

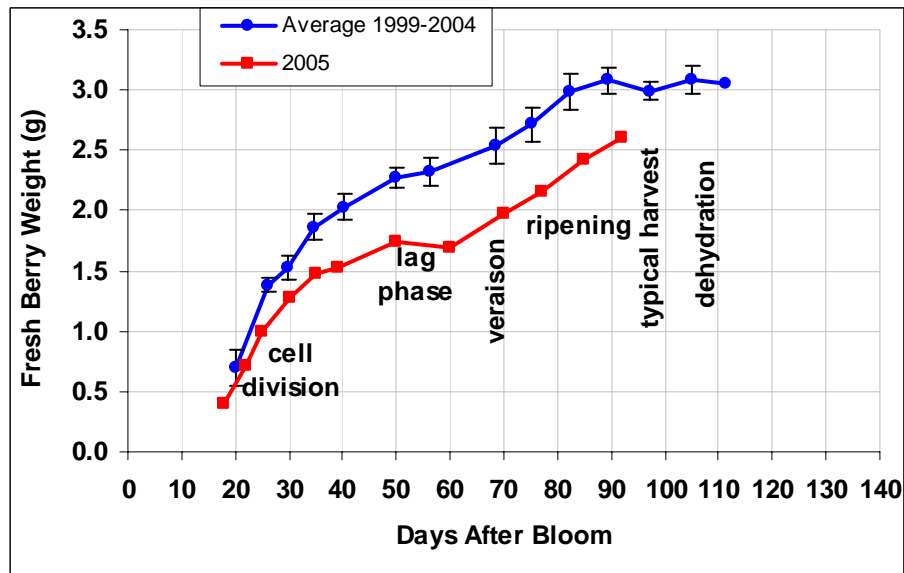
Concord Berry Weight Continues to Climb

Terry Bates, Ph.D.

Viticulture Research Associate

Cornell University – Fredonia Vineyard Laboratory

The latest Concord fruit measurements taken on 9/13/2005 indicate that the average berry weight continues to climb (see figure 1). Given the dry weather conditions this spring and the small berry weight measurements taken earlier this season, I was predicting the final Concord average berry weight to be approximately 2.5 grams in our measurement vines. During lag phase of berry development, the predicted curve even pointed to a final berry weight of 2.25 grams. Tuesday's average berry weight tipped the scales at 2.6 grams.

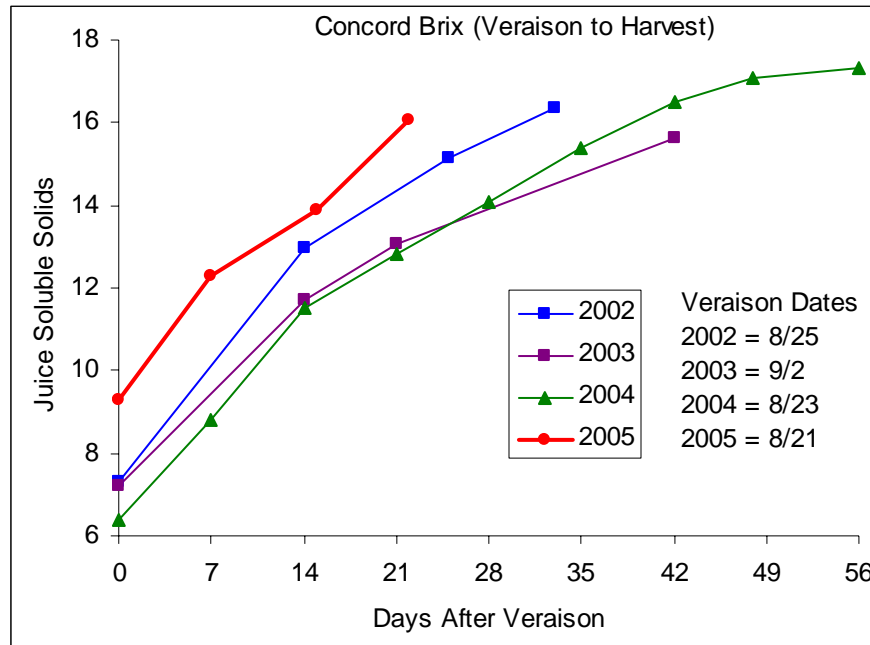


After veraison, berry weight gain is primarily a function of water weight gain through cell expansion. Many people were wondering what the limit to cell expansion would be based on the early season small berry weight. According to the current data we still have not answered the question because the cells are still expanding. However, I can say that the potential for cell expansion was more than what I thought it would be.

Juice soluble solids also continue to climb at a faster than average rate (see figure 2). First, an early bloom date with a corresponding early veraison date set off fruit ripening during a period of longer days and warmer temperatures. Second, smaller than average berry weight has concentrated juice soluble solids (see the $C1 \times V1 = C2 \times V2$ article). Third, near perfect weather conditions post-veraison have led to a higher than average rate of juice soluble solids accumulation.

If you examine the 2005 juice soluble solids curve in figure 2 (the red line) you will see a slight zig-zag in fruit JSS accumulation. In the first week after veraison we had warm and sunny weather and the rate of JSS increased fairly normally (similar to 2002 and 2004). In week two, the rains from Katrina continued to boost berry weight and also brought cloudy days. JSS continued to increase but at a slightly lower rate. In week three post-veraison, we again had

warm and sunny weather but with the added benefit of replenished soil moisture (leading to good vine water status and high photosynthetic rates). As a result, JSS accumulation in week three was again quite high and much higher than average for this time of year (when day length is decreasing and temperatures are typically lower).



Good luck to all of you during the harvest season! Although the Concord market is lower than desirable this year, the good news is that berry weight continues to rise which will add to your overall tonnage and juice soluble solids are going up at a record pace which will help you with the sliding sugar pay scale.