

Kentville Research & Development Centre (KRDC) – Nova Scotia wine grape bud hardiness 2018/2019 Report no. 7: January 23 - 25

Prepared by Jeff Franklin (jeff.franklin@canada.ca) and Dr. Harrison Wright (harrison.wright@canada.ca), Plant Physiology Program, KRDC, Agriculture and Agri-Food Canada (AAFC) / Government of Canada; 32 Main St, Kentville, Nova Scotia, B4N 1J5.

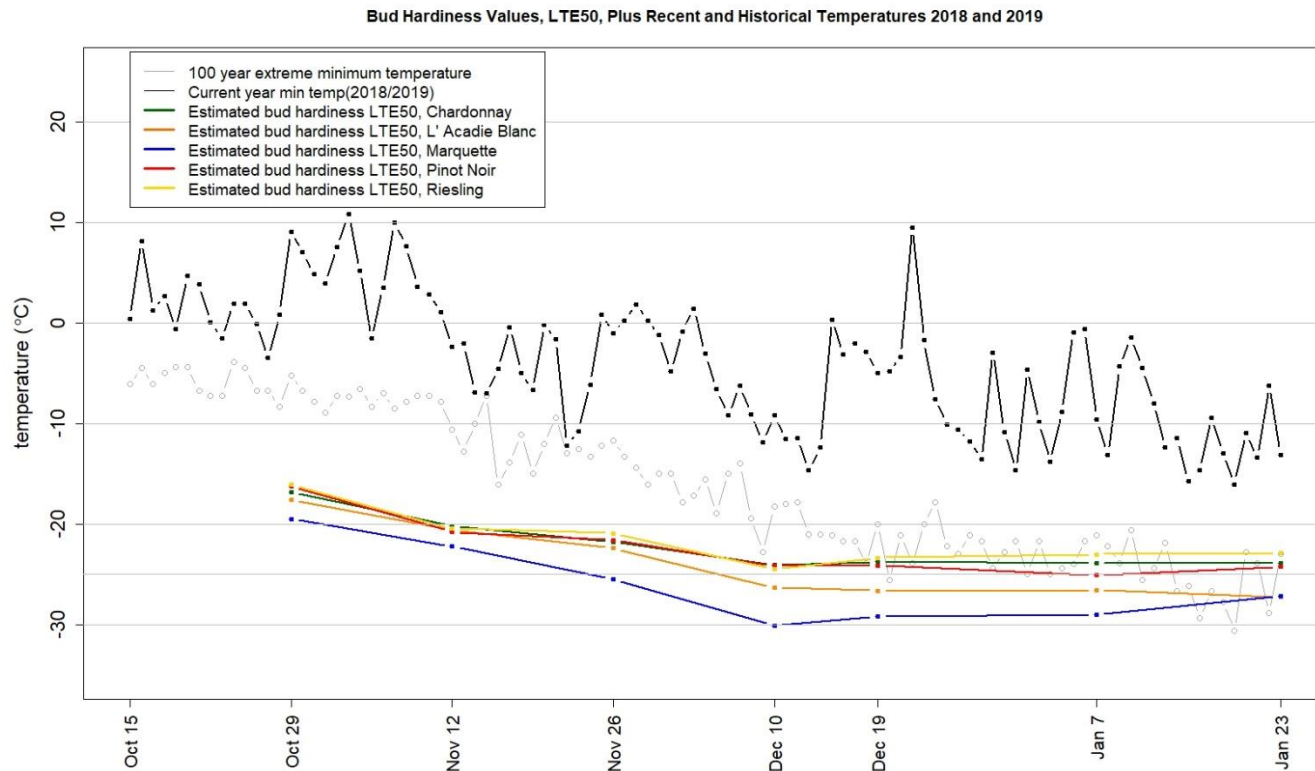


Figure 1. Plot showing the LTE50 values for the core wine grape varieties as well as recent and historical minimum temperature trends.



Current biweekly report

Temperatures have been in a constant cycle since late December with temperature swings from well above freezing to minus double digits every few days. Although temperature cycling was also a feature of last year’s weather, it has been much more pronounced this year. One impact of this has been that grape buds are slightly less acclimated than they were at this time last year. The difference between this year and 2017/18 ranges from approximately 0.5 °C for Chardonnay to almost 2 °C for Riesling. In spite of this, there is a 5 to 10 degree separation between the daily low temperatures and the LTE50 of the most tender varieties in our survey. In addition, all of the LTE10 values are below -20 °C as can be seen in the table below.

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	November 26 – 27			December 10 – 11			December 17 – 21			January 7 – 8			January 23 – 25		
	LTE10	LTE50	LTE90	LTE10	LTE50	LTE90	LTE10	LTE50	LTE90	LTE10	LTE50	LTE90	LTE10	LTE50	LTE90
‘Chardonnay’ (5 sites)	-17.6	-21.8	-23.1	-20.3	-24.1	-26.9	-20.6	-23.8	-26.1	-21.2	-23.9	-26.0	-21.9	-23.9	-26.4
‘L’Acadie Blanc’ (6 sites)	-19.5	-22.4	-24.7	-23.8	-26.3	-30.3	-23.5	-26.7	-30.0	-24.2	-26.6	-29.3	-24.1	-27.3	-30.6
‘Marquette’ (3 sites)	-22.9	-25.5	-27.2	-26.3	-30.1	-32.1	-26.2	-29.2	-31.2	-27.1	-29.0	-30.8	-22.8	-27.2	-32.2
‘Pinot Noir’ (3 sites)	-17.0	-21.6	-23.2	-19.5	-24.3	-26.6	-22.1	-24.1	-26.0	-21.9	-25.1	-26.8	-22.6	-24.3	-25.8
‘Riesling’ (5 sites)	-17.5	-20.9	-23.0	-18.7	-24.5	-27.6	-21.1	-23.4	-26.0	-20.8	-23.0	-25.3	-20.2	-22.9	-27.2
Additional cultivars and sites															
‘Baco Noir’ (2 sites)							-24.3	-26.3	-28.8						
‘Chenin Blanc’ (1 site)							-19.5	-22.5	-24.4						
‘Geisenheim’ (2 sites)							-21.7	-23.5	-26.6						
‘Leon Millot’ (3 sites)							-23.8	-26.8	-29.9						
‘Lucie Kuhlman’ (2 sites)							-23.9	-26.0	-27.4						
‘New York Muscat’ (2 sites)							-22.0	-24.7	-27.9						
‘Pinot Gris’ (1 site)															
‘Sauvignon Blanc’ (3 sites)							-22.1	-24.9	-26.7						
‘Seyval Blanc’ (2 sites)							-19.8	-22.1	-23.6						
‘Vidal Blanc’ (3 sites)							-22.1	-24.8	-26.9						
‘Ortega’ (1 site)							-21.2	-23.6	-26.3						



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).