Kentville Research & Development Centre (KRDC) – Nova Scotia wine grape bud hardiness

2020/2021 Report no. 2: December 21 - 22

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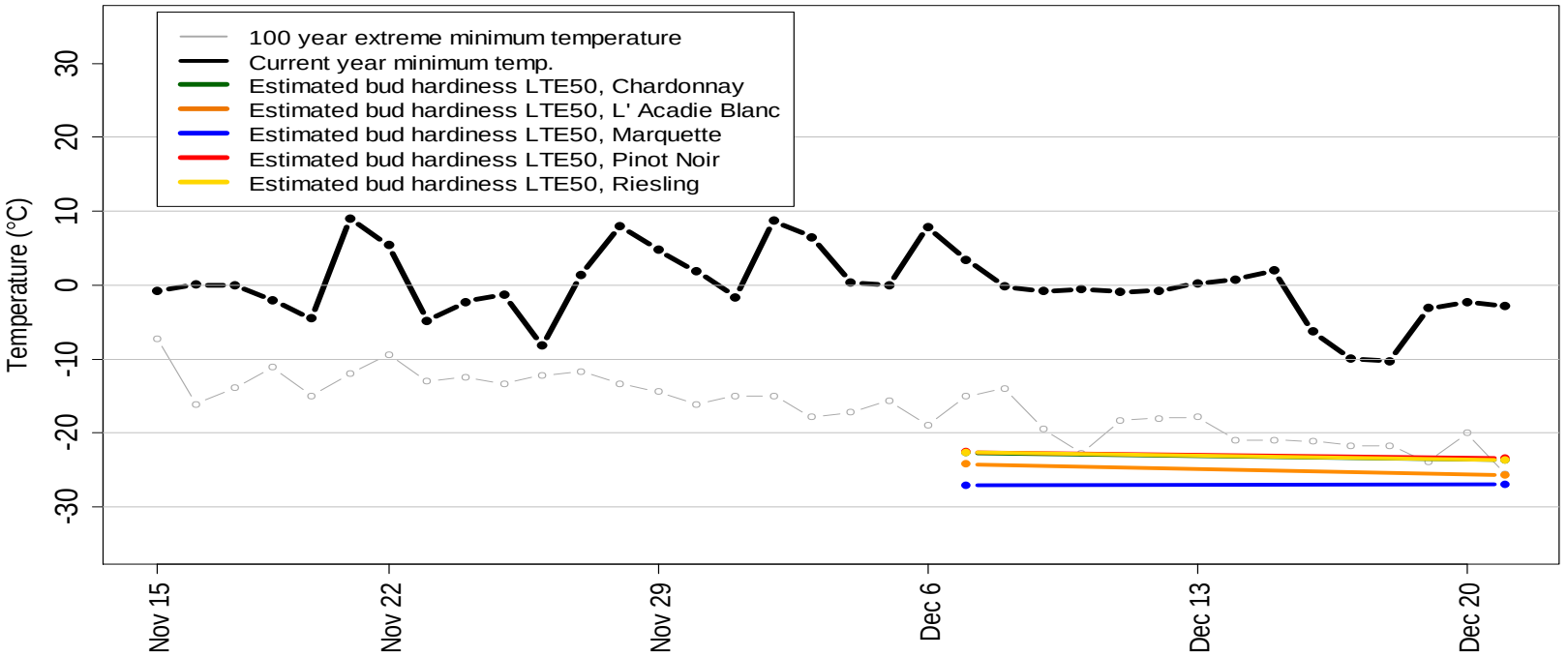

Figure 1. Plot showing the LTE50 values (colored lines) for five wine grape varieties taken from various Nova Scotia vineyards, as well as recent and historical minimum temperature trends. Current observed temperatures (black line) as well as the 100 year minimum temperatures (grey line) were recorded at the Kentville Research Station. The LTE50 values for 'Riesling', 'Chardonnay' and 'Pinot Noir' have been very similar in value and overlap on the plot.

Current biweekly report

The second bud hardiness survey of the winter season shows very little change in LTE50 estimates from the previous sample date. With the exception of Marquette, the LTE50 values have deepened by approximately 1 °C since the previous survey. Once again, the LTE50 estimates for all three vinifera varieties are very close and vary by 0.3 °C or less. Temperatures for the month of December continue to be above average. The average mean daily temperature for December 2020 is 2.6 °C compared to the 10 year average of -0.4 °C. We would like to thank all Growers who have participated in the survey.

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

	December 7 - 8			December 21 - 22											
Core cultivars and sites	LTE10	LTE50	LTE90	LTE10	LTE50	LTE90	LTE10	LTE50	LTE90	LTE10	LTE50	LTE90	LTE10	LTE50	LTE90
'Chardonnay' (5 sites)	-20.4	-22.7	-24.6	-20.0	-23.7	-25.4									
'L'Acadie Blanc' (6 sites)	-21.9	-24.2	-26.8	-23.0	-25.7	-27.7									
'Marquette' (3 sites)	-23.4	-27.1	-29.0	-24.1	-26.9	-29.5									
'Pinot Noir' (3 sites)	-20.2	-22.6	-24.3	-21.0	-23.4	-25.8									
'Riesling' (5 sites)	-19.2	-22.6	-24.7	-19.4	-23.7	-25.9									

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 group 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 (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/cold-hardiness-and-climate-change.