

## 2019 - 2020 Winter Grape Bud Hardiness Okanagan Valley BC

Variety	Location	sample day	Avg LTE/vine (Oct 22-24)	Avg LTE/vine (Nov 6,7)	Avg LTE/vine (Nov 20,21)	Avg LTE/vine (Dec 4,5)	Avg LTE/vine (Dec 18,19)	Avg LTE/vine (Jan 6,7)	Avg LTE/vine (Jan 15,17)	Avg LTE/vine (Jan 29,30)	Avg LTE/vine (Feb 12,13)	Avg LTE/vine (Feb 26,27)	Avg LTE/vine (Mar 11,12)	Avg LTE/vine (Mar 25,26)	Avg LTE/vine (Apr 8,9)
Cabernet Franc	Oliver east	Wed	-15.3	-22.0	-23.1	-24.6	-24.3	-23.9	-26.0	-22.7					
Cabernet Franc	Naramata Bench	Wed	-13.5	-18.8	-21.3	-23.3	-23.8	-23.7	-25.3	-22.6					
Cabernet Franc	Black Sage	Thur	-14.7	-20.8	-22.2	-23.7	-23.4	-22.5	-25.0	-22.6					
Cabernet Franc	Osoyoos, southeast	Thur	-17.5	-23.1	-23.3	-25.2	-25.6	-23.6	-24.8	-24.4					
Cabernet Franc	Black Sage	Wed	-14.9	-20.9	-22.4	-25.0	-25.2	-25.3	-24.3	-24.3					
Cabernet Franc	Osoyoos, north	Thur	-15.5	-21.6	-23.4	-24.6	-25.9	-23.5	-26.0	-23.9					
Cabernet Franc *(1yr)	Oliver east	Wed		-19.2	-20.1	-22.5	-22.9	-21.0	-24.3	-21.8					
Cabernet Franc *(2yr)	Oliver east	Wed		-19.9	-21.3	-23.1	-23.5	-21.3	-24.1	-22.4					
Cabernet Sauvignon	Osoyoos northeast	Wed	-16.3	-21.3	-22.7	-23.8	-24.5	-23.1	-23.1	-23.4					
Cabernet Sauvignon	Osoyoos northeast	Wed	-14.1	-20.4	-20.7	-23.8	-23.1	-23.1	-23.6	-22.0					
Cabernet Sauv *(1yr)	Black Sage	Wed		-14.5	-18.9	-21.0	-21.4	-20.6	-24.0	-20.8					
Cabernet Sauvignon	Osoyoos, southeast	Thur	-15.4	-20.2	-21.5	-23.9	-23.7	-23.4	-24.1	-22.9					
Cabernet Sauvignon	Black Sage	Wed	-14.7	-20.0	-20.6	-23.6	-23.9	-23.7	-23.8	-22.9					
Chardonnay	OK Falls, east	Wed	-18.8	-21.3	-22.3	-24.6	-24.3	-23.7	-24.6	-21.9					
Chardonnay	Oliver east	Wed	-18.1	-21.1	-21.9	-24.0	-23.7	-23.2	-24.3	-23.0					
Chardonnay	Naramata Bench	Wed	-15.9	-20.8	-21.6	-23.6	-23.2	-23.1	-23.2	-22.6					
Chardonnay	Osoyoos, southeast	Thur	-16.9	-20.7	-22.3	-23.6	-24.1	-23.2	-23.8	-22.5					
Chardonnay	Black Sage	Wed	-17.0	-21.5	-22.5	-25.5	-24.9	-23.4	-25.0	-23.6					
Chardonnay	Oliver, south	Thur	-17.9	-21.7	-22.7	-25.0	-24.5	-23.4	-24.9	-23.2					
Gewurztraminer	OK Falls, west	Thur	-16.5	-21.3	-21.0	-23.1	-23.1	-22.8	-22.7	-21.6					
Gewurztraminer	Oliver east	Wed	-15.7	-21.2	-21.0	-21.8	-22.9	-22.1	-23.0	-21.4					
Gewurztraminer	Kelowna	Wed	-14.2	-18.4	-21.0	-21.7	-22.3	-22.3	-22.4	-22.1					
Malbec	Osoyoos, southeast	Thur		-20.6	-20.8	-22.8	-23.7	-22.3	-23.5	-22.0					
Malbec	Osoyoos, north	Thur	-16.2	-20.9	-21.2	-23.1	-23.0	-22.5	-24.5	-21.7					
Malbec	Osoyoos, southeast	Thur	-14.3	-20.6	-21.7	-23.4	-22.7	-21.9	-24.6	-22.5					
Merlot	Osoyoos northeast	Thur	-12.6	-19.7	-21.8	-21.6	-22.7	-21.6	-25.1	-21.8					
Merlot	Osoyoos northeast	Thur	-15.8	-19.8	-21.5	-21.1	-22.1	-21.7	-25.2	-21.3					
Merlot	Black Sage	Wed	-15.8	-20.3	-22.5	-22.7	-22.9	-23.1	-25.3	-22.1					
Merlot	Osoyoos northeast	Thur	-15.8	-20.6	-20.8	-21.7	-23.1	-21.0	-25.1	-20.0					
Merlot	Osoyoos northeast	Thur	-15.2	-19.6	-21.5	-22.4	-22.6	-21.6	-24.4	-22.6					
Merlot	Oliver east	Wed	-15.5	-19.7	-21.3	-22.2	-23.5	-22.0	-24.6	-21.7					
Merlot	Naramata Bench	Wed	-13.7	-17.8	-20.8	-23.0	-22.7	-21.2	-23.9	-22.8					
Merlot	Oliver, west	Thur	-14.7	-19.8	-21.1		-22.4	-21.8	-25.1	-21.8					
Merlot	Osoyoos west	Thur	-16.6	-20.4	-22.5	-22.6	-22.8	-22.2	-23.9	-23.0					
Merlot	Osoyoos, southeast	Thur	-14.5	-20.0	-21.1	-23.5	-23.8	-23.6	-23.9	-21.9					
Merlot	Black Sage	Thur	-15.4	-20.0	-21.3	-23.1	-23.1	-23.9	-23.8	-22.2					
Merlot	Black Sage	Thur	-14.0	-18.3	-19.4	-21.2	-23.8	-21.7	-24.7	-21.6					
Merlot	Osoyoos, southeast	Thur	-14.1	-19.6	-19.8	-23.8	-23.7	-23.0	-24.6	-23.0					
Pinot blanc	Oliver east	Wed	-16.9	-21.2	-21.5	-23.3	-22.9	-22.4	-25.3	-22.5					
Pinot blanc	Black Sage	Wed	-19.0	-23.4	-23.5	-26.3	-25.9	-24.4	-25.0	-24.7					
Pinot gris	Oliver east	Thur	-17.6	-22.2	-22.8	-24.7	-24.1	-24.0	-25.9	-23.3					
Pinot gris	OK Falls, east	Wed	-18.7	-22.5	-22.3	-23.8	-24.9	-24.1	-25.3	-23.4					
Pinot gris	Naramata Bench	Wed	-16.6	-20.4	-21.4	-23.6	-22.6	-21.7	-24.1	-22.9					
Pinot gris	Black Sage	Wed	-18.2	-22.1	-22.9	-24.5	-24.0	-23.1	-24.8	-23.6					
Pinot gris	Oliver east	Thur	-18.6	-23.0	-22.3	-24.7	-24.3	-25.8	-25.5	-24.2					
Pinot noir	Osoyoos northeast	Wed	-17.8	-22.3	-24.2	-25.1	-25.1	-24.3	-25.9	-24.0					
Pinot noir	OK Falls, east	Wed	-18.8	-22.4	-23.3	-24.3	-24.5	-23.9	-26.0	-23.5					
Pinot noir	Naramata Bench	Wed	-17.8	-22.8	-23.6	-24.4	-24.4	-25.1	-26.4	-25.0					
Pinot noir	Black Sage	Thur	-15.9	-21.8	-22.2	-23.9	-24.3	-24.3	-24.6	-22.2					
Pinot noir	Kelowna	Wed	-16.7	-22.3	-23.1	-24.7	-25.2		-24.6	-24.3					
Riesling	Oliver east	Wed	-15.2	-19.8	-22.5	-21.9	-24.2	-22.1	-23.9	-23.0					
Riesling	Naramata Bench	Wed	-17.0	-21.5	-23.3	-24.5	-24.4	-23.4	-25.7	-24.1					
Riesling	Black Sage	Wed	-14.4	-20.5	-22.6	-24.6	-25.6	-24.9	-23.9	-24.6					
Riesling	West Kelowna	Wed	-18.7	-23.5	-24.2	-24.1	-24.6		-25.8	-23.7					
Riesling	Black Sage	Wed	-18.8	-23.1	-23.7	-25.6	-26.0	-24.8	-25.1	-25.1					
Sauvignon blanc	Osoyoos northeast	Thur	-14.4	-21.4	-21.6	-23.3	-23.6	-22.5	-25.3	-22.6					
Sauvignon blanc	Osoyoos northeast	Thur	-15.9	-21.4	-22.5	-22.8	-23.3	-22.5	-25.4	-22.1					
Sauvignon blanc	Oliver east	Thur	-16.1	-21.3	-21.9	-22.6	-23.3	-21.8	-24.3	-22.4					
Sauvignon blanc	Oliver east	Thur	-16.2	-20.9	-21.6	-23.1	-23.4	-22.3	-24.2	-21.7					
Sauvignon blanc	Black Sage	Thur	-15.7	-21.4	-21.4	-23.4	-24.0	-22.0	-25.3	-23.5					
Sauvignon blanc	Black Sage	Wed	-16.9	-20.8	-23.2	-22.8	-22.8	-22.2	-24.9	-22.4					
Shiraz	Osoyoos northeast	Thur	-12.7	-18.3	-19.8	-22.8	-22.1	-21.7	-23.8	-21.2					
Shiraz	Osoyoos northeast	Wed	-14.3	-18.8	-21.1	-22.3	-22.3	-20.9	-24.0	-21.9					
Shiraz	Osoyoos, southeast	Thur	-15.0	-19.8	-21.9	-23.4	-22.7	-24.0	-24.9	-22.4					
Shiraz	Black Sage	Wed	-16.1	-20.2	-22.0	-23.8	-24.3	-22.6	-24.9	-22.8					
Shiraz cl.174	Osoyoos, southeast	Thur	-12.4	-18.8	-19.8	-22.9	-22.1	-22.7	-23.6	-22.2					
Tempranillo	Oliver, south	Thur	-14.8	-19.5	-19.8	-21.7	-21.8	-19.8	-22.5	-20.0					
Viognier	Osoyoos, southeast	Thur		-19.9	-21.8	-22.9	-23.5	-22.7	-24.6	-22.3					
Viognier	Osoyoos west	Thur	-17.4	-21.9	-24.2	-24.9	-25.4	-25.0	-26.0	-24.3					
Viognier	Osoyoos, southeast	Thur	-14.8	-21.2	-21.4	-23.9	-24.1	-23.9	-24.9	-22.8					
Zinfandel	Osoyoos northeast	Wed	-14.9	-19.5	-21.8	-23.4	-23.7	-23.0	-24.5	-22.3					
Zinfandel *(1yr)	Black Sage	Thur		-16.6	-19.0	-20.3	-20.5	-20.6	-22.4	-19.4					

LTE - Lethal Temperature Exotherm (°C) \*(bud hardiness measured on four 1 or 2 year old vines)  
Average LTE/site is the mean temperature for bud death from 3 vines at selected sites in the Okanagan Valley

Note: sample day for Jan 6 & 7 is Mon & Tues, & Jan 17 is Fri  
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