

Kentville Research & Development Centre (KRDC) – Nova Scotia wine grape bud hardiness 2020/2021 Report no. 6: February 15 – 17

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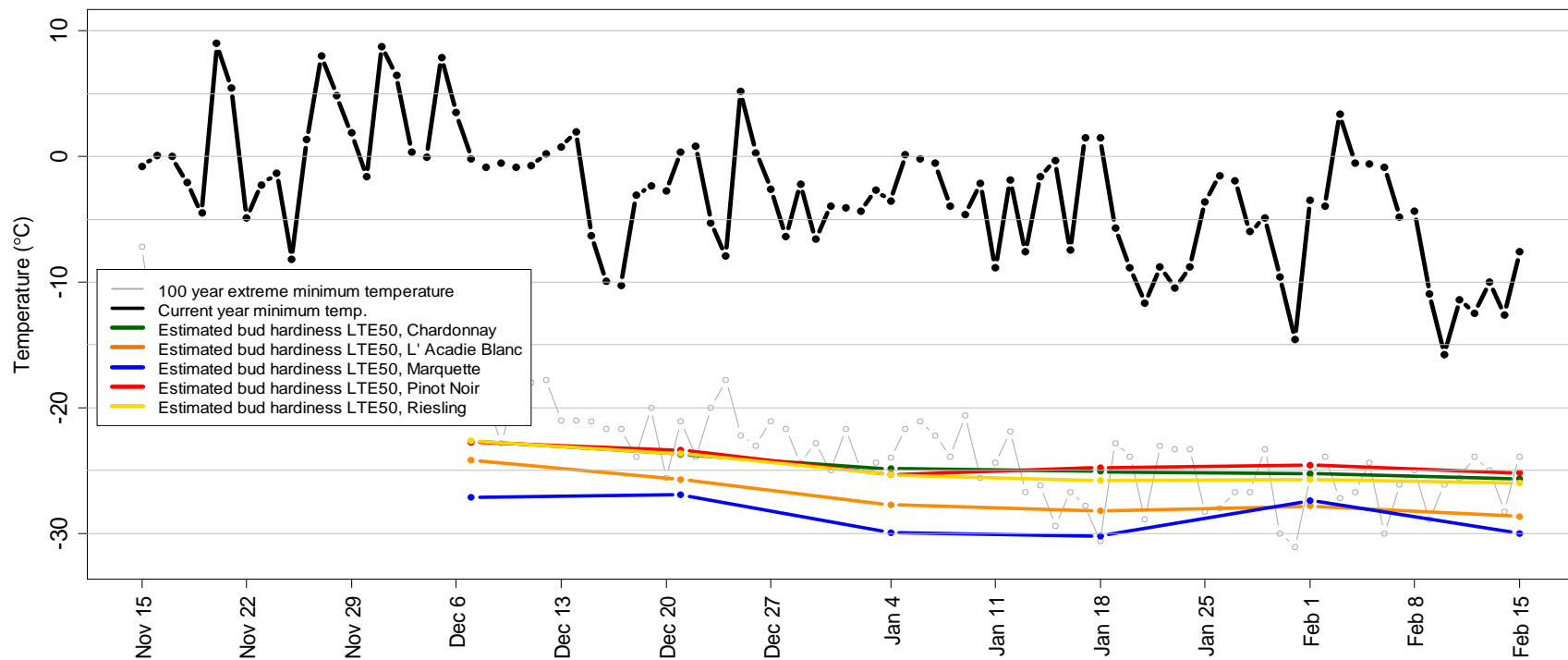


Figure 1. Plot showing the LTE50 values (coloured lines) for five wine grape varieties taken from Nova Scotia vineyards, as well as recent and historical temperature trends. Current observed minimum temperatures (black line) as well as the 100 year minimum temperatures (grey line) were recorded at the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



Current biweekly report

The results of our current survey show that bud hardiness has returned to, or exceeded, the values determined in the survey on January 18 and 19 after the minor deacclimation seen in the last survey. Judging by the patterns seen in previous years, we expect that our buds have now reached their deepest acclimation values for the season. We consider it a positive sign that the acclimation of the vinifera varieties in our survey have exceeded those values seen in the 2019/2020 survey year. This is probably a sign of improved vine health compared to that year. The long-term forecast shows that we may experience more wide temperature swings and we will be watching closely to see if this has an impact on bud hardiness.

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

Core cultivars and sites	December 21 - 22			January 4 - 5			January 18 - 19			February 1 - 3			February 15 - 17		
	LTE10	LTE50	LTE90	LTE10	LTE50	LTE90	LTE10	LTE50	LTE90	LTE10	LTE50	LTE90	LTE10	LTE50	LTE90
Chardonnay (5 sites)	-20.0	-23.7	-25.4	-21.0	-24.9	-26.9	-20.7	-25.1	-27.1	-20.9	-25.3	-27.4	-20.3	-25.6	-27.9
L'Acadie Blanc (6 sites)	-23.0	-25.7	-27.7	-24.0	-27.7	-29.5	-25.4	-28.2	-29.7	-23.5	-27.8	-30.7	-26.2	-28.7	-31.2
Marquette (3 sites)	-24.1	-26.9	-29.5	-26.6	-29.9	-31.4	-27.9	-30.2	-31.8	-24.2	-27.4	-32.8	-27.9	-30.0	-32.8
Pinot Noir (3 sites)	-21.0	-23.4	-25.8	-22.3	-25.3	-27.0	-22.3	-24.8	-26.9	-21.0	-24.6	-27.2	-20.9	-25.2	-27.8
Riesling (5 sites)	-19.4	-23.7	-25.9	-19.5	-25.3	-27.1	-21.3	-25.8	-27.0	-19.4	-25.7	-28.1	-20.5	-26.0	-29.0



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.cgcncanada.ca/site/cold-hardiness-and-climate-change>.

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