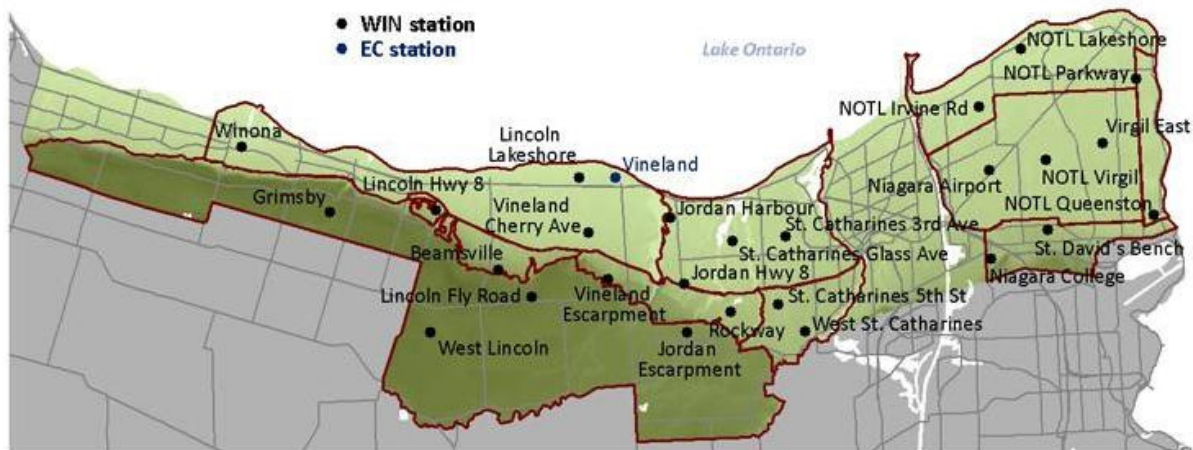




December 2011: Temperature & Icewine Hours Summary Niagara Peninsula



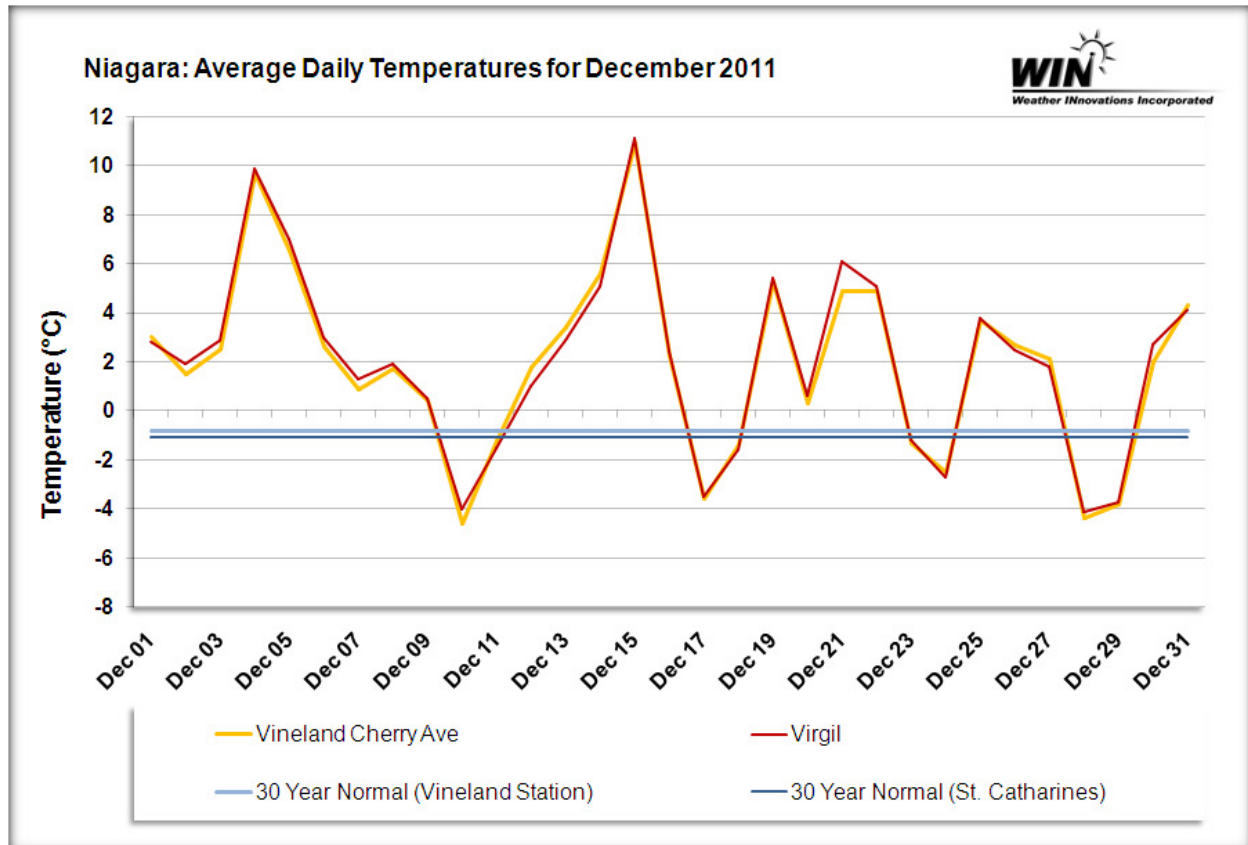
Sub-appellations:

- | | | | | |
|---|--|--|--|--|
| <u>Beamsville Bench</u> | <u>Creek Shores</u> | <u>Four Mile Creek</u> | <u>Lincoln Lakeshore</u> | <u>Niagara Lakeshore</u> |
| <u>Niagara River</u> | <u>Short Hills Bench</u> | <u>St. David's Bench</u> | <u>Twenty Mile Bench</u> | <u>Vinemount Ridge</u> |

Wayne Heinen
January 6, 2012

Overview

December 2011 in Niagara was much warmer than normal, with average monthly temperatures of +1.6°C (compared to -3.1°C in December 2010) in the west and +2.0°C (compared to -2.7°C in December 2010) in the east. The average monthly temperature in the west was 2.4°C above the normal daily mean for Vineland and 3.1°C above the normal daily mean for St. Catharines in the east. These statistics are based on Environment Canada's 30-year normals. This summary illustrates December 2011 temperatures, as well as the icewine harvest opportunities that arose. For this report, icewine hours are defined as instances when the average hourly temperature was between -8.0°C and -12.0°C, inclusive. Events in the appendix are focused at opportunities encompassing a minimum 6-hour period.



Temperature Analysis

The monthly minimum temperatures for each site in December 2011 ranged from -7.6°C at the NOTL Lakeshore station (compared to -10.9°C at the Lincoln Lakeshore station in December 2010) to -13.1°C (compared to -14.9°C at St. Catharines 3rd Ave in December 2010). The monthly minimum temperatures occurred on the 29th of December. There were only 6 days (compared to 17 days in December 2010) when temperatures at one or more stations dipped into icewine temperature ranges. This is shown in the following two figures.

Niagara West: December 2011 Daily Minimums

Date	Winona	Grimsby	West Lincoln	Lincoln Fly Road	Beamsville	Lincoln Hwy 8	Lincoln Lakeshore	Vineland Cherry Ave.	Vineland Escarpment	Jordan Escarpment	Jordan Hwy 8	Jordan Harbour	Rockway
01-Dec	-0.5	-2.9	-3	-2.2	-0.9	-0.9	-0.9	-1	-1.5	-1.6	-0.8	-1.4	-1.1
02-Dec	-3.3	-5.6	-3.7	-3.2	-2.1	-3.1	-3	-4.3	-2.2	-2.7	-2.7	-3.3	-3.4
03-Dec	-4.1	-6.8	-4.6	-4.2	-2.5	-4.2	-4.3	-5.7	-3.2	-3.6	-3.2	-4.3	-3.6
04-Dec	6.7	4.9	5.3	5.3	6.1	6	5.9	6	5.8	5.6	6	5.8	5.8
05-Dec	0.2	-0.4	-0.2	-0.4	0.1	0.1	0.8	0.3	-0.1	0	0.6	0.6	0.3
06-Dec	0.6	-0.1	-0.1	-0.2	0.4	0.7	1.6	0.8	0.1	0.4	1.2	1.3	1.1
07-Dec	-1.9	-3.4	-3.1	-3.2	-2.1	-2.2	-2.2	-2.1	-2.1	-2.3	-1.6	-2.2	-2
08-Dec	-0.2	-1.5	-1.3	-1.4	-0.6	-0.7	-0.2	-0.1	-0.8	-1	-0.3	-0.6	-0.9
09-Dec	-3.4	-4.8	-4.2	-4.2	-3.5	-4	-3.2	-3.7	-3.5	-3.3	-2.7	-3.4	-3.2
10-Dec	-6.2	-7.4	-8.2	-8.1	-7.2	-6.8	-6.9	-8.3	-7.2	-8	-8.2	-8.1	-8.4
11-Dec	-6.2	-8.7	-8.7	-8.4	-7.3	-7.6	-7.2	-7.3	-7.8	-8.5	-8.3	-7.9	-8
12-Dec	-1.6	-3.9	-2.8	-2.5	-3.4	-3.1	-3.7	-4.1	-2.7	-2	-4.6	-3.7	-5.4
13-Dec	-0.5	-2.6	-2.8	-1.3	-0.3	-0.1	-0.9	-0.6	-0.9	-1.5	-1.9	-1.5	-1.7
14-Dec	3	0.7	0.6	0.9	1.6	3.1	1.8	2.8	1.1	0.6	1.4	1.8	0.6
15-Dec	4.1	3.2	3.3	3.5	4.2	3.7	4.8	4.5	4.2	4.2	4.8	4.3	4.3
16-Dec	0.5	-0.5	-0.3	-0.2	0.5	0.3	1.1	0.8	0.3	0.2	1	0.6	0.3
17-Dec	-6.2	-9.6	-7.9	-8	-6.7	-6.9	-6.9	-7.8	-7.1	-7.7	-7.2	-7.6	-7.6
18-Dec	-5.7	-7.9	-6.7	-6.9	-6.2	-6.2	-6.2	-6.3	-6.4	-6.7	-6.2	-6.8	-6.6
19-Dec	2.4	1.5	1.6	1.6	2.4	2.2	2.8	2.6	2.1	1.9	2.6	2.3	2.1
20-Dec	-2.1	-2.9	-2.6	-2.5	-1.8	-2	-1.3	-1.4	-1.8	-1.7	-1	-1.4	-1.5
21-Dec	1	0.3	0.3	0.4	1.2	0.7	1.3	1.1	1.1	0.9	1.5	0.9	1.1
22-Dec	2.5	1.5	1.7	1.8	2.4	2.2	2.8	2.6	2.2	2.2	2.8	2.3	2.2
23-Dec	-5.2	-6.1	-5.6	-5.6	-5.7	-5	-4.4	-5.9	-6	-5.3	-5.6	-4.5	-5.8
24-Dec	-7.4	-9.4	-7.9	-7.8	-7	-7.6	-6.9	-7.8	-7	-7.3	-7.4	-7.5	-7.4
25-Dec	2.1	1.2	1.1	1	1.9	1.9	2.3	2.2	1.9	1.4	2.4	2	1.6
26-Dec	1.8	0.8	0.8	0.6	1.7	1.3	0.8	0.4	0.8	0.1	-1.2	-0.5	-0.7
27-Dec	-0.2	-0.4	-0.3	-0.3	0.2	-0.2	0.4	0	-0.1	-0.1	0.4	-0.2	-0.1
28-Dec	-8.7	-10.8	-10.9	-9.7	-8.8	-8.9	-7.4	-7.8	-8.6	-8.5	-7.7	-7.8	-8.3
29-Dec	-9.7	-13.1	-11.1	-11.1	-9.9	-9.5	-9.4	-10.1	-9.8	-10.5	-9.8	-9.6	-10.3
30-Dec	-0.6	-1	-0.1	-0.7	-0.2	-0.6	0.2	-0.2	-0.3	0	-0.1	-0.4	-0.2
31-Dec	2.1	1.4	1.6	1.7	2.1	2.3	2.7	2.1	2.2	2.1	1.4	1.7	0.7



Legend:

	Days with Ice Wine Temperatures
	Monthly Minimum



Niagara East: December 2011 Daily Minimums

Date	St. Catharines Glass Ave	St. Catharines Third Ave	West St. Catharines Fifth Ave	Niagara College	St. David's Bench	Niagara Airport	Virgil	Virgil East	NOTL Irvine Road	Lakeshore	Parkway	Queenston	
01-Dec	-0.9	-2	-1.2	-1.3	-0.6	-0.6	-1.6	-1.4	-3.4	-2.2	-1.9	-2.7	-1.1
02-Dec	-3.1	-3	-3.6	-3.2	-2	-3	-2.5	-2.6	-3.9	-1.7	-2.5	-2	-1.7
03-Dec	-4.1	-3.7	-3.5	-3.5	-1.7	-2.2	-3.2	-3.3	-4.3	-2.7	-2.4	-3	-1.8
04-Dec	5.7	4.9	5.9	5.8	5.9	5.7	5.5	5.5	5.7	5	5.4	5.7	6.5
05-Dec	1.2	1.1	0.8	1.1	1.9	1.9	1.9	2.3	2.1	2	2.5	2.6	2.6
06-Dec	1.7	1.6	1.5	1.7	2.2	2.1	2.2	2.5	2.2	2.2	2.7	2.6	2.4
07-Dec	-1.8	-2.1	-2.1	-2.7	-2	-1.8	-1.9	-1.8	-2.3	-1.7	-1.5	-2.1	-1.8
08-Dec	-0.3	-0.5	-0.8	-0.6	-0.7	-1.2	-0.6	-0.6	-1.3	-0.9	-0.9	-1.1	-0.8
09-Dec	-2.7	-2.8	-3.3	-2.8	-2.5	-2.4	-2.2	-1.9	-1.9	-1.7	-1.2	-1.7	-2
10-Dec	-8.1	-8.1	-8.1	-8.3	-6.7	-6.2	-6.6	-7.1	-7.2	-6.2	-5.5	-6.7	-6
11-Dec	-7.4	-8.1	-8	-8.6	-6.7	-7	-7	-7.2	-6.9	-6.6	-6.3	-6.5	-5.7
12-Dec	-5.5	-5	-4.5	-4.2	-0.7	-1.2	-4	-3.8	-6.1	-4	-2.8	-4.2	-3.7
13-Dec	-1.3	-2.3	-1	-1.1	-0.7	-0.2	-2	-2.6	-4.3	-2	-2.9	-2.2	-0.2
14-Dec	1.3	1.1	1.5	1.3	3.3	2.6	1.1	1.2	1.3	1.6	2.1	1.6	2.6
15-Dec	4.8	4.5	4.5	4.9	4.9	4.6	4.8	5.1	4.8	5	5.3	5.1	5.1
16-Dec	0.9	0.6	0.5	0.7	0.7	0.4	1.1	1.2	1.1	1.2	1.7	1.5	1
17-Dec	-7.1	-7.7	-7.8	-7.8	-7.9	-8.2	-7.4	-7.5	-7.5	-7.4	-7.1	-7	-7.2
18-Dec	-6.4	-6.6	-6.6	-6.4	-6.6	-6.6	-6.9	-6.6	-6.4	-6.9	-6.3	-6.2	-6.1
19-Dec	2.6	2.2	2.3	2.6	2.4	2.1	2.2	2.3	2.1	2.1	2.1	2.1	2.3
20-Dec	-1	-1.5	-2.1	-1.7	-2.7	-2.1	-1.7	-1.8	-2.1	-1.8	-1.6	-2	-2.3
21-Dec	1.2	1	1	1.3	1.9	1.3	1.2	1.5	1.3	1	1.4	1.4	2
22-Dec	2.8	2.5	2.4	2.7	2.7	2	2.5	2.5	2.7	2.6	2.9	2.8	2.7
23-Dec	-4.4	-4.7	-5.7	-5.4	-5.6	-5.8	-4.9	-5.2	-5.4	-5	-4.7	-5	-5.4
24-Dec	-7	-7.4	-8.1	-7.9	-7.1	-7.5	-7.2	-7	-7.8	-7.1	-4.4	-6.9	-7.5
25-Dec	2.1	2.1	1.6	1.8	2.4	1.9	2	2.1	1.8	2	2	0.5	2.1
26-Dec	-0.4	-1.5	-1.4	-0.8	0.7	-1.2	-0.6	-1.2	-2.5	-0.4	-0.6	-0.7	-1.1
27-Dec	0.1	0	0	0.2	0.2	0	0.3	0	0.3	0.5	1	0.7	0.3
28-Dec	-7.5	-7.8	-8.3	-8	-7.7	-7.7	-7.4	-7.2	-7.5	-7.3	-6.8	-7.2	-7.6
29-Dec	-9.3	-9.9	-10.1	-10.3	-9	-8.4	-8.4	-8.6	-8.9	-8	-7.6	-8.6	-8.7
30-Dec	0.1	0	0	0.3	0.5	-0.1	-0.4	-0.2	-0.8	-0.8	-0.8	-0.7	0
31-Dec	1.3	2.3	0.6	1.2	1.9	2.3	2.1	2.4	2.4	2.4	2.6	2.5	2.4



Legend:

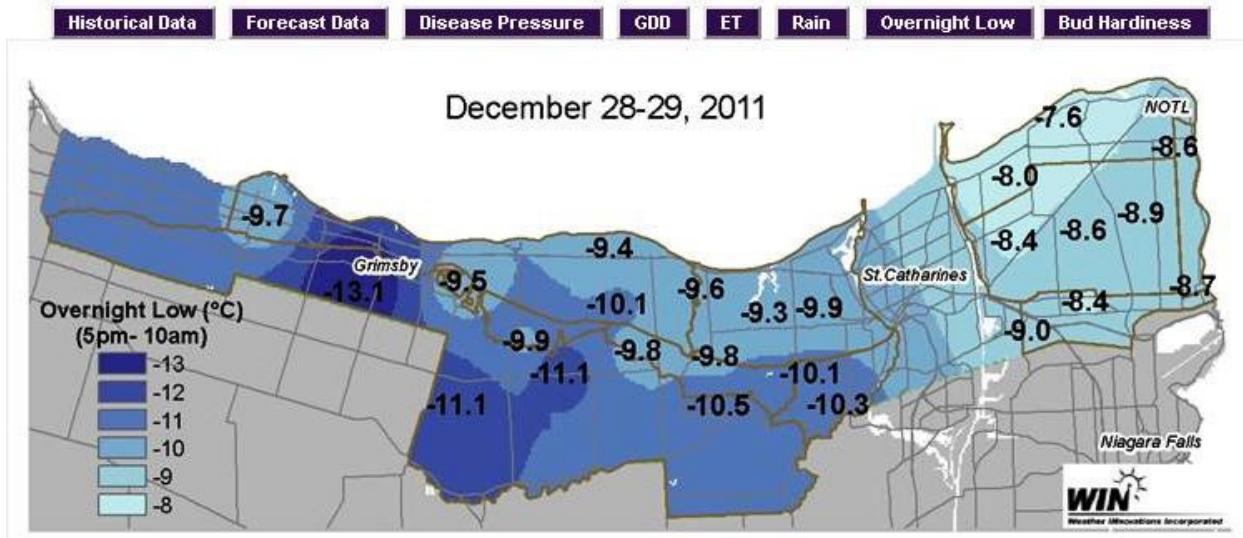
	Days with Ice Wine Temperatures
	Monthly Minimum



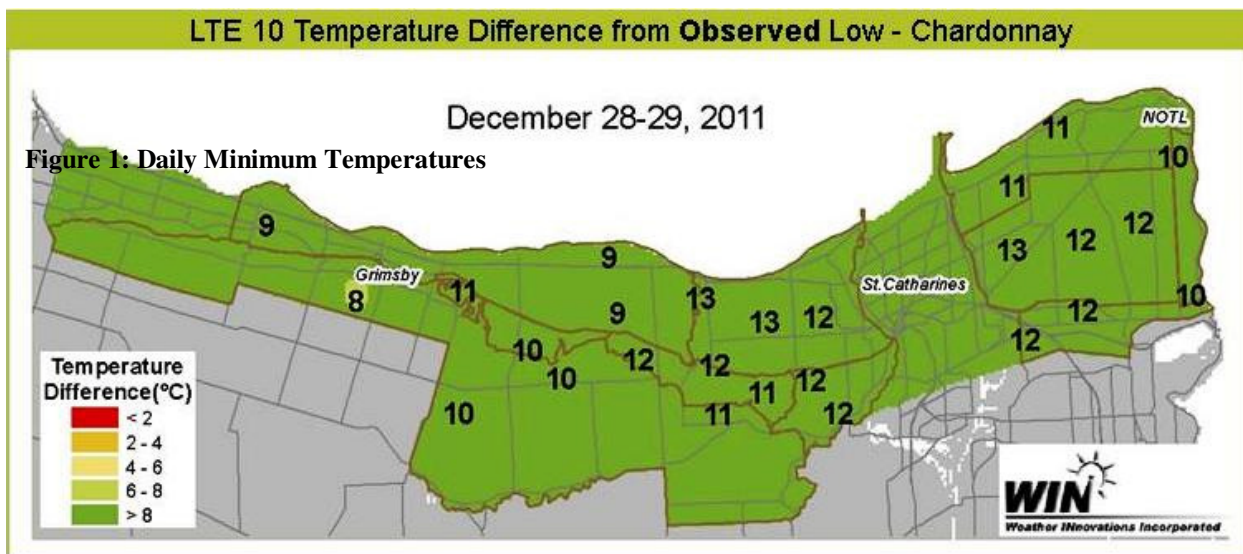
Bud Hardiness

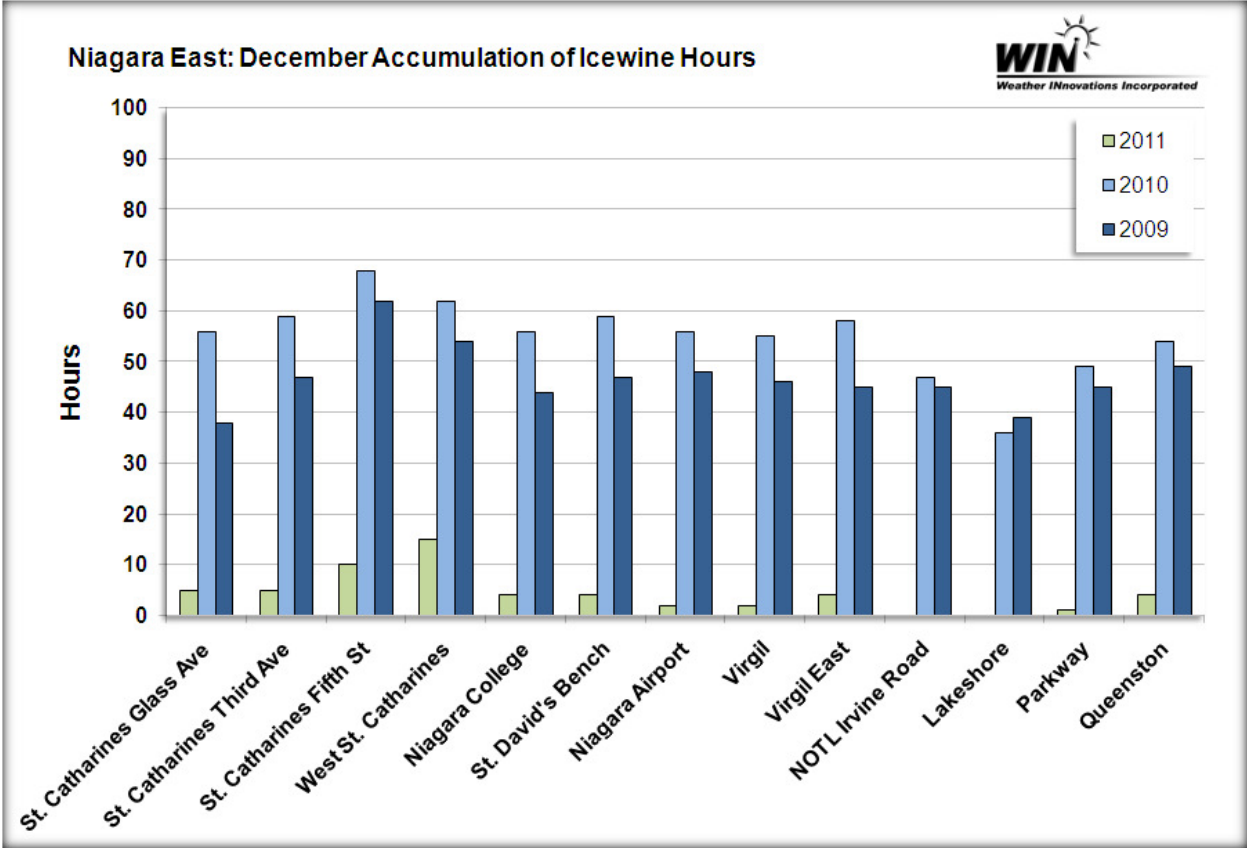
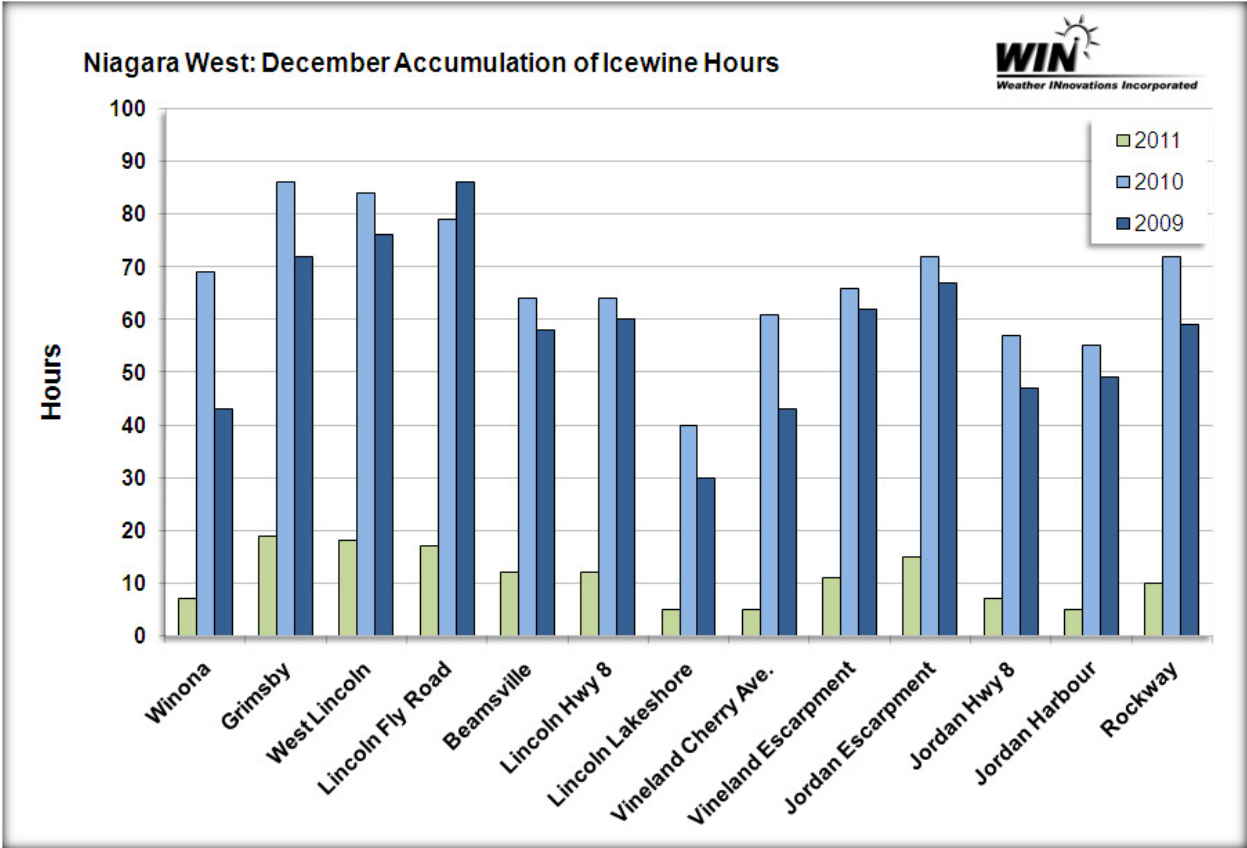
Temperatures remained above the estimated LTE10 values (the temperature at which 10% of primary buds would die) for Chardonnay and Cabernet Franc for the month of December. The coldest temperatures reached in December 2011 were on the 29th, but temperatures remained at least 8°C warmer than the LTE10 values at that time. The following figures show the overnight lows during these two periods.

Niagara Peninsula - Overnight Low



The LTE10 map shows the temperature difference from the LTE10 value during that time. A positive number on the map indicates the number of degrees that the station remained above the LTE10 value, a negative number indicating a temperature is below the LTE10 value. A value of zero on the LTE10 map would indicate that a particular station reached the LTE10 value. Note that the overnight low map and the LTE10 map values are calculated from temperatures occurring between 5PM and 10AM. Therefore, lower temperatures occurring between the daytime hours of 10AM to 5PM would not be illustrated in these maps.





Summary

December 2011 temperatures were significantly above normal in the Niagara appellation; average temperatures for the month were 2.4°C to 3.1°C above the 30-year normals. The coldest temperature reached in Niagara in 2011 was -13.1°C on December 29th at the Grimsby station. December 2011 provided only a single 6-hour minimum opportunity for harvesting icewine grapes at most locations, unlike the previous few years. Locations in the western half of Niagara and those further from the lake experienced colder temperatures, resulting in a greater number of icewine hours. These conditions provided a later than normal start to the harvest for growers who chose to produce icewine this year.

Appendix

Potential Icewine Harvest Opportunities for Niagara West:

Niagara West: Icewine Opportunities (6 Hour Minimum)													
Date & Time	Winona	Grimsby	West Lincoln	Lincoln Fly Road	Beamsville	Lincoln Hwy 8	Vineland Lakeshore	Vineland Cherry Ave.	Jordan Escarpment	Jordan Escarpment	Jordan Hwy 8	Jordan Harbour	Rockway
Potential Icewine Opportunity													
12/28/2011 16:00	-4.7	-5.4	-5.4	-5.3	-4.5	-4.7	-4.1	-4.2	-4.6	-4.6	-4	-4.3	-4.2
12/28/2011 17:00	-5.7	-7	-6.2	-6.5	-5.8	-6	-4.9	-5.2	-5.8	-5.7	-5.1	-5.2	-5.2
12/28/2011 18:00	-6.9	-8.1	-7.6	-7.6	-6.8	-7.2	-5.8	-6.2	-6.8	-6.7	-6	-6.2	-6.3
12/28/2011 19:00	-7.4	-8.7	-8.4	-8.4	-7.7	-7.9	-6.3	-7	-7.7	-7.6	-7	-6.9	-7.3
12/28/2011 20:00	-7.6	-8.9	-8.7	-8.7	-8	-8	-6.5	-7.2	-7.9	-8	-7.2	-6.9	-7.6
12/28/2011 21:00	-7.9	-9.3	-9.4	-9	-8.2	-8.1	-6.6	-7.1	-8	-8.1	-7.3	-6.9	-7.8
12/28/2011 22:00	-8.4	-10.4	-9.9	-9.6	-8.6	-8.5	-6.7	-7.4	-8.3	-8.4	-7.5	-7.1	-8.1
12/28/2011 23:00	-8.3	-10.3	-9.8	-9.3	-8.4	-8.5	-7.2	-7.6	-8.3	-8.3	-7.6	-7.7	-8.1
12/29/2011 00:00	-8	-10	-10.7	-9.3	-8.4	-8.4	-7	-7.5	-8	-8.1	-7.4	-7.7	-7.8
12/29/2011 01:00	-7.9	-10.5	-10.5	-10.3	-9	-8.5	-7.1	-7.8	-8.8	-9.2	-7.8	-7.8	-8.5
12/29/2011 02:00	-7.8	-10	-9.7	-9.9	-8.6	-8.7	-7	-7.7	-8.8	-9.2	-8.4	-7.6	-8.8
12/29/2011 03:00	-9.2	-12	-10.8	-10.8	-9.6	-9.5	-8.3	-9.5	-9.4	-9.9	-9.1	-8.7	-9.5
12/29/2011 04:00	-9.2	-12.9	-10.9	-10.8	-9.7	-9.2	-9.3	-9.9	-9.6	-10.3	-9.8	-9.5	-10.1
12/29/2011 05:00	-8.8	-12.1	-10.4	-10.5	-9.1	-9.1	-9	-9.7	-9.4	-10.1	-9.4	-9.3	-9.7
12/29/2011 06:00	-8.2	-11	-10.1	-10.3	-8.9	-9	-8.5	-8.6	-9.1	-9.8	-9.2	-9.1	-9.2
12/29/2011 07:00	-7.7	-9.9	-9.1	-9.3	-8.3	-8.3	-8	-8	-8.1	-9	-8.8	-8.6	-9
12/29/2011 08:00	-7.1	-8.6	-8.1	-8.1	-7.3	-7.4	-7	-7.1	-7.3	-7.7	-7.3	-7.7	-7.7
12/29/2011 09:00	-6.2	-7.4	-7.3	-7.4	-6.7	-6.5	-6.2	-6.4	-6.7	-7	-6.3	-6.7	-6.9
12/29/2011 10:00	-5	-5.7	-5.9	-5.9	-5.3	-5.1	-4.8	-5.1	-5.4	-5.6	-5	-5.4	-5.4

Legend:

	Ice Wine Temperatures
	Below Ice Wine Temperatures

Potential Icewine Harvest Opportunities for Niagara East:

Niagara East: Icewine Opportunities (6 Hour Minimum)													
Date & Time	St. Catharines Glass Ave	St. Catharines Third Ave	West St. Catharines Fifth St	Niagara College	St. David's Bench	Niagara Airport	Virgil	NOTL Irvine Road	Virgil East	Lakeshore	Parkway	Queenston	
Potential Icewine Opportunity													
12/10/2011 20:00	-5.6	-5.6	-6.4	-6.3	-5.6	-5.3	-4.8	-4.8	-5	-4.2	-2.9	-4.3	-5
12/10/2011 21:00	-7.3	-7.3	-7.5	-7.5	-6.5	-5.8	-5.5	-5.4	-5.8	-4.8	-2.8	-5.1	-5.5
12/10/2011 22:00	-7.8	-7.9	-7.8	-8.1	-6.2	-5.9	-6	-6.1	-6.6	-4.2	-2.5	-6.4	-5.8
12/10/2011 23:00	-7.9	-7.9	-8	-8.2	-6.1	-5.6	-6.4	-6.1	-6.9	-4.9	-2.8	-6.6	-5.7
12/11/2011 0:00	-7.5	-7.5	-7.6	-8.2	-6	-5.9	-6.5	-6.5	-6.8	-5.9	-5.3	-5.8	-5.7
12/11/2011 1:00	-7.2	-7.7	-7.7	-8.5	-6.3	-6.2	-6.3	-6.9	-6.7	-6.5	-5.4	-5.8	-5.6
12/11/2011 2:00	-7.2	-7.9	-7.8	-8	-6.3	-6.6	-6.9	-6.8	-6.7	-6.3	-5.9	-6.2	-5.6
12/11/2011 3:00	-7.2	-7.6	-7.6	-8.3	-5.5	-6.1	-6.4	-6.8	-6.5	-6.2	-6.3	-6.4	-5.5
12/11/2011 4:00	-6.7	-6.6	-7	-8.1	-5.1	-5.6	-5.4	-5.3	-6.4	-5.3	-5.7	-5.9	-5.2
12/11/2011 5:00	-5.6	-5.7	-5.9	-6.9	-4.8	-5.4	-4.8	-4.6	-5.6	-4.8	-4.6	-5.3	-5
12/11/2011 6:00	-5.1	-5.5	-5.8	-6.2	-5.6	-5.5	-5	-5.3	-5.6	-4.7	-4.5	-5	-4.9
Potential Icewine Opportunity													
12/28/2011 20:00	-6.6	-6.8	-7.6	-7.4	-6.6	-7.2	-6.9	-6.6	-7.1	-6.9	-6.5	-7	-7
12/28/2011 21:00	-6.8	-6.9	-7.8	-7.5	-6.9	-7.5	-7.3	-7	-7.2	-7.1	-6.5	-6.8	-7.4
12/28/2011 22:00	-7	-7.2	-8.2	-7.8	-7.1	-7.6	-7.3	-7	-7.2	-7	-6.5	-6.7	-7.4
12/28/2011 23:00	-7.4	-7.6	-8	-7.8	-7.4	-7.6	-7.3	-7	-7.4	-7.2	-6.6	-7	-7.5
12/29/2011 00:00	-7.2	-7.5	-7.9	-7.5	-7.5	-7.6	-7.3	-7.1	-7.5	-7.3	-6.7	-7.1	-7.5
12/29/2011 01:00	-7.5	-7.7	-8.5	-8.1	-7.4	-7.5	-7.2	-7.1	-7.4	-7.1	-6.7	-7	-7.4
12/29/2011 02:00	-7.6	-7.9	-8.7	-8.7	-7.8	-7.8	-7.3	-7.1	-7.3	-6.9	-6.4	-6.8	-7.4
12/29/2011 03:00	-8.3	-8.2	-9.6	-9.6	-7.8	-7.8	-7.1	-7	-7.3	-6.8	-6	-6.8	-7.6
12/29/2011 04:00	-9.3	-9.5	-10.1	-10.1	-8.7	-8.4	-7.8	-8	-8.1	-7.3	-6.5	-7.3	-8.2
12/29/2011 05:00	-9.2	-9.7	-9.9	-10.1	-8.4	-8.2	-8.2	-8.4	-8.8	-7.8	-7.4	-8.4	-8.5
12/29/2011 06:00	-9	-9.3	-9.5	-9.8	-8.1	-8.2	-7.8	-7.8	-8.1	-7.4	-6.8	-7.2	-8.1
12/29/2011 07:00	-8.5	-8.6	-9	-9.3	-8.7	-8.2	-8	-7.9	-8.3	-7.9	-7.4	-7.5	-8.2
12/29/2011 08:00	-7.6	-7.6	-7.9	-8	-6.8	-7.2	-7.3	-7.1	-7.3	-7.4	-7	-6.8	-7.2
12/29/2011 09:00	-6.6	-6.5	-6.7	-6.5	-6	-6.2	-6.3	-5.9	-6	-6.4	-6	-5.7	-6
12/29/2011 10:00	-5	-5.1	-5	-4.8	-4.8	-5	-4.9	-4.6	-4.6	-4.9	-4.7	-4.8	-4.9



Legend:

	Ice Wine Temperatures
	Below Ice Wine Temperatures

