

Kentville Research & Development Centre (KRDC) – Nova Scotia wine grape bud hardiness 2019/2020 Report no. 3: December 9 - 10

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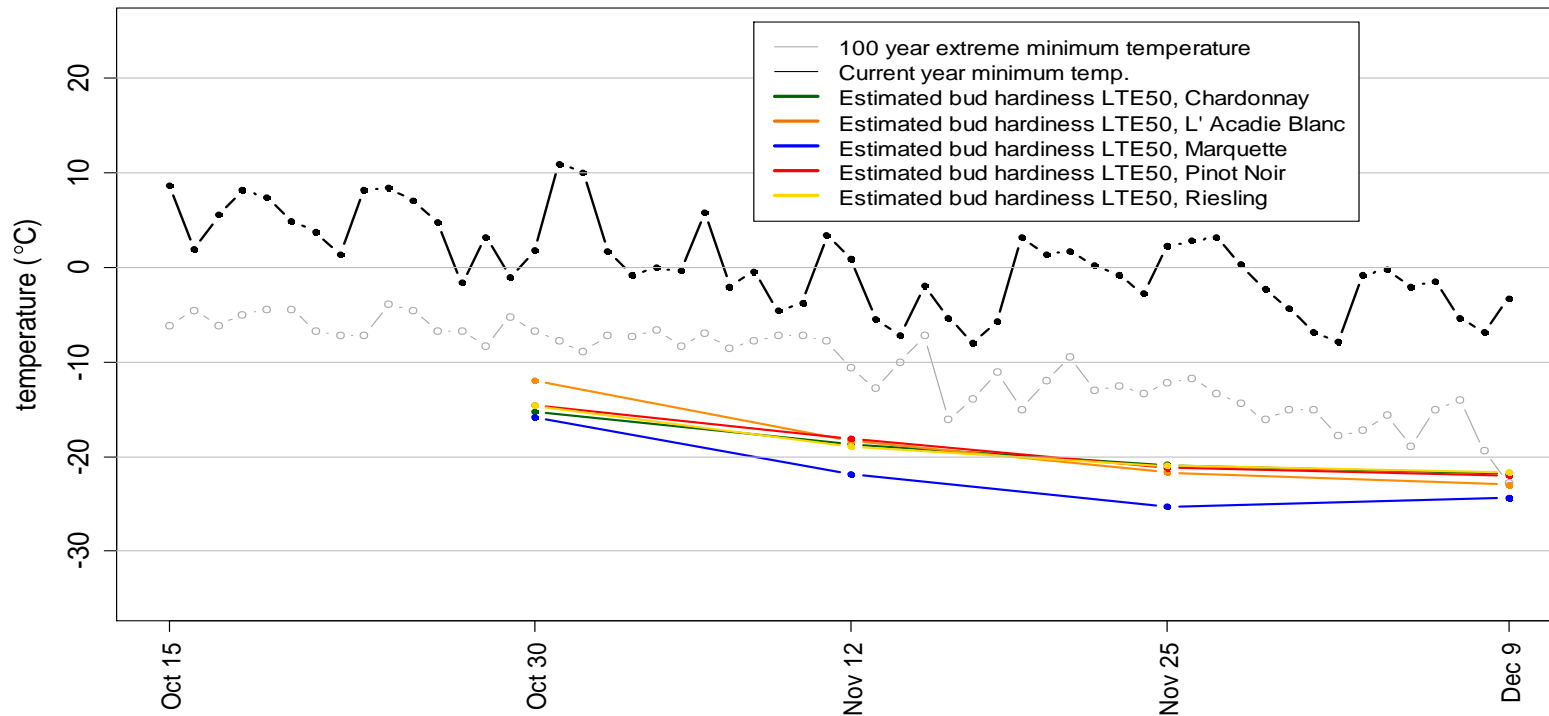


Figure 1. Plot showing the LTE50 values for the core wine grape varieties as well as recent and historical minimum temperature trends.



Current biweekly report

Most bud hardiness values have continued to drop but recent temperature trends have slowed the acclimation rate considerably in comparison to other years. This is probably due to average temperatures, for the first 10 days of December, being approximately 3 °C warmer than normal. This trend is not likely to continue for much longer but forecasts call for this to continue through the weekend. Of particular interest is the hardiness value for Marquette as our estimates show it de-acclimating by almost a degree. Last year we observed a similar response in this variety in December and January. Although Marquette is considered to be a very hardy variety, it may be sensitive to the cyclic temperature trends that we are currently experiencing.

Table 1. LTE10, LTE50 and LTE90 average values (°C) for core (measured biweekly) and additional (measured three times per season) wine grape cultivars and sites for the current and up to four previous reporting periods

Core cultivars and sites	October 28 – 29 [†]			November 12 – 13			November 25 - 27			December 9 - 10			LTE10	LTE50	LTE90
	LTE10	LTE50	LTE90	LTE10	LTE50	LTE90	LTE10	LTE50	LTE90	LTE10	LTE50	LTE90			
‘Chardonnay’ (5 sites)	-12.8	-15.3	-17.0	-15.0	-18.7	-20.5	-17.8	-20.9	-22.8	-18.5	-21.8	-24.4			
‘L’Acadie Blanc’ (6 sites)	-10.5	-12.0	-14.4	-14.4	-18.3	-20.5	-19.5	-21.7	-23.9	-20.1	-23.0	-27.0			
‘Marquette’ (3 sites)	-13.5	-15.9	-21.0	-17.5	-21.9	-24.2	-23.0	-25.3	-28.1	-19.5	-24.4	-29.0			
‘Pinot Noir’ (3 sites)	-11.7	-14.6	-17.2	-15.5	-18.1	-19.8	-16.5	-21.2	-23.2	-17.2	-22.0	-23.7			
‘Riesling’ (5 sites)	-12.1	-14.6	-17.5	-16.2	-18.9	-20.9	-17.2	-21.0	-22.4	-17.1	-21.7	-25.1			
Additional cultivars and sites															
‘Baco Noir’ (2 sites)							-20.8	-22.4	-24.2						
‘Chenin Blanc’ (1 site)							-15.5	-19.0	-20.8						
‘Geisenheim’ (2 sites)							-19.8	-21.4	-23.5						
‘Lucie Kuhlman’ (2 sites)							-20.2	-22.6	-25.1						
‘Leon Millot’ (2 sites)							-21.4	-22.4	-24.8						
‘New York Muscat’ (2 sites)							-19.9	-22.7	-24.3						
‘Ortega’ (2 sites)							-16.5	-21.0	-22.5						
‘Pinot Gris’ (2 sites)							-19.2	-21.1	-23.0						
‘Sauvignon Blanc’ (3 sites)							-17.5	-20.1	-21.7						
‘Seyval Blanc’ (2 sites)							-19.0	-22.3	-23.8						
‘Vidal Blanc’ (2 sites)							-18.1	-20.6	-22.4						

[†] All data for the October 28 – 29 sample were taken from the KRDC research vineyard.



Research report description

The Nova Scotia wine grape bud hardiness survey generates a biweekly report of the low temperature exotherm (LTE) values over the dormant period (roughly from late October to late April). The LTE is the temperature (°C) at which a bud freezes and is killed: LTE10, LTE50 and LTE90 values denote the temperatures at which 10%, 50% and 90% of the viable buds freeze. The LTE values for a given variety and site are generated using five canes obtained from five vines; the compound buds from nodes 3 through 7 from each cane are measured via differential thermal analysis (DTA). It is important to note that the LTE value denotes a bud's susceptibility to acute, cold temperature damage; it does *not* necessarily reflect the bud's susceptibility to dehydration, poor vine health and other more chronic forms of stress that can result in bud mortality at temperatures above the LTE values.

Each report includes: (1) a plot showing the median LTE50 values for a basket of hybrid and vinifera wine grape cultivars averaged over several sites located in Kings, Annapolis, Digby and Lunenburg counties as well as recent and historical minimum temperature trends (Figure 1); (2) comments on the current reporting period; (3) a table of LTE10, LTE50 and LTE90 values for the same cultivars shown in Figure 1 plus the LTE values for additional cultivars monitored with less frequency throughout the dormant period (Table 1). This report is produced by the KRDC Plant Physiology Program. Funding for this work is through an AgriScience Program Cluster project (J-001930, "ASC-12 Grape Wine Cluster Activity 7 - Grapevine evaluation and cold hardiness program to ensure superior plant material for the Canadian Grapevine Certification Network and to improve the sustainability of the Canadian Grape and Wine Industry"). If you have any questions or comments, please feel free to reach out to the KRDC Plant Physiology Program using the contact information listed above. This report, and others, can be found on the Canadian Grape Certification Network (CGCN) webpage: <https://www.cgcn-rccv.ca/site/home>.

Her Majesty the Queen in Right of Canada, represented by the Minister of Agriculture and Agri-Food (2019).