Portland Winemakers Club

December 2022

"Bill's Meanderings"

Monthly Events

January 19th, 2022
To be determined
VIRTUAL MEETING

February 16th, 2022
To be determined
VIRTUAL MEETING

March 16th, 2022
To be determined
VIRTUAL MEETING

April 20th, 2022
In person at Aloha Grange

May 18th, 2022
Aloha Grange, Tasting & judging, member produced Bordeaux Reds

June 15th, 2022
Aloha Grange, speaker speaker Rudy Marchesi of Montinore Estate

July 20th, 2022, no meeting

July 23rd, 2022, Annual Picnic, $10 ea. fee, Craig & Mindy Bush

August 17th, 2022
Aloha Grange, Tasting & judging, member produced All Whites, Rose' & sparkling

September 21st, 2022
Aloha Grange, Tasting & judging, member produced Other Reds

October 19th, 2022
Aloha Grange, Tasting & judging, member produced Pinot Noir

November 16th, 2022
Aloha Grange, Crush Talk

December 14th 2022
Aloha Grange, Elections, Planning for Next Year

The beautiful magic of Pinot Noir flowing from a bladder press

Holiday greetings to all!

Hopefully we have all gotten through the crush without issues and are sitting back and taking in the holiday season. What's not to like about the lights, decorations, food, and seasonal cheer. Well, maybe the cold but just remember what natures refrigerator can do to stabilize our wines.

Since we're discussing stabilizing, this month's meeting we will decide with elections on whom we would like to be the leaders of this club in our 55th year. We have many new members now that we have gotten back to in person meetings and of course with the broader reach of our website designed by Alice Bonham.

Looking back to my first post in the newsletter as president I stated, "the club is only as good as the work put in by the volunteers and members, so be engaged". It still holds true as we have had outstanding chairpersons in all the positions that make this club whole. So, I implore members to show up to this meeting to have a say in who and how this club will conduct business for the next year.

This meeting will also be the time we send the signup sheet around for protein dishes for the gala in January. If you are reading this and won't be at the meeting and would like provide a dish for the gala contact Marilyn at brown.marilynjean@gmail.com and she'll put you on the list. All protein dishes will be reimbursed by the club so save your receipt.

'Til the next meeting, Bill Brown

Drink Responsibly
Drive Responsibly

Up-coming events / Save the date

The next PWC meeting is scheduled for Wednesday, December 14th in the basement of the Aloha Grange starting at 7:00 pm. This meeting will include elections of new club officers and leadership team chairpersons for 2023.
NOTE: There will be a pot-luck table for those who wish to participate. Bring a dish to share. If you would rather not participate feel free to bring your own snacks.

November Meeting Notes

Members present:
- Reminder about a special evening event on Wednesday, Nov. 30th. A tasting and tour of Resolu Cellars facilities in Hillsboro.
- Reminder, our annual Gala will be held at Parrett Mountain Cellars tasting facilities from 5 till 9 pm January 21st. A signup sheet for major food dishes will be circulated at our next meeting. Cost will be reimbursed.
- Our next meeting will be held on Wednesday, December 14th rather than the 21st. We will elect new officers and committee chair positions. We will also discuss and set plans for 2023. Members are encouraged to volunteer to head or assist on a committee or officer's position.

In 1829, when a fast freeze caused an entire vintage to lay wasted on vines, producers decided to pick the grapes for livestock feed. The frozen grapes turned out to taste delicious and Germany made the first eiswein (ice wine).

On Wednesday, November 30th, 21 PWC members visited **Resolu Cellars** in Hillsboro for a sampling of their wines and a detailed tour of the wineries compact & very efficient operation.

The owners are former PWC members who have ventured from hobby winemaking into the commercial arena, Scott & Kathie Nelson and their son Cameron Nelson.

They make good use of a small space producing 15 different wines.

Give them a visit. Their hours presently are Friday, 4:00 to pm to 8:00 ppm and Saturday 12:00pm to 8:00 pm.

The address is 260 SE 4th Ave., Hillsboro, OR 97123.

The Mysteries of Malolactic

By Gabe Jackson & Robyn Rosemon

Congratulations you have successfully turned your grapes into wine. The hard work is over and now you can relax! NOT! Fermentation isn't over yet. Now it is time to begin thinking about malolactic fermentation MLF (otherwise known as secondary fermentation). Malolactic fermentation is the process in winemaking where tart-tasting malic acid, naturally present in grapes is converted to softer-tasting lactic acid. Malic acid tastes mostly like green apples. By contrast, lactic acid is richer and buttery tasting. MLF enhances the body and flavor in wine, producing wines of greater palate softness and roundness.

Most malolactic fermentations are done on red wine varietals and barrel fermented *Chardonnays*. In some red wines the choice is optional such as *Zinfandel* or *Pinot Noir*. White wine varietals like *Sauvignon Blanc*, *Viognier*, and *Riesling*, for example, do not undergo any malolactic fermentation. These wines are recognized for their high acid levels and crisp finish. That is not to say that you can't experiment. In 2009 instead of inoculating her Syrah, Robyn accidentally inoculated her Sauvignon Blanc. (She says, "Don't judge me, it was dark.") The wine ended up being quite delicious, so she called it Fumé Blanc and entered it in the *Harvest Fair*, where she received a silver medal! On the contrary, the first year that she made Zinfandel she chose not to inoculate with malolactic bacteria (otherwise known as Oenococcus oeni). We all really like fruit forward jammy Zinfandel, so she made the choice to pass on MLF. That wine also received a silver medal at the Harvest Fair. The point is that the winemaker gets to decide whether or not to undergo MLF. Equip yourself with the following information on the ins and outs of MLF, so you can decide what to do on your next wine.

THE TALE

There are three primary reasons to put your wine through MLF: stability, acid reduction and flavor. The stability of wine is improved by taking the wine through a complete MLF, ending with 30 ppm of malic acid or less. Residual malic acid above this level still has the potential for unintended fermentation, just as residual sugar in a wine could possibly cause a fermentation to restart in the bottle. Both situations may produce cloudy, effervescent wine in the bottle.

THE CRYSTAL BALL

The fermentation of malic acid results in the production of lactic acid. As each molecule of malic acid is converted to lactic acid, the contribution to titratable acidity (TA) drops by half. In a wine that starts with 0.2% TA from the malic acid (with the remainder of the TA made up of stable tartaric acid), MLF will drop the 0.2% malic portion to just a 0.1% lactic portion. That represents a 0.1% drop in the overall TA. That is a significant change in acidity---the flavor profile of the wine will be much different post-MLF. The combined effect of acidity reduction and change in acid type can turn a bright and sharp wine into a softer, more approachable wine.

THE RITUALS

Our favorite time to perform MLF is at the end of primary fermentation. Most commonly we add the culture when 0 brix is reached. In reds, this means adding it just after pressing. If the culture is added early while sugar is present, there is a risk of

producing volatile acidity. The malolactic bacteria can ferment sugar into VA, so it is best not to give them the chance. As long as you choose a strain that can handle high alcohol and is produced for direct addition, add it at the end of primary.

Oenococcus oeni are not the only strain of bacteria that will ferment malic acid. There are wild strains of lactobacillus that sometimes infect our beverages. In brewing, it is a very common spoilage organism and can result in a complete souring of the beer. In wine, it is also best to avoid them. They do not ferment as cleanly as oenococcus oeni and may contribute off- flavors that cannot be removed. A "spontaneous" MLF will likely result these undesirables. Using a laboratory produced package of malolactic bacteria is the most predictable option. Flavor profile, alcohol tolerance, SO2 tolerance, and other factors are known and reliable. You don't want to risk ending up with a funky and stuck MLF---it's a headache!

We have pure strains available. For large batches and barrels, use one of the options from Enoferm---we have both Alpha (WY51) and Beta (WY66) strains each intended for inoculating up to 66 gallons. For a carboy you can use the 125 mL package of liquid culture from Wyeast 4007 (WY32). Our most popular choice is Enoferm Alpha due to the high alcohol tolerance (15.5%) and general dependability.

Aside from your choice of culture, the main factors that will determine the success of your MLF are temperature, SO2 levels, alcohol level and pH. For all of our cultures, temperatures must be above 60° F (65°-70° is best) or the bacteria will go dormant. Post-fermentation SO2 additions must be avoided until MLF is complete. Alcohol tolerance of our cultures is in the 14.5-15.5% range (check your culture). You can see from those numbers that some wines, especially those big Zinfandels, can be difficult to get through MLF. There are rarely issues with pH. As long as you are above pH 3.2 it will be okay. We rarely see wines below that in Sonoma County.

THE DIVINATION

Assuming that your numbers look good, and you can keep the wine temperature warm enough for active fermentation, you should be able to complete MLF in 3 to 6 weeks. How do you know when it is done? Ask your winemaker friends, but you may want to sit down to really enjoy the answers you get. Everyone has a trick. None of them work very well. Most are either guesswork or something like divination. Here's a few popular answers.

1: You can see little CO2 bubbles in the wine when it is active. 2: You can hear it crackling by putting your ear to the barrel. 3: It smells like tennis shoes while fermenting.

These all contain bits of truth, but also contain some winemaking myths. There is no way to know whether the CO2 production is from sugar fermentation or MLF and none of these techniques gives you a way to decipher between a complete and stuck MLF. Of course, there is this next reply.

4: Oh well, a stuck MLF will finish in the spring when it warms up again.

While it is possible and sometimes this strategy works, it requires you to forego your normal SO2 additions that keep your wine protected through the fall, winter, and spring months.

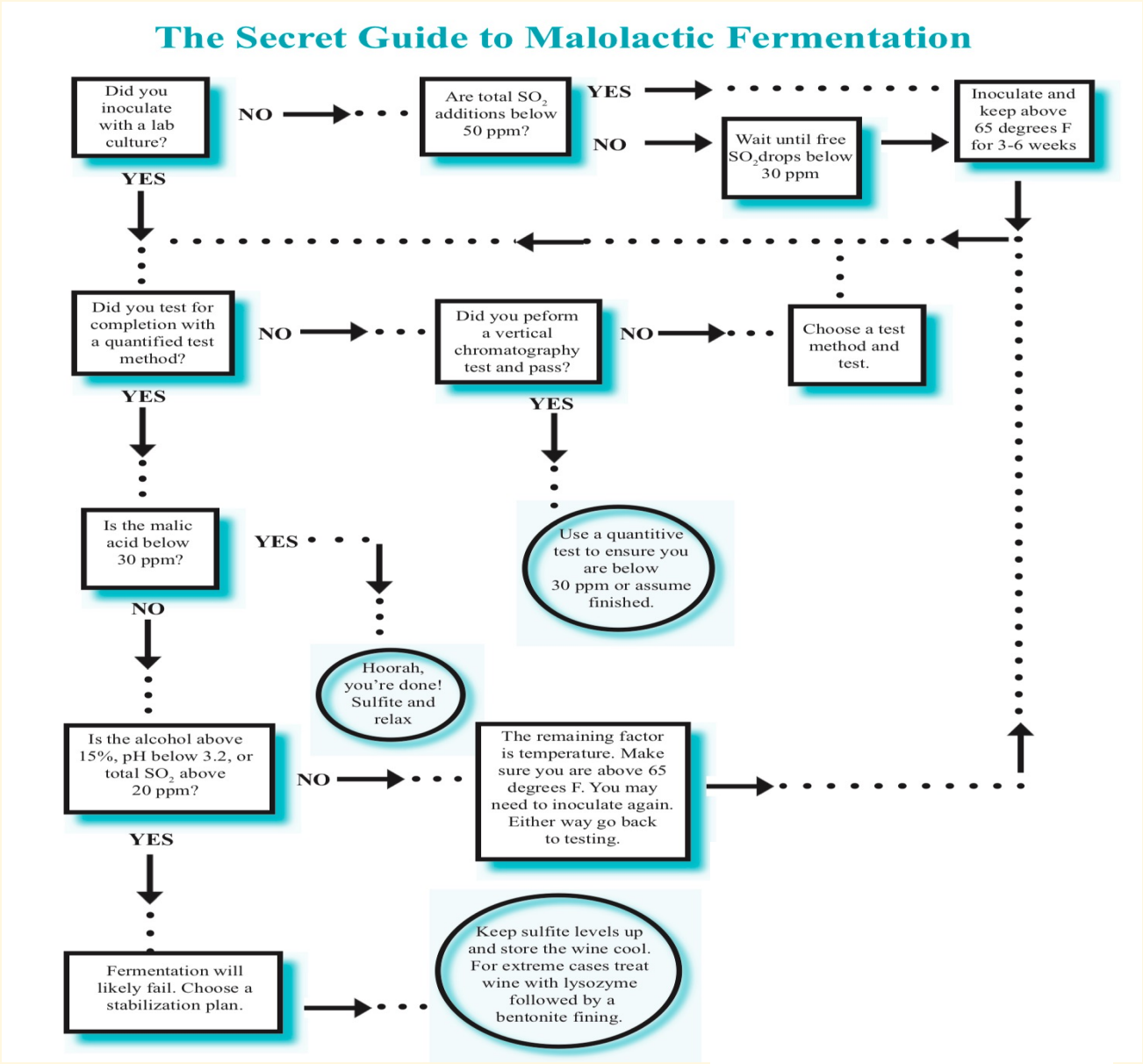
THE DISCOVERY

Once you believe it is done, test it to confirm completion. The only reliable method is to

perform a test or have a sample tested at a lab. For home use we have a Vertical Chromatography test kit. It is a fun test to perform giving you a colorful chart showing the presence or absence of malic, lactic, and tartaric acid in your wine. Unfortunately, it does not give you quantified results. If you take a sample into a lab, you can run a malic acid test on a Reflectoquant meter and get your result in ppm of malic acid. Remember you want it to be below 30 ppm for assurance of stability. It's a happy time for winemakers when the MLF is done, and they can "put their wines to bed" for the winter.

THE TRUTH REVEALED

We have hundreds of conversations each year about these fermentations. We have heard all the problems and helped people complete MLF successfully year after year. We have seen winemakers struggle at it, especially when they get stuck. Our conversations with winemakers always follow a definite decision making course. So, we decided to lay it out for your use---we created a MLF flow chart! Our first recommendation is to inoculate as discussed above, keep the temperature up and finish successfully in 3-6 weeks. If things should go awry with your MLF, take a tour of the flowchart. It will help guide you to a successful finish.



How to Calculate Ullage and Fill Volume

Last updated: *6/2021*

Applies to: *Winemakers and beverage producers bottling with corks. Ullage is the space between the cork and the liquid level and can be correlated with fill height and fill volume.*

WHY MONITOR ULLAGE?
Ullage refers to the void between the wine and the closure, and monitoring it is one of the most useful tools in ensuring bottling success. Ullage is closely related to fill height and fill volume, both of which are affected by wine temperature. Maintaining consistent ullage, fill height, and fill volumes are important for two main reasons:

Maintain legal fill volumes:
As a part of the TTB Regulations on bottling or packing wine (27 § 24.255), the volume of wine in a 750 mL bottle must be ± 2% of 750 mL. Maintaining consistent fill volumes is therefore critical to compliance. Later in this article, we will discuss our suggested method for calculating fill volume.

Preventing leakage:
Inconsistent fill volume is a common culprit for leaking wine bottles. Internal bottling pressure also plays a role here. It is very unlikely that bottles will leak if they are filled at legal fill heights with adequate vacuum (targeting no more than two pounds relative pressure in the bottle at 68°F); However, wines may develop excess bottle pressure if they are overfilled. With excess bottle pressure, leaking may become inevitable as wine warms during shipping or storage and expands.

WHAT IS THE PROPER ULLAGE?
Proper fill height depends on the glass you are working with. The fill height is measured as the distance from the top of the bottle to the correct wine level in the bottle. The manufacturer should provide bottle drawings to indicate this for your bottles, and the drawing should indicate for what bottling temperature it is referencing (it is commonly 68°F). **Generally, the fill point on the 750 mL bottle at 68°F will be approximately 64 mm from the top**. It is always best, however, to consult the drawing as a +/-3 mm variance is possible.

The throat diameter of a standard American 750 mL bottle will vary slightly in the ullage area. On average, with a 64 mm fill height, a 49 mm cork will give about 4.8 mL ullage and a 45 mm cork will give about 6.5 mL ullage.

Temperature effects on ullage:
Wine, like water, expands and contracts based on temperature. At higher temperatures, wine will take up more volume than at lower temperatures. Based upon figures from "Principles and Practice of Winemaking" by Boulton et al, the thermal expansion of wine between 20°C (68°F) and 40°C (104°F) is 0.08% or 0.166mL per degree Fahrenheit. Thus, if a winery bottles at 58°F with 4.5 ml in ullage, that ullage will be reduced to under 3 ml at 68°F and internal bottle pressure will have risen significantly.

There are a few ways to take temperature into account and ensure proper ullage and fill height:

1.Bottle wine at 68°F and fill to the level designated by the bottle manufacturer and confirmed by the winery.
2.Adjust the fill level to compensate for temperature differences. A good rule of thumb is to adjust the fill level by 0.55 mm for every degree Fahrenheit above or below 68°F.
3.Adjust vacuum levels to compensate for temperature differences. This method seems less reliable and more complex than adjusting fill levels. Internal bottle pressure should be equivalent to less than 2 psi (relative) at 68°F.

MONITORING ULLAGE

Monitoring for internal quality control:

Bottling managers can chart out target fill heights and internal bottle pressures by bottle type in advance of bottling. Though this will not eliminate their responsibility for a "legal fill", it will provide an excellent guideline for good bottling. It is also critical that wineries keep good ongoing records during the bottling day.

At a minimum, the following protocols should be observed:
•**Internal Pressure/Vacuum:** Freshly corked wines from each corker head should be checked for internal pressure (every 30 min, and AT LEAST once an hour).
•**Fill Height:** Freshly corked wines from each corker head should be checked for fill height (every 30 min, and AT LEAST once an hour).
•**Temperature:** Quality control should not rely on the temperature gauge at the filler. A thermometer should be dropped into one bottle after the filler every half hour.
If any of these parameters are out of spec, the product bottled since the last in spec. check should be quarantined, flipped upright, and inspected.

Monitoring for compliance:

Depending on your bottling speed and lot size, an appropriate number of bottles should be measured for fill volume (recommended 3-12) at least once an hour. We recommend using the following protocol to calculate fill volume:
•If not done already, consult the bottle drawing to find the manufacturer-specified ullage, fill height, and fill temperature.
•Calculate the approximate fill height based upon the actual temperature of the wine (see the above section on the effects of temperature).
•Individually weigh 3-12 empty bottles and number them or record it's mold number to identify them after being filled. Run them through the filler.
•Weigh each bottle again and calculate the net difference for each bottle (full vs. empty).
•Divide by the specific gravity of the given wine at the bottling temperature to find the volume in mL..
•Adjust fill heights as required.

If legal requirements force the ullage to be smaller than indicated by the internal pressure table, increasing the bottling vacuum can be used to compensate.

An Experiment to Compare Wine Transfer methods for Oxygen Uptake and Free SO2 Loss

by Jane Jackson

There are many points in the winemaking process where minimizing oxygen exposure is completely under the control of the winemaker and can have a big impact of the resulting quality and longevity of the wine. One such instance is during racking. The importance of this step led us, to experiment with different methods of transferring wine and measuring the changes in SO2 and oxygen uptake with each method.

Our Experiment in Racking

Racking is necessary at multiple points and, when poorly executed, can damage a wine that has otherwise been obsessed over to that point. Three common methods of racking include pouring from container to container (or splash racking), siphoning with a racking cane or auto siphon, and pumping. The use of a pump is overkill when making small amounts of wine, and siphoning is generally impossible when making large amounts of wine such as in a barrel or stainless tank.

We set out to perform an experiment with those three methods of racking to determine the differences in their impact on oxygen uptake and loss of free SO2. Our staff gathered for the experiment, and we made a few hypotheses before beginning.

Our Hypotheses:

•**Splash racking is the least gentle way to transfer** and would result in the most oxygen uptake and loss of SO2. Though this method is sometimes utilized to drive off hydrogen sulfide (instead of copper treatment), it is too turbulent to be used on a regular basis.

•**The pump would be next most agitating**. Although the Vintage Shop Variable Speed Diaphragm Pump allows for a more customized rate of transfer, most people are going to run it at full speed (4 gallons per minute) to expedite the process of moving a larger volume of wine.

•**The Auto Siphon would be most gentle**, resulting in the least oxygen uptake, preserving the integrity of the wine the best.

Armed with a Vinmetrica SC-300 and their add-on Dissolved Oxygen Meter, we prepared to measure the SO2 and the dissolved oxygen before and after the various racking methods. The dissolved oxygen tells us how much SO2 is needed to counteract the oxygen uptake during the racking process.

We started with a 5 - gallon keg of 2021 Viognier. The wine had been kept under pressure in the keg in cool storage for months. The day before we experimented with transfer methods, we used our Vinmetrica SC-300 to test the free SO2 in the wine. White wines, lacking the preservative tannic qualities of red wines, require higher levels of SO2 additions for stability. Consider the following reference table which reports the ideal free SO2 levels for both red and white wines at various pH levels.

We were happy to see that this keg of wine was at 40 ppm of SO2- a good amount for the long term storage of the wine and also a decently protective amount for the wine as we experimented with the transfer methods. Had the SO2 been lower than ideal, we

would have made an addition, especially knowing we would be racking it the next day. It is always better to check and adjust SO2 soon before racking so that the wine is properly protected during the disruptive procedure. Since we had just tested SO2, we had a baseline against which to judge the racked samples after racking.

Next, we had to calibrate the Vinmetrica D.O. (dissolved oxygen) Meter. This Vinmetrica add-on can be used with the SC-200/300 Meters. It is cumbersome to work with but, if done carefully and properly, can offer very useful information regarding oxygen exposure/uptake of the wine. After the D.O. meter had been calibrated, we tested the D.O. in our control keg. It was at 0.1717 ppm.

Next, we chose common tools available to home winemakers for racking and prepared our experiment as follows:

Method 1 - Splash Racking. A stainless baster-type thief to execute the splash racking (we didn't actually want to torment our delicious Viognier by splash racking the whole keg). We used this to vigorously squeeze our sample from the thief into our sample beaker.
Method 2 - Siphoning. An auto siphon and attached tubing to gravity rack from keg to sample beaker.
Method 3 - Pumping. The Vintage Shop Variable Speed Diaphragm Pump fitted with rigid racking tubes on both ends, operated at medium speed to pump from keg to sample beaker.

After each method of racking, we tested SO2 and D.O. in our samples. The results below had a couple of surprises for us. Remember, we started with our control sample at 40 ppm of SO2 and 0.1717 ppm of D.O.

	SAMPLE	SO2 AFTER RACKING	D.O. AFTER RACKING
Method 1	Splash Racking	36 ppm	1.94 ppm
Method 2	Siphoning	38 ppm	0.47 ppm
Method 3	Pumping	38 ppm	0.39 ppm

The splash racking was obviously the most disruptive to the wine, resulting in greatest loss of SO2 and greatest uptake of oxygen. The surprise, to us, was that the pump was actually much more gentle than we hypothesized- about as gentle as the gravity-fed auto siphon. This gave us great confidence in recommending this particular pump as a gentle, but efficient way to move larger volumes of wine with minimal loss of SO2 and no serious oxygen uptake.

Lesson Learned

With the free SO2 and D.O. numbers gathered in our experiment, we can calculate the amount of SO2 that must be added to the wine to compensate for the agitation losses and oxygen uptake.

The following is a key fact needed for the calculation: For every 1 ppm of oxygen uptake, an additional 4 ppm of sulfite is needed to bind it.

With this knowledge, the winemaker can properly sulfite ahead of time based on the chosen method of transfer so that no additional oxygen uptake is incurred.

For instance, ***performing a gentle method of transfer such as with an Auto Siphon or Pump*** requires an addition of 2 ppm of sulfite to compensate for the agitation loss from racking

plus, another 2 ppm for the oxygen uptake for a ***total addition of 4 ppm of sulfite.***

A ***more vigorous method of transfer, such as splash racking,*** would require 4 ppm for the agitation loss from racking plus another 8 ppm for the oxygen uptake for a total addition of 12 ppm! Without these additions, a wine that was otherwise protected becomes vulnerable to oxidation and a reduction in quality.

We used a Vinmetrica SC-300 to perform our lab tests.

pH	0.8 ppm	0.5 ppm
	White Wine	Red Wine
2.9	11 ppm	7 ppm
3.0	13	8
3.1	16	10
3.2	21	13
3.3	26	16
3.4	32	20
3.5	40	25
3.6	50	31
3.7	63	39
3.8	79	49

Molecular SO2 needed for Stability (ppm)

The lowly crown Cap

Though not as common as cork closures, crown caps (most commonly seen on beer bottles) are often found atop fizzy bottles of sparkling wine, particularly pét-nats. Sparkling wines produced via the méthode traditional (think Champagne and Cava, *not* pét-nat) are usually sealed with these crown closures while undergoing their primary fermentation, as these stoppers have a high ability to withstand excessive levels of pressure in bottle. Upon disgorgement, these crown caps are removed and replaced with cork and wire cages. However, most pét-nats don't go through the disgorgement process and are simply released once their primary fermentation is done in bottle. Since there is no need to disgorge and reseal, many bottles are simply released and sold with their crown cap closure.

For home winemaking, I think that we should all take a page out of our home brewing buddies' book. Why not try crown caps? Especially in cases where you don't need long term aging or want to maintain that fresh character or don't plan to send them off to a competition. **

**** Editor: I have examined some of my wine bottles and I don't think I would trust a crown cap to make a very good seal on them. Sparkling, cider, beer & soda bottles all have a rounded lip for the crown cap to pinch around ensuring a permanent tight seal, these could be used for wine.**

I make sparkling every couple years and I use a crown cap, not only for the second ferment in the bottle (Tirage) but also as a final seal after I disgorge (Dosage). Since most of my sparkling is consumed at home within 2-3 years I don't mess with a cork.

Reference Library

Here is a list of hobby winemaking manuals and other materials in the Secretary's file. They are available for downloading by e-mail or via an internet transfer service. Some are downloadable from the source such as Scott Lab. All are PDF format, e-mail Ken Stinger at kbstinger@frontier.com

Scott Lab 2022 Winemaking Handbook – 6 mb - 135 pages
Scott Lab 2022 Cider Handbook – 2.1 mb - 75 pages
Scott Lab 2018-2019 Sparkling Handbook - 8 mb - 58 pages
Scott Lab 2022 Craft Distilling Handbook – 5.2 mb - 26 pages
Anchor 2021 – 2022 Enology Harvest Guide 15.7 mb - 16 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
Wine Flavors, Faults & Taints – 600 kb, 11 pages
Daniel Pambianchi wine calculator set – 13.5 mb, 10 calculators
Wine flavors, faults and taints - 88 kb, 11 pages

- A new oak barrel imparts flavor to wines and most of this is effectively leeched out of the barrel after three years of use.
- Any wine might spend only 12 months in barrel—this being the average aging of red wine.
- During the first 12 months about 60 percent of the flavor will be removed from the oak, while the next 12 months will remove another 25 percent; the final year will only get 15 percent.
- Once emptied of wine, barrels should be inverted to near the 6 o'clock position, drained and then rinsed with high pressure cold water using a barrel washer with a rotating spray head.
- A barrel washer generally contains a rotating spray head attached to stainless steel pipe and framework that can be inserted into the barrel through the bung hole.
- Washing pressures used can vary from 100-3,000 psi (689- 20,684 kPa).

Portland Winemakers Club
Leadership Team – 2022

President: **Bill Brown** bbgoldieguy@gmail.com
- Establish the leadership team
  - Assure that objectives for the year are met
  - Set up agenda and run the meetings

Treasurer: **Barb Thomson / Jim Ourada** bt.grapevine@frontier.com
jmourada57@gmail.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: (need a volunteer)
  - Arrange for speakers & educational content for our meetings

Chair for Tastings: **Brian Bowles / Barb Stinger** bowles97229@gmail.com

  - Conduct club tastings kbstinger@frontier.com
  - Review and improve club tasting procedures

Chair of Winery / Vineyard Tours: **Andy Mocny.** acmocny@gmail.com
  - Select wineries, vineyards etc. to visit
  - Arrange tours
  - Cover logistics (food and money)

Chair of Group Purchases: **Bob Hatt / Al Glasby.** bobhatt2000@yahoo.com
alglasby@gmail.com
- Grape purchases, Makes the arrangements to purchase, collect, and distribute

- Supplies – These should be passed to the President or Secretary for distribution.

Chair of Competitions: **Michael Harvey** mharvey767@gmail.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: **Barb Thomson** bt.grapevine@frontier.com

Virtual Meeting Moderator: Rob Marr mdbmarr@live.com