

Portland
Winemakers
Club



Portland Winemakers Club

December 2017

Monthly Rant

Scheduled Meetings

January 13, 2018

Annual Gala – Oak Knoll Winery; 5-9 PM

January 17, 2018 Crush

Talk / Planning

February 21, 2018

Bordeaux Tasting

March 21, 2018

PWC women winemakers pouring their own creations.

April 18, 2018

Barrel / Carboy Sample Tasting

April, 2018

Tour:

May 16, 2018

Speaker.

June, 20, 2018

Speaker:

July, 14 2018

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

August 15, 2018

All Whites Tasting

September 19, 2018

Other Reds Tasting

October 17, 2018

Pinot Noir Tasting

November 2018

No Meeting

December 5, 2018

Planning, Tours, Speakers, Events, Elections



Ran across these conclusions from a recent industry related blind tasting of Oregon AVA's in the northern Willamette Valley. They offer a great overview of the flavor profiles as they relate to weather and terroir.

Yamhill-Carlton AVA – Warmer region because it's sheltered from the winds; sedimentary soils, and known for a blue fruit profile. Markers include bramble berry, blue berries, and some blackberry, Christmas spice, savage notes and some salinity. Well-known wineries include: Big Table Farm, Elk Cove, Craft Wine Co, Ken Wright Cellars and Soter.

Chehalem Mountains AVA – Mixed geology and soils. Markers include more concentrated tannins, mixed red berry compote and earthy notes. Well-known wineries include: Adelsheim, Ponzi, Bergstrom, Rex Hill and Le Cadeau.

Ribbon Ridge AVA – Named for the spine that runs like a ribbon along the top of the ridge; it is composed of sedimentary soils with some spheres of basalt. Markers include more red fruit and silky tannins. Well-known wineries include Beaux Freres, Brick House and Ayres.

Dundee Hills AVA – Titled after a location in Scotland. Slightly warmer, protected from winds, mainly volcanic red soil – clay/loam, very slippery when wet. Markers include red cherry, red raspberry, velvety tannins and more concentration. Well-known wineries include Archery Summit, Sokol Blosser, Domaine Drouhin, Domaine Serene, Purple Hands and Winderlea.

McMinnville AVA – Located west of the town of McMinnville and closest to the ocean, the soil is primarily volcanic. Markers include bright acidity, black fruits, ash, and darker color with concentrated larger tannins. Well-known wineries based here include Hyland Estates, Brittan, Maysara and Coleman.

Eola Amity Hills AVA – Positioned on the lowest point in the coastal range, it receives more wind and is a cooler region with marine and volcanic soils. Markers include higher acidity, cherry cola, tea leaf and saline notes with delicate tannins and elegance. Well-known wineries and vineyards include Bethel Heights, Brooks, Antica Terra, Evening Land and Cristom.

Have a great holiday and see you all at the gala on Saturday January 13th!

Phil



Misc. Information

• Cayuse says corks ruined wine vintage

Winemaker Christophe Baron said in late October that bad corks had ruined an entire vintage for Walla Walla Valley-based Cayuse Vineyards. Baron said the suspect stoppers were used to close nearly 3,000 cases of wine worth more than \$3 million. Baron said he was working with an insurance company to recover losses after "paraffin particulates" in the corks created an oily film on his 2015 wines.

• Oregon wineries grapple with big harvest

Winemakers scrambled to juggle the final influx of fruit in Oregon, where anecdotal reports estimate the 2017 vintage at between 85,000 and 90,000 tons, up from 79,782 tons in 2016.

• **Chemeketa Community College**, which has nearly 30,000 students at its Salem and Yamhill, Oregon campuses, along with six other satellite locations throughout the state, is currently putting the finishing touches on a new Beverage Production Operations Technician Program. This will include courses specific to the wine, beer, spirits and soda industries, including equipment installation, troubleshooting and maintenance. This is truly welcome news since the industry recently surpassed 10,000 facilities and the demand for certified technicians continues to grow.

• **New Jersey moves to make drink droning illegal**
Lawmakers in New Jersey have proposed a bill that would make it illegal to operate a drone while under the influence of alcohol in a bid to reduce irresponsible use of the remote-controlled devices.

Note: The last meeting was held on December 6th, this was early in the month because of Christmas. The annual Gala will be held on Saturday January 13th, 2018 at Oak Knoll Winery . The next regular meeting will be Wednesday, January 14th at 7:00 PM at Oak Knoll Winery. January agenda: Crush talk, how did the 2017 crush go for you, planning for 2018 tours; speakers; events etc. Come with a bottle of wine to share and your ideas for what we should be doing in 2018.

This will be a potluck, bring a small snack to share. Also bring a wine glass for 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/>

December Meeting Minutes

(Present: 20)

- Phil introduced three new members, Doug Schenk, Gillian Wildfire & Paul Sowray.
- Annual elections were held:
President - Phil Bard (says it's his last year?); Secretary - Ken Stinger; Treasurer - Barb Thomson; Grape Purchase Program - Bob Hatt; Club Tastings - Bill Brown; Club Tours - Damon Lopez; External Competitions – Paul Boyechko; Club Speakers - Barb Stinger; Social Events - Marilyn Brown & Alice Bonham; Web Design - Alice Bonham.
- Bill Brown suggested we use measured pour spouts for our club tastings. Marj offered to let us use one ounce pourers from Oak Knoll to see if we can get by using only one bottle when attendance is low.
- It was agreed that we should continue holding the club women's tasting event in March and the barrel / carboy sample event in April.
- The rest of the evening was devoted to discussions around member winemaker problems and experiences.



Newport Seafood & Wine Competition

This is an early reminder that the Newport Seafood & Wine competition is coming up in January. Each entry must have a completed registration form. All entries must be received by the Greater Newport Chamber of Commerce no later than January 26, 2018 or to a drop site (F.H. Steinbart) no later than January 19, 2018. Details at: <http://seafoodandwine.com/>

Save The Date:



THE PORTLAND WINEMAKERS CLUB GALA
SATURDAY~ JANUARY 13, 2018 , 5:00PM - 9:00PM
Oak Knoll Winery
\$15.00 PER PERSON

~ Pay at the door, plus renew your membership at the same time ~



In case you were not able to find grapes this year

Welch's Frozen Grape Juice Wine

2 cans (11.5 oz) Welch's 100% frozen grape concentrate
1-1/4 lbs granulated sugar
2 tsp acid blend
1 tsp pectic enzyme
1 tsp yeast nutrient
water to make 1 gallon
wine yeast

Edit- note! You may want to skip the acid blend, at least at first, as some results say this wine is too "tart".

Bring 1 quart water to boil and dissolve the sugar in the water. Remove from heat and add frozen concentrate. Add additional water to make one gallon and pour into secondary. Add remaining ingredients except yeast. Cover with napkin fastened with rubber band and set aside 12 hours. Add activated wine yeast and recover with napkin. When active fermentation slows down (about 5 days), fit airlock. When clear, rack, top up and re-fit airlock. After additional 30 days, stabilize, sweeten if desired and rack into bottles



Horizontal versus Vertical Lees Aging: A Case Study in Franciacorta

by Becca • February 23, 2017

One of the most beautiful things about wine is how different one wine can be compared with another, particularly when those wines are made so close together geographically. Take, for example, the Italian wine region of Franciacorta. Even while covering a relatively small area of about 20,000 hectares, the differences between individual producers and individual wines within each producer is vast. Aside from the fact that the soil and geology is vastly different from one corner of Franciacorta to the next, nearly each producer employs a unique method of winemaking or grape growing that makes their wines stand out against all the rest.

As an example, let's take a closer look at the Franciacorta producer, Mosnel, established in 1836 on the Camignone estate, where today they have 139 hectares under vine. They currently produce seven Franciacortas (3 non-vintage, 3 vintage, and 1 non-vintage that is still in the cellar) and two still wines, with each wine carefully vinted following decades of experience and experimentation.

One of the most interesting vinification methods used by Mosnel for some of their Franciacortas is the use of horizontal stainless steel tanks during the post-fermentation period, as opposed to using the vertical tanks that are much more common in winemaking.

According to Lara Mercandelli, Events & Hospitality Coordinator for Mosnel, horizontal stainless steel tanks in Franciacorta are "quite unusual to see". Out of the 54 stainless steel tanks at Mosnel, 13 of them are horizontal. Additionally, the horizontal tanks utilized by Mosnel are smaller than the vertical tanks used, specifically, they use vertical tanks in 300 or 150hL volumes while the horizontal tanks are only 44 or 57hL in volume.

Mercandelli continued by saying that the biggest difference between the two types of tanks is not during fermentation, but afterwards. Specifically, during the lees aging that is employed during the production of their Franciacorta wines. After fermentation is complete, the wines at Mosnel remain in the tanks for 6 or 7 months to age on the lees, which is basically when the yeast cells mix throughout the wine by way of gravity.

According to Mercandelli, the degree of complexity and structure is higher in Franciacorta aged in horizontal tanks compared with vertical tanks. Because of this, at Mosnel they use the higher quality first press juice/must in the horizontal tanks, and the second press (lesser quality) juice/must in the vertical tanks. This higher quality must in the horizontal tanks is then only used in the vintage Franciacorta (including the Saten) at Mosnel, while the must in the vertical tanks is used for their non-vintage Franciacortas.

Aging on the lees

Aging on the lees, or "sur lie", is a practice employed by some winemakers for adding complexity and specific aromatic and flavor characteristics to a wine. Lees are basically the dead yeast cells and other particles left over after the first fermentation process is complete. These particles are left in the wine over an extended period of time, with gravity acting to gently pull the lees through the wine and eventually resting on the bottom of the vessel. Sometimes winemakers choose to perform a process called "*bâtonnage*", which effectively re-suspends, or stirs up, the lees, increasing the contact time and thus extracting even more flavors and aromas over the aging period.

While only on occasion do winemakers use the process for red wines, most of the time lees aging is employed for some white wines and sparkling wines. Lees aging is often done in oak barrels, which add another layer of aromatic complexity to the wine, which is not always desired in certain wines like vintage Franciacortas and Satens from Mosnel.

Bringing it back to basics: Surface Area Physics

So what makes horizontal aging on the lees more advantageous than vertical? In essence, it all boils down to one simple property of physics: the surface-area-to-volume ratio. In the most basic sense, surface-area-to-volume when talking about lees aging is how much the surface area of the lees comes in contact with the total volume of wine within the vessel. Let's think about it in a very simplified way. Imagine we have two tanks: one vertical and one horizontal. Each tank holds the exact same volume of wine. Now, imagine you have a "lees pancake", if you will, sitting on top of the wine. Overtime, that pancake will make its way down through the wine by way of gravity, eventually settling on the bottom of the tank. What you'll notice is that for the exact same volume of wine, the surface area of the "lees pancake" is much greater when the tank is horizontal versus when the tank is vertical, therefore, over the same amount of time more interactions can occur between the wine and the lees in the horizontal tank, theoretically obtaining greater complexity and character than in a vertical tank. (Figure 1).

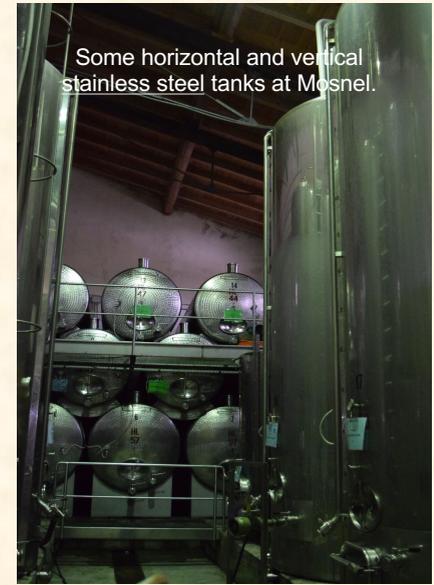
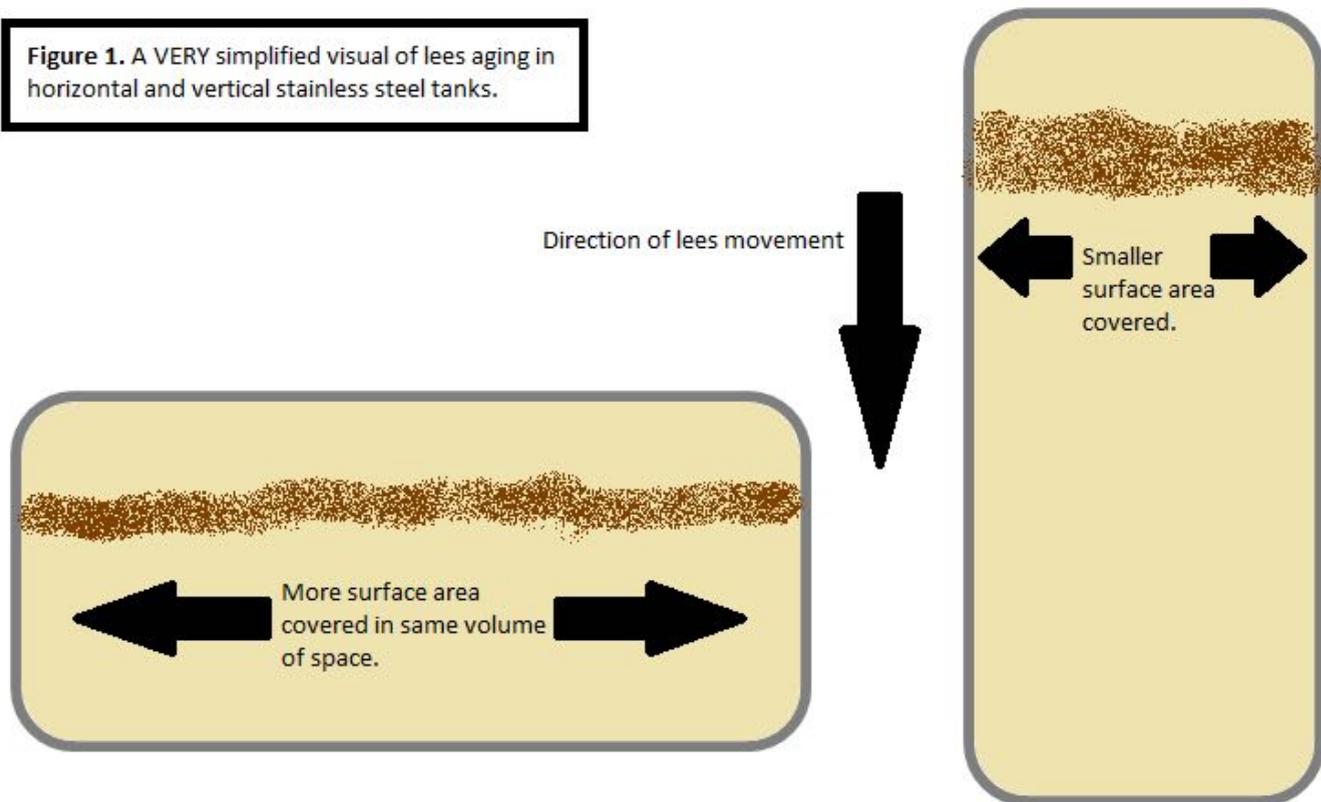


Figure 1. A VERY simplified visual of lees aging in horizontal and vertical stainless steel tanks.



Of course, in reality, the lees aren't all falling together in a uniform pancake throughout the wine, but that shouldn't matter for our proof of concept here. In reality, the many yeast cells and other components that make up the lees are falling independently and at their own pace over time, so the biggest difference between reality and the proof of concept example is that the surface-area-to-volume (lees:wine) is even greater, so even more complexity is extracted than in the proof of concept example.

Is horizontal REALLY the way to go?

To get an outsiders' opinion on the subject of using horizontal stainless steel tanks for lees aging, I spoke with Randall Grahm, winemaker and founder of Boony Doon Vineyard in Davenport, CA. Known for his experimental and innovated style, Grahm agreed that "horizontal tanks definitely the way to go if you're into lees contact, simply because of the greater surface area."

He went on to say that "we first noticed this years ago when we were using the 350 liter Taransaud barrels that were called "cigars" because of their elongated shape, and observed a unique silky texture to the wines. Taking that further, we've adopted the practice of ageing wine in 5 gallon glass demijohns, on their side, to take the surface area phenomenon one step further, and we've had great luck with that."

Conclusions

There are countless viti- and vinicultural methods that can be utilized to create a unique wine. Employing lees aging is just one way some white and sparkling wine producers treat their wines, while some, like Mosnel, add extra levels of complexity by introducing horizontal stainless steel tank lees aging for some of their wines.

With the many differences in viticulture and winemaking practices from producer to producer, and even from wine to wine within a single producer, the sheer variety of wines available to us as wine lovers and consumers is incredible, and all the more reason to continually experiment with different wines to educate and evolve our palates to appreciate all that the global wine world has to offer.



The Effect of Climate Change on the Washington and Oregon Wine Industries

by Becca • August 13, 2015

The effects of climate change on the global wine industry are not at all uniform. Each individual region may suffer its own unique effects. This piece highlights the general effects of climate change on the wine regions of Washington and Oregon.

Climate change is a very real threat to not only viticulture but every living system worldwide. Today's focus will be on the effects of climate change on two very well-known wine regions in the United States: Washington and Oregon.

Temperature

Between 2000 and 2039, models are predicting growing degree day increases in the Willamette and Columbia Valleys from 100 to 200 days. The number of growing degree days over 95°F are expected to increase to upwards of 7.5 days in the Columbia Valley, while spring and fall minimum temperatures below 20°F are expected to decrease by 5 or 6 days in the same region.

Frost

In Washington and Oregon, the number of days with frost has decreased. Specifically, there are 18 fewer frost days per year on average than in years previous. Most of the reduction in frost days has been in the spring, though there also has been a smaller reduction in frost days in the fall.

In general, Washington and Oregon are seeing earlier last frost dates than in the past, as well as longer frost-free periods throughout the entire growing season.

Drought

With increasing temperatures, snowpack depth will decrease, leaving less water for crops the following season. So far this year (2015), the Governor of Oregon has declared drought emergencies in 19 counties, an increase from 9 last year.

According to Dr. Gregory Jones, a top climate scientist at Southern Oregon University, one of the most pressing issues directly related to climate change and wine production in Washington and Oregon is consistent water availability. "The west could have access issues from shifting seasonality of precipitation or changes in snow amount and timing."

Most of us are aware of the on-going drought in California, so it's only a matter of time we see similar droughts in Oregon and Washington as temperatures increase further.

Increase in Premium Wine Production Sites

One possible benefit of climate change on Washington and Oregon could be a shift in premium wine production. With increasing temperatures and reduced frost days, many vineyard sites will be more similar to today's premium wine growing regions in California, allowing for more premium vineyard sites in Washington and Oregon and longer growing seasons for better ripening.

It's important to note that one major difference between the climates of CA and Washington and Oregon is the humidity. While temperatures in Washington and Oregon are expected to increase, the humidity levels are also higher, thus potentially increasing disease pressure from molds and mildews. Premium wine production will certainly be possible due to increasing temperatures, but winemakers should be aware that they will need to keep up with technology to reduce disease pressure should humidity levels also rise.

What About Pinot Noir?

When you think of the Pacific Northwest, and Oregon in particular, Pinot Noir is typically the first thing that comes to mind. Pinot Noir is a relatively sensitive fruit, with ideal growing temperatures between 57 and 61°F. As Oregon and Washington's temperatures increase, will the Pinot vines need to be replaced with a more heat-tolerant variety like Cabernet Sauvignon? Dr. Jones says no. The reason is that much of the Pinot Noir regions are still relatively cool side of the climate spectrum. Continued warming would push them up the ladder of Pinot Noir ripening, moving from more elegant, finesse styles to bolder, more lush Pinot Noir styles. But it would take 2-4 degrees of warming to do this for most areas and a little more to make them likely not suitable, so there is some ways to go."

Future of Wine in Washington and Oregon

In addition to increased premium wine production sites in Washington and Oregon, we'll likely see the rise of newer AVAs in that region.

According to Dr. Jones, "50 years ago the Willamette Valley was a challenging place to grow grapes, too cool with a short growing seasons and very wet falls. Now it is a prime Pinot Noir, cool climate variety region with much more consistent and warmer growing seasons. Today a similar place is Puget Sound, right at the cool margin. There are numerous locations within Puget Sound, that with a little warmer growing season, could be a prime cool climate variety region."

Conclusions

At first glance, it would appear that climate change may actually be more beneficial for Washington and Oregon wine, at least for the next 50-100 years. With less frost and greater potential for premium wine sites, climate change might be looking pretty good for Washington and Oregon wine.

Of course, drought pressure may put a damper on some of the more positive aspects that we expect to see, but improved technology and increased awareness and conservation may improve the regions chances of becoming a top premium wine producer not only in the United States, but on the global scale.



Cellar vs Garage

By Jenna Higgins
23 November 2017

Recently, I was lucky enough to be gifted a wine-making kit, from my grandfather. Being a winemaking student, I couldn't fight off the excitement and curiosity to give garage-fermenting a bash. Before getting too excited and starting this home-ferment experiment, I would strongly recommend doing a little bit of research.

After making wine in a cellar, the poor wine-kit's instruction manual was subjected to a lot of scrutiny from my side. For start, what appeared to be a rather fun and easy task turned out to be a lot more complicated than I had hoped it would be. After consulting with my 'Yeast Prof', 'MLF Prof' and 'Wine Prof', we had concluded that, for the sake of producing a drinkable wine, I would have to deviate from the wine-kit's original instructions. Topping up my Shiraz reserve with water on a regular basis just wasn't going to cut it for this young lady!

A few helpful tips to keep in mind when attempting a home ferment, regardless of what the bizarre instruction manual recommends: The instruction manual will tell you to thoroughly read and follow instructions; do not fall for this trickery! If you are uncertain about something, I would definitely suggest asking someone in the industry for their opinion, if you are new to the winemaking-game and are using the kit as your first attempt at making wine, don't hesitate to ask Google.

Using a beer kit fermenter is recommended, it is easy to clean, store and already comes with a fermentation/bubble cap. Winter is the perfect time of the year to use your garage as a type of cold room for a white wine fermentation, the cooler temperatures act as a natural and more cost-effective cooling system for your fermenter. In summer, I think red wine would be a better option due to the much warmer and more ideal temperatures.

The kit I have strongly suggests (they tell you...) that you rack your wine a few days after inoculation. They reason that this is due to the secondary fermentation that should occur straight after fermentation, yet they supply consumers with no malolactic-bacteria and the Shiraz reserve is pasteurized. It is also said that one should rack again after an additional 10 days, a full secondary fermentation/MLF in 10 days? – A winemaker's dream! I would therefore skip this step altogether, this also lowers the risk of oxidation inside your fermenter and increases the palatability of the final product.

During the garage winemaking process, I would also suggest that you collect as many empty wine bottles as possible. It isn't necessary to buy new bottles, as you can sanitize the used ones before filling and sealing them with a cork. Corks can be sourced online and are also fairly inexpensive. If you prefer beer to wine, fear not, you can also use beer bottles and screw caps. These offer a perfectly sized portion of wine (2 glasses) and can be enjoyed chilled, straight out of the bottle! If using screw caps, it is important to remember that wine can continue fermenting in the bottle, even if fermentation appears to be complete, for this reason I would suggest that you drink the wine as soon as possible.

It is incredibly difficult to produce a faultless wine from one of these kits, due to the constant risk of contamination as well as a higher oxidation risk. It is my personal belief that any garage winemaker that can produce a drinkable final product, should consider furthering their skills by taking a winemaking course or making wine in a cellar. If your wine isn't drinkable, remember that you can always cook with it instead!

Garage winemaking is incredibly fun but unfortunately falls short in comparison to the cellar. There is nothing quite as exciting as hand selecting your grapes and being elbow deep in fermenting skins and juice doing punch downs.

After my first harvest, I quickly learned to stop apologizing to every winemaker I met for my tannin and red-wine stained hands, mostly because everyone else's hands looked exactly the same! Feeling small berries burst as you push down on the crush-cake in the basket press and watching deep purple droplets splatter out against your 'harvest jeans' cannot be replaced by diluting grape must in your garage.

It is also a lot easier to control the wine and fermentation process in a cellar, with Carbon Dioxide tanks at the ready to combat oxidation, and temperature regulated tanks to ensure optimal fermentation conditions, it's hard to go wrong. Winemaking is by no means an easy task, you are constantly kept on your toes and have to watch your wines like a parent watches a preschooler with a pair of scissors – on high alert and ready to pounce if something goes wrong.

I don't think anything can quite compare to the anticipation of popping the bung on an oak barrel, religiously checking up on your wines and watching them improve weekly. Wood chips in a plastic fermenter just aren't the same. If you are a wine enthusiast, a wine drinker or even just perhaps a curious bystander, the garage wine-kit can be a very exciting and new process to try. If you are a winemaker, it may be a bit difficult to overlook the minor things like, "do not rehydrate the yeast" or "leave an air gap of about 1 liter", but I would like to encourage and challenge you to give it a go. Even if the final product isn't amazing, it is still a very entertaining and enjoyable experiment!



What Causes Dry Mouth After Drinking Red Wine?: Tannic Acid Effects on Saliva Production

As many of you probably know from experience, sometimes when you drink a red wine you notice that your mouth gets very dry. This is usually attributed to the tannin levels in the wine—the “bigger” the tannins, the more it seems moisture is wicked away from your mouth and you’re left with something akin to the Sahara happening on your tongue.

So, what is really going on here? Is it the tannins? Why do they make your mouth feel so dry after sipping? A study published in January in the *Open Journal of Stomatology* aimed to address a very similar question. In essence, what is the effect of tannic acid in different beverages on glandular function in the mouths of mice?

Quick Background

Before launching into the study and the results, it is important to get a primer on what has been done so far in the world of tannic acid and secretory glandular function so far.

First, the salivary glands in the mouth are basically made up of two different types of parts: those that produce a sort of “preliminary saliva”, and those that absorb salt, and add potassium and bicarbonate to create the final hypotonic saliva. Having this hypotonic property allows the flavors of the food to better pass through the saliva into the taste buds so we can actually taste what it is we are eating or drinking.

It is during the transport of fluids as well as salt, potassium, and bicarbonate that problems with salivary secretions can arise. If something is preventing these processes from occurring, one could be left with excess saliva or alternatively dry mouth.

It is thought that tannic acid (TA) might mucks with this process thus often leaving the feeling of dry mouth after drinking some red wines. Specifically, TA might inhibit the calcium-activated transport channels that allow for diffusion of the necessary compounds needed to create the final saliva, resulting in decreased saliva production and observed dry mouth.

This theory of TA messing with the fluid and compound transport in the salivary glands that normally produce regular saliva is what the study presented today aimed to either provide support for or refute.

Brief Methods

In a nutshell, the salivary glands were removed from mice and subjected to a battery of tests involving the effect of TA of different beverages on the ability of those glands to produce saliva.

For the control, salivation was induced by perfusing the glands with cholinergic agonist carbachol for 10 minutes.

For the different beverage treatments, the salivary glands were first perfused with the beverages and then 5 minutes later perfused with the cholinergic agonist carbachol in an attempt to trigger salivation.

The total amount of saliva produced as well as the flow rate was calculated for each treatment and the control.

Calcium signaling analyses were also performed.

The beverages that were tested were: green tea, oolong tea, coffee, red wine, and white wine. The alcohol was removed from the wine samples prior to use. TA concentrations in each beverage were measured.

Results

Saliva production was decreased after green tea, oolong tea, and red wine treatments. Saliva production was at first not affected, but over a short period of time production was greatly inhibited.

Overall, there was a 40-65% inhibition in saliva production after green tea, oolong tea, and red wine treatments.

There was no change in saliva production compared with the control for both white wine and coffee.

Final TA concentrations for each beverage were:

Green tea: 47 μ M

Oolong tea: 34 μ M

Coffee: 33 μ M

Red wine: 56 μ M

White wine: 4.7 μ M

There was no effect on calcium signaling for the first 30 seconds but over time there was a significant decrease (indicates an issue with calcium sustaining mechanisms).

Caffeine did not induce salivation at any concentration.



Conclusions

The results of this short study indicate that yes, tannic acid does seem to play a role in decreasing saliva in the mouth. There does seem to be some sort of threshold for this relationship, however, since white wine which has a small concentration of tannic acid did not decrease saliva levels.

Interestingly, tannic acid levels alone do not appear to be the complete answer here, as it was shown that coffee did not influence saliva levels in the mouth even though oolong tea did, with both of them having the same tannic acid levels.

At first the researchers thought that perhaps the higher levels of caffeine in coffee (compared with the green and black teas) increased saliva levels, thus “cancelling out” the decrease in saliva caused by the tannic acid, however, after testing this theory, caffeine did not seem to affect saliva levels at all. More research needs to be done here, but for some beverages, tannin acid alone doesn't seem to be the full story.

For wine, it does appear that tannic acid levels influence the amount of saliva in the mouth, with the higher tannic acid levels in the red wine decreasing saliva levels and the lower tannic acid levels in the white wine having no effect. An interesting follow up study would be to see where this tannic acid threshold lies. At what concentration does tannic acid start influencing saliva levels in the mouth? Certainly, there seems to be an effect at $56\mu\text{M}$ and no effect at $4.7\mu\text{M}$, but what about the wines that fall somewhere in between?

Finally, the mechanism for saliva decreasing with higher tannic acid levels does appear to be related to calcium signaling in the saliva glands. The researchers noticed that while nothing really changed during the first 30 seconds, there was a significant decrease in calcium signaling after this time period. This coincided with a delayed decrease in saliva production after beverage treatments.

Even if you don't really find this study that interesting nor do you have a dry mouth condition that forces you to seek out more appropriate beverages for your own consumption, you at least now have a tiny little factoid you can bust out at parties to look smart in front of your wine-challenged friends!



Grape Juice: A Microbial battle field

By George Whiting
29 November 2017

A sip of context: In one of our Oenology modules we are learning about the biochemical makeup of grape juice and how the yeast is built to combat the difficult environment it's placed in and still manages to produce the glorious product of wine.

Jerry, an unsuspecting *Saccharomyces cerevisiae* yeast, was produced the normal way, along with all his 1×10^6 brothers was frozen and stored. A happy life, he was content to sit and wait until his strain was chosen to go to the cellar. Some called the cellar the Promised land, others called it the battle field. Either way Jerry knew his life would never be the same, he was no longer allowed to sit idly by; he would have to live up to his potential.

The protective bag he had once called home was cut open; a giant scoop bore down on him and a sample of his kin. They were then placed in a warm liquid, all the while enjoying the change in temperature. A strange powder was pored over them, suddenly the cells were filled with energy, Jerry thought to himself 'this must be that energetic yeast nutrient we've heard about'. A larger yeast cell made his presence known: "Attention cells! You are no longer in your small protective bags anymore! You are now part of a population, we are expected to expand and grow for the next 10 days, but first a test. You will be exposed to the harshest environment you could ever imagine; Sauvignon Blanc. We are talking a pH of 2.9 and an acidity of 10.11 g/l. There will be sulfur, there will be other microbes that want to take our supplies and through all of this, if we succeed we will die anyway. This is your chance to shine, this is your purpose, are you ready!?"

Jerry was tentative, however the yeast nutrient made him feel strong; he could feel his cell membrane expanding and his size increasing. He was ready.

The first wave of Sauvignon Blanc was on its way. Still exposed to the heat, Jerry could feel his energy increasing, he watched the skies as the Sauvignon blanc rained down on them. A couple of his brothers fell as soon as the juice touched them. Others wavered a little; however the majority of them, including Jerry, remained strong. The bigger cell was right, the conditions were harsher than imaginable, but in same environment there was plenty of nitrogen and sugar for Jerry to use.

Glucose, a beautiful six carbon chain emerged in front of Jerry, he actively transported it into his system, hoping it would form something none toxic. That was the catch 22, he had to consume it to survive, but what it produced all depended on his internal environment. On the horizon he spotted an amino acid, it wasn't proline so he knew he could consume it. He couldn't believe his luck, amino acids were in high demand now that the population had expanded to a little over 1×10^7 and showed few signs of slowing down. Actively he consumed the amino acid; fortunately it was a branch chain amino acid; meaning it would go through transamination and oxidation to form a fatty acid, from there it would react with ethanol and become something beautiful: an ethyl ester.

Thinking about the lovely smell surrounding him, he was grateful that some of the ethanol was consumed to make it. The ethanol had been increasing at an alarming rate, so much so that the microbes he once considered competition had already died off.

A day later the population had already reached 1×10^8 cells. Nitrogen was in very short supply and the sugar reserves were depleting. The environment had become harsher, the sugar that once sustained them had been converted into alcohol, and the only way to get some nitrogen was to scavenge from the husk of what was once a yeast cell. Everywhere Jerry turned he saw one of his kin, trying to absorb as much sugar as possible, with the hope it would turn into a flavor compound and not something toxic.

Jerry began feeling weak; he could no longer oxidize fatty acids to expand his membrane and walls. The acid levels were high and the sugar levels were low. Glycerol made movement difficult and the ethanol levels started to get to him.

All though the environment was harsh, it smelt nice, sort of like cut grass on a summer's day mixed with dashes of stone fruit and citrus. This is what that big cell must have been talking about, what Jerry and his clan have been working for, for all this time. Jerry started to sink to the bottom and settled in a layer of husks, although this was the end he was satisfied that he had achieved his purpose: he created a fantastic wine, and his legacy would last for months or even years to come.



Portland Winemakers Club

Leadership Team - 2018

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: **Barb Stinger** kbstinger@frontier.com

- Arrange speakers for our meetings

Chair for Tastings: **Bill Brown & Barb Stinger** bbgoldieguy@gmail.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 & Alice Bonham** brown.marilynjean@gmail.com

- Gala / Picnic / parties alice@alicedesigns.org

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