Portland Winemakers Club

October 2019

"Bill's Meanderings"

I'd like to talk a little bit about the crush but not too much so to save some for the crush talk at our club meeting in November. We picked our Pinot Noir on Monday the 7th and I'm happy with the numbers. Word on the street is Costco is running low on sugar. Happily, I won't have to go shopping. I took a drive today in the Dundee Hills and saw a couple of vineyards still had fruit hanging. I'm sure those trusty souls are watching all 8 weather services available to make sure they make a good choice of when to pick, like that quarter acre of Cab Franc I still hope to let hang another couple of weeks. That or I'll be making a lot of Rose to Marilyn's pleasure. All that being said, I'm sure there will be some fine wines made this vintage as in past years of cool weather, just remember sugar comes in 5 lb bags and use your nutrients. Speaking of nutrients, I like to use the Scott Labs rehydration protocol for making my yeast starter. Looks like it does a good job with one year expired RC 212.

Mmmmm – Looks like a root beer float

Bill

Editor: Last Sunday & Monday, we picked & crushed a total of 1724 lbs of grapes off our ten, 100 foot rows in Yakima. 771 lbs Malbec; 481 lbs Cabernet Sauvignon & 472 lbs Merlot. After subtracting an estimated 200 to 300 lbs of stems, I figure I had about 1400 lbs in the back of an overloaded Ranger. It drove just fine just a little squirrelly in the front. -- Ken Stinger

Drink Responsibly. Drive Responsibly.

Scheduled Meetings

January 16, 2019 Crush Talk / Planning

January 25, 2020 Annual Gala at Parrett Mountain Cellars

February 20, 2019 Bordeaux Tasting

March 20, 2019 Speaker:

April 17, 2019 Barrel / Carboy Sample Tasting.

May 15, 2019 Speaker:

June, 19, 2019 Best practices; member demonstrations of tips & tricks

July, 2019 Annual Picnic- TBD

August 21, 2019 All Whites Blind Tasting

September 18, 2019 Other Reds Blind Tasting

October 16, 2019 Pinot Noir Blind Tasting

November 20, 2019 Crush Talk

December 4, 2019 Planning, Tours, Speakers, Events, Elections

Note: The next regular meeting will be Wednesday, October 16th at 7:00 PM at Aloha Grange Hall.

October agenda: "Pinot Noir blind Tasting". This will be member produced Pinot Noir only tasting and scoring. If you haven't already, be sure to renew your club membership and sign a new waiver.

The regular meeting will be a potluck, bring a small snack to share. Also bring 2 wine glasses 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/

September Meeting Minutes

Present: 23

- The next Gala will be held on January 25th, 2020 at Parrett Mountain Cellars. Thanks Dennis & Marlene Grant.
- Paul Rogers reminded the club about a PBS, HD channel special about grape harvest in California that will be aired soon.
- John Hooson has a manual crank stemmer-crusher for sale. Contact John about this at landsolutions1@frontier.com
- Portland Winemakers Club corkscrews are for sale at $5 each. Contact Barb T. to purchase them.
- Our Next meeting in October 16th and will be Pinot Noir blind tasting.
- The November meeting will be "Crush Talk".

			2019 PWC Other Reds Blind Tasting						
Wine #	Name	Varietal	Gold	Silver	Bronze	None	Total Score	Medal Score	Medal
1	Hofford/Hooson/Savage	2014 Syrah/Viognier	11	10	2	0	55	2.39	Silver
2	Hofford/Hooson/Savage	2017 Syrah/Viognier	13	6	4	0	55	2.39	Silver
3	Craig & Mindy Bush	2004 Syrah	4	8	11	0	39	1.70	Silver
4	Barb Thomson	2017 Syrah	0	14	7	2	35	1.52	Silver
5	Jeremiah Deines	20187Marechal Foch	0	1	14	8	16	0.70	Bronze
6	Hofford/Hooson/Savage	2017 Petite Sirah	14	5	4	0	56	2.43	Silver
7	Randy Morgan	2016 GSM	3	15	5	0	44	1.91	Silver
8	Paul Boyechco	2016 Sangiovese	0	3	6	14	12	0.52	Bronze
9	Brian Bowles	2017 Tempranillo	0	17	6	0	40	1.74	Silver

Dennis & Marlene Grant of Parrett Mountain Cellars getting Pinot Noir grapes for Rose' from member Paul Natale.

Oregon Rising

The wine industry in Oregon is gaining consumer attention and growing, with 799 wineries in Oregon now open for business, per **Wines Vines Analytics**. A recent report indicated Oregon's wine industry has an economic impact to the state of $5.6 billion.

ONLY IN FRANCE

The French government has recently given permission for the Bordeaux and Bordeaux Superieur appellations to use non-Bordeaux grapes in their 2021 vintage wines. There will be up to 10 new white and 10 new red grape varieties chosen in June 2019. These new "accessory grapes" can be used at up to 10% by volume in the wine blend. The varieties are being chosen because of their late ripening characteristics.

The French are concerned that early ripening grapes, like Merlot, may become susceptible to over-ripening due to global warming. Growing late ripening grapes may provide some insurance for maintaining high quality grapes going forward. These new varietals will not be shown on the labels (at least not yet).

Hang Time

New theory could revolutionize how hybrid grapes are harvested

by Jim Rink

In the fall of 2018, Nathaniel Rose was faced with a challenge. As the new owner of Nathaniel Rose Wine (formerly Raftshol Vineyard in Suttons Bay, MI), he was anticipating delivery of vinifera grapes, but the grapes never arrived. Luckily, Boskydel Vineyard had a large quantity of hybrid grapes available, but it was late in the season. Seizing the opportunity, Rose and his small team endured November's worst to harvest the grapes. As they say, it was a good kind of pain and the silver lining could be a lesson for winegrowers everywhere.

Foxy Wine

Now, in winemaking circles, there's a term called "foxiness." Foxiness is most apparent in grapes like Concord or Niagara (think Welch's grape juice). It's a very strong "grapey" flavor that many winemakers like to avoid. It's very common in wines make from native American varieties and, to some extent, wines made from hybrids, depending on the variety. It is not present in vinifera.

"The compound we describe in wine as 'foxiness' is methyl anthranilate, which is the compound that they use for artificial grape flavoring," said Rose. "It's used for things like fizzy pops or jolly ranchers. It's also used — many people don't know this — to spray on the grapes as a bird deterrent. Birds hate the flavor of methyl anthranilate."

The Silver Lining

Unless they're making late-harvest dessert-style wines or ice wines, most winemakers shun late- season harvests. It is too labor-intensive and it is easier to pick grapes that are slightly under ripe and add sugar to bring alcohol levels up, etc. However, with hybrids, a magical change seems to take place the longer they remain on the vine.

"I've discovered with the ripening of hybrids, that the methyl anthranilate levels go up as the grapes continue to ripen, to a certain point," said Rose, "and when the seeds become mature, the methyl anthranilate levels disappear. Just gone."

Rose's theory is that, since French-American hybrids are part native American, from an evolutionary standpoint, the hybrids produce methyl anthranilate as a bird deterrent until they can have more mature seeds, so they can fully reproduce. He said: "The whole point of a grape vine is the birds eat the grapes, poop them out somewhere and then there's another grape vine, but if flocks of birds come and eat all the grapes before the seeds are mature, the whole cycle is destroyed. No reproduction."

Basically, according to Rose, hybrids have developed a natural bird deterrent until they have reached physiological ripeness, which, unfortunately, is very late in the growing season.

"Even those hybrids we consider to be early ripeners (may not be physiologically ripe)," he said. "Even if the sugar is high and acid is low, they still tend to have greener seeds at that point compared with some vinifera varieties."

Editor's note: For those of you wondering, about the appearance of the grape at such a late stage in its development, it may appear to look like a raisin or have shriveled skin, but that is OK. It is not a sign of rot. The two are not one and the same.

LATE RIPENING – HOW TO DEAL

LATE RIPENING: RECALIBRATION OF FRUIT RIPENESS NUMBERS

The delayed ripening we see in many Washington state vineyards poses some challenges. With good will from Mother Nature, good work in the vineyard, and some extra efforts in the winery, this season should produce excellent wines. But we want to be prepared–just in case.

The major problem will be logistics. It looks like we might have a very compressed grape harvest period with long working days and tight tank space. Of course, if Mother Nature gives us a beautiful long fall, all our fruit will ripen with intense flavors and good sugar and acid balance–and this letter will not have been necessary at all.

RECALIBRATION OF FRUIT RIPENESS NUMBERS

Several winemakers and grape grower are seeing attractive fruit flavors in some fruit. With the cool summer we have had, it seems that attractive, ripe flavors are developing at lower sugar content (Brix) and higher acidity than usual. We might see ripe Sauvignon Blanc at 20-22 Brix, ripe Riesling perhaps as low as 19-21 Brix, ripe Merlot and Cabernet near 21-23 Brix. Due to the cool weather the acidity remains higher than in usual, warmer, summers. Titratable acidity (TA) of 9 to 11 g/L and pH of 3.0 to 3.2 in must of white grapes is not at all bad, or unusual for cool climate conditions. In red grape varieties we would expect the range of TA to be 7 to 9 g/L with pH 3.2-3.4. With less fruit sugar we potentially will have less alcoholic wines (10-12.5% in white and 11.5 to 12.5% in reds). It is legal to use additional sugar if your juice is 21 ∞Brix or less to bolster the alcohol content; however, it is only legal to improve the alcohol concentration to a final concentration of 14% (v/v). In our experience, modest increases in alcohol are better and we recommend 1 to 2 ∞Brix additions to increase the final alcohol content of the wine by 0.5 to 1.0% (v/v).

With higher TA in white wines, it would be a good strategy to use malolactic fermentation (MLF) in most of the white wines. Besides lowering the acidity, MLF also helps reduce green, vegetative flavors in the wine. In Chardonnay and Sauvignon Blanc, especially, experience has shown that ripe fruit flavors can be enhanced with MLF. MLF is primarily known to alter wine mouthfeel by making it more viscous (rounder, fuller). MLF is not commonly used with Riesling, though in some areas of Germany it is used. When MLF is used, it is often used on a portion of a wine lot and later blended with the non-MLF wine. Because of the danger of MLF in the bottled wine it is necessary to sterile filter both lots and use sufficient SO2 during storage and at bottling.

The point of this discussion is to alert winemakers to expect ripe fruit flavors at lower sugar content and higher acidity. Since the majority of aroma compounds are found in grape skins it is very important to taste the skins separate from the pulp and seeds. The difficulty is that most of the fruity aroma compounds in the grape are pre- cursors and are undetectable to human senses. However in varieties that are known to make vegetable aromas such as Sauvignon blanc, Cabernet Franc, Cabernet Sauvignon, Merlot, the skin can be used to determine how ripe the fruit is. Since the methoxypyrazines (compounds responsible for veggie aromas) decrease post-véraison this decline will have to be monitored closely if the cool temperatures persist, as it will slow the process. The pulp of the berry where most of the sugar and acid is accumulated will taste less sweet and more acidic. More acidity might give the impression of unripe but look for ripe citrus, tree fruit, berry and spice flavors. It can be expected that flavors will change very quickly as we get more sunny, warm days. Check fruit maturity frequently and be ready to harvest (at lower than usual sugar content)!

UNEVEN RIPENESS

Most vineyard managers have already dropped fruit before véraison to make sure that the fruit that remains on the vine will ripen evenly in a shorter season. At Véraison, clusters that were lagging behind in ripening were dropped. These late clusters will not catch up to the maturity of the earlier clusters.

At this time, the most important thing is to taste the fruit in the vineyard to see if there are large variations in ripeness. If possible, harvest and ferment the fruit of different ripeness separately. If this is not possible, hand harvested fruit can be sorted on sorting tables at the winery, remove the firmer berries (taste occasionally), separate the less ripe fruit for a separate fermentation.

Under-ripe fruit should be pressed lightly and the must might have to be de-acidified to achieve a final acid balance without having to make large acid adjustments in the wine (best to avoid making acid adjustments in the wine larger than 1 g/L).

HEAT!

Experience from winemakers in Burgundy, Washington, Oregon, Germany, and New York about red wine vinification. You need heat (68-95∞F) to make great red wine (of course, this is in addition to flavor-ripe grapes and good microbial hygiene).

One critical obstacle in cool climate regions to making great red wines has been that the fruit is cold and it often does not reach sufficiently high temperatures to allow best color and flavor extraction. If you are a practitioner of the cold soak technique (holding juice at 41 to 50∞F for different time periods) this may save you some money but you are eventually going to have to heat up the must for fermentation. When you ferment, it is critical to warm the crushed (red) fruit or the clarified white must to 68∞F as quickly as possible (ideally within a few hours). In these situations it is better to inoculate with an active yeast culture to avoid spoilage problems. Inoculation is done at 68∞F with an active yeast culture that has been rehydrated at the same temperature to avoid temperature shock. Two available options for optimizing your fermentation are available and we outline them below.

Option 1: Allow the temperature to rise early (within the first 3 days) to 95∞F (this likely will require some additional heat) and then allow the wine to cool or actively cool to between 77 and 86∞F, then finish the fermentation at 68 to 77∞F.

Option 2: Start fermentation at 68∞F and slowly allow the temperature to increase towards the end of fermentation near 86∞F. Then, after completion of alcoholic fermentation, heat the wine to about 104∞F and hold this temperature for 1 to 2 hours (closed tank, blanketed with CO_2). If warming the wine to 104∞F you kill the native malolactic bacteria and you will have to inoculate with a ML starter culture when the wine temperature is back to about 70∞F.

Option 1 is a technique used for problematic fruit (moldy or rotting fruit, Botrytis) and will help slow down any unwanted organisms or blow off any off-flavors. Fining agents can also be used to remove some unwanted aromas (see WSU Extension Manual EM016).

Option 2 is used if the fruit condition was good and there appears to be no fermentation problems (odd odors, etc.). The extra heat at the end of alcoholic fermentation helps remove unwanted green, vegetative flavors and increases mouthfeel.

CAUTION

There are some problems with high temperature because high temperatures will kill yeast. This effect is modulated by alcohol concentration though. A temperature of 95∞F and less than 5% (v/v) alcohol does not to kill the *Saccharomyces* yeast. However temperature of 95∞F and 12% (v/v) alcohol (end of fermentation) will start to kill essentially all yeast and bacteria. Thus, to avoid stuck fermentation keep the fermentation temperature between 68∞F and 95∞F and use heat treatments like those described early in the fermentation or only after completion of alcoholic fermentation.

For under-ripe fruit (green or grassy aromas, green seeds with lots of tannins), one option is to heat the destemmed fruit, press, and ferment the red juice. A second option is to heat the must, ferment on skins and press off before alcoholic fermentation is complete (to avoid extracting to much tannin and green flavors). Alternately you can crush, ferment, press off early and heat young wine (104∞F). Experience has shown that heating of must to either 140∞F for about 20 minutes (with slow cooling) or to 190-195∞F in a closed system (tube in tube heat exchanges) for 2 minutes does reduce unripe flavors. To start the fermentation the must temperature must be back down to about 70∞F.

Botrytis and powdery mildew infected fruit should be heated in the same way, either to 140∞F for 20 minutes or 190∞F for 2 minutes. A couple of different options for doing this are available with portable heat exchange units. Alternatively as discussed earlier the wine can be treated right after alcoholic fermentation by heating to 104∞F for 2 days or 140∞F for 2 minutes. Wine can be heated in a tank (blanketed with CO_2) to 104∞F, to heat wine to higher temperature, a tube in tube heater that excludes oxygen should be used. The heat treatments will kill the mold and more importantly inactivate a very potent oxidizing enzyme (laccase) formed by *Botrytis cinerea*.

YEAST NUTRIENTS

Cool growing years and low maturity grapes tend to have low amounts of yeast available nitrogen (YAN). You should check the YAN in the grape must and make additions of diammonium phosphate and complex yeast nutrient blends in the first third of the alcoholic fermentation. It is best to add the yeast nutrients in two separate additions. Remember, yeast cannot take up ammonia and amino acids towards the end of fermentation. The goal is to have a minimum YAN of 240 mg/L.

YEAST STRAINS

Different yeast strains have a strong influence on the final wine flavor profile. Experience has shown that some yeast strains are better in enhancing ripe, berry and plum flavors than others. It is worth experimenting with different strains! Also, leaving wine on yeast lees does enhance ripe fruit flavors ñ especially in white wines (including Riesling). Fresh yeast (carefully rehydrated to manufacturers instructions) can be added to the wine for extended lees aging. Lees that contain a higher amount of grape pulp (cloudy must) should not be used for extended lees aging as such lees have a tendency to produce reduced sulfur off-odors. Smell the wines when stirring the yeast! Yeast lees stirring is only necessary about every other week. It is best to do extended lees contact in barrels or in tanks with low height and wide diameter. This allows more contact of the wine with the yeast lees.

ATA IN THE SECOND YEAR AFTER DROUGHT STRESS

Research in New York state on atypical flavor (ATA) defect in white grapes has shown that ATA can also occur in the fruit of vines that had been water and heat stressed the previous year. Thus, if you are using white fruit from a vineyard that did suffer heat stress last year, be prepared to use ascorbic acid to protect the wine from ATA. Ascorbic acid (150 to 200 mg/L) should be added after completion of alcoholic fermentation and as soon as the wine has stable free SO2.

We are looking forward to a cool ripening period for our grapes. Flavor ripening might be proceeding rapidly now!

Just a Spoon Full of Sugar...

Sugar Measurement and Ethanol Conversion in Grape Must

Matthew Glynn

CREATIVE WINEMAKERS ENGAGE WINE lovers by describing the charged, rotational forces that allow aroma molecules to liberate from the wine in their glass and provide sensory triggers to bring them back to a first date or a walk in a forest after a light rain. Few winemakers will speak so passionately about the most essential reaction in wine—the conversion of sugar to ethanol by the main character in the fermentation drama, *Saccharomyces cerevisiae*. The sugar concentration at the beginning of a wine fermentation has a profound impact on the balance of the final wine, and style, concentration and finesse are all related. I remain humbled by the fact that the seemingly basic topic of measuring sugar and predicting final alcohol continues to challenge very talented winemakers. This challenge is exacerbated by the increasingly high sugar levels in grapes we have seen following dynamic market trends. This article will discuss the critical aspects of sugar measurement, review the principles of sugar conversion to ethanol and discuss sources of variation affecting final alcohol in wines.

FIGURE 1

Brix	Sugar Concentration g/L	
14.0	136.0	Brix over-represents sugar concentration
18.0	180.5	Brix most closely represents sugar concentration
22.1	226.4	Brix under-represents sugar concentration
26.6	273.2	
29.9	308.8	

Methods of Sugar Measurement

Sugar content in grapes is determined by indirect or direct methods. Indirect methods to determine the total soluble solids (TSS) include refractometry and hydrometry. These methods measure juice density and correlate that density to an index (Brix, Baumé, Œchslé, etc.). Indirect measures are simple and cost-effective but not perfect indicators of sugar concentrations in many cases. Non-fermenting constituents in juice (i.e., pectins, tannins, etc.) refract light in a similar fashion to glucose and fructose, and can artifactually increase the refractive measurements. The correlation of juice density to degree Brix is also imperfect due to compounds that influence the juice density but are non-fermentable. Brix is most closely aligned with the concentration of sugar at 18° Brix, and Brix values below that level over-rep- resent the sugar concentration. Brix values above 18° become increasingly inaccurate by under-representing the concentration of fermentable sugars. Direct methods measure the amount of glucose and fructose in the juice and report the concentration in grams sugar per liter (g/L). Direct methods can be more expensive and time-consuming and at the same time more accurate and precise. **F I G U R E 1** displays a set of relationships between Brix and sugar concentration.

Sampling Considerations

A must sample that accurately reflects the concentration of sugar in the tank is critical to predicting the final ethanol concentration in the subsequent wine. A sample needs to represent all of the fruit in the tank, and the sugar from the berries must be in solution to be quantified in the analytical measurement. If the grapes in a fermentation tank are uniform in condition and maturity (with no signs of desiccation), a simple tank valve sample or crushed grape sample may be adequate. More often than not, the grapes are variable due to vine orientation, soil variability or vine health. Additionally, as grapes become dimpled or raisined, sugar crystalizes in the folds of the berry skin and needs to go into solution to be measured. For this reason, I have found a combination of techniques to be most effective to determine the actual sugar concentration. Collecting clusters from each of the harvest bins and using a blender to solubilize the sugar are effective. Keeping the tank cold and anaerobically mixing once a day for several days, a common practice during cold soak, have the additional benefits of dissolving sugar. In warm climates with dimpled and raisined fruit (by accident or intention), the measured sugar level of the juice in the tank can rise for four days before the onset of fermentation. After a representative sample is collected, the sugar level can be determined with a direct or indirect method.

“Saccharomyces cerevisiae...has a profound impact on the balance of the final wine, and style, concentration and finesse are all related.”

Conversion of Sugar to Ethanol

Yeast metabolize glucose and fructose to produce ethanol and carbon dioxide. As displayed in **F I G U R E 2** , one molecule of glucose will yield two molecules each of both ethanol and carbon dioxide. The theoretical yield (from 100 percent conversion—not what actually happens) is that 180 grams will produce 92 grams of ethanol and 88 grams of carbon dioxide.

FIGURE 2

Glucose >>	Ethanol +	Carbon Dioxide
$C_6H_{12}0_6$ >>	2 C_2H_5OH +	2 CO_2
180 g	92 g	88 g
100 g	51 g	49 g
100%	51%	49%

In reality, there is a small percentage of sugar that is converted to yeast cell material and miscellaneous end products—the balance is converted to alcohol and CO2. Two ways to describe the rate of conversion are: 1) as a mass of sugar required to generate 1% alcohol v/v (i.e., 16.83 g/L sugar per 1% v/v); and 2) as a percent alcohol generated per unit of a density index (i.e., 0.59% alcohol per °Brix). A study by **Lallemand Inc.** measured the conversion rates of 56 wine yeast strains and found the range of conversion to be 17.2 to 16.5 grams per liter sugar per 1% v/v ethanol. These values correlate to approximately 0.581% to 0.606% alcohol per °Brix. The **European Economic Community** (EEC) has agreed on a conversion rate of 16.83 g/L sugar per 1% v/v, which correlates to ~0.594% alcohol per °Brix. Not coincidentally, the EEC value is very close to the midpoint of the range identified by the Lallemand study. The EEC conversion rate is useful to estimate final alcohol in a wine fermentation; however, there are several variables that influence the alcohol level in the wine when the fermentation is complete.

Variables Influencing the Final Alcohol in Wine

There are several factors that influence the alcohol level in a wine at the end of the fermentation—these include: yeast strain, fermentor geometry, fermentation temperature, mixing techniques and accuracy of the estimated sugar concentration in the must. Yeast strains have different conversion rates. I have found that the conversion rate for a particular strain is generally consistent from year to year. This has been true for native fermentations, which I have used extensively, and with commercial yeast strains. Beyond yeast, the volatility of ethanol results in evaporative loss from fermentations, and this evaporation can be influenced by several factors. The geometry of the tank can influence the ethanol evaporation rate due

to exposed headspace to the air (open-top fermentation tanks allow the release of more alcohol during a fermentation than closed-top tanks) and because surface to volume ratio is positively correlated to ethanol evaporation (short, wide tanks have more exposed surface and allow a greater amount of alcohol to evaporate than fermentations in tall thin tanks.)

Temperature also will impact alcohol evaporation. Hot ferments will release more alcohol than cool ferments. Furthermore, mixing techniques during fermentation will influence how much alcohol evaporates. An internal circulation (rack to bottom or rack to under the cap) leaves less opportunity for alcohol evaporation compared to the splashing over the top of an open-top fermentor or an aerative pump over using a sump and an aerating wine fountain. Finally, error in the initial sugar estimation will influence the final alcohol level. It is common for the initial sugar measurement to under-represent all of the sugar in the tank, resulting in a higher final alcohol than expected. It is easy to think that the yeast performed a remarkably high sugar to alcohol conversion, but it is more common that trapped sugars (not initially measured) are liberated from the berries and ferment, surprising the winemaker when the alcohol level rises beyond expectations. When all of these factors are combined, it is clear that final alcohol levels may vary significantly from the original estimated levels. Fortunately, there are approaches that winemakers can use to refine their estimates of final wine alcohol and help them create the wine of their preference.

A Summary of Effective Techniques

Despite all the variables, many winemakers are able to accurately measure the sugar concentration in their grape must and manage the parameters that can influence the final alcohol level in their wine. Ensure that the tank sample represents any variability of the fruit that filled the tank and use methods that accurately measure the sugar level in the must sample. Consider the fermentation yeast selection (native or commercial) when planning your fermentation. Finally, acknowledge that winemaker choices, including tank, fermentation temperature and mixing technique, all influence the alcohol level of the wine at the end of fermentation. Keep notes from each vintage to allow continued learning.

Portland Winemakers Club
Leadership Team – 2019

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

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

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

Chair of Education/Speakers: **Barb Stinger** kbstinger@frontier.com
- Arrange for speakers & educational content for our meetings

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

Chair of Winery/Vineyard Tours: **Damon Lopez.** dlopez5011@yahoo.com
- Select wineries, vineyards etc. to visit
- Arrange tours
- Cover logistics (food and money)

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

Chair of Competitions: **Paul Boyechko** labmanpaul@hotmail.com
- Encourage club participation in all amateur competitions available. Make information known through Newsletter, e-mail and Facebook.

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

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