Portland Winemakers Club

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September 2017

Monthly Rant

Scheduled Meetings

January 14, 2017
Annual Gala – Archer Winery; 4-9 PM

January 18, 2017
Crush Talk / Planning

February 15, 2017
Bordeaux Tasting

March 15, 2017
PWC women winemakers pouring their own creations.

April 19, 2017
Barrel / Carboy Sample Tasting

April, 2017
Tour:

May 17, 2017
Speaker: Rich Decenzo; ETS Labs.

June, 21, 2017
Speaker: Don Hagge owner of Vidon vineyards

July, 15 2017
Annual Picnic at Oak Knoll Winery (no regular meeting in July)

August 16, 2017
All Whites Tasting

September 20, 2017
Other Reds Tasting

October 18, 2017
Pinot Noir Tasting

November 2017
No Meeting

December 6, 2017
Planning, Tours, Speakers, Events, Elections

Photo by Phil Bard

Europe's wine grape vineyards are having a very bad year. It began with a cold spring and continued with a hot summer and numerous hailstorms. France, Germany and Italy have all been affected, and predictions are that it will be the weakest harvest in 7 decades, down as much as 60 percent in some areas. While the only bright spot in this is that the remaining fruit could be of high quality, its of no comfort for some such as one German grower, Adolf Dahlem, who lost his entire crop in a giant hailstorm recently. One big concern is the stress that extreme heat does to overall vine health, and temperatures have been steadily rising over the years in the wine growing regions. Dahlem commented that when he was growing up, harvest would take place in October but that now it is usually early or mid-September. This is in line with what we have been seeing here in Oregon, this year being an exception, but the trend has been towards warmer and drier for some time now. It has been beneficial to Pinot Noir in most cases, unless you're a fan of the cold years, but I wonder where its headed. If it keeps up we'll be ripping out Pinot and planting big reds. Yikes…

Drink Responsibly.
Drive Responsibly.

Misc. Information

• **Spring frost and an extreme heatwave nicknamed 'Lucifer'** are set to leave the world's two largest wine producing countries, Italy & France, with their smallest harvest for decades, according to initial estimates.

• **Oregon's winemakers** reported a 12 percent sales increase to $529 million, planted 2,400 more acres of grapes and opened 23 more wineries in 2016, according to an annual census commissioned by the Oregon Wine Board. Oregon now has 725 wineries.

• **Troon, Agate Ridge, and Red Lily Wineries in Southern Oregon are all for sale.** "Without a huge capital infusion, they can't get to the next level."

• **Amazon Prime will deliver wine** to your door in one hour or less. But, like all good things, there's a catch: Right now, you have to live in Portland or one of 11 other cities.

• **'Incredibly dry'** Washington's hot, dry summer expected to get even hotter in September.

• ***"I'm beginning to think there's really no such thing as a really good wine:*** *there's just really bad wine, and everything else".*

• **Grapes could not be turned into good wine** without man, but it is worth pausing briefly on the fact that neither the French, Spanish, Italian or German languages have a word for 'winemaker'.

What this seemingly peculiar fact shows is that the act of making wine is entwined heavily with the philosophy of the person doing it. The French use the word *vigneron*, which is best translated as 'wine grower.' In doing so, a belief is being expressed: that it is nature that makes wine, not man.

Note: The next regular meeting will be Wednesday, September 20th at 7:00 PM at Oak knoll Winery. September agenda: "Other Reds Tasting". This will be member produced all red varietals blind tasting and scoring. Other reds are varietals other than Bordeaux varietals or Pinot Noir (e.g. Tempranillo, Syrah, Petite Sirah, Zinfandel, Sangiovese, Nebbiolo, Barbera, Grenache. (*Bordeaux varietals are Cabernet Sauvignon, Merlot, Malbec, Petit Verdot, Cabernet Franc & Carmenere*).

This will be a potluck, bring a small snack to share. Also bring 2 wine glasses for the blind tasting.
The club meeting will begin at 7 pm and end by 9 pm. If you can, get there a little early to help set up. Please help put away chairs and tables at the end of the meeting.

Website: http://portlandwinemakersclub.com/

August Meeting Minutes

(Present: 20)

• There was no business discussion except to say that this year's grape harvest appears to be progressing as a normal year based on past history.

• We welcome a new member John Guitteau. He has considerable past on & off winemaking experience and looks forward to getting in to the craft one again.

Results of the All Whites" member winetasting (in order of tasting)

Wine #	Name	Varietal	Gold	Silver	Bronze	None	Total Score	Medal Score	Medal	Rank
1	Barb Thompson	2015 Viognier	3	15	1		40	2.11	Silver	1
2	Bob Hatt	2016 Viognier		7	10	2	24	1.26	Bronze	6
3	Don Hoffard	2016 Pinot Gris	2	1	14	2	22	1.16	Bronze	8
4	Ken Stinger	2016 Pinot Gris		3	16		22	1.16	Bronze	8
5	Paul Boyechko	2016 Pinot Gris			3	16	3	0.16	None	10
6	Ken Stinger	2016 Gewürztraminer		7	11	1	25	1.32	Bronze	5
7	Hoffard/Savage	2015 Pinot Noir Rose		12	7		31	1.63	Silver	4
8	Bill Brown	2016 Sangiovese Rose	4	9	6		36	1.89	Silver	2
9	Jon Kahrs	2013 Chardonnay		14	5		33	1.74	Silver	3
10	Jon Kahrs	2015 Chardonnay	1	4	12	2	23	1.21	Bronze	7

Phil & Bill took a hike last week, in 90+ degrees & heavy Canadian smoke, through John Olenic's 25 planted acres of pinot noir and chardonnay. They were checking the vines for a small purchase this year.

How Ripeness Affects Decisions

Author: Bob Peak

Perfectly ripe. That is how most winemakers — amateur and professional — want the grape crop to come in for every vintage. “Perfectly ripe” involves a whole host of factors. For home winemakers, the first one we usually look at is the sugar content in degrees Brix or specific gravity (SG). With some target in mind, we check the vineyard or examine the grapes we have purchased. Most grapes for dry red wines have a target somewhere in the range of 23 to 25 °Brix and most white varieties for dry or off-dry wines are targeted at about 21 to 23 °Brix.

Sugar content alone does not tell the whole ripeness story. The next factor we usually check is the titratable acidity (TA) and corresponding pH. Red wine grapes are considered about right when the TA is near 0.65 g/100 mL (0.65% or 6.5 g/L). pH will ideally be in the range of 3.4 to 3.6. White grapes are generally sought with a bit more acid and corresponding lower pH: TA of 7.0 g/L or so and pH of 3.2 to 3.4. (For more detail on assessing and interpreting ripeness, see my article “How to Determine Grape Ripeness” in the August-September 2011 issue).

Beyond the basic figures for sugar and acid, ripeness includes a range of characteristics that denote “physiological maturity.” That term represents characteristics that show a fruit has reached a point for successful germination of seeds and development of a new plant. While we are not looking for a new plant, we are looking for the features that go with fruit maturity. Ripe grapes have rich, fruity aromas and well-rounded complex flavors. Under-ripe grapes often have green, vegetal aromas and flavors and can be unpleasantly herbaceous. Over-ripe grapes begin to reflect the characteristics of dried grapes: Raisins. They have cooked, jammy, or stewed aromas and flavors, reminding tasters of raisins, prunes, or dried cranberries. In the physiology of the ripening grapes, most of these changes represent development and evolution of different classes of phenolic compounds, representing phenolic ripeness. Color shows the development of desirable anthocyanins, browning of stems and seeds exhibit tannin maturation, and the loss of green-pepper aromas represents declining pyrazine levels. With all of these changes, here are some winemaking decisions if you find that you have other than perfectly ripe grapes.

Under-Ripe

This condition will most often manifest as a sugar level too low to achieve the desired alcohol in the finished wine. It will be accompanied by a high TA and a low pH, which can inhibit fermentation by many wine yeasts. In making your wine, you will want to take into account, and try to correct, herbaceous or green notes that might mar the finished product. For grapes like Syrah or Cabernet Sauvignon that have too little sugar and too much acid for red wine, the best option may be making a rosé. Champagne and other sparkling wines that are re-fermented in bottles or in tanks are also typically produced from grapes at the lower end of the ripeness scale to keep that refreshing acidity and to account for the extra alcohol, in the order of 1.5%, that will be produced from the addition of sugar.

In correcting sugar and acid for conventional wines, I recommend not pushing any further than needed for an acceptable outcome. Suppose, for instance, that you will make a Zinfandel wine and you would like a Brix of about 25 to target a robust alcohol level of around 14% ABV (alcohol by volume). Instead, you have grapes at 17 °Brix. With an expected alcohol from that sugar level of only about 9.4%, you will need to add at least some sugar to get into standard “table wine” territory. No matter what you do, the finished wine will show characteristics of less-mature fruit. Whatever balance you can achieve will likely be better if you stay somewhat near the harvest characteristics rather than going out of balance with an oddly high alcohol. Settle for adding sugar to achieve 20 or 21 °Brix and a potential alcohol of around 11% ABV. (For details on how to do this, see “Adding Sugar” from the February-March 2015 issue).

The next factor to consider is the acid level. If the pH is below 3.1 or the TA above 10 g/L, you will probably need to de-acidify. While a number of options are available (see the February-March 2016 “Advanced Winemaking” for details), the simple addition of potassium carbonate is one basic approach. Adding 3.4 g of potassium carbonate per gallon (0.9 g/L) of juice will lower the TA by about 0.1 g/100 mL and will usually raise the pH by about 0.1 pH. Do not use carbonates for more than about a 0.2 g/100 mL TA adjustment as bitter, salty flavors may result.

Other decisions in your winemaking may be directed at reducing unripe flavors and improving the perception of fruitiness. With under-mature grapes, the cluster stems will probably be green and flexible, rather than brown and woody. Thorough destemming at crushing is very important to avoid introducing these green stems into the ferment. To help extract fruit characteristics from the grapes, consider using a cold soak, addition of pre-fermentation macerating enzyme products, or both. You may be able to balance out some of the green notes by adding oak powder or chips or sacrificial tannin products

during the primary fermentation. Select a yeast strain that is tolerant of low pH to avoid fermentation becoming stuck. A slower yeast rather than a fast one can also be helpful in providing longer contact with skins to get out the maximum available amounts of flavor and aroma compounds. For the same purpose, you can finish your fermentation with an extended maceration — holding the wine cold under a blanket of CO_2 after fermentation is substantially complete — prior to pressing. After pressing, taste and smell the wine to see if further efforts to reduce vegetal character will be needed. Aging in an oak barrel or adding an oak alternative product can sometimes mask green notes. If the low ripeness expresses as astringency, fining with PVPP (polyvinylpolypyrrolidone) can efficiently remove it and, because it acts immediately, you can test the results soon after addition. For slower and gentler treatment of astringency or bitterness, a protein agent such as egg whites, gelatin, or milk can help mellow the wine. Milk has a particular advantage in this situation, since a small amount of non-fermentable lactose will dissolve in the wine, introducing a sweetness that may seem like fruitiness on the palate. If none of these steps are sufficient, try sweetening the wine for a more fruity impression.

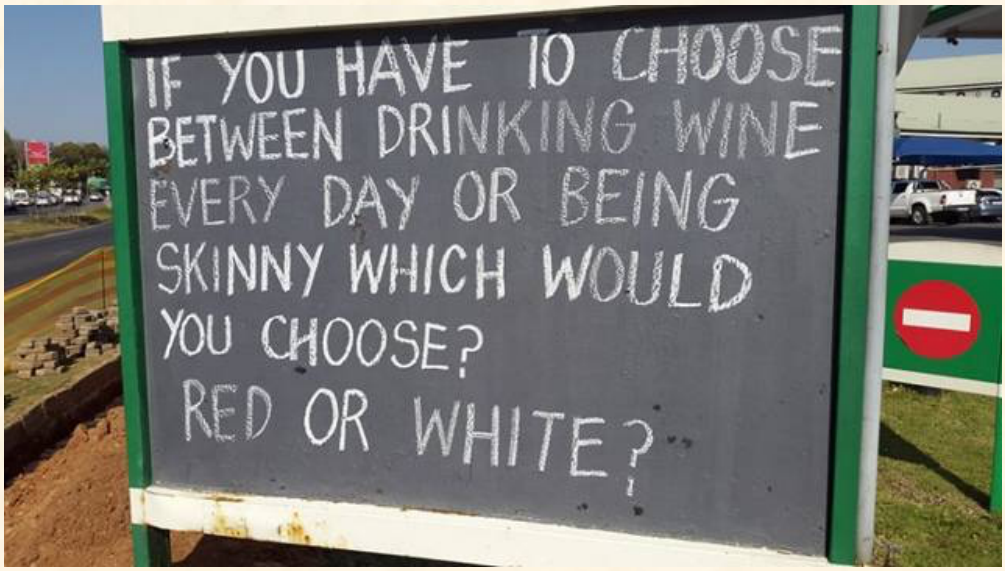
If your wine is still too herbaceous or too low in alcohol, there are a couple of more extreme steps you can take. I have successfully added grape concentrate to a finished wine, inoculated with a vigorous yeast strain, and re-fermented to produce a wine of higher alcohol and richer flavors. Blending is also a possibility, either with a wine that you happen to have on hand or one that you make specifically to balance your under-ripe wine.

Over-Ripe

The condition of over-ripeness is most apparent as high sugar levels. At the same time, acid is likely to be low and pH may be too high for good finished wine stability. Some grape varieties, such as Zinfandel or Primitivo, seem particularly prone to producing raisins in the clusters as harvest approaches. As a result, a field sample of crushed berries may show an acceptable sugar level that turns out to underestimate the final sugar level after harvest when raisins soak up and release their concentrated sugars into the must.

Your first decision is to add water. Distilled or reverse osmosis demineralized water is a much better choice than tap water, which may contain minerals or chlorine that will affect the flavor of the wine. Demineralized water replaces the pure water lost to dehydration from the raisins. You will also need to add tartaric acid. At a minimum, add acid to the water you are using to simulate a wine level; about 0.6 g/100 mL. Since over-mature fruit is most likely low in acid anyway, you will need to measure the TA of the crushed must and probably add more acid as well. Since a must containing raisins may not immediately release all the sugar, add your first increment of water right after crushing. After the combined must and water soak for a few more hours or overnight, check the Brix level again and make another water addition if needed. Once again, do not try for an extreme adjustment. If the Brix of your crushed must is 27, you will probably be happier with adding water only to 24.5 or 25 °Brix, rather than taking it all the way down to something like 23. Of course, if you make a second water addition, double check the TA and pH and be prepared to make another acid addition as well.

To deal with raisiny or stewed-fruit flavors and aromas, there are not many options available. However, there are versions for very ripe fruit as well, where these flavors and aromas may not be objectionable. You can consider making a Port-style or late harvest wine, for instance. In those cases, go for complete extraction and conventional red-wine fermentation, adding sugar or distilled spirits if necessary to get the balance of alcohol and sweetness that you choose. If that is not your choice, and your table wine comes out too jammy or too high in alcohol, consider blending with another wine made from less-ripe grapes. One way or another, you will probably be able to make a rewarding adult beverage from your fruit, whatever the ripeness at harvest.



Dear John letter to Balling meters

Dearest balling meter, (substitute: specific gravity)

Our relationship has always been a delicate one. You have been there when I needed you and have offered me insight and support when everything around me was in pandemonium.

But it has also been a hazardous relationship.

You have always been around. Gathering dust in a draw for 9 months of the year only to be yanked out and used by a novice but you see past my fumbling moments when I have been dense. Because that's what you do. You take density and calibrate the sweetness.

We saw each other every day. Twice a day. For three months. Every morning I would walk into the cool cellar still sleepy and tired from the labor of harvest the day before and there you would be – waiting for me in the lab, ready to be plunged into 30 samples of cold white fermenting must. Then again at the end of day – covered in a mess of sugar and yeast I would return to you and we would complete our bi-daily ritual.

It's not you – it's me. I was too young. I didn't have years of experience. Our interaction was still one of bustling activity and commotion. Everything was going at full speed. I did not give you the gentle nurturing care of an experienced winemaker living their glory years in the cellar.

And that is how I broke you.

The first time it happened I was so scared. I did not mean to break you so brutally. I was worried. What would people say? How would we survive without your utility and convenience? I did not realize the fragile state in which you existed. I promptly promised never again to break you and I intended to fulfil that promise.

But then it happened again. This time it happened by dropping you from the stainless-steel stairs.
It was so quick. We seemed fine but then I turned my back and you rolled away from me. I only heard the soft tinkle as you shattered on the dark orange tiles near the robust red wine tanks.

The third, fourth and fifth time became a blur. I could not say how or when it happened. Only that it did. Each time the clean-up became swifter; gathering glass in tissue paper; rinsing the floor or any discarded shards apparent of your destroyed state… and finally the hasty disposal of any evidence which could be incriminating.

You are a luxury I cannot afford. I am a student living off a measly intern salary. My idea of a luxurious date night involves going to Spur on a day when the two for one special isn't on. So, I can't afford your R500 aesthetic upkeep. No matter how pretty you come in your new packaging and the beautiful slip of calibration paper that accompanies you.

The cellar has always been the hub of chaos and dishevelment. To be honest I don't know how managed to survive through the mayhem of previous harvests. You are far too delicate to survive in this robust environment. It's a tough world and your lack of tough exterior is the fatal flaw in your design.

But I know why we keep you around. You offer a valuable service by tracking the rate of our tricky friend, fermentation. There is no better tool to measure density and we would be lost without your guidance. Without you we have no way of knowing when to add our nutrients. When to adjust temperatures. When to rack. You are the decision-maker and because of that you are irreplaceable.

So, I ask you. Why are you designed this way? Why are you made of flimsy glass and filled with mercury? I have heard it is the only way you work. Archimedes first uncovered the secret to your success when he stated his buoyancy principle. Thomas Thomson knew what he was doing when he designed the shape and material of your frame. Winemakers celebrated when they realized the impact of your function. Your way of determining specific gravity is nothing short of remarkable.

You have been there for tiring times and I am indebted to you – as is every other cellar worker, intern, winemaker and cellar master. But our relationship cannot survive. You deserve someone who will treat you better and I need someone who will not break so easily.

I have been told that I am the weak link in our partnership; my mentor has only broken you once in 17 years. Maybe one day I will be able to treat you with the respect you deserve – fulfilling your purpose in life. And I will be happy knowing you have done your job so that I may do mine.

Yours sincerely
The intern who broke you

How Does Your Mouth Feel About Mouthfeel?

Discover a rainbow of aromas and learn how your genes play a role on taste and experience the dazzling array of chemical factors impacting on mouthfeel in wine

FACTORS INFLUENCING TASTE AND MOUTHFEEL

The following is a review of some of the major features regarding taste and mouthfeel. As we all know, if as a group we were to evaluate a wine, it is not likely we would have the same response to the product's attributes and deficiencies. Beyond that, without standardization, it is very difficult for individuals to provide a consistent response.

In proper wine sensory evaluation, we must keep the following confounding features in mind and minimize their effects.

Problems with non-standardized sensory responses:

Adaptation
Cross adaption
Individual variability
Difficulty in separating some sensory components
Non-standardized language
Expectations/bias

Our goal is to improve wine quality by enhancing our ability to understand the limits and potential of sensory evaluations.

Proper sensory evaluation at the winery involves the following:

Standardized and controlled environment
Representative sample
Proper sample temperature
Established common language
Understanding the importance of sample contrasts
Proper number of evaluators required to gain a true picture
Using the proper testing method

Variation in sensory response can be the result of the following variations, which are outlined below:

Genetic
Biological
Physiochemical
Psychological

a. Genetic Variation. It is recognized that there are five primary tastes: sweet, sour, bitter, salty, and umami.

Taste is sensed by taste receptors located within the taste buds. There are four types of taste buds, and an average of about 9000 taste buds in adults. A taste component must be dissolved in saliva and physically enter the clove-shaped taste bud.

Taste acuity is:

- Positively correlated to the number of taste pores on the tongue; the average is 70 fungiform papillae per cm^2, but so-called hyper tasters, or supertasters, possess more than 100 per cm^2.
- Many taste receptors can sense <u>more than one taste</u>; as such, the tongue does not have areas that detect certain tastes <u>exclusively</u>.
- Receptors of similar sensitivity are grouped together on the tongue.
- Individual receptor neurons may react differently to one or more compounds.
- Protein(s) associated with taste buds play a role in promoting taste reception.

We conducted a sensory exercise with winemakers that demonstrated the genetic variation among us with regard to perceiving a certain type of bitterness. The PTC test (blue paper) demonstrated variability as a result of genomics. PTC (phenylthiocarbamide) is a well-documented example of how dramatically people vary in their ability to taste bitterness. While this test is for certain types of bitterness found in wine, it has not been directly correlated with wine bitterness detection.

We evaluated two other test papers (yellow and pink) which contained thiourea and sodium benzoate, respectively. These papers highlight the differences in taste perception for simple compounds. Most evaluators suggested that the yellow paper was either bitter or had no taste, while the pink paper was perceived as sweet, salty, bitter, or no taste at all. It has been reported that a non-taster of the PTC will not note a bitter taste response to the sodium benzoate.

If a single chemical component can elicit a multitude of different descriptors, it is not difficult to imagine why, in a complex matrix such as wine, we have trouble reaching a consensus.

b. Biological Variation. In order to taste something, the tastant must be dissolved in or mixed with saliva. The number of both taste buds, and sensory receptors per taste bud, declines past middle age, although age-related sensory loss is not known to seriously limit wine tasting ability.

There is about a 10-fold difference in saliva production among humans. Taste receptors are replaced every 7-10 days. There is less reception in smokers and the elderly, where cell regeneration may be slow.

Wine stimulates salivary flow, which both dilutes and modifies wine chemistry. The proline-rich proteins of saliva, which

make up about 70% of salivary proteins, effectively bind tannin. The result is to reduce bitterness by lowering their ability to react with bitter-sensing receptor proteins.

Saliva chemistry changes throughout the day (affecting its buffering action) and often differs between individuals. People also differ notably in their saliva flow rates which, among other things, can affect how quickly an individual may react to tastants.

Acuity is generally measured as a detection threshold, the lowest concentration at which a substance can be detected. Thresholds differ notably among individuals and classes of wine components.

Adaptation is a short-term loss in acuity, associated with extended exposure to a tastant. Adaptation to a tastant can become complete. It is recommended that wine evaluators properly cleanse their palate and sense of smell between samples. Cross adaptation refers to the effect of adaptation to one compound affecting perception of another. Some of the effects are easy to comprehend, for example the apparently sweet sensation of water after tasting bitter or acidic solutions.

Cross adaptation can occur in a multiple-comparison evaluations where wine one has a lingering effect on wine two. In an example conducted during a winemakers sensory training session, we tasted lemonade, followed by what I suggested was water. The water (which actually contained some sugar) impacted the perception of the sugar/acid balance of the lemonade.

Tasting order can have an impact on wine perception due to cross adaptation. Order error refers to the differences in perception owing to the order in which wines are sampled. This is why, in a true sensory evaluation, all evaluators would not taste the wines in the same order.

c. Physicochemical Variation. We know that wine balance can be viewed as the reciprocal-type relationship indicated below. An increase in the perception of components on the left side decreases the perception of components on the right.
Sweet/Body ↔ Acid + Phenols (tannin intensity, astringency, dry tannins and bitterness)
Palate balance is impacted by a number of features, including temperature:
Cooling reduces sweetness of sugars
Cooling reduces bitterness of alkaloids
Cooling increases the sense of acidity
Cooling increases bitterness and astringency of tannins

Wineries generally serve all their whites at one temperature, and all their reds at another. Based on the palate balance relationship, this may not be optimal.

Sugars. Sugar concentrations above 0.2% are generally required to exhibit perceptible sweetness. When sweetness is detected in dry wines, it is usually due to the presence of a noticeable fruity fragrance. Association between fruity odors and sweetness has trained us to instinctively affiliate the presence of fruity odors with sweetness, even in its absence.

Sugars begin to have a pronounced influence on sweetness and affect the perception of body at concentrations at or above 0.5%. The influence of aromatics on the perception of the sweetness of sugar can be very important. Thus, the fragrance of a wine may not only evoke the perception of sweetness, but also increase the perceived intensity of sweetness. We discussed this in relationship to rosé wine production.

Body. Despite the importance of body to the overall quality of wines, its precise origin remains unclear. Gawel et al. found a correlation between higher ratings for flavor and/or perceived viscosity with body. In sweet wines, body is often viewed as being roughly correlated with sugar content. In dry wines, it has often been associated with alcohol content.
There is evidence that the macromolecular content of wines (yeast proteins and polysaccharides) may play a role in the overall perception of body. Features such as a wine's fragrance can influence the perception of body and, conversely, increasing the sugar content can increase the perception of fragrance.

Polysaccharides. Polysaccharides, either grape- or yeast-derived, play a role in reducing acidity and astringency. They add to the perception of sweetness/body and thus lower the perception on the other side of the palate balance relationship. This influence can be significant, and is the basis for the interest in yeast fining and some commercial addition products.

Alcohol. Ethanol possesses a sweet aspect. The acidity of wine diminishes as the alcohol increases. Ethanol slightly enhances the sweetness of sugars, while reducing the perception of acidity. At high concentrations (above 14%), alcohol increasingly generates a burning sensation and may contribute to the feeling of weight or body, especially in dry wines.

Acids. The effect of acidity in diminishing perceived sweetness appears less than that of sugar in suppressing the perception of acidity (Ross and Weller, 2008). Of the common acids found in wine, malic acid is the most sour tasting, whereas lactic acid is generally considered the least sour.

The perceived intensity of a mixture generally reflects the intensity of the dominant component, not a summation of their individual effects.

pH also impacts taste perception, both directly by influencing the ionization of salts and acids, and indirectly affecting the shape and biological activity of proteins. Structural modification of receptor proteins on gustatory neurons could significantly affect taste responsiveness.

The use of oral hygiene products, which can impact taste buds, make most wines taste much more of acidity. The so-called Orange Juice Effect is the result of sodium lauryl sulfate (or sodium dodecyl sulfate, two names for a common toothpaste ingredient) that can react with taste buds. This is a primary reason why sensory evaluations are generally not conducted too early in the morning.

Saltiness. The salt of some cheeses can suppress the bitterness of red wines. These influences may or may not affect response time, duration, and maximum perceived intensity.
Taste- and mouthfeel-components can affect taste:
Ethanol enhances the perception of sugar-induced sweetness.
Ethanol suppresses the astringency of tannins.
Ethanol enhances flavonoid-induced bitterness when the alcohol level is relatively high.
Acids increase the perception of bitterness and astringency.

Mouthfeel. Mouthfeel is a generalized term used to describe the multiple sensations of the following:
astringency
touch
viscosity/body
burning
temperature
prickling from carbon dioxide
pain

The combination of these sensations with those from the nose produces the perception of flavor. Unlike gustatory and olfactory sensations, mouthfeel activation occurs slowly, and adaptation is also slow or may not develop. Adaptation is particularly evident in the increased intensity of astringent sensations on repeated exposure to red wines, consequently, the use of palate cleansers is recommended during tasting.

Astringency and Bitterness. Astringency is primarily induced by flavonoid tannins that come from grape seeds and skins. Anthocyanins can enhance the perceived astringency of tannins, but do not contribute to wine bitterness.

Astringency is commonly confused with bitterness. Both perceptions develop comparatively slowly and possess lingering aftertastes.

Astringency may partially mask bitterness, and is more often confused with bitterness than the inverse.

Astringency is thought to result from the binding and precipitation of proline-rich salivary proteins and glycoproteins with phenolic compounds. pH affects protein hydration and ionization of both phenol and protein.
Astringency is one of the slowest in-mouth sensations to develop. Depending on the concentration and types of tannins, astringency can take up to 15 seconds before reaching maximal intensity. The decline in perceived intensity occurs even more slowly.

The intensity and duration of an astringent response often increases with repeat sampling. This phenomenon is less likely to occur when the wine is consumed with food, owing to reactions between tannins and proteins in the food, as well as due to dilution.

Mouthfeel time intensity characteristics include the following:
Activation occurs slowly.
Adaption occurs slowly, as evidenced by increased intensity upon repeated exposure.
Astringency intensity and duration often increase with repeated exposure.
Interaction of salivary proteins can be blocked by incorporation of lees peptides and other sulfur-containing side groups.
Molecular size is one of the more important factors influencing tannin-induced astringency. Bonding is roughly correlated with molecular size (polymerization). Steric hindrance (geometry) limits the availability of some binding sites.
Phenol features and relationships include the following:
Lower pH equates to higher perception of astringency.
Higher alcohol generally lowers perception of astringency and increases perception of bitterness.
Increased polymerization augments drying, chalky, grainy, puckery attributes.
Increased galloylation (flavonoids esterified with gallic acid) augment rough or course attributes, as well as dryness (Vidal et al., 2003); galloylated tannins are common in seed tannins.
Velvety astringency in reds is positively correlated with flavonol glycosides.
Positive correlation between color and perceived tannin “quality.”

Incorporation of anthocyanins terminates tannin polymerization.
Generally, greater color is correlated with finer tannins.
Flavanone glycoside and tyrosol produced by yeast contribute to the slight bitterness of white wines.

Phenols can often have more than one sensory response. In mixtures, this can significantly affect overall taste quality. For example, small tannins (small molecular weight polymers) may be both bitter and astringent.

d. Psychological Variation. We know that color, bottle shape, closure type, etc., creates a certain bias for or against, which can influence our perception of the product. Bias must be eliminated if a true sensory impression is desired. The development of bias often has cultural origins, expressed in ethnic differences in odor/taste judgments.

ML Problems

Author: Alison Crowe

I am using three barrels this season (a 59-gallon/223-L and two 15-gallon/57-L) and 5 to 6 glass carboys ranging from 1 to 6 gallons (4 to 23 L). Two of the barrels seemed to not ever start malolactic fermentation (MLF). The other barrel and all of the carboys have completed MLF. I did a sulfite check with pipets on the two problem barrels and the sulfite reading was 50–60 ppm. This same wine in the carboys is reading 20–30 ppm or lower. The two problem barrels were stored wet with sulfur and citric acid per instructions. I rinsed the barrels after draining the solution and dried for 3–5 days, the day prior to adding wine we smoked the barrels with a sulfur stick and then pumped the wine into the barrel. So where did the extra sulfite come from, the smoke or the wood?
Matt Starr
Boulder, Colorado

The bad news in all of the above is that malolactic bacteria are extremely sensitive to sulfur dioxide. For that reason, it's critical to not add any SO2 to wine, in any form, between primary and secondary (MLF) fermentation if you want to give your bacteria the best chance of survival. I believe the extra SO2 you're measuring (even if it's a rough analysis) came both from the wet storage solution and especially from burning a sulfur wick before filling. Even though you dried the barrels out for a few days before filling, wood is porous and so will often retain a little bit of the sulfur storage solution. Additionally, some of the SO2 gas created by the sulfur wick certainly will transfer into the wine as sulfur dioxide. While it's probably safer to store your barrels with sulfur solution rather than with nothing, you may want to avoid burning sulfur wicks in a barrel before transferring in wine that you intend to go through MLF.

As for how to get your wine to go through MLF again, I'll provide a list of tips. To have successful fermentations, the most important thing is to "think like a bacterium." Just like us, yeast and bacterial cells like conditions to be nice and comfortable for them to do their best work. As a winemaker, your job is to provide your ML bacteria with an optimal environment so they can get down to business. To that end:

• Keep temperatures of your wine above 60 °F (16 °C) if you can. Too cold and they'll slow down. Try an electric blanket on your barrels or an aquarium heater in the bung.
• Make sure the pH isn't too low. ML bacteria don't like high acid conditions. You'll have best luck if your pH is above 3.20.
• Minimize SO2. Never add SO2 to wine between primary and MLF as ML bacteria are very sensitive to SO2. In your case, I would not have sulfured the barrel headspace with the sulfur wick.
• Pick your grapes early enough so the alcohol stays under 15%. This means not going much above 24.5–25 °Brix, depending on your alcohol conversion rates. ML bacteria have a harder time working if the alcohol is too high.
• Feed with MLF micronutrients. You can buy ML bacteria micronutrient mixes at home winemaking supply stores and online. ML bacteria are what we call finicky feeders and if conditions aren't right and they lack some key mineral or vitamin they won't operate at their best.
• Make sure you purchased your strain from a reliable source and that it's fresh. I prefer to use the freeze-dried powdered cultures instead of dealing with messy liquid cultures that I have to grow. Make sure you're buying a fresh packet every season and that it's not through its expiration date. Store freeze-dried cultures according to instructions and definitely do not try to store an opened packet of ML bacteria from year to year. Freeze-dried, liquid, or on a slant (live culture growing on media), be sure it's fresh and from a supplier with high turnover who has stored the "bugs" correctly.
• Consider re-inoculating. Try to change any of the above conditions that you can and then re-introduce ML bacteria to the wine. SO2 will dissipate with time so after a few weeks you might want to re-test your SO2. Hopefully it's dropped a bit and you'll have a better chance of getting your new culture on the right foot.

Portland Winemakers Club
Leadership Team – 2017

President: **Phil Bard** phil@philbard.com
- Set agenda for the year
- Establish leadership team
- Assure that objectives for the year are met
- Set up agenda and run meetings

Treasurer: **Barb Thomson** bt.grapevine@frontier.com
- Collect dues and fees, update membership list with secretary
- Pay bills

Secretary: **Ken Stinger** kbstinger@frontier.com
- Communicate regularly about club activities and issues
- Monthly newsletter
- Keep updated list of members, name tags and other data

Chair of Education: **Marilyn Brown** brown.marilynjean@gmail.com
- Arrange speakers for our meetings

Chair for Tastings: **Paul Rogers & Barb Stinger** paulgrogers@fastmail.fm
kbstinger@frontier.com
- Conduct club tastings
- Review and improve club tasting procedures

Chair of Winery/Vineyard Tours: **Bill Brown** bbgoldieguy@gmail.com
- Select wineries to visit
- Arrange tours
- Cover logistics (food and money)

Chair of Group Purchases: **Bob Hatt** bobhatt2000@yahoo.com
- Makes the arrangements to purchase, collect, and distribute
- Grape purchases
- Supplies – These should be passed to the President for distribution

Chair of Competitions: **Don Robinson** don.robinson.pdx@gmail.com
- Encourage club participation in all amateur competitions available. Make information known through Newsletter, a-mail and Facebook

Chairs for Social Events **: Marilyn Brown & Alice Bonham** bbgoldieguy@gmail.com
alice@alicedesigns.org
- Awards Gala / Holliday parties

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