Portland Winemakers Club

November 2020

"Bill's Meanderings"

Almost another year gone by. Here it is the first of November and winter and the holidays are coming up shortly. While Marilyn and I were working in the vineyard today taking netting down, we were reminiscing that it seems like yesterday we were pruning and looking forward to another year. Then bud break, then bloom, then véraison, then harvest, and then time to take the netting down. The cycle goes on.

Speaking of cycles, elections will be coming up in December. While that is still a month and a half away I would like everyone to think about whether or not they would like to participate in the running of our club. I've said this before and I'll say it again, being an all volunteer run club, we are only as good as the members that are involved. So think about it, there are several members that have held their position for years so if there is a particular position you would have interest in or think you could do a better job at let myself or Ken Stinger know. There is a list of all the positions and their responsibilities at the end of every newsletter or on our website.

If you haven't already be sure to vote in the general election. It is too late to mail your ballot in Oregon but there are many places in each county to drop you ballots off.

Stay Safe Bill Brown

Well, It's November 1st and we are shifting our time to give us an extra hour of daylight. - Like Bill Brown says, *"adding an extra hour to the day in 2020 is like finding out you got a bonus track on that Yoko Ono album someone gave you."*

Monthly Events

January 15th, 2020
Crush Talk & Planning

January 25th, 2020
Annual Gala

February 19th, 2020
Bordeaux varietals and Bordeaux blends, Blind Tasting

March, 18th, 2020
Speaker Meeting CANCELLED

April 15th, 2020
ZOOM VIRTUAL MEETING

May 20th, 2020
ZOOM VIRTUAL MEETING
Speaker: Richard Holmes, Ciel du Cheval vineyard

June 17th, 2020
ZOOM VIRTUAL MEETING
Speaker: James Osborne, OSU Enologist

July, Annual Picnic
CANCELLED

July 15th, 2020
ZOOM VIRTUAL MEETING

August 19th, 2020
ZOOM VIRTUAL MEETING

September, 16th, 2020
ZOOM VIRTUAL MEETING

October 21st, 2020
ZOOM VIRTUAL MEETING

November 18th, 2020
Crush Talk
ZOOM VIRTUAL MEETING

December 16th, 2020
Elections, Planning for Next Year, More Crush Talk

NOTE: Tours, Gala & picnic dates & times may vary.

Drink Responsibly. Drive Responsibly.

Upcoming events / Save the date

Club Meeting: The next meeting is scheduled for November 18th , "Zoom" sign in will be at 6:45 pm. This will be available on any device that can connect to the internet and has a camera and speaker capability such as a computer, iPad or smart phone etc. Jon Kahrs will again be the moderator. We will provide further sign in information and other details by e-mail prior to the meeting.

Agenda: Now is the time to discuss this year's crush. Were you satisfied with the group buy program? Sometimes we have a speaker sign into the Zoom meeting with us. We will let you know by separate e-mail if that happens.

Website: http://portlandwinemakersclub.com/

October Zoom Meeting Minutes

Present: 18

- Introduced new member Kyle Wilson.
- Discussion. The club dues were recently increased from $15 to $25 to help cover meeting space rental. In the light of Covid-19 we are not using the rental space but are using Zoom instead. ?Should we reduce dues back to $15 for 2021?
- The application "What's App" was recommended for use as a group grape purchases communication tool. Alice (if you're reading this) do you know anything about this application?
- Bill Brown mentioned that Crush2Cellar in Newburg is now packaging 250 count #1 corks in sealed/sulfited bags. Price?
- One of our members is is experiencing a slow, sluggish (not quite stuck) ferment for Nebbiolo. Bob Hatt recommended using yeast hulls (yeast ghosts) to get the ferment moving again.

Problem Fermentation and Yeast Hulls

By Dr. Murli Dharmadhikari

Premature cessation of an alcoholic fermentation, commonly known as a stuck fermentation, is a serious winemaking problem. Restarting a stuck fermentation is often difficult and time consuming, but more importantly, it creates a favorable condition for the growth and activity of spoilage microorganisms. There are several factors that are responsible for fermentation problems. Some of them include:

- Very high must sugar content
- Nutrient deficiency in must
- Insufficient concentration of yeast
- Using yeast starter culture which is poor in health and vigor
- Excessively clarified must
- Extremely low or very high fermentation temperature
- Presence of pesticide residue or other yeast inhibitors produced by mold- infested grapes

Understanding and manipulating the factors listed above should be helpful in preventing a stuck fermentation.

Fatty Acids

In some cases, even if the limiting factors mentioned above are absent, fermentation may cease prematurely. This can be caused by certain substances produced by yeast during the normal course of fermentation. Ethanol produced during fermentation is a well-known yeast inhibitor.

Fatty acids, such as decanoic and octanoic acids, are also formed during fermentation. These compounds, along with ethanol, are toxic to the yeast. When the concentration of these fatty acids reaches a certain critical level, a stuck fermentation results.

Fatty acids participate in the synthesis of sterols. (Sterols are important constituents of the cell membrane; they influence its stability and function.) Under aerobic conditions the fatty acids are used up in sterol production. However, under anaerobic conditions (fermentation), the sterol synthesis slows down and finally stops. Decanoic acid accumulates in the cell wall. This adversely affects cell membrane function, consequently sugar metabolism diminishes and fermentation ceases.

Yeast Hulls

Yeast hulls are also called yeast ghosts. Essentially they are a cell wall/membrane complex. They have the ability to adsorb the fatty acids and thus reduce their inhibitory effect. When yeast hulls are added to the fermenting must they adsorb the fatty acids and thus permit the active yeast cells to metabolize a greater quantity of sugar. This consequently prevents stuck fermentation.

Importance of Yeast Hulls

The phenomenon of fatty acid adsorption by yeast hulls was demonstrated by Lafon-Lafourcade et al., (1984). In their experiment, various levels of yeast hulls were added to a sterile medium containing 10% ethanol and known amounts of several fatty acids and their esters. After a period of 24 hours, the medium was analyzed for fatty acids. The data regarding the percent acid adsorbed in response to yeast hull addition is shown in Table 1.

Table 1. Adsorption of octanoic and decanoic acids by yeast hulls in a synthetic medium.

Weight of Yeast Hulls added in g/L	Percent acids absorbed	Percent acids absorbed
	octanic	decanoic
0.2	1.2	20.2
0.5	4.5	40.7
1.0	7.2	54.5

The results given in Table 1 clearly indicate the greater adsorption of decanoic acid when increasing levels of yeast hulls were added to the medium.

The property of yeast hulls to adsorb fatty acids in a fermenting must has many ecologically important implications. Their role in avoiding potential stuck fermentations has already been mentioned. The yeast hulls can also be effective in reactivating a stuck fermentation.

In another experiment Lafon-Lafourcade et al., (1984) added yeast hulls to a stuck wine at the rate of 0.5 g/L. The wine was inoculated with yeast @ 106 cells/ml. The fermentation progress was measured by determining the residual sugar content of the wine over a period of several days. Their results are given in Table 2.

Table 2. Effect of yeast hulls on inducing fermentation.

	Days following yeast hull addition @ 0.5 g/L.			
	0	9	16	36
	Sugar content g/L			
Stuck Wine	67	57	36	13
Stuck Wine & Yeast Hulls	67	53	24	1.4

Observations given in Table 2 indicate that the addition of yeast hulls to the stuck wine resulted in a relatively rapid reduction of residual sugar. By the end of the 36-day period the treated wine showed a lower sugar level than the control.

In addition to avoiding stuck fermentations and inducing fermentation in stuck wines, yeast hulls are also effective in other situations. These include fermenting must with initially high sugar content, must containing inhibitory compounds (e.g., pesticide residue), must infected with Botrytis mold, and must fermented at high temperatures (>93.2°F or 34°C).

Using yeast hulls is important in fermenting Vignoles must under Missouri conditions. As is well known, this variety is susceptible to Botrytis rot, and it tends to ripen with a relatively high amount of sugar. High must sugar and the presence of inhibitory compounds such as botryticine, can both cause problems during fermentation. For this reason the use of yeast hulls in fermenting late harvest or Botrytis infected Vignoles must should be considered.

The amount of yeast hulls commonly used is in the range of 0.2 to 0.3 g/L. In the case of restarting a stuck fermentation a higher dose may be required. Generally when determining the amount of yeast hulls to use, one should follow suppliers' recommendations.

Master Winemaker Joe Diponzio, Jr. Talks Riesling

Joe's family gave up their long tradition of home winemaking in the mid-1970s. His father told Joe it was cheaper to buy the wine. Though his father tried to dissuade him from doing so, Joe decided to restart the tradition. He bought three whiskey barrels and followed his father's recipe: "He didn't know about stabilization or clarification or anything about fermentation, other than you crush it up, put it in a barrel and you have something to drink, whether it's good or not."

But Joe wasn't happy with the results: "There I was making the same mistakes that my father made. I was spending good money on grapes and I wanted to be able to pull a bottle off the shelf that anyone would drink."

With those words, Joe started his path from novice winemaker, to good winemaker, to master winemaker. But the road wasn't easy or short: "It took me years to get to the point to be brave enough to enter competition and allow other people to be judgmental." From the original, family-traditional Moscato and Alicante Bouschet blend (which he calls the worst combination you can make), Joe is now making truly excellent white and red award-winning wines.

I've always admired Joe's wines, especially his aromatic whites. When I learned that he and several members of the Rochester Area Home Winemakers had made a group purchase of 2019 Riesling grapes from the Finger Lakes Community College experimental vineyard on Seneca Lake, I saw an opportunity to learn how Joe approached Riesling and how he tamed this bucking bronco of a grape into an award-winning, prancing show horse of a wine.

Craft a Clean Wine

Riesling performs best when grown in a cooler climate. It should be crisp on the tongue and excel in the nose, with stone fruit, pear, floral, citrus and sometimes even tropical aromas. Esters, the fruity compounds formed during fermentation and aging, are responsible for these aromas. Joe's approach to making a good Riesling is to craft a clean wine, capture the aromas and calm the acids.

"Painting" desirable aromas requires a clean canvas. The wine first needs a clean nose. A clean nose requires a clean fermentation. Undesirable aromas from a slow or stuck fermentation will overwhelm the desirable aromas. In red wines, traces of volatile acid (VA) or hydrogen sulfide (H_2S) can be disguised by the richer berry aromas. In white wines, there is no hiding them.

To prevent this, Joe always adds sulfite to the grapes at crush to keep "bugs" from taking over the must. These bacteria and microbes can lead to volatile acid formation or other spoilage problems. Sulfite suppresses these organisms.

He also adds sulfite to deter indigenous yeasts from starting. Yeasts are natural on the grapes. The yeasts winemakers use are derived from these natural yeasts. But indigenous yeasts, though fashionable, are variable and may produce weird flavors and aromas. Joe prefers to choose his yeast, rather than let the grapes choose for him. He used W15, a good work horse yeast for aromatic whites and Pinot Noir, to lessen the chance of hydrogen sulfide and its aromatic disaster.

Off odors also come from yeast under stress. Oxygen is important for initial yeast formation and Joe ferments his whites like his reds, in an open container with a light cover.

He is also mindful of nutrients that allow the yeast to grow and complete fermentation without being stressed. Nutrient stress causes off odors and hydrogen sulfide (rotten egg) or garlic smells. He knew that the 2019 Riesling was very low in yeast assimilable nitrogen (YAN) and corrected for this. He recommends that all fermentations use a yeast nutrient, usually at 1/3 completion of fermentation. If you don't know your YAN, as few of us have the ability to test for it, he recommends that you smell the wine daily to check for H_2S formation.

Stirring is also an important part of his regimen. He believes that stirring mixes in the "good stuff" that settles to the bottom. He does so 2 to 3 times a day.

Science is on his side when it comes stirring. Yeast, like many of us, prefer to stay in their own "neighborhood" where they compete with each other for nutrients, rather than spreading out into the must and using the nutrients efficiently. Stirring keeps the yeast and the nutrients evenly dispersed and the yeast less stressed. See Looking Inside the Tank,

Capturing Aromas

To quote Joe, "Riesling relies on aromas!" The trick to a successful Riesling is to capture the typical aromas and prevent them from dissipating. It's a matter of not only having a clean fermentation, but also enhancing the floral and citrus aromas formed during fermentation. Joe recommends a cold soak of the crushed grapes before fermentation, a cool fermentation, avoiding up and down swings in temperature during fermentation, and stirring for optimal aroma and flavors.

For this 2019 Riesling, Joe wanted to have a 24 hour pre- fermentation soak of the grapes on their skins. But as is so common in winemaking, he found he had to compromise due to the help needed to press this large amount of grapes. Since the group made a bulk purchase, pressing and cleaning up required all the members' "helping hands." They weren't available later, so he had a 5 to 6 hour soak, rather than the extended soak he had envisioned.

Besides peptic enzymes, used to clarify and help break down the grapes, Joe uses additional enzymes to assist in the retention and creation of aromas. He recommends a product called Opti-White, which is a natural yeast derivative that protects fresh aromas. It may also allow the winemaker to reduce the amount of sulfite needed to protect the wine. Opti-White is a brand name but there are other similar products used to encourage and protect esters.

But enzymes can't replace diligent winemaking. Joe stirs the must 2 to 3 times a day, not only to mix the yeast but also to monitor aromas and encourage the production of esters.

Calm the Acids

Riesling needs to be crisp but there is a balance point between a Riesling that is "racy" and one that will strip the enamel from your teeth. Before and after fermentation, adjustments can be made to the must to correct the acid. For a white wine, a range of pH from 3.0 to 3.4 and a TA between 6 and 9 is usual. Joe's 2019 Riesling came in with a pH of 3.2 and a TA of 9. His goal was a pH of 3.3 and a TA of 7.

Possible ways to reduce to the acid levels include adding sweetened water before fermentation (up to 5%) and using potassium carbonate or calcium carbonate. A further lowering of acid occurs with cold stabilization, where a wine is chilled and unstable tartaric acid titrates out in crystal form. Joe held off on adjusting the acid, hoping the process of fermentation and cold stabilization would naturally adjust the wine. But he admitted he was not happy with the wine's acid profile even after cold stabilization. He
had avoided using carbonate as he felt that those methods strip aromas. His choice was to back- sweeten the wine.

Sweetening a wine does not reduce the acid, but it does reduce the impression of the acid by balancing it on the palate. He recommends a careful round of bench trials with family and friends and then carefully blending in the sugar syrup, as it's hard to fix an oversweet wine!

Sweetening a wine also has stabilization challenges. The wine can be sterile filtered to prevent the yeast restarting the fermentation in the bottle. Most amateur winemakers don't have the equipment needed to filter to this level so they add potassium sorbate in combination with sulfite to prevent re- fermentation. Some people can taste the sorbate and they may not like that taste.

Joe's Top Tips

I think Joe's insights into making a white wine and Riesling in particular are lessons for us all. I certainly learned a lot about crafting a wine. I usually start my white wine in an open carboy, but put an air lock on it within a day or two. Fermenting in a more open container is something I am going to try. Joe's laser-like focus on aromas was also important. Avoid sluggish fermentations and prevent temperature swings in the must. Use a yeast that will allow a cooler fermentation, between 55° and 65°. Be careful in your choice of additions, such as fining products and acid correction, to avoid stripping the wine of aromas. Be diligent by stirring the must and checking for off aromas. And don't let your hard work go to waste with a spoiled wine. His final words of wisdom: "Sulfite is your friend in winemaking!"

Wine Education – Tannins

This article discusses tannins and how they affect wine.

Tannins are a type of polyphenol that bind to and precipitate proteins. The texture and nature of tannins in wines may vary depending on the type of grape and origin of the tannins. Tannins occur naturally in grapes and oak, so both may contribute to a wine's tannin profile.

Where Do Tannins Come From?

Located in the grape skins, seeds and stems, tannins are a defense mechanism for grapes. Tannins start out bitter and green when the grapes are unripe, which discourages birds from eating them. As the grapes ripen, the tannins soften so the grapes become tasty.

Tannins also come from utilization of oak in the winemaking process. Even previously used oak adds tannin. If you compare a white wine aged in stainless steel with a similar one aged in old oak, the oak tannin is readily discernible.

Managing Tannins in Winemaking

Wineries use many different methods to manage tannins in their wines. When red wines are being fermented or macerated, the grape skins float to the surface forming a cap. The cap must be submerged into the wine to maximize color and tannin extraction. Wineries use different methods to do this, such as pumping over, punching down or rack and return. Every winery believes their method is the most gentle and the choice is largely winemaker preference.

Temperature is also a key element in tannin extraction. The colors in grape skins are water soluble, but the tannins are not. Tannins require heat, alcohol and/or pressure, so wine- makers use a fermentation temperature suited to the tannin profile they desire. Cabernet producers often use warmer temperatures to extract higher levels of tannins, while Nebbiolo producers may use cooler temperatures for less extraction.

Carbonic maceration can also decrease tannin extraction while increasing the color and fruitiness. You might know carbonic maceration best from Beaujolais Nouveau, but the method is often also practiced in the Southern Rhone and when making Dolcetto in Piedmont.

On a technical note, some wineries use micro-oxygenation (bubbling tiny amounts of oxygen through the wine) to soften tannins. This process was developed in Madiran to soften the raging tannins in the Tannat grape. If you have a high tannin grape, you might not age it in oak because that will add more tannin. Yet, one effect of oak aging is that it allows tiny amounts of oxygen to enter the wine, which softens tannins. Micro-oxygenation mimics the oxygen effect of oak aging.

With the myriad techniques applied to extract, soften or remove tannins, isolating the elements of a wine's tannic structure attributable to the grape variety can be difficult.

Tannins in 3 Types of Wines

Some grape varieties may be marked by a distinct mouth feel. Today we will only focus on three varieties: Nebbiolo, Cabernet Sauvignon and Syrah. All three of these are high in tannin, but with very different mouth feels.

Nebbiolo—The tannins in Nebbiolo are very fine-grained, like a fine sand. These fine tannins cover the entire inside of the mouth and have a very drying sensation.

Cabernet Sauvignon grapes have a very different tannin profile. Whether you taste a Bordeaux, a Napa cab or a cabernet from Australia, the tannins are heavier, weighting on the tongue and are a bit clunkier. They are larger and chewier. Unlike Nebbiolo tannins, which cover the inside of the mouth, cabernet tannins tend to stick to the high corners of the mouth and the lower lip. (When you taste a cab made in American oak, the oak tannin will trigger the lower inside of the jowls.)

Syrah also is a weightier tannin, but much rounder than cabernet. There are no edges, rather they are round, smooth and lack the clunk of cabernet tannins. They are more subtle than those in cabernet sauvignon. Syrah tannins lay on the upper and lower lips.

A Final Note

Tannins bind to proteins. What is a key part of saliva? Proteins. This is why tannins are drying on the palate and why,

the more you taste, the more you experience a drying sensation. Each sip dries out the saliva a bit more and that drying sensation builds. So, when tasting high tannin wines, it is advisable to cleanse palate.

What is best to cleanse the palate of tannins? Proteins! Water or crackers may serve this purpose but mild cheese or a thin slice of roast beef is superior. If you are vegan, try tofu—I haven't tried it, but it should work. Let me know!

Rosé wines are lightly colored and generally made from juice that has had minimal contact time with dark skins. Although no legal definition for the color of rosé exists, it is generally accepted that the color may range from light salmon to copper, vibrant pink, or even a pale crimson. The color is determined by the grape variety as well as the length and temperature of maceration. Winemaking decisions made during this maceration period have an important impact on not just the color, but on the mouthfeel and aromas of the final wine. In general, grapes pressed directly with minimal skin contact will yield the lightest colored wines, with aromas leaning toward floral, citrus and stone fruits.

In the U.S., the majority of rosés are produced by holding the juice in contact with the skins, before or during fermentation, until the desired color is achieved or by saignée, the bleeding of a small percentage of juice from red must. The light juice that is bled off is then fermented as rosé. When undergoing longer pre-fermentation maceration, the use of the non-fermentative yeast Gaia, can help in preventing the development of off-characters from spoilage yeasts. The saignée method generally yields darker colored rosé and wines with more berry fruit aroma. Rosé can also be produced by blending a small amount of red wine with white. Most rosé from Champagne is traditionally made in this manner.

Rosés are made to be consumed young and fresh with bright fruit flavors and aromas and the balance of a crisp white wine. As such, during winemaking, they must be protected from oxidation. In order to protect these delicate aromas during fermentation, the judicious use of an oxygen-scavenging tannin such as FT Blanc Soft, a "white" gall nut tannin that will not darken rosé, will help prevent oxidation. One can also use the yeast derivative OptiMUM White which naturally contains high levels of the antioxidant glutathione and can help preserve and promote delicate aromas. Research from the Centre du Rosé in Provence has shown that glutathione is especially important in preserving thiols in varieties naturally rich in these aromas such as Cabernet Sauvignon.

Enzymes may be used during crush to speed up color extraction and the breakdown of pectin for a more complete release of the juice and aroma compounds bound in the grapes' flesh. The enzymes should be gentle to avoid extraction of astringent and/or bitter phenolics. Recommended enzymes are Scottzyme Cinn Free or Color Pro, Lallzyme Cuvée Blanc, Rapidase Expression Aroma or Extra Press. Care should be taken when using enzymes on highly colored varieties, particularly if the weather has been hot and the color has started to bleed from the skin into the flesh of the grapes.

The yeast strain can have a major impact on the flavor profile. Strains with a proven track record for producing excellent rosés are M83 (500g), W15 Yeast , Rhone 4600 (500g), Cross Evolution Yeast and IOC Be Fruits Yeast. Aromatic white wine strains, such as Elixir (500g)and QA23 Yeast, can bring out terpenes and aromatic thiols if the grape varietal contains the precursors. VIN13 Yeast and NT116 Yeast are extremely strong fermenters, thiol converters, and ester producers. ICV Okay Yeast and Sensy (500g) produce delicate, aromatic rosés without danger of yeast-derived H_2S or SO_2.

To fulfill the aromatic potential of the fruit, the yeast have certain nutritional requirements. Rosés are quite often deficient in nitrogen and lipids (survival factors). Rehydrating the yeast with GoFerm Protect Evolution front-loads the yeast with survival factors, keeping the cell membrane's integrity through the end of fermentation. The YAN (Yeast Available Nitrogen) needed for a healthy fermentation may range from 150 ppm to 250 ppm depending on the yeast strain chosen, the form of nitrogen (organic or inorganic) and possible stress factors. Stress factors may include potential alcohol, clarity and microbial competition. When correcting YAN for rosé, a complete nutrient derived from autolyzed yeast is preferable to DAP (diammonium phosphate). Organic nitrogen (amino acids) is preferable to inorganic nitrogen (ammonia). Fermaid O, a natural source of vitamins and minerals, contains only organic nitrogen, which is 4–5 times more efficient than ammonia nitrogen. Many of the amino acids in Fermaid O are also precursors to fruity aromatic compounds.

Yeast lipid metabolism is strongly affected by the temperature of fermentation, thus the temperature of fermentation will impact a wine's aromatic potential. Ideally, the fermentation temperature should be between 60–68°F (16–20°C). Although it was traditionally thought that fermenting at lower temperatures increased the potential for esters, we now know that this is not the case. Our current understanding is that ester production is strongly linked with organic yeast nutrition. At slightly warmer fermentation temperatures between 60–68°F (16–20°C), there is more ester production. Although more of these esters will volatilize at the higher temperature, the end result will still be greater than if the fermentation temperature had been colder. Higher temperatures post-fermentation can result in the loss of delicate aromatics, as important varietal aromas like terpenes are preserved by holding wine at colder temperatures. Temperature management and control throughout the production process are key.

Although malic acid is a key contributor to freshness in rosé wine, malolactic fermentation can be used to lower the acidity of an unbalanced wine and make it more microbially stable. However, sequential inoculation can alter the flavors and aromas by causing the loss of bright red fruit characteristics due to diacetyl formation. This can be avoided by using VP41 Malolactic Bacteria, a low diacetyl producing bacteria strain, and by co-inoculating the yeast and bacteria. When co-inoculating, the initial SO2 addition should be kept below 30 ppm and the bacteria should be added 24 hours after the yeast. Any diacetyl produced by the bacteria is soon consumed by the active yeast, preserving the fresh fruit characters.

Stabilization is perhaps the trickiest part of rosé winemaking. Tartrate and protein stabilization are as important as in white winemaking. For tartrates, traditional chilling and tartrate precipitation may be used. In combination with chilling, Claristar (a mannoprotein) can be used to inhibit nucleation and growth of tartrate crystals. For protein stabilization, bentonite remains the only answer.

Color stabilization frequently causes the biggest problems. The color of rosés often turns orange or brown. First and foremost, dissolved oxygen must be controlled to prevent phenolic oxidation and browning. Flashgum R Liquid or Inogum (gum arabics) can then be added just before bottling. This will have a protective colloidal effect and help maintain the original bright color of the wine. If the wine shows browning before bottling, fining with Polycel (1kg)(PVPP) or Potassium Caseinate (casein) can possibly remove the oxidized phenolic compounds. Bench trials are necessary before either addition.

How Often Should You Rack Your Wine?

Racking is simply the process of transferring a wine from one container to another while leaving behind any sediment or "lees". Why do you rack your wine? Over time fruit particles and dead yeast cells will settle out of the wine and pile up on the bottom of your container. In the first days after pressing a wine, this layer will be very thick and

particularly troublesome. This thick layer of yeast and fruit crud is referred to as the gross lees, whereas the thinner sediment later on is known as the fine lees. The main purpose of racking is to separate the clean wine from these decaying lees to eventually form a crystal clear and ready-to-bottle wine... but the question is... How often should you rack your wine?

Racking Equipment

No crazy equipment needed here. A simple 3/8 inch stainless steel racking cane and some 5/16 inch food grade tubing are my go-to racking equipment. A 5/16" tube will stretch over the 3/8 cane nicely with virtually no risk of falling off or leaking on you. The stainless racking cane will last longer than you and the tubing can be replaced with very little cost. This size is good enough to handle most home winemaking transfers and will go a little faster than the plastic canes due to the thin walls and larger inside diameter. I have a 1/2 inch racking cane, but it is generally a little too aggressive and can really disturb the lees during a racking. Larger canes can be used for larger transfers like barrel to barrel.

What if you don't Rack?

Leaving the wine on a stagnant, thick layer of lees for too long can cause some serious problems with the wine. A pile of angry, unfed yeast cells will generally start creating hydrogen sulfide (rotten egg smell), which can morph into the dreaded organosulfur compound, mercaptan (burnt rubber taste). Any leftover nutrients that may have fallen out of the wine after fermentation can also feed unfriendly bacteria and yeasts. These are obviously not good things...
*Occasionally, some long term lees contact is welcome but on fine lees, not the gross lees. This means, you still need to rack after pressing the wine. If making a kit, you can wait quite a while to rack since you really won't have much for gross lees. The process of stirring the lees (aka Bâtonnage) is commonly used when making wines like Chardonnay and can create a bit more mouth feel.

What if I Rack too Many Times?

Getting a little to ambitious with your racking frequency will generally diminish aromatics to some extent, and often cause full blown oxidation. Each time you rack the wine, a small bit of oxygen will be absorbed which can react with volatile aroma compounds. To scavenge this oxygen and maintain protection against oxidation, 20-40 ppm of sulfur dioxide (SO2) are generally added at each racking. This helps to prevent things like VA (Vinegar), nasty aldehydes or ethyl acetate (acetone smell). To prevent these faults, it requires a lot of total SO2 if you rack many times. I have heard a lot of novice winemakers racking five, six, or seven times to "improve" the wine, but usually will do the opposite when done excessively.

When or How Often Should I Rack?

The first racking should occur shortly after pressing the wine.
If it is a red wine, pressing will usually be after the primary fermentation is complete. Let the wine settle out for one or two days, then rack off of the thick layer of gross lees. This is the most critical racking and can be a make-or-break situation for the wine.

If it is a white wine or rose, the first racking will occur after pressing but before fermentation. The gross lees at this point consist mostly of fruit pulp. It is nice to get some of this separated if you can. If you can chill or "cold settle" the juice, it will buy you a bit more time to let the pulp settle out. Get what you can, but you don't need to get too crazy at this point. A little bit of solids can help the fermentation.

The second racking should occur when the lees pile up to an uncomfortable level once again. For me, I consider any lees over about 3/8 of an inch thick to be a little risky for the long haul. Over one inch thick is an urgent concern. Sometimes the lees can ride up the sides of a carboy and look a lot thicker than they really are. Give it a little swirl to agitate the lees every once in a while to get a better read on the situation.

For a red wine, this second racking should ideally occur after malolactic fermentation has completed. If the lees get to a slightly uncomfortable level before malolactic fermentation has completed, give them a swirl about once or twice a week but don't rack yet. Once you are done with malolactic fermentation and the lees have begun to pile up again, then it is time to rack the wine and dose it with some SO2 to get through the upcoming aging period. If you plan to

cold stabilize the wine, it is ideal to do it right before this racking. Once racked, this is a good time to add any oak products like cubes, staves, or spirals. If you really don't have a whole lot of lees after malolactic fermentation, then you don't necessarily need to rack.

*For a white wine, the second racking is generally after fermentation has completed and things have settled out for about two days. At this point, the wine should be topped up and sulfited to prevent malolactic fermentation (unless you want that buttery taste like in a Chardonnay).

The third and final racking should occur at the time of bottling. Three rackings usually does the job. At this stage, the wine should have no visible haze and no off smells. This racking is generally a two stage racking for me. I will rack the wine off of the remaining lees into a temporary blending vessel, like a bucket or carboy. If you have access to inert gas, like argon, go ahead and blanket the storage vessel with gas before transferring to minimize oxygen contact. Any final blending also occurs at this stage. Sulfites are checked and adjusted at this stage. If making an off dry white or rose wine, I will perform the sweetening and stabilizing now. Then it goes right into the bottle.

There are occasionally exceptions that would require another racking at some point along the way. If you want to pull the wine off of the oak, the easiest way is to rack it off. If you are getting some reductive/swampy smells, you may want to splash rack to introduce a little air to the wine. If you are stealing wine for a blend, you may need to downsize to a smaller carboy to reduce head space. You know what they say... when you gotta rack, you gotta rack...

As a general rule, don't rack unless you have a reason to rack. While you are racking, make sure to give the wine a taste and smell to make sure things are going in the right direction. Sanitize your equipment when racking. If you want to minimize oxygen contact, consider blanketing both wines with argon during the racking process. Whenever you transfer to a new container, make sure to top up. You can use a previous vintage of a similar wine, or a store bought wine that is similar. That's about it to the racking process!

References

Here is a list of Hobby Winemaking Manuals and other materials in the Secretary's digital file available for downloading by e-mail or via an internet transfer service. All are PDF. E-mail Ken Stinger at kbstinger@frontier.com

Scott Labs Winemaking Handbook - 21 mb - 59 pages
Scott Labs Cider Handbook - 24 mb - 49 pages
Scott Labs Sparkling Handbook - 8 mb - 58 pages
A guide to Fining Wine, WA State University - 314 kb - 10 pages
Barrel Care Procedures - 100 kb - 2 pages
Enartis Handbook - 4.8 mb - 108 pages
A Review Of Méthode Champenoise Production - 570 kb – 69 pages
Sacramento Winemakers Winemaking Manual - 300 kb - 34 pages
Sparkling Wine brief instructions - 20 kb - 3 pages
The Home Winemakers Manual - Lum Eisenman - 14 mb - 178 pages
MoreWine Guide to red winemaking - 1 mb - 74 pages
MoreWine Guide to white Winemaking - 985 kb - 92 pages
MoreWine Yeast and grape pairing - 258 kb - 9 pages

Portland Winemakers Club
Leadership Team – 2020

President: **Bill Brown** bbgoldieguy@gmail.com
- 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/Speakers: **Rufus Knapp** Rufus.Knapp@fei.com
- Arrange for speakers & educational content for our meetings

Chair for Tastings: **Paul Sowray & Barb Stinger** davids1898@aol.com
- Conduct club tastings kbstinger@frontier.com
- Review and improve club tasting procedures

Chair of Winery/Vineyard Tours: **Damon Lopez.** dlopez5011@yahoo.com
- Select wineries, vineyards etc. 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: **Paul Boyechko** labmanpaul@hotmail.com
- Encourage club participation in all amateur competitions available. Make information known through Newsletter, e-mail and Facebook.

Chairs for Social Events **: Marilyn Brown & Mindy Bush** brown.marilynjean@gmail.com
* Gala / Picnic / parties mindybush@hotmail.com

Web Design Editor: **Alice Bonham** alice@alicedesigns.org