



Kentville Research & Development Centre (KRDC) – Nova Scotia wine grape bud hardiness
2023/2024 Report no. 3: January 22 and 23

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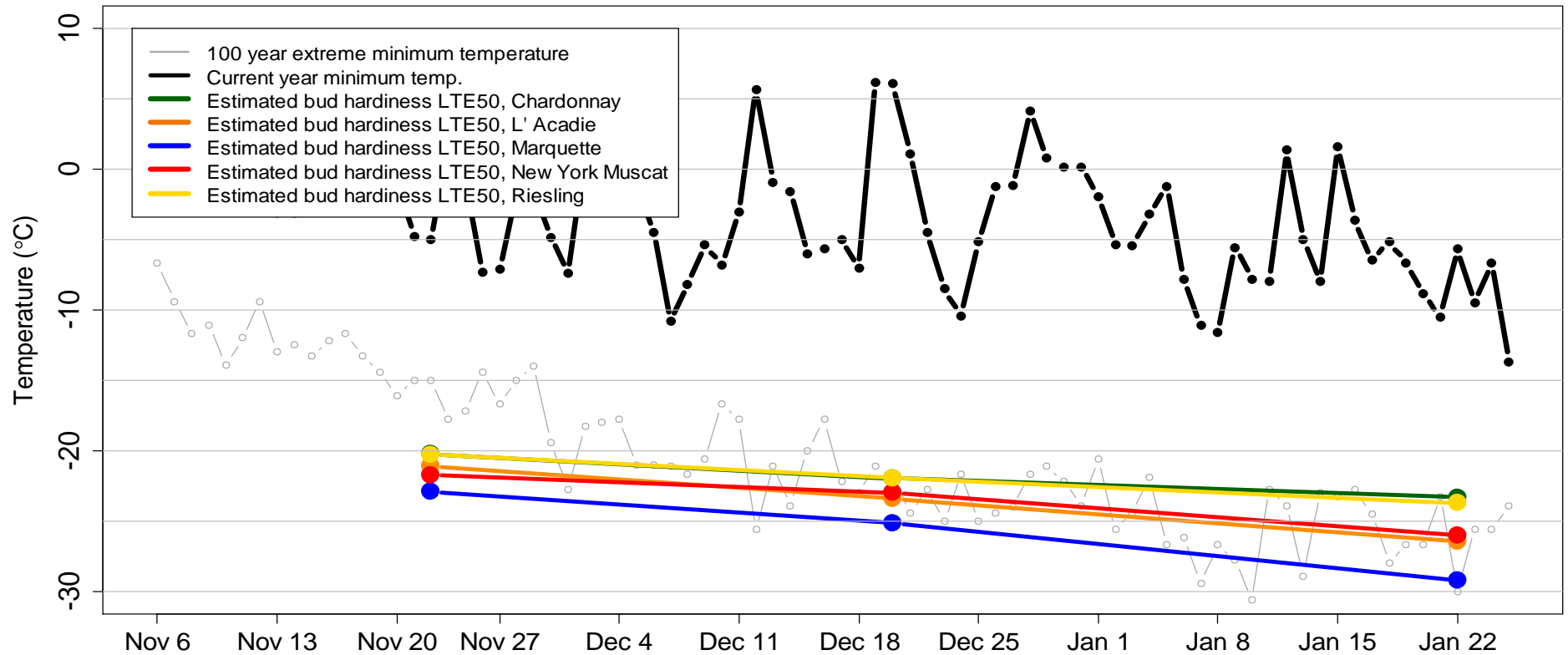


Figure 1. Plot showing the LTE50 values (coloured lines) for five wine grape varieties taken from Nova Scotia vineyards, as well as recent and historical temperature trends. Current observed minimum temperatures (black line) as well as the 100-year minimum temperatures (grey line) were recorded at the Environment and Climate Change Canada (ECCC) weather station located at the Kentville Research and Development Centre.



Current biweekly report

LTE50 values have dropped considerably since our last survey on December 19 and 20. Current bud hardiness values for our survey varieties are within 1 °C of the average values observed in late January looking back over the years of the survey from 2018 to 2023. Bud hardiness is greater (more negative) for all varieties than at this time last year when warm weather resulted in poor acclimation. A special mention should be given to the hybrids L'Acadie and Marquette, which are more than 1 °C and 3 °C more hardy, respectively, than at this time last year. We expect that the LTE50 values will continue to drop a little more in February for all varieties. The recent drop in bud hardiness values is likely due to the effects of the near normal winter temperatures experienced in January. The mean daily temperature for the first 25 days in January 2024 is -2.7 °C compared to a 10-year average of -3.9 °C. This is considerably better than the mean daily temperatures observed in January of last year which were approximately 3.5 °C higher than the 10-year average. Long-term forecasts predict that temperatures will continue to cycle between average and above average for the next 14 days.

Table 1. LTE10, LTE50 and LTE90 average values (°C) for core wine grape cultivars for the current and previous reporting periods

Coré cultivars and sites	Nov. 22 - 23			Dec. 19 - 20			Jan. 22 - 23								
	LTE10	LTE50	LTE90	LTE10	LTE50	LTE90	LTE10	LTE50	LTE90						
Chardonnay (5 sites)	-17.4	-20.3	-22.0	-20.5	-22.0	-23.2	-22.0	-23.3	-24.9						
L'Acadie (5 sites)	-19.0	-21.1	-22.6	-21.2	-23.4	-24.7	-23.4	-26.4	-28.5						
Marquette (5 sites)	-19.4	-22.9	-24.6	-22.1	-25.1	-27.4	-26.4	-29.2	-30.6						
New York Muscat (4 sites)	-19.2	-21.8	-23.3	-17.8	-23.0	-24.5	-22.8	-26.0	-28.4						
Riesling (5 sites)	-16.5	-20.3	-22.1	-19.3	-21.9	-23.4	-21.9	-23.7	-25.6						



Research report description

The Nova Scotia wine grape bud hardiness survey generates reports detailing the low temperature exotherm (LTE) values over the dormant period (roughly from November to 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 county 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. 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.

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