Canada*

### THE HARDINESS TESTING PROGRAM

Every two weeks grapevine buds from 71 vineyard sites located throughout the Okanagan Valley are tested for hardiness. This involves coordinated visits to each site for collection of budwood samples from pre-tagged vines, followed by immediate delivery to Summerland RDC for testing. Because bud hardiness is affected by temperature exposure, timing of the collection and delivery is critical. Viticulturists from Sebastian Farms and Arterra do much of the collection and delivery to the Centre, and the rest is

collected by our research team. Upon delivery, the buds are dissected from the canes and placed on temperature-monitoring (peltier) trays, to be cooled in specialized freezers. Cooling to sub-lethal temperatures is done gradually, overnight, to imitate a natural freeze event. When the buds freeze, the lethal temperature exotherm (LTE) is detected by the peltier trays and recorded. The following day the LTE data are analyzed to determine the temperatures at which 50% of the buds in each sample froze (LTE50), and the results for 15 cultivars in 13 regions are tabulated and distributed to the industry. The bud hardiness data acquired from our testing program over the last six years is being used to develop a model that predicts hardiness based on prior temperature exposure. The model will allow growers to predict hardiness from temperatures monitored in their own vineyard.

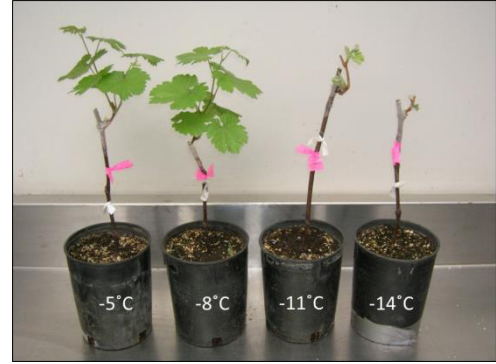
2012 – 2017 Varietal Bud Hardiness in the Okanagan Valley



Average seasonal bud hardiness for 11 wine grape varieties grown widely in the Okanagan Valley. Varieties are listed in order of least to most hardy during the November – December period.

## OUR CURRENT GRAPEVINE HARDINESS RESEARCH

Our current research is focused on understanding how vine management influences grapevine hardiness. Based on our previous research, which revealed the hardiness-promoting effect of the stress hormone abscisic acid (ABA), we are determining whether the timing of water stress events during the growing season influences the hardiness of buds, phloem, and roots. We are also continuing to research the influence of rootstocks on hardiness, as well as developing methods to protect the trunk and shallow roots of young vines from cold damage. In a collaborative effort, Summerland RDC wine grape researchers (Bogdanoff, Bowen, Lowery, Úrbez Torres, and Usher) are also assessing the effects of vine diseases and nutrient management on hardiness.



Young vines (Merlot/3309) after cold treatments

## FUNDING



Agriculture and  
Agri-Food Canada

Agriculture et  
Agroalimentaire Canada



Canadian Grapevine Certification Network

**CGCN · RCCV**

Réseau canadien de certification de la vigne