

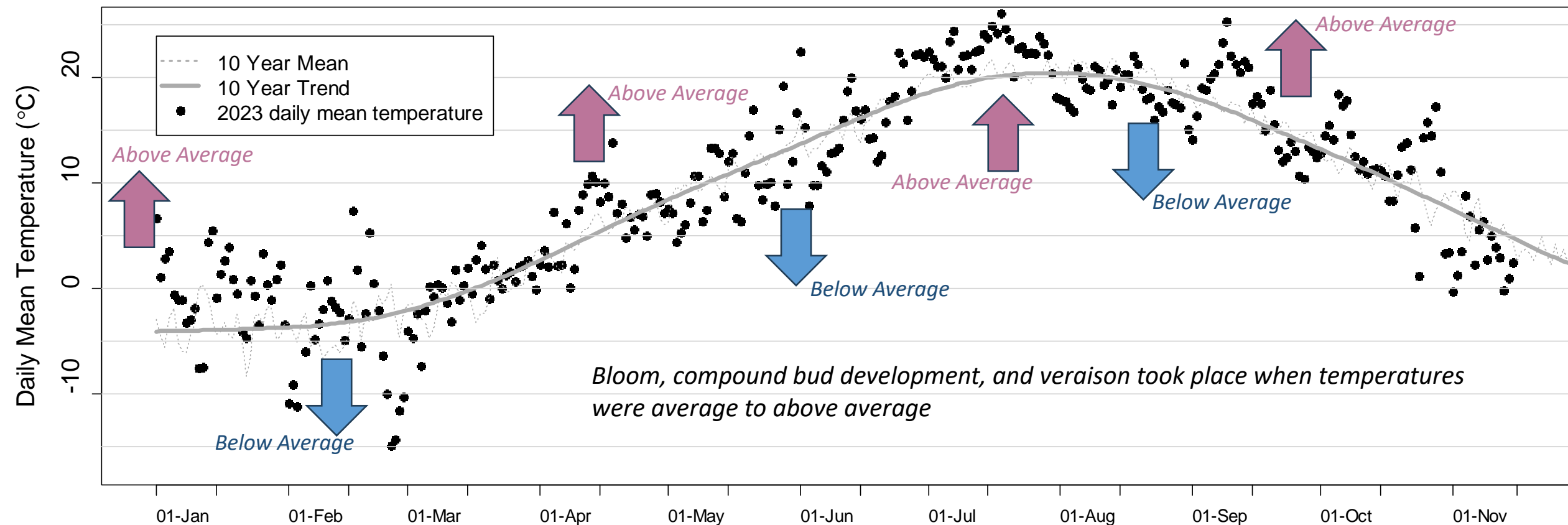
2023 Weather Summary

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Canada

December 7, 2023



Daily average temperatures (points) and 10-year average (grey line) for 2023, Kentville Research Station.



Growing Season Temperatures for Kentville, 2023

Month	Mean Temperature 2023 (°C)	Mean Temperature 10-year average (°C)	Difference (°C)
April	6.7	5.4	+1.3
May	10.4	11.2	-0.8
June	16.1	16.3	-0.2
July	22.5	20.4	+2.1
August	18.8	20.2	-1.4
September	17.1	16.0	+1.1
October	11.9	10.3	+1.6
November	2.7	4.7	-2.0

Brackets indicate seasonal averages:

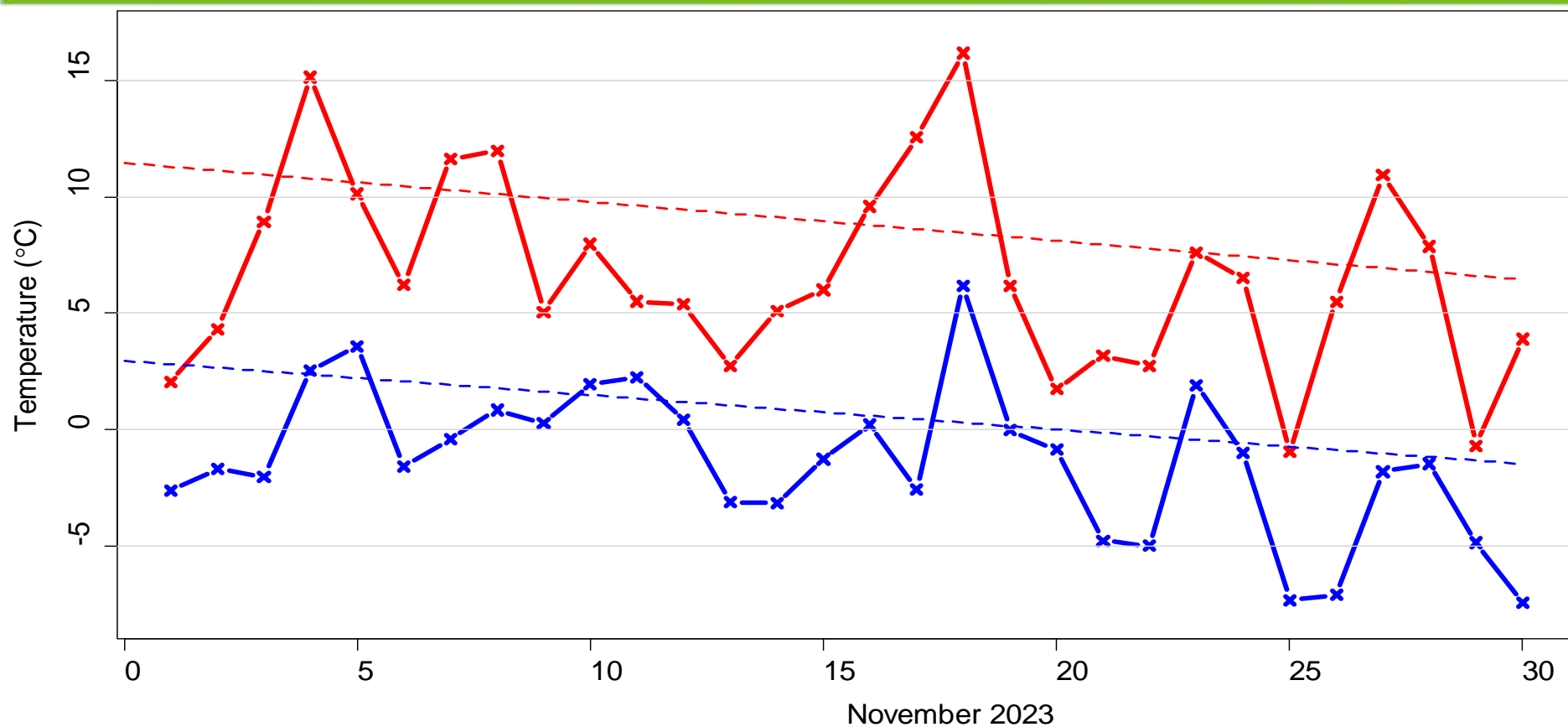
 - 2023 average (April to October): 14.8 °C

 - 10-year average (April to October): 14.3 °C

- Average temperature for the overall growing season finished slightly ahead of the 10-year average.



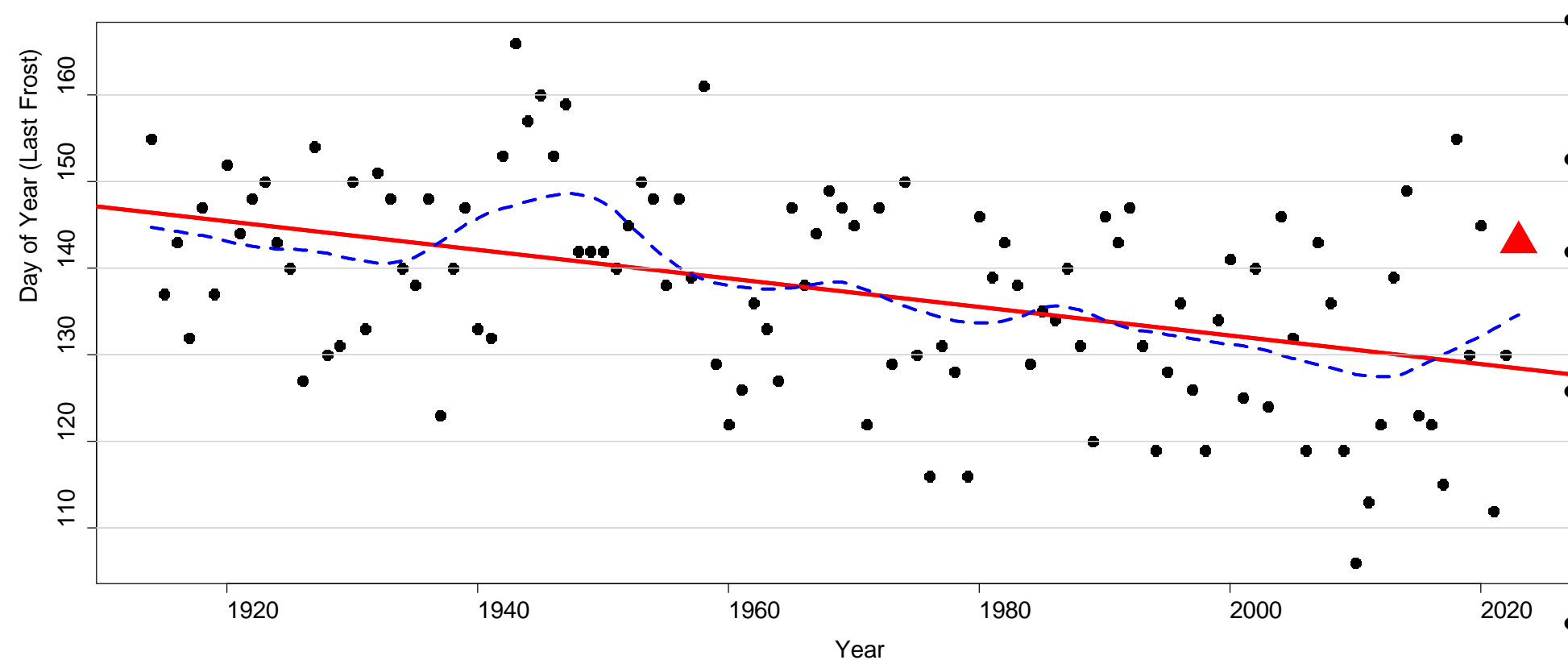
Daily Maximum and Minimum Temperatures plus 25-Year trend, November 2023



- Both maximum (red) and minimum (blue) temperatures are trending below average (dashed lines) for the month of November.
- Cycling temperatures are likely to continue.



Last Frost Date, Spring 2023



Last frost date of 2023 at KRDC was May 23rd (red triangle).

Low temperature on the 23rd was -0.53°C .

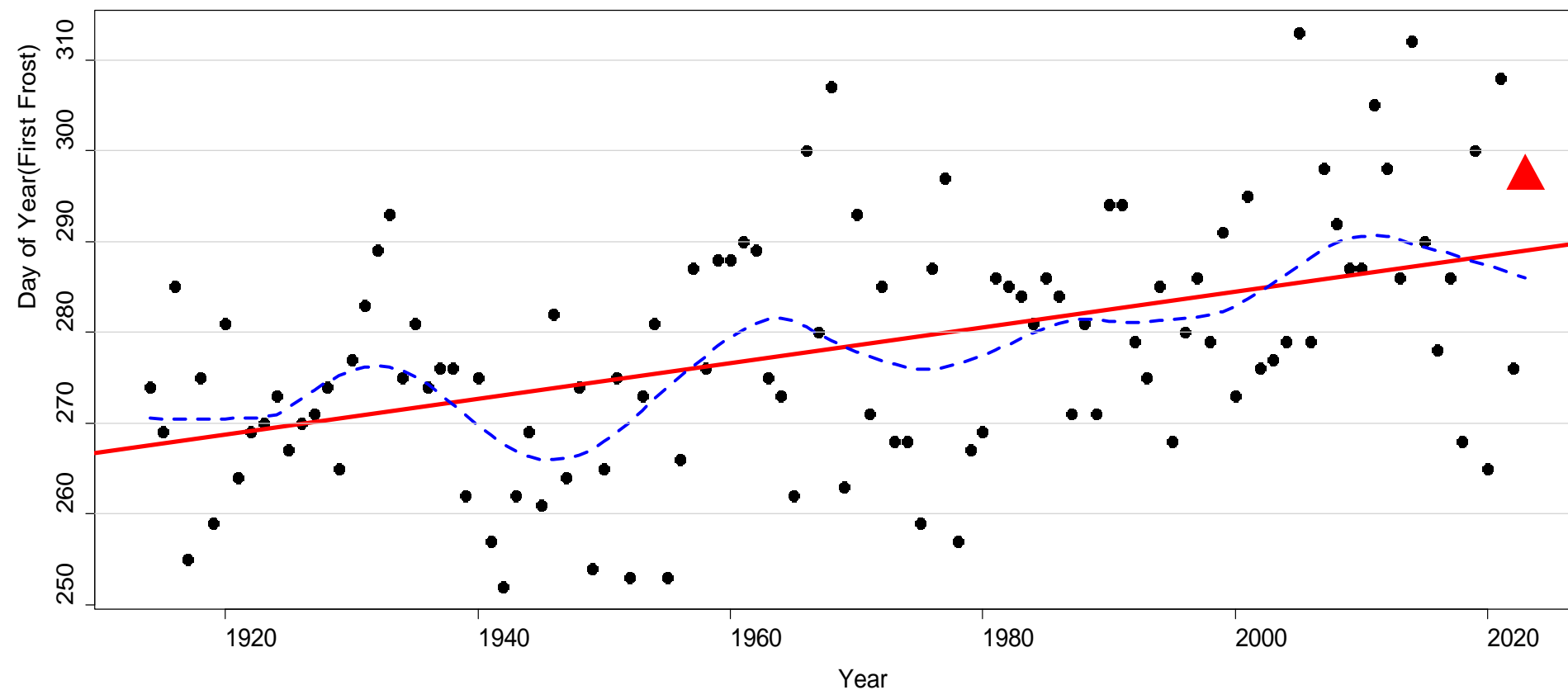
Patchy frost on 24th and 30th of May in low-lying areas.

110-year weather data for Kentville shows that last frost date is trending earlier over time.

+/- 3-week variation



First Frost Date, Fall 2023



- First frost date of 2023 at KRDC was October 24th (red triangle).
- Low temperature on the 24th was $-0.17\text{ }^{\circ}\text{C}$.
- First significant freezing temperature was on November 1, $-2.62\text{ }^{\circ}\text{C}$.
- Natural leaf abscission at most sites.
- 110-year weather data for Kentville shows that first frost date is trending later over time.
- +/- 3-week variation



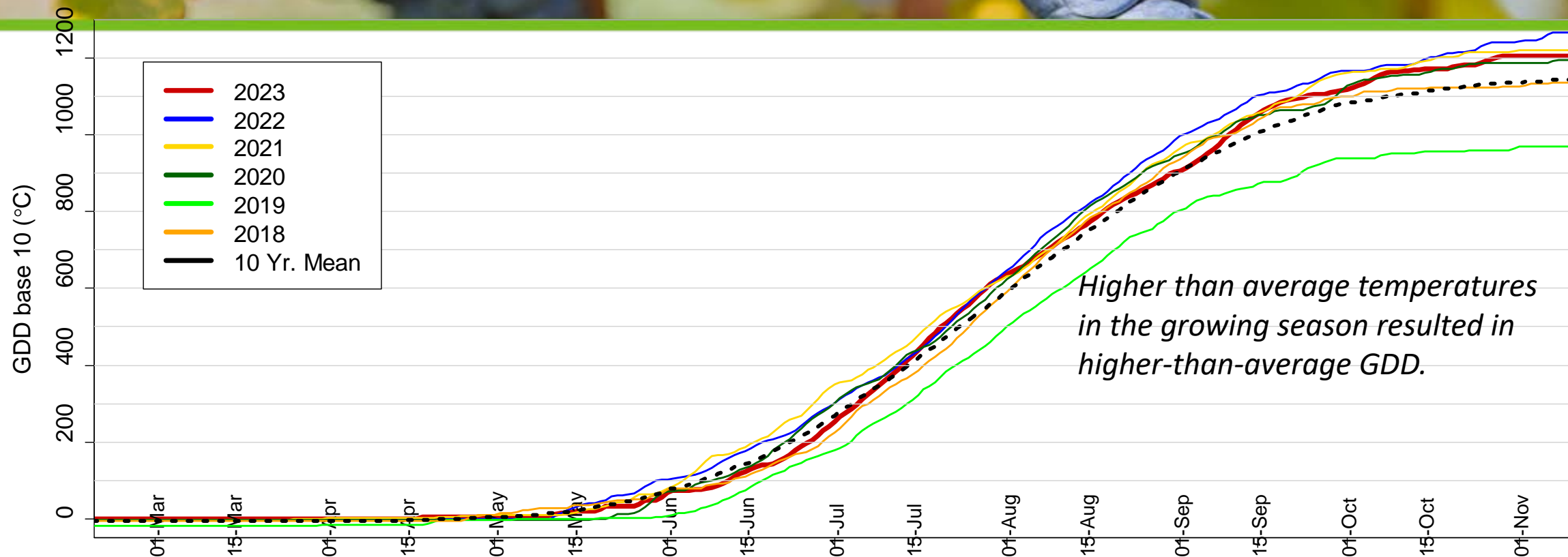
Spring and Fall Frost Events Across the Province

	Kentville		Greenwood		Kejimikujik		Debert		Halifax Airport	
	Date	(°C)	Date	(°C)	Date	(°C)	Date	(°C)	Date	(°C)
Last Spring Frost	23-May	-0.5	23-May	-1.1	23-May	-0.3	30-May	-0.1	23-May	-0.5
First Fall Frost	24 Oct	-0.2	24 Oct	-1.3	24 Oct	-1.2	18-Oct	-1.2	31-Oct	-1.7

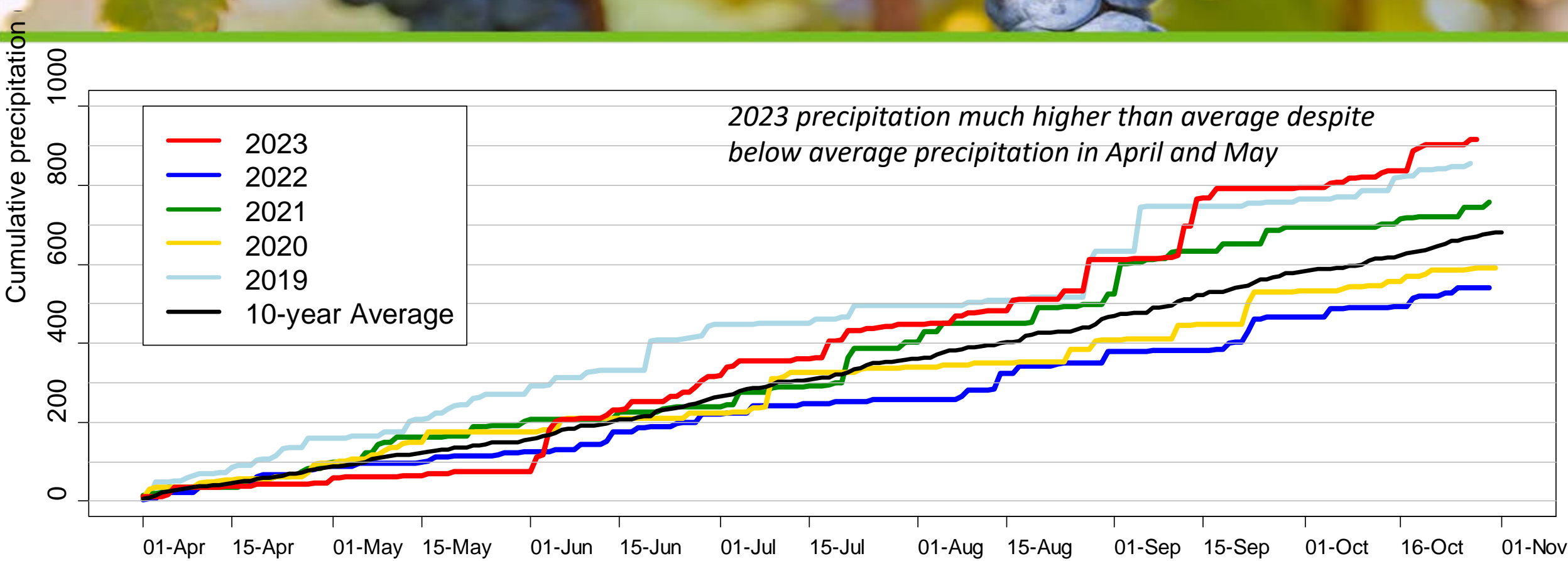
- Some areas around Kentville experienced colder temperatures on May 23.
- Greenwood had similar first and last frost dates but experienced colder events.
- Kejimikujik had similar first and last frost dates but experienced more severe first frost.
- Debert experienced first fall frost 6 days earlier than other inland sites.
- Halifax Airport experienced first fall frost 6 days later than other inland sites.



Growing Degree Days (base 10 °C), Kentville, 2018 to 2023



Total rainfall and rainfall equivalent, Kentville, 2019 to 2023



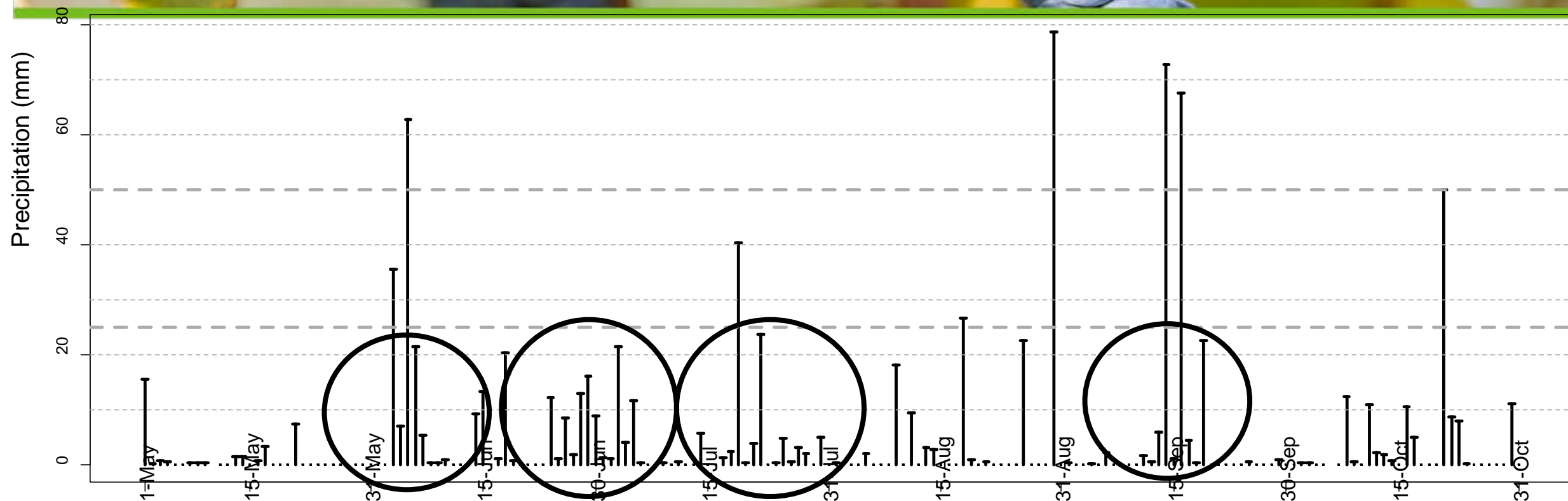
Growing Season Precipitation Events (Kentville Research Station)

Month	Historical Average Number of Rain Events	Rain Events 2023
April	11.3	6
May	8.9	5
June	9.3	15
July	7.2	14
August	6.3	8
September	6.7	7
October	9.3	10
November	11.6	7

- June and July saw frequent rain events with rain falling on roughly 50% of days.
- Implications: Downy mildew and Botrytis thrive in wet conditions.
- Very few good days to apply fungicides and insecticides.
- Surface active fungicides may be washed off during rainfall.
- Soil moisture plus heat = VIGOR.



Daily Precipitation Events, Kentville

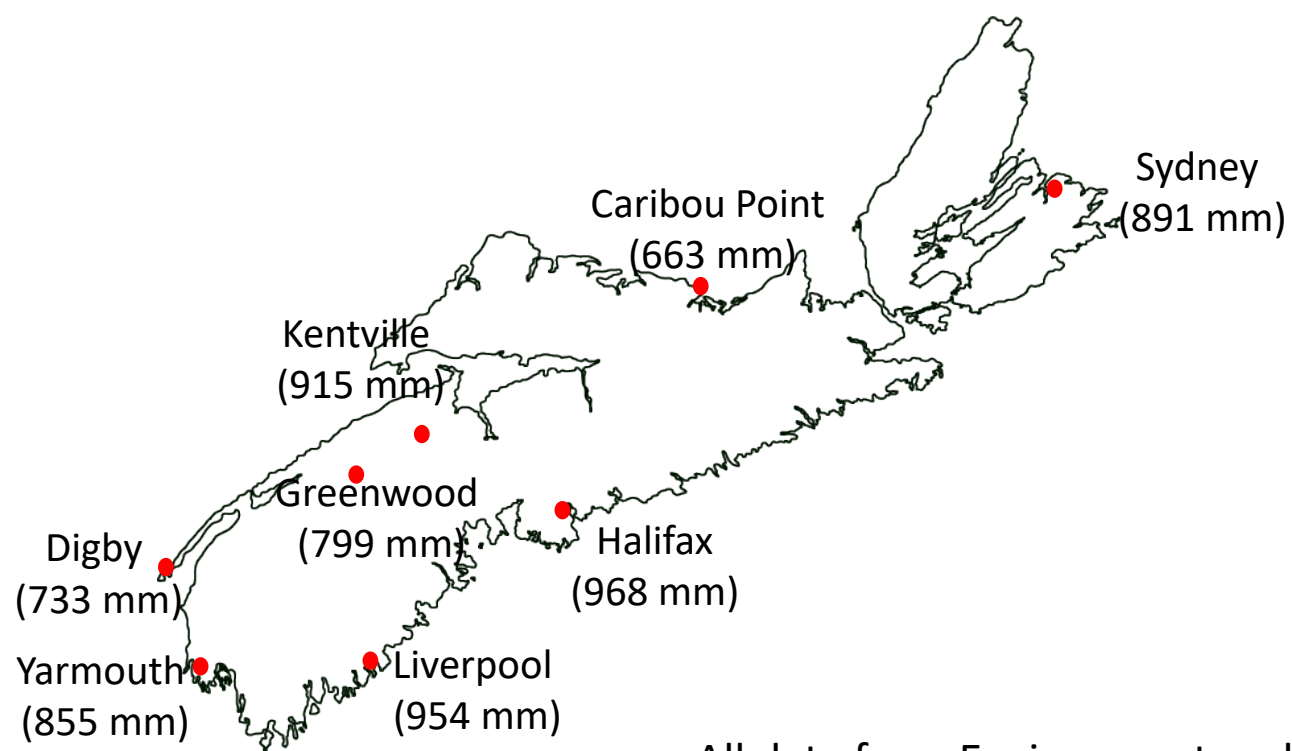


Precipitation plus Heat = Vigor

KRDC
Marquette on
July 19!



Growing Season Precipitation (April to October) Across the Province

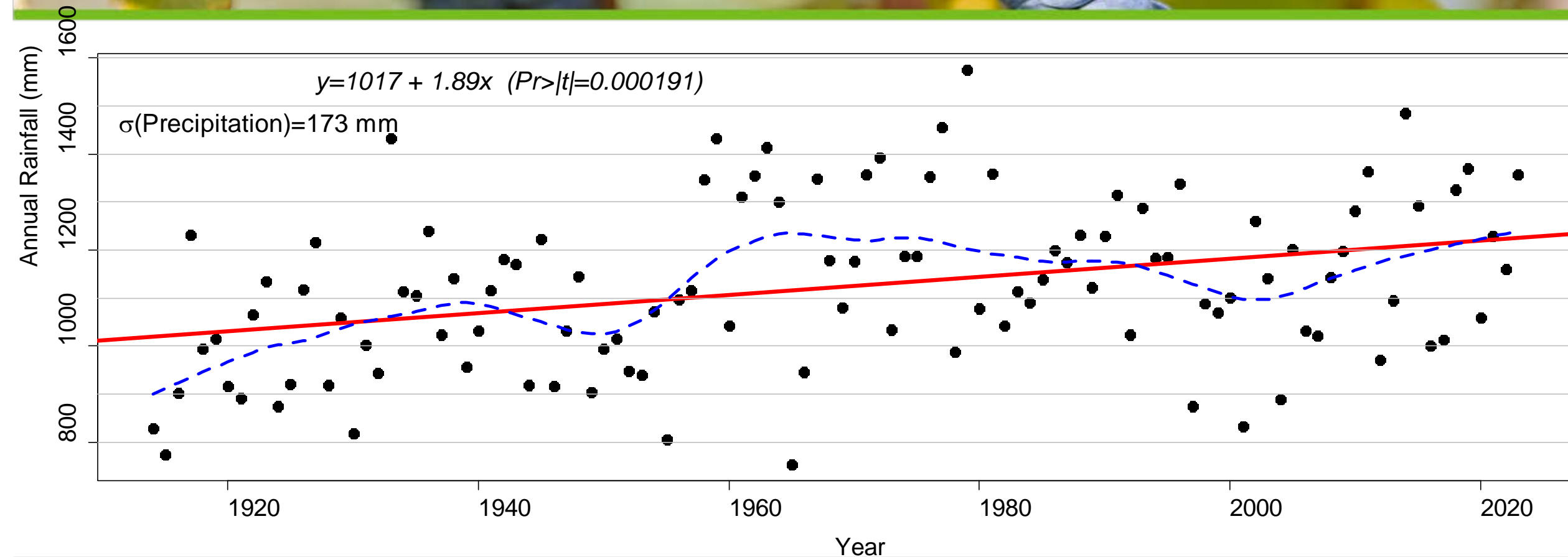


- Growing season precipitation for Kentville is 110-year record.
- Intensity of summer precipitation in Nova Scotia was highly localized.
- Number of precipitation events was above average in June and July.

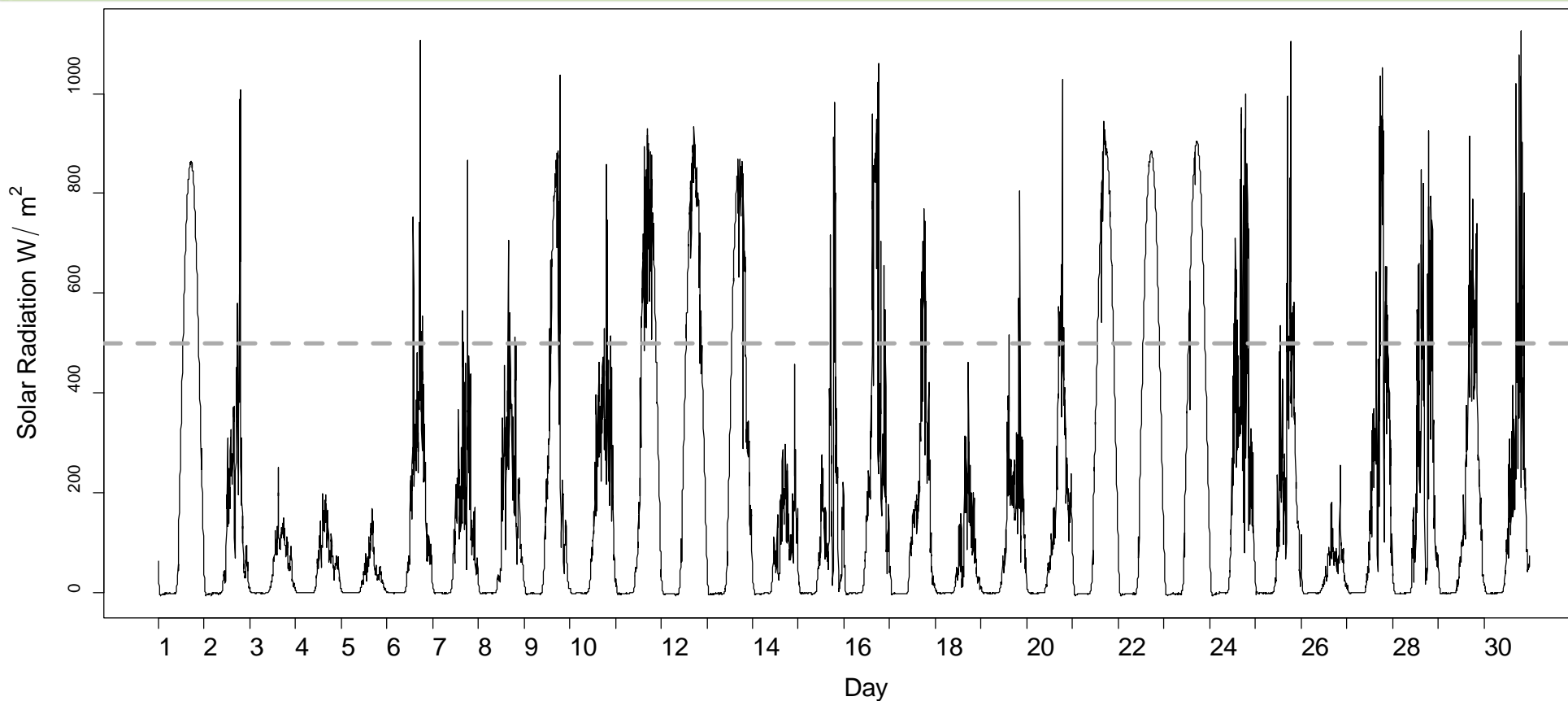
All data from Environment and Climate Change Canada 



Long-term Precipitation Trend For Kentville



Solar Radiation, June 2023

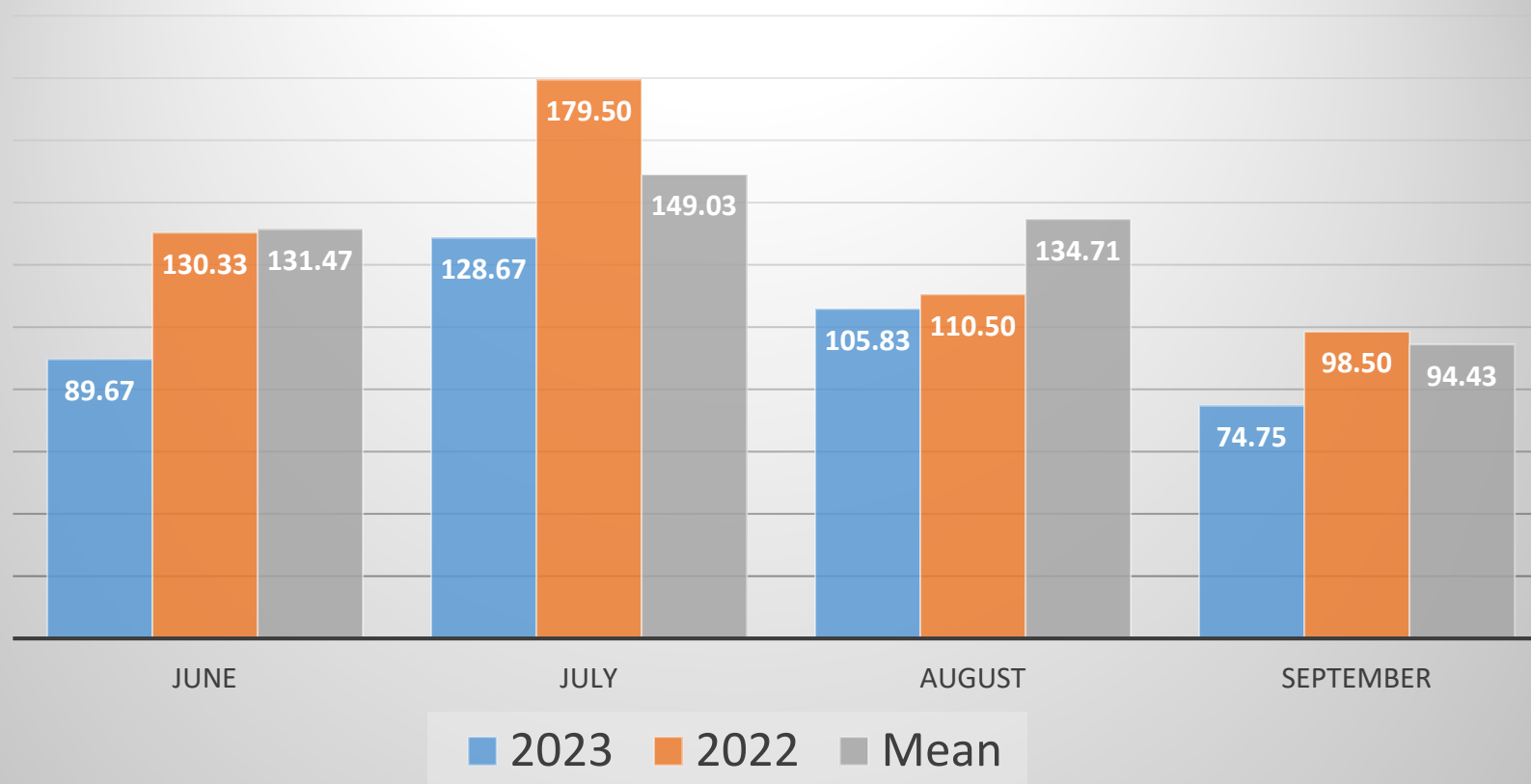


- Solar radiation greater than 500 W/m^2 represents bright cloud or sunshine.



Solar Radiation 2022, 2023 and 13-Year Mean

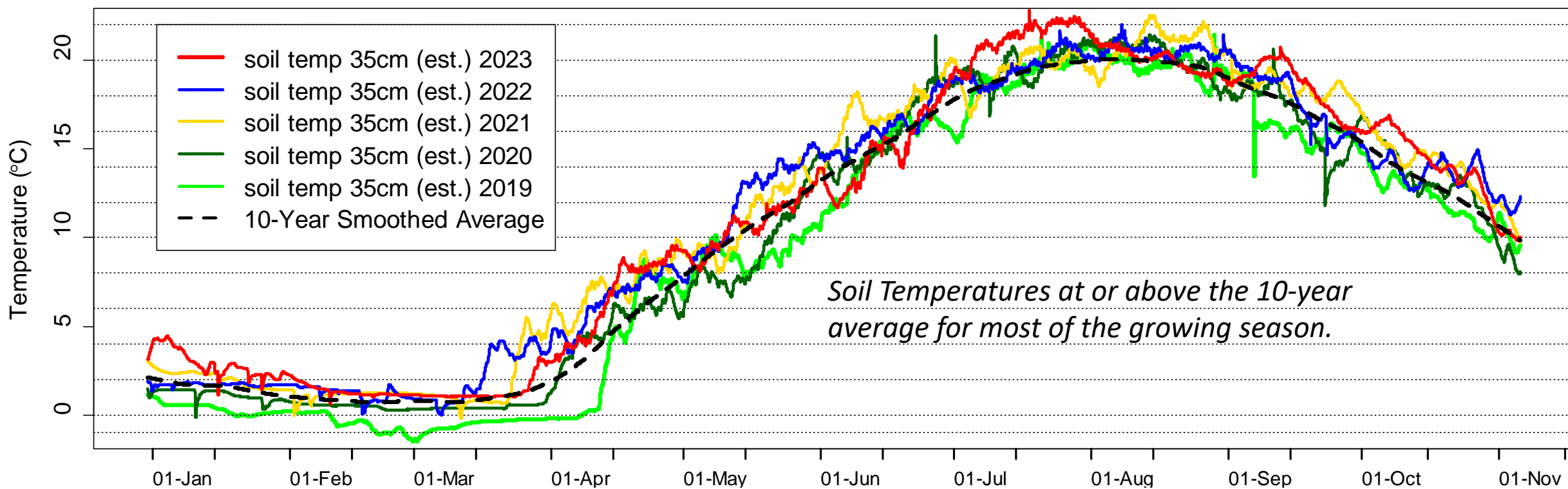
Hours of Sunshine (> 500W/m²)



- Solar radiation in June was roughly 2/3 of the 13-year average.
- Solar radiation was below average for all summer months.
- Implications for fruit maturity.



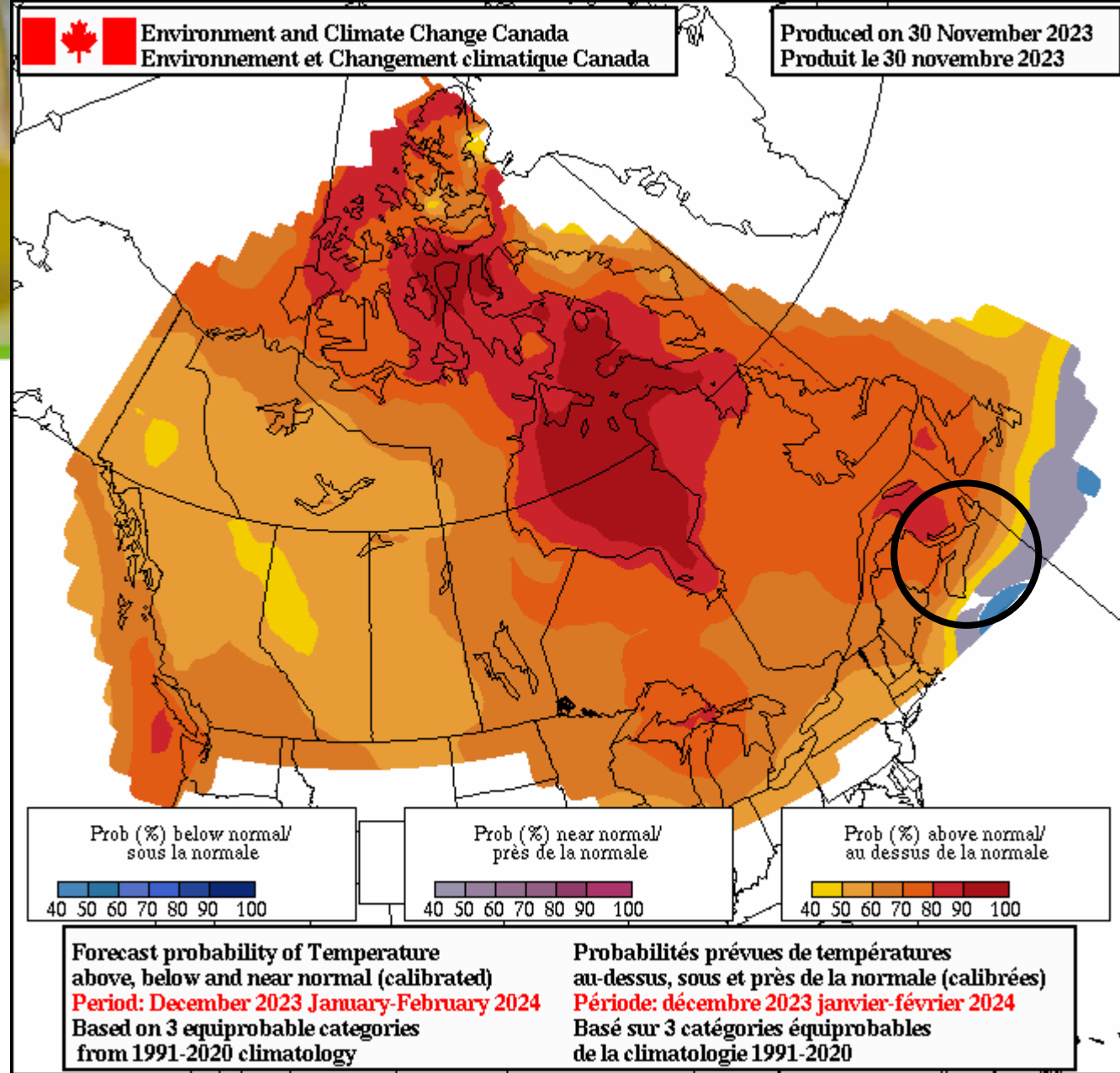
Soil Temperatures, 35cm, Kentville Research Station, 2019 to 2023



Seasonal Forecast, Winter 2023 and 2024

Long-term forecast from Environment and Climate Change Canada:

60 to 70% probability of above average temperatures for Western Nova Scotia and the Annapolis Valley for December through February.



Acknowledgements



Canadian Grapevine Certification Network

CGCN · RCCV

Réseau canadien de certification de la vigne



Grape Growers'
Association of Nova Scotia



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