



Curt Dunham Interview

By Peggy Fiandaca, July 15, 2011



THE CHEMISTRY OF WINEMAKING

I had no idea that winemaking involved so much chemistry. Tell me about that part of the winemaking process?

The chemistry aspect is one of the parts of the winemaking process that attracted me. Since wine is such a living and evolving product; unlike a bottle of orange juice that is what it is until it is consumed; wine continues to evolve. One way to evaluate how the wine is changing and evolving is not only through tasting but through the testing it goes through during the process.

earth's

fruit

comes

full

circle

Chemistry can tell us what is going on with the wine well before we can see, smell or taste something.

When do you start doing tests?



First test is on the grapes themselves when they are in the field.

We test for brix (sugar to water ratio in the grapes) and for ph. These are two very important pieces of information as to when to pick the grapes. We start testing after the red grapes have gone through veraison (when the grapes start to turn purple).

First we will test by tasting to see if sugar levels start to rise. If so, then we start using the spectrometer and ph meter. As we get closer to harvest we will perform these tests every day until the numbers and flavors are where we want them to be and then we harvest.

As we get closer to harvest we go from the field spectrometer to hydrometer because it gives us a more accurate reading then the field tests.

We start testing immediately after crush. We start testing the ph and acidity levels of the must to make any initial adjustments. As you may know, must is the skin, pulp, juice, and seeds that is left over from the de-stemming and crush process.

The wine is most vulnerable at this stage because there is no alcohol in it to protect it from harmful bacteria or other organisms that would turn it into vinegar.

To test for acidity we use a titrator. We are not shooting for a specific number but we are testing titratable acidity that will give us parameters on what we can do to the must.



At this point we will inoculate with yeast to begin the fermentation process.

The yeast we use is a type of killer yeast to get rid of any native yeast that might have come from the field on the grapes.

We want to be able to control the type of yeast applied and the rate of fermentation.

We use the hydrometer a lot at this point to test the sugar level because the sugar should begin to drop as the fermentation process turns the sugar to alcohol and carbon dioxide.

Once fermentation is complete, we typically do several tests – one for volatile acidity. We will begin to protect the wine by adding sulphites. Sulphites are needed to preserve the wine. We will test free SO₂ and total SO₂ to ensure that the wine is protected as the wine goes into its aging vessel (i.e., barrel).

Free SO₂ is the number we are looking for; there are molecules of sulphites that are put into the wine; the protection process blows off some of the SO₂. This is what we are monitoring because the free SO₂ protects the wine. However, per Federal regulations we must track and report on "Total SO₂" only.

During the aging process we test for SO₂, pH and volatile acidity. These tests help us monitor the wine to ensure that nothing is happening that we don't want to have happen. We do these tests monthly. We also do these tests after racking the wine which takes the wine of the solids.

Prior to blending or bottling we will do a lot of tests for free SO₂ because once you bottle it is what it is. We try to get the SO₂ number right where we want it by making adjustments to the wine.

Do you do any tests when you determine when to bottle?

No there are no tests to tell you when to bottle. That is all done by taste.

For labeling purposes through the Federal Agency that regulates wine (Alcohol and Tobacco Tax and Trade, <http://www.ttb.gov/wine/index.shtml>) we have to test for the alcohol content. There are several different methodologies to test for alcohol. At Lawrence Dunham Vineyards we want a third party evaluation so we send the wine sample to a lab to conduct the alcohol content.

So not only are you a farmer but you are a chemist too.

Yes chemistry is a very important part of the winemaking process. It ensures that every bottle of Lawrence Dunham Vineyards' wine is what we hoped it would be when we bottled it so our customers can enjoy our wine thoroughly.

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