

2011 GROWING SEASON UPDATE (JULY 5)

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By many accounts, 2011 has been a challenging year across the state. Patchy, yet severe, cold damage from the “Thanksgiving Freeze” in 2010 has many vineyards starting over, or at significantly reduced yields due to loss of the primary fruiting buds. This was followed by late-spring frost damage in some sites at the end of May. Finally, 2011 is lagging in growing degree day (GDD) accumulation (Table 1). Across the region, we are ranging 243 to 369 GDD units behind 2003, which was considered a warm year. We are ranging 35 to 128 GDD units behind 2010, which was considered a cool year.

Table 1: Growing Degree Day accumulation (base 50°F) from April 1 to July 4, for 2011, 2003 (warm year) and 2010 (cool year). All data was accessed from AgWeatherNet (AWN) (www.weather.wsu.edu).

AVA: Station	2011	2003 “Warm Year”	2010 “Cool-Year”
Puget Sound- Mt. Vernon	345	588	380
Rattlesnake Hills: Outlook	609	963	717
Yakima Valley: WSU-HQ	612	896	678
Lake Chelan: Chelan South	613	n/a	701
Walla Walla Valley: Walla Walla	628	918	689
Snipes Mountain: Port of Sunnyside	629	930	723
Columbia Gorge: Mary Hill	641	n/a	719
Wahluke Slope: Mattawa	708	1072	803
Red Mountain: Benton City	730	1099	822
Horse Heaven Hills: Paterson	738	1052	866

Bloom is slowly coming to an end in Eastern Washington, for both juice and wine grapes. As a historical reference, the average first bloom for Concord is June 1, indicating we are about 3-4 weeks behind “schedule” in most areas.

However, this means very little when speculating on fruit quality and when it will ripen. If you look closely at GDD in Fig. 1, the warm 2003 and cool 2010 growing seasons started similarly, but had drastically different endings. A warm spell in May initially separated the accumulation curves, but the really difference came in mid-July. It truly is the temperatures in July, August and September that can determine a vintage. It is too early to predict how and when grapes will ripen, as we cannot predict with sufficient accuracy how the weather will progress in these critical months.

If we compare 2011 to 2003 and 2010, we can calculate a “best” and “worst”-case scenario. From July 4 to Sept 15, 2003 accumulated 1653 GDD, totaling 2549 GDD; 2010 accumulated 1359 GDD, totaling 2037 GDD. If the current season accumulated the same GDD as in 2003 or 2010, it would place us at 2265 GDD and 1971 GDD by Sept 15, respectfully. In an “average” year, we would accumulate 1395 GDD (based on data from 1924-2010), which would place us at 2007 GDD for 2011. With an average daily accumulation of 14 GDD in September, we could be (at Sept 15) approximately 16 days ahead of 2010 if we have the best-case scenario of warm temperatures, 5 days behind of 2010 if we have the worst-

case scenario of cool temperatures, and 2 days behind 2010 if we have “average” temperatures. These forecasts were based on data from WSU-HQ only.

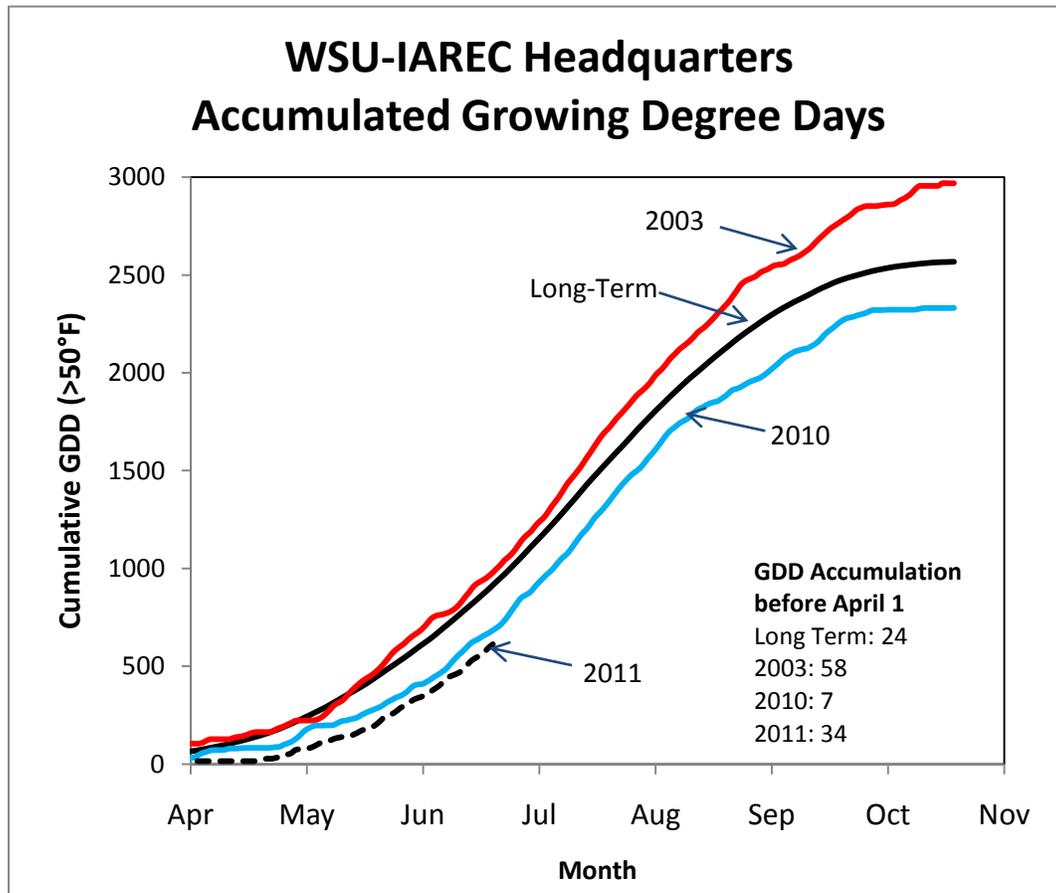


Figure 1- Accumulated growing degree days for the Yakima Valley AVA (WSU-HQ) for comparison reference. Graph updates are available at: www.wine.wsu.edu/research-extension/weather/growing-degree-days/.

Conclusion thus far: Should temperatures stay cool, the vintage may be delayed compared to last year. Even with a delay, we will have enough time to ripen fruit, as climate conditions in Eastern Washington are conducive to reach sufficient sugar content without the presence of unripe flavors. However, with cool vintages, this ripeness may not correspond to traditional harvest parameters vintners in the area are accustomed to, it therefore is important to harvest based on flavor development, not numbers. If cool temperatures persist, winemakers may have to adjust their practices as in 2010 to work with fruit that has more acidity (more malic acid) and lower pH. In 2010, these adjustments were often made by using malolactic fermentation (even in some wines where it was not typically used) and by doing small chemical deacidifications in the must and/or the wine. Information on chemical deacidification and malolactic fermentation is available at <http://wine.wsu.edu/research-extension> under “Articles”. More information on MLF workshops on July 12 and 14 is also available on the website.

Article was prepared with enological input from Dr. Thomas Henick-Kling, Director of Viticulture and Enology, WSU-TriCities.

[Click here to access WSU’s Growing Degree Day page for Viticulture](#)

CALCULATING GROWING DEGREE DAYS

Growing degree day units are automatically calculated for weather stations operated by AgWeatherNet. However, if you have your own station, you can calculate your site-specific GDD. Use the following equation:

$$\text{Growing Degree Day Unit (GDD)} = \frac{(T_{\max} + T_{\min})}{2} - \text{Base(usually 50F)}$$

Example: If the daytime high was 75°F, and the low was 45°F, then GDD for that day would be:

$$\text{Growing Degree Day Unit} = \frac{(75 + 45)}{2} - 50 = \mathbf{10\ GDD}$$

**Note: GDD units cannot be negative. If you have a negative number, then set its value to 0. For example: If the maximum temperature was 55°F, and the low was 40°F, then:

$$\text{Daily Growing Degree Unit} = \frac{(55 + 40)}{2} - 50 = \mathbf{-2.5\ GDD = 0\ GDD}$$

Accumulating GDD for a season is calculated by summing the GDDs from April 1 until October 31.