Portland Winemakers Club

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July 2017

Monthly Rant

Its the dog days of summer and not much is going on. Wines are in the barrel and grapes are appearing on vines. So about all I have to say is enjoy the warm dry weather and make sure you remember we have a picnic on this coming Saturday! Here's a vineyard view of the little red farm house from a recent visit to Sokol Blosser…. Cheers! …. Phil

Drink Responsibly. Drive Responsibly.

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

Misc. Information

• **San Luis Obispo, Calif.**— The welcome end of a four-year drought brought one unexpected hardship to some California wine grape vineyards: downy mildew. Veteran extension viticulturists said the pathogen is a rarity in the Golden State and blamed its emergence on uncommon rates of humidity.

• **U.S. wineries are required to register with the FDA** as food-production facilities and renew their registration every two years under the Bio-terrorism Preparedness and Response Act. Wineries that have neglected to register with the FDA are particularly prone to receiving surprise visits, according to Snider, who recommends making sure all paperwork is current in case an inspector drops by.

• **"Wine is one of the most civilized** and natural things of the world that has been brought to the greatest perfection, offering a greater range for enjoyment and appreciation than, possibly, any other purely sensory thing." — Ernest Hemingway

• **Winebusiness.com in December 2015 asked wineries with music** in the tasting room if they were breaking the law. They probably were. Performing rights organizations exist because musical compositions constitute intellectual property which belongs to its artists, the creators of the works. Using that property implies a moral as well as legal obligation on the part of the user to seek and obtain proper permission.

• **Vatican officials** have told Catholic priests that wine used for Holy Communion must be 'natural' and should not be sour, and that they should avoid gluten-free bread.

Note: The next PWC event will be our Summer picnic, July 15th at 1:00 at Oak Knoll Winery on the lawn next to Marj's house (see below). Please park in front of her house, not in the winery parking lot.
The next regular meeting will be Wednesday, August 16th at 7:00 PM at Oak knoll Winery.
August agenda: "All Whites Tasting". This will be member produced all white varietals including rose, sparkling, fruit wines & mead, anything remotely resembling a white.

If you haven't already, be sure to renew your club membership and sign a new waiver.
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/

Summer Cheers!

Join us for the 2017

Portland Winemakers Club Picnic

Saturday, July 15, 2017
1pm – 4pm
@
Oak Knoll Winery

Please bring either a side-dish, salad or dessert and some wine to share!
Please park at Marj's home to leave spaces for the winery's clientele.

Leavening Your Winemaking Protocols

Curtis Phillips

IT SEEMS LIKE THERE are always new yeast strains, also called yeast isolates, coming onto the market. “It’s a new yeast strain” is something that us winemakers hear pretty much every year. It is my belief that when it comes to yeast isolates, there are only two types of winemakers: Those who have to try something new and those who would rather stick with the tried and true. Maybe the age of the winemaker is also a factor in the dichotomy. Personally, I find that I’m less interested in getting something new out of a yeast strain than avoiding a problem fermentation. To me, and perhaps to most other professional winemakers, predictability is very much more important than novelty.

In the face of my generally curmudgeonly view toward new yeast strains, yeast producers have brought a number of genuinely new strains onto the market over the past few years. Until recently, most “new” yeast strains were isolates from winemaking regions that had been hitherto overlooked. Dominique Delteil’s Rhône isolates from the early 1990s, ICV D-21, D-80 and D-254, would be examples. Of course, by going to the Rhône, especially the Côte Roti, an area known for producing relatively high-Brix grapes and therefore high-alcohol wines, these yeast strains also filled that need in other regions.

Trends in Yeast

The dominant trend for new yeast strains, as I see it, is that pretty much all the new yeast strains are intended to have more predictable results from their fermentations. I’ve focused on five main areas:

(1) Yeast strains that have been selected for low production of hydrogen sulfide (H2S). Note that most of these strains are also low producers of hydrogen sulfite (SO2).
(2) Yeast strains that were selected for their ability to maximize conversion of thiol-based varietal aroma compounds from their glutathione and cysteine precursors.
(3) Hybrid yeast strains. Usually, but not always, these are hybrids of two different species within the *Saccharomyces* genus.
(4) Yeast blends that have been designed for particular results. (5) Traditional yeast isolates that I personally happen to find interesting.

The usual caveats apply. I’m listing yeast strains that have piqued my interest recently, but I have not been able to use any of them, yet.

AB Biotek (AKA AB Mauri)

At the end of March, **AB Mauri** formed a new business division, called **AB Biotek**, for its fermentation products. AB Biotek has a lot of strains that made this list. I suppose that is simply because I happened to notice that they have a hybrid, no-H2S and high aromatic thiol strains and managed to hit the trifecta of my criteria this time around. If I had to choose, I find the two hybrid yeast strains, Maurivin 1503 and AWRI Fusion, the most interesting because they are hybrid with *Saccharomyces* species with which I am unfamiliar.

For more information, visit *wine.abbiotek.com.*

Maurivin AWRI 1503

Maurivin AWRI 1503 is a classically bred hybrid (i.e., non-GMO) between *Saccharomyces cerevisiae* and *Saccharomyces kudriavzevii*. I have never worked with *S. kudriavzevii,* either by itself or any hybrids thereof. There- fore, it’s a little hard for me to predict just how I would use it, but given that AB Biotek recommends that this yeast strain be used in the production of both white wines, like Pinot Gris (Pinot Grigio), Verdelho and Viognier, as well as red wines, like Cabernet Sauvignon, Malbec, Merlot and Syrah (Shiraz), I’d say that any wines needing a bit more mid-palate might be a good place to start experimenting.

For more information, visit *wine.abbiotek.com/yeast-strains.*

AWRI Fusion

AB Biotek’s AWRI Fusion (AKA AWRI 1502) is a classically bred hybrid between *Saccharomyces cerevisiae* and *Saccharomyces cariocanus*. This hybrid strain is supposed to increase the aroma, complexity and mouth- feel. AWRI Fusion appears to be something of a maid-of-all-work yeast strain with both red and white recommended varieties, ranging from the ubiquitous Chardonnay to Pinot Gris/Grigio, Semillon, Chenin Blanc and (French) Colombard to Cabernet Sauvignon, Merlot, Malbec, Pinot Noir and Pinotage. While I’m sure that this is true for particular winemaking styles, I think winemakers are going to have to experiment with this yeast for several vintages before they find just how it can best fit into their existing winemaking protocols.

UOA MaxiThiol

UOA MaxiThiol from AB Biotek is a *Saccharomyces cerevisiae* strain that was selected for its "ability to produce aromatic thiols which contribute significant fruity esters of 'tropical fruit' and 'passionfruit'." AB Biotek recommends this strain for Sauvignon Blanc, which makes sense since the varietal character of Sauvignon Blanc depends on volatile thiol aroma compounds.

Maurivin Distinction and Maurivin Platinum

AB Biotek (formerly AB Mauri) released three low, or no, H2S-producing strains called Maurivin Advantage, Maurivin Distinction and Maurivin Platinum several years ago. I believe this makes AB Mauri one of the earliest, if not the first, company to get yeast strains specifically selected for low H2S production onto the market. Maurivin Advantage appears to have fallen out of production and is not listed in AB Biotek's catalogue although it seems to still be available from some retailers.

Maurivin Distinction is recommended for all red varieties and wine styles with a particular recommendation for the production of fruit-forward, or fruit-driven, red wine styles. Maurivin Platinum is the Jack-of-all-Trades counterpart and is recommended for all wine fermentations, but especially for white wine production.

Hybrid Terminology

One trend I've noticed with the introduction of these yeast strains is that the term "hybrid" is being bandied about in the marketing literature a bit too freely. Biologically speaking, a hybrid is the offspring of two different species. A mule, which is the offspring of a mare (female horse, *Equus caballus*) and a jack (male donkey, *Equus asinus*) is the classic example of a hybrid. The reciprocal hybrid, a hinny, is the offspring of a stallion and a jenny (female donkey).

Of course, we have plenty examples of our own in the wine industry, ranging from spontaneous hybrids like Alexander (AKA Tasker's Grape, among other synonyms), which is a hybrid of *Vitis labrusca* and probably *V. vinifera*, to French hybrids like Marechal Foch, whose exact parentage is uncertain, to modern hybrids like Coret Noir, a hybrid of hybrids, specifically, Seyve Villard 18-307 and Steuben 1970.

As a contrasting example, most of the grape varieties bred by Harold Olmo, although "modern" insofar as they were created in the 20th century, are not hybrids but are crossings between two or more *Vitis vinifera* cultivars. Examples would be Symphony (a cross of Muscat of Alexandria and Grenache Gris), Flora (a cross of Semillon and Gewürztraminer—and no relation to the red grape of the same name), Centurian (AKA Centurion, a cross of Carignane (AKA Carignan), Cabernet Sauvignon and Grenache), Carnelian (a cross of Cabernet Sauvignon and Grenache), Emerald Riesling (Riesling and Muscadelle), and Ruby Cabernet (Cabernet Sauvignon and Carignane).

Getting back to yeast, the fact that several of enological yeast producers are calling yeast both "hybrid" and *Saccharomyces cerevisiae* seems a bit misleading. If the commercial yeast is a true hybrid, then it isn't *S. cerevisiae*, but rather *S. cerevisiae* and some other yeast species probably in the *Saccharomyces* genera. If the commercial yeast strain is indeed *S. cerevisiae*, then it shouldn't be called a hybrid at all. If the strain in question is really a hybrid, then it should list both of the parents on the MSDS and not just *S. cerevisiae*.

UC Davis professor Dr. **Linda Bisson** explained the terminology. "Technically, there are interspecies and intraspecies hybrids (within a species), and one can use that term for crosses as hybrids of two different parents, but by that definition, any strain is technically a hybrid of some sort of cross that happened previously so most, when they use hybrid, use it to mean interspecies. For intraspecies you are supposed to specify the two parents—like a hybrid of EC1118 and QA23—but technically, they can call just about anything a hybrid, which I agree with you confuses the issue if you are not specifying inter versus intra and letting the buyer make that call."

I think I understand why the yeast companies are doing this. They are looking for a word that implies "high-tech," "modern" and "designed" without hinting at anything GMO. However, the very meaning of the word "hybrid" is getting diluted by this use.

AEB Group

The AEB Group has been around for a pretty long time and in the U.S. market for quite a while. The group is a faithful attendee at industry tradeshows and the like. That said, I find that AEB is not often foremost in winemakers' minds when discussing yeast. This is a shame really, since I have been pleased with the performance of AEB yeast strains I have used in the past. AEB is head- quartered near Brescia in Northern Italy.

For more information, visit *aebusa.myshopify.com/collections/yeast*.

FERMOL A3B

Fermol A3B is a intra-specific hybrid of two different, but undisclosed, *Saccharomyces* species. The strain was selected and is controlled by **Professor Giudici** and **A. Pulvirenti** at the microbiology laboratories of the Agriculture and Science Department at the **University of Modena** and **Reggio Emilia**. The notable aspect of this strain is that it doesn't consume malic and produces succinic acid. This should result in a wine with a nice crisp edge even in overripe grapes. Fermol A3B is recommended for Gewurtztraminer, Pinot Gris, Pinot Noir, Riesling and Syrah. Unusually, A3B is also recommended for French hybrids and fruit wines.

It should be noted that Fermol A3B is described as having high nutrient demands and slower-than-average fermentation dynamics. It does not produce significant amounts of SO2.

For more information, visit *aeb-group.com/it/us/food-beverage/fermol-a3b-13639* or *aebusa.myshopify.com/products/fermol-a3b-sacch-cerevisiae.*

Anchor Yeast

The **Anchor Yeast** division of **Oeno- brands** (formerly **DSM**) has a line of yeast blends called Alchemy. Two new blends have been released recently, Anchor Alchemy III and Anchor Alchemy IV. Both are blends of multiple *Saccharomyces cerevisiae* strains. As an engineered blend, Anchor Alchemy yeasts are only suitable for direct inoculation. Attempting to grow-up a starter culture or re-pitching the yeast will not achieve the desired results. In a starter culture or when re-pitched, individual yeast strain(s) from the original Alchemy blends will eventually dominate the fermentations, thus undercutting the original purpose of the blend.

For more information, visit *oenobrands.com/en/our-brands/anchor*.

ANCHOR ALCHEMY III

Anchor Alchemy III is recommended for aromatic white grape varieties, like Sauvignon Blanc and Verdelho, as well as more white varieties with more subtler aromatics, like Chenin Blanc and (French) Colombard. The blend is a high producer of fermentation esters and is described as a high producer of 2-phenylethanol (rose), 2-phenylethyl acetate (floral and fruity), ß-iono (raspberry) and acetate esters (fruity and candy). Anchor Alchemy III is also notable in that it decreases methocy-pyrazines and their associated "green bean" character that can diminish or completely mask fruity aromas.

ANCHOR ALCHEMY IV

Anchor Alchemy IV seems to be the red wine counterpart to Anchor Alchemy III. Like Anchor Alchemy III (see above), Anchor Alchemy IV is also a formulated blend of *S. cerevisiae* strains, but this one is designed to maximize red fruit characters. In particular, the blend appears to have been made with aged reds in mind. It still produces a lot of esters and terpenes; the high production of ethyl-hexonate is described as giving a longer life to fruity aromas produced during fermentation. Other than that, the yeast blend seems very similar to Alchemy III. I'd give it a try on pretty much anything, except wines that are intended for very long élevage prior to bottling.

Enartis USA

Despite **Vinquiry**'s acquisition by long-term chemical and wine industry supplier Esseco's **Enartis** subsidiary, Vinquiry, now **Enartis USA**, seems to have managed to keep a lot of **Marty Bannister** and **Mary Ann Graf**'s influence. Both of the yeast strains, Enartis Ferm MB15 and D20, are the sort of yeast selection one expects from Vinquiry. Of course, this may be, in no small part, due to Marty Bannister's continued collaboration since MB15 was isolated from **Bannister Wines** on the Sonoma Coast. Both these yeast strains can serve as the old-school counterexamples for those that are looking for less "high-tech" yeast alternatives than the other strains listed in this article.

For more information, visit *enartis.com/us/products-services* or *shop-usa. enartis.com/winemaking-products/fermentation-products/yeast*.

ENARTIS FERM MB15

Enartis Ferm MB15 is a Pinot Noir isolate from **Campbell Ranch Vineyard** outside of the town of Annapolis in the Sonoma Coast Appellation. As an isolate from a Pinot Noir specialist, MB15 is recommended for Pinot Noir and all fruit-forward red wines. I'd say it would be something of a no-brainer to try MB15 with cool-climate Pinot Noir, Pinot Meunier

and possibly Gamay Noir. I'd also consider using MB15 for less common varieties, like Dolcetto, Grignolino and Nebbiolo. For more information, visit *shop-usa.enartis.com/mb15.*

ENARTIS FERM D20

Like MB15, Enartis Ferm D20 is an isolate from a single vineyard/winery. In this case, D20 was isolated from the top Cabernet Sauvignon block of DAOU Mountain in the Adelaida District of Paso Robles, California. D20 is described as well-suited to Cabernet Sauvignon and other Bordeaux varietals. I would try it out on any wines that are destined to see more than two years in barrel or have a fairly hot fermentation, as well as any high Brix grapes. All of this is as much as to say, "Use on Bordeaux varieties from premier wine regions."

For more information, visit *shop-usa.enartis.com/enartis-ferm-d20*

Erbslöh

Based in Geisenheim, Germany, **Erbslöh** has been around since 1892 and has an international reputation for high-quality enological supplies, including yeasts, nutrients, bacteria, enzymes, fining agents, bentonite and cold stabilization products.

For more information, contact Erbslöh, *erbsloeh.com/en/home*. To see which Erbslöh yeast strains are available in the U.S., visit:
erbsloeh.com/en/products/wine/must_vinification/fermentation_in_the_united_states or contact **Pickering Winery Supply** at *winerystuff.com.*

ErboFerm X-thiol

Erbslöh's ErboFerm X-thiol is a non-GMO hybrid in which two different *Saccharomyces cerevisiae* strains were improved by protoplast fusion. The resulting hybrid is said to have alcohol-tolerance similar to a *S. bayanus* strain but with low nutrient demands and low SO2 formation. Most importantly, X-thiol is also said to have a high capacity to convert non-volatile thiol compounds into characteristic varietal aroma compounds. Sauvignon Blanc is the obvious varietal with which I would pair this strain.

Fermentis

Lesaffre has been around since 1853 and has been producing yeast since 1863. **Fermentis**, a name I'm still not used to despite being used for something like 15 years, is Lesaffre's business unit for yeast production and R&D for the brewing, spirits and wine industries. Along with the name change from Lesaffre Oenology to Fermentis, the enological yeast strains are currently being marketed under the SafŒnoTM brand.

For more information, visit Fermentis, *fermentis.com* or **ATPGroup**, *atpgroup.com*.

Lasaffre SafŒno(TM) HD S135

Lesaffre's SafŒnoTM HD S135 is a hybrid between *Saccharomyces cerevisiae* and *Saccharomyces bayanus*. What I like about SafŒnoTM HD S135 is that it has a fairly high ethanol tolerance, fast fermentation kinetics, high glycerol production (Lesaffre says "medium to high"), and good fructose assimilation. If I were running trial with SafŒnoTM HD S135, I don't think I'd stray far from the list of recommended varieties of Grenache, Merlot, Sangiovese, Syrah and Tempranillo, but I am curious to see how well it does on Carignane which, despite its somewhat lowbrow reputation among the vinorati, remains one of my favorite cultivars to work with.

Laffort USA

Laffort produces a wide range of winemaking products, including enological yeasts, bacteria, nutrients, tannins, purified enzymes and fining agents.

A full product listing can be found at *laffort.com/en/home-usa*.

Zymaflore Xpure

Like the other low H2S, low SO2 producing yeast strains, Zymaflore Xpure is a non-GMO yeast that is the result of classical breeding and selection. Zymaflore Xpure was selected for use in red wine fermentations. I think I would look to use it with Syrah, particularly those from warm-climates, and Merlot from cooler regions. Both Barbera and Carignane should also be a good match.

For more information, visit *laffort.com/en/products/zymaflore-yeasts/779*

Lallemand

Lallemand has two enological yeast strains that I would like to mention here: Lalvin ICV OKAY, a low/no H2S producer, and Lallemand IONYSWFTM which has a lower than typical ethanol conversion rate.

Lalvin ICV OKAY

Lallemand also has a low H2S, low SO2, yeast strain on the market: Lalvin ICV OKAY, which has been available for a few years now. Like several other strains listed here, ICV OKAY is a low SO2- and H2S-producing yeast strain and the product of conventional (non-GMO) breeding. It was the result of an impressive collaboration between the INRA, SupAgro Montpellier, the ICV and Lallemand. ICV OKAY also has low acetaldehyde production. Finished wines should require lower SO2 levels to be stable. This yeast also completes fermentation in a large range of fermentation conditions. Lalvin ICV OKAY received an award at **SITVI** in 2013 and an **Innovation+Quality** Award this year.

For more information, visit *scottlab.com/product-439.aspx.*

Lallemand iOnyswf

Lallemand IONYSWFTM received a Special Award from **Intervitis Interfructa Hortitechnia** in October 2016. What is clever about this yeast is that it was selected because it produces glycerine and succinic acid. This means that the yeast has a lower ethanol conversion rate, resulting in slightly lower final alcohols, as well as a lower final pH, thanks to the succinic acid produced by the fermentation, and a broader mouthfeel, from glycerine production.

For more information, visit *lallemandwine.com.*

Renaissance Yeast

Renaissance Yeast was one of the earliest, if not the earliest, licensers of the no-H2S, low SO2 technology developed by **Linda Bisson** at **UC Davis**. In layman's terms, the whole process is just classical yeast breeding at the quickest pace possible.

The mapping of the *Saccharomyces cerevisiae* genome enabled researchers to start looking for the specific genes that controlled a given part of the yeast metabolism. Once the gene is identified, it is simply a matter of checking each successive generation if the gene is functioning or not. This is just confirming if the desired trait carried through to the next generation or not. There is no meddling with the underlying genome.

Since microorganisms can produce many generations over a short period, compared to humans, at least, one can do a lot of yeast-breeding in a relatively short time-span. The "technology" simply confirms that the gene of concern is, or is not, being expressed.

Renaissance Yeast has several no-H2S yeast strains available, including Allegro (aromatic white wines), Andante (red wines - malic acid consumer), Brio (fruit-driven red varieties), Maestroso (long skin contact red wines) and Vivace (white wines - malic acid consumer).

For more information, visit *renaissanceyeast.com/product* or *gusmerwine. com/catalog/renaissance-yeast*.

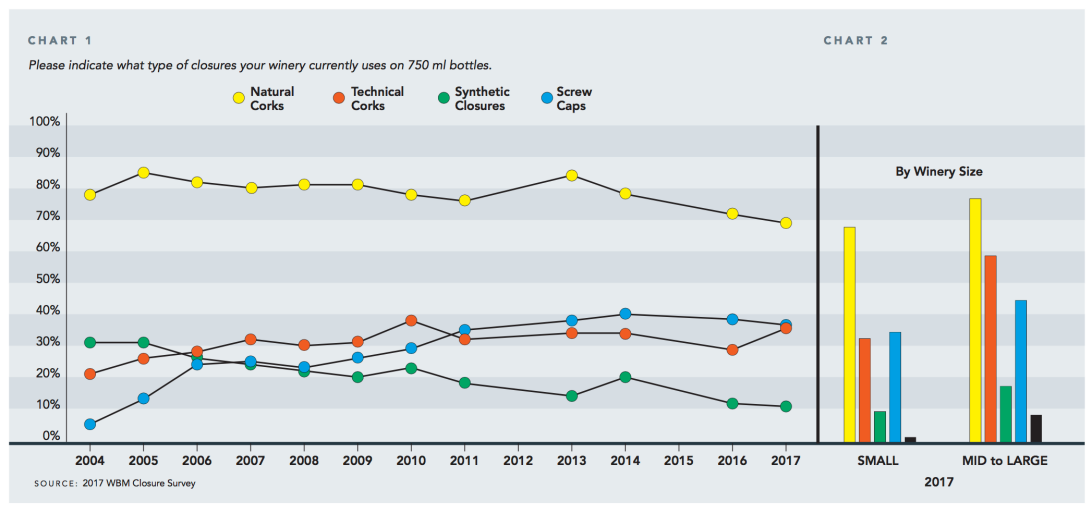
Renaissance Ossia

Ossia Organic (Ossia hereafter) is a relatively recent addition to the Renaissance Yeast portfolio. Like all their available yeast, Ossia is a hydrogen sulfide-preventing yeast that was selected by using Linda Bisson's technology. The relevant patents are held by the University of California and used under license. What makes Ossia different from the rest of the yeast strains in the Renaissance Yeast portfolio is that Ossia is also certified as organic. This means that the producers of organic wine now have a means of preventing H2S in their wines.

For more information, visit *renaissanceyeast.com/en/products/ossia.*

Newfangled Yeast, Wine Trials and All That

I'd like to see trials with any of the yeast I've listed here. I've probably focused on the no-H2S strains because I've been an on-and-off-again Syrah specialist since the early 1980s, but all the strains I've listed here deserve a serious look. For those winemakers considering these strains, I would like to stress that you really need to do a proper trial to be able to figure out if a given yeast strain really adds anything to your winemaking. A winemaking trial is more or less useless unless it has a proper control group, is run in at least triplicate (that is, at least, three fermenters), and the wines need to be kept separate for the length of the trial, ideally throughout élevage. That makes doing a wine trial difficult to execute, but you're not going to get useful data unless some care is taken. Have a safe crush.



WINE CLOSURES

Natural cork is the most frequently used closure by winemakers due to its ability to compress and expand to form a tight seal, as well as allow the wine to breathe over long periods. Natural cork is regarded as environmentally friendly since corks are easy to recycle and cork is sustainably produced (the same
trees are stripped about every nine years). historically, the main drawback of natural cork is the possibility of wine developing cork taint ("corked") brought on by TCA (2,4,6-trichloroanisole) in the wine, which in most cases is said to be imparted by the cork itself due to natural occurrences in the cork or to how it
is processed. Over the past couple decades, the cork industry has changed or improved their production processes to the point where there is much less of a chance of TCA contamination. Several vendors now are also guaranteeing their closures have below the detection-threshold levels of TCA.

Technical corks include any closure made from cork granules. Often they are made to resemble natural corks and are manufactured using a combination of agglomerated natural cork granules, a binding agent, with other optional parts. Four our purposes, this category includes highly-engineered closures like the DIAM that include non-cork 'microspheres' as well as cork granules and binding agents.

Sometimes with natural cork disks glued to the ends (in contact with the wine). These types of corks are also know as "1+1" corks (there are also 2+0: two disks on one end, and 2+2: two disks on each end) and have a low incidences of cork taint compared to natural corks. Technical corks are efficient at preserving sulfur dioxide concentrations within the bottle, and are most commonly used with wines that are meant to be consumed within the short-term (two to three years). The "Twin Top" is the most well-known technical cork developed.

Synthetic closures mimic natural cork closures in how they look and function, for the most part, but are made of plastic (injection-molded or extruded),
thus do not present the risk of TCA contamination. The most commonly cited drawbacks of synthetic closures include: difficult to remove from the wine bottle (as well as re-seal) and higher risks of oxygen permeation than natural cork, although this latter aspect has seen improvement. Historically, synthetic closures had drawback that has created some opposition to synthetics is their environmental impact, as they are oil-based and are not biodegradable like a natural cork. However, some synthetic closures on the market are made from plant-derived ethanol rather than petroleum.

Screw caps, also knows as "Stelvin caps," ROTE caps (Roll On Tamper Evident), or ROPP caps (Roll On Pilfer Proof), are made from aluminum and seal onto a wine bottle's neck in a threaded fashion, as opposed to being pushed into the bottle's opening like a natural cork closure. Screw caps are said to offer a tighter seal, thereby protecting against cork taint and keeping unwanted oxygen at bay, serving to preserve aromas and improve a wine's overall quality. Conversely, some have accused screw caps of suppressing wine aroma and quality too much (reduction). Screw caps, the predominant closure choice in New Zealand, continue to rise in usage by U.S. wineries as U.S. consumers become more comfortable with them.

News Update on the Washington State Fair Amateur Wine & Beer Competition

Drop off date for entries: **Saturday, August 12, 2017**.

Last year we were fortunate to have a couple of remote drop off locations, as well as the Fair office, for people who could not make this date and/or location.

Judging date: Sunday, August 20, 2017.

Entry fee: **$3.50 per entry**.

Again this year, we will need you to complete your entry process **online** before arriving on August 12.

The Washington State Fair Amateur Wine Competition judges each wine on it's own merits.

It's presence, it's balance, it's type or varietal character, not by how it compares to others. For this reason, there can be many (or few) winners at each level and in each category.

Please be sure you test and record your final specific gravity, using a hydrometer.

Calling all amateur wine makers: Entry deadline for the Oregon State Fair competition is fast approaching.
Online entries must be submitted by July 17, 2017.

Ribbons will be awarded—blue, red and white—in each of our wine classifications. Blue ribbon award winners from each category will be announced and presented as Amateur Best of Show at the PAIRINGS! event on Friday, August 18, 2017 in the Garden at the Oregon State Fairgrounds. Please enter off of 17th Street.

The three Best-in-Class winners in the categories of Red Wine, White Wine, and Berry Wine will receive the Chemeketa Amateur Winemaker Prize, provided by the Chemeketa Community College Wine Studies Program. Winners will receive free tuition for any 3-credit course in the Wine Studies Program.

Click **http://oregonstatefair.org/** for complete competition information.

Monitoring & Adjusting pH

Author: Daniel Pambianchi

I am always surprised at how many winemakers — new and experienced alike — still make wine with absolutely no concern for pH. It's akin to never checking your engine oil in your car. Sooner or later, you'll be left stranded by the side of the road, hood open, and smoke billowing from the engine . . . or with a case of spoiled wine.

pH greatly affects the taste of wine as well as microbial stability. It can make the difference between drinking the wine or pouring it down the drain. Sure, you may have been making wine for years and never had problems so now you are wondering what the big deal is. Ok, consider yourself lucky. But what if I told you that you can make better wines and that you will become a better winemaker?

"A better winemaker," you ask? "I'm already making great wines."

I always repeat my dad's words of wisdom: "You are only as good (in your trade or hobby) as your ability to solve problems." A wine with a pH out of control can soon turn bad.

So, let's take a look at why monitoring pH is important, how to control pH and make adjustments. First, a quick refresher on what pH is.

What is pH?

pH is a measure of the acidity (or alkalinity) of an aqueous solution, or, in winemaking, juice or wine. Whereas total acidity is a measure of the concentration of all acids in a solution, pH is a measure of the strength of acids; not all acids are equally strong.

Consider two solutions with the same concentration: Hydrochloric acid (HCl) and acetic acid (CH3COOH). Although the two have the same concentration, the hydrochloric acid solution is much, much stronger. That's because the hydrogen atom in HCl dissociates much more readily than the hydrogen atom (the one in the COOH group) in acetic acid. And so, you would find a much greater concentration of dissociated hydrogen atoms in an HCl solution than in one of acetic acid.

pH is thus defined relative to the concentration of hydrogen atoms, and more precisely as the negative of the logarithm (to the base 10) of the hydrogen atom concentration in solution. The "negative" part of this definition is what confuses non-chemists. That's because as acidity increases, pH decreases, and vice versa. For reference, freshly distilled water has a pH of 7. Solutions with a pH less than 7 are acidic and those with a pH greater than 7 are alkaline (or basic). Juice and wine pH are typically in the range 3–4.

Why is pH Important in Winemaking?

A low-pH wine will taste tart, owing to the higher acid concentration. Conversely, a high-pH wine will taste flat and lack freshness. However, the single most important aspect of pH in winemaking is that microbial stability and spoilage risks are highly correlated to pH. Microorganisms thrive at higher pH. With the less acidic environment, the winemaker needs to compensate with higher doses of sulfur dioxide (SO2) to keep those pesky devils in check. High-pH wines also tend to oxidize faster and therefore not age as well.

The ideal juice/wine pH range is 3.2—3.6. Because whites tend to have higher acidity, these will typically have lower pH than reds. That doesn't mean that wines outside this range are subpar. There are many great wines with pH below 3 or above 4. As a winemaker, and this is important, you simply need to know how to work with juice and wine that are outside this ideal range.

For example, a red wine with a pH of 3.9 would require about 60 mg/L (ppm) of free SO2 to inhibit microorganisms whereas a similar wine but with a pH of 3.2 would only require about 13 mg/L. So right there, you can see that monitoring pH is an excellent strategy for determining how much sulfite is actually necessary to help protect the juice or wine. A handy sulfite calculator can be found at http://winemakermag.com/sulfitecalculator to help you calculate sulfite additions.

As another example, bacteria used to conduct the malolactic fermentation (MLF) are sensitive to low pH and high SO2 levels. Malolactic bacteria generally need a pH above 3.2 and SO2 levels below 10 mg/L; these characteristics vary by bacterial strain.

And of course, along with total titratable acidity (TA), pH can confirm high or low acid levels and the gustatory impacts in a wine. Any deficiencies can be addressed by increasing acidity to decrease pH, and vice versa, reducing acidity to increase pH. The real value in monitoring pH here is the possibility of having to deal with the more challenging cases of high-TA/high-pH or low-TA/low-pH wines. We'll come back to these.

What pH Changes Should You Expect?
Under normal winemaking practices and conditions, pH should never swing wildly on its own. If it does, then it points to a serious problem with the wine, or perhaps with your pH-measuring equipment.

As part of their metabolism, Saccharomyces cerevisiae yeasts produce some 1 g/L and maybe up to 2 g/L of succinic acid during alcoholic fermentation (AF), which causes a pH drop in the order of 0.1, maybe more. And during malolactic fermentation, bacteria degrade malic acid and convert it into lactic acid, a weaker acid, which causes pH to increase; the increase is proportional to the amount of malic acid metabolized.

Cold stabilization is trickier. Cold stabilization is the process of chill-proofing wine so that it does not cause tartrate crystals to form in the bottle if the wine is subjected to colder temperatures. The logic with regards to acidity and pH is that, since some tartaric acid is made to crystallize and sediment, acidity decreases along with a proportionate increase in pH. (The extent of tartaric acid crystallization depends on wine chemistry, mainly potassium content, and temperature.) This is in fact what happens at wine pH greater than 3.65; however, below a pH of 3.65, both TA and pH decrease. This phenomenon is due to ionization characteristics of tartaric acid: Bitartrate ion (HT–) concentration increases as pH approaches approximately 3.65, and then decreases as pH increases further. Bitartrate ions are those tartaric acid ions involved in forming tartrate crystals.

And of course, any exogenous additions of acids or de-acidifying agents will alter TA and pH. The changes in TA and pH depend on the acids affected.

Get a pH Meter
If you don't monitor and measure pH in your winemaking, my advice is to purchase a pH meter and getting into the practice of monitoring pH in all your wines on a regular basis, particularly following the winemaking events described earlier. It will be one of the best investments you'll ever make — along with SO2-measuring equipment. A benchtop model is most useful for analyzing samples in the lab; however, a portable pH meter can be conveniently used in the cellar.

Spend the extra money to buy a model that has a resolution of 0.01 and an accuracy of ±0.01; those with an accuracy of ±0.1 have a higher margin of error. Keep in mind that a meter with an accuracy of ±0.1 that reads 3.50 means that the pH can lie anywhere in the range 3.40–3.60. That's a huge difference given the logarithmic nature of pH measurements. But a pH meter with an accuracy of ±0.01 that reads 3.50 means that the pH can lie anywhere in a much narrower range of 3.49–3.51. Beware of units that have a resolution of 0.01 but which have an actual accuracy of ±0.1. Price is a good indicator here.

Store and Maintain Electrodes
Electrodes are finicky; they need to be properly maintained and calibrated — often — to get accurate measurements. It is recommended to calibrate electrodes every week or prior to each use if the frequency of use is much longer. Perform a two-point calibration using standard 4.01 and 7.01 buffer solutions. And it is strongly recommended to toss out buffer solutions used for calibration. Contaminated buffers can lead to errors in subsequent calibrations. You should also use two beakers of buffer solutions: One for rinsing the electrode in the buffer you then wish to obtain a calibration point and the second for the actual calibration. There is one last point for more accurate results: Since temperature affects the pH of a solution it is wise to have your calibration buffers be as close as possible to the temperature of the juice or wine you are going to measure. Although, some of the premium models of pH meters will have a compensation mechanism to correct for such variations in temperature

And remember: Always store your pH meter's electrode in the recommended storage solution or tap water if you are in a pinch. Never store an electrode in distilled or deionized water. Distilled or deionized water contain virtually no ions, which will drain ions from the electrolyte solution from within the electrode until an equilibrium is reached with the water, and thereby rendering the electrode inoperable. Prior to use, clean the electrode with a suitable cleaning solution to remove any deposits that might otherwise affect performance.

Adjusting pH
As a general recommendation when needing to make adjustments, it is always preferable to blend wines, though, granted, wines with the required "specs" may not always be available. In no case should you blend a subpar wine with a perfectly sound wine.

It is not recommended to adjust pH unless there is an absolute need to do so, for example, if you need the pH to be within the tolerance of malolactic bacteria. And it is best to make adjustments in the must/juice prior to the AF; yeast and bacteria (for MLF) will be happier.

To lower pH, the most effective method (and as close as natural as it can be) is to add tartaric acid. A 1.0 g/L addition causes a shift of approximately 0.1 in pH. Citric acid is not recommended, at least not in wines that will go through MLF, as malolactic bacteria will metabolize the acid into acetic acid and increase volatile acidity (VA).

To increase pH, use a de-acidifying agent, such as carbonate salts (e.g., potassium carbonate, potassium bicarbonate), to decrease tartaric acid, or, perform a double-salt precipitation to decrease both tartaric and malic acids in high-TA, high-malic

acid wines. Sihadex, Acidex, and Neoanticid are examples of commercial double-salt precipitation preparations.

What about those high-TA/high-pH wines or low-TA/low-pH wines?

For high-TA/high-pH wines, calcium sulfate (e.g. Plaster of Paris) can be used to lower pH without significantly affecting TA. Trying to add water to lower pH is futile; water only marginally lowers pH. Great amounts would be required for any noticeable change, and then, the wine would be highly diluted.

Phosphoric acid (often used as an ingredient in sodas) is another ingredient for reducing the pH level in such wines though its use is not recommended because it affects the taste and texture of wine; it is actually not allowed as an additive in US commercial winemaking. The advantage of phosphoric acid is that it reduces the pH level without significantly altering TA because it is very strong.

In home winemaking, use it as a last resort when other pH-reduction techniques are not possible. Use one or two drops of a 30% solution per liter (4–8 drops per gallon) of wine — the pH will decrease more rapidly compared to the equivalent amount of tartaric acid. Monitor the pH level as you add each drop and taste the wine before doing any further corrections.

In low-TA/low-pH wines, it is best to blend in some wine with a higher TA and pH.

Always perform bench trials on samples before treating a whole batch to ensure that you will achieve the desired results, and treat the batch incrementally while measuring changes in pH (and other parameters of concern) so as not to over-treat.

Wine also has what is called “buffer capacity”. This means that a treatment may not have any effect on a wine’s pH until its buffer capacity has been reached, and only then will changes in pH become noticeable. Therefore, by performing bench trials you will be able to get a better preview on how the wine’s pH will change based on your planned course of treatment.

Question: **I make 60 gallons (227 L) of Cabernet Sauvignon each year, which I press into glass carboys. My question is, when and to what container should I add the malolactic bacteria and nutrient? Should each be added to the primary fermenter before press, should I press and add small amounts of both to all (10) carboys, or press and after two days rack each carboy adding the bacteria and nutrient to each?**

I’m a little old school when it comes to malolactic fermentation, but it’s always served me well. There are some winemakers who try to get a jump on malolactic (ML) completion and co-inoculate with ML bacteria and wine yeast at the same time, but in my mind, this is a little risky. You see, yeast and bacteria actually “talk” to each other during fermentation and sometimes they don’t like what they hear. In fact, Dr. Linda Bisson’s lab at UC-Davis just published a really interesting study showing how wine bacteria “query” the environment to check for competitors and adjust their metabolic process accordingly. Too many mixed messages in some cases can cause problems with fermentation completion, higher volatile acids, and other non-optimal outcomes.

The take-away for me is that I like to let the yeast do their job eating sugar first (and making carbon dioxide and alcohol) undisturbed by too many outside competitors. Once they die off after primary fermentation (and the fermentation is hopefully dry), I press off my new wine and immediately add my ML bacteria and any ML nutrients together at the same time to the container holding the new wine. If you add your ML bacteria and ML nutrients before pressing off you’ll lose a lot of the dose (and those additives are expensive!) in the skins, which get discarded. Also, once you have the wine separated from the skins you know how much wine volume you have so you can measure your bacteria and nutrients accurately. It’s really hard to tell your final liquid yield when the wine is still sitting on the skins.

I would add your malolactic bugs and nutrients evenly into your carboys right away. This way you can also take advantage of any residual warmth carried over from the primary fermentation.

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
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- Review and improve club tasting procedures

Chair of Winery/Vineyard Tours: **Bill Brown** bbgoldieguy@gmail.com
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- 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

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