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Varietal Winemaking

by Bob Peak

One of my favorite and most-used resources for winemaking is our very own **Newsletter/Catalog**. Especially page 6 of this **2014 Summer Newsletter**, where I can refer to “Winemaking Step by Step.” For many years we have published the “Red Wine Procedures” and “White Wine Procedures” (p. 8), with period updates and guidelines as new products or information has become available. They are solid, effective short procedural instructions to help keep you on track as you turn your grapes into that magic elixir we call wine. But being brief—13 steps for red, 12 for white—they are limited in terms of subtleties and nuances that may occur in your winemaking. So this is a companion piece to the basic guidelines with modifications and extensions to the procedures that you might want to employ to get the very best out of a particular wine variety.

To start, I wanted to get an idea of what varieties our customers are turning into wine most often. As many of you know (and as it says on the back cover of this publication), we maintain in the store a binder listing grapes for sale. Figuring that book represents a sort of cross-section of the locally available grapes, I counted varietal entries to see what is most popular.

The winner among the reds was Zinfandel, followed closely by Cabernet Sauvignon. Behind those two big ones came Pinot Noir, Merlot, and a tie between Syrah and Petite Sirah. An astonishing 11 more red varieties followed with scattered listings.

Among the white varieties, Chardonnay was way out in front, with Sauvignon Blanc a distant second. All the other whites had few listings, with Pinot Gris/Grigio, Semillon, and the German pair of Riesling and Gewürztraminer notable among them. Just three more varieties - Chenin Blanc, French Colombard, and Albariño - completed the list.

To address varietal differences during winemaking, I decided to narrow the pool down to choices based on grapes with similar enological characteristics. Taking some of the popular listed grapes as my “signature varieties,” I combined others into the reference groups listed in the box below. For varietal winemaking suggestions, what applies to one variety in a group can generally be applied to the others.

To consider varietal winemaking ideas, find your variety (or something a lot like it) from the box on page 1, then apply the Reference Group suggestions below. These are keyed to the 13 steps of Red Wine Procedures and the 12 steps of White Wine Procedures.

Red Wine

Step 1: Crush and de-stem. Process conventionally. Red 3 should be treated more gently, if you own your equipment. Stem without crushing by setting the rollers a bit apart in the crusher/destemmer, and/or transfer slowly and gently into the hopper to avoid excessive breakage. With these lighter varieties, you are trying to minimize early tannin extractions by avoiding broken stems or crushed seeds.

Step 2: Test TA. Red 3 can run a little higher than the 0.6% recommendation. Red 1 can go a bit lower, leading to full fruity flavors, but watch pH for sulfite stability.

Step 3: Test for sugar. Red 2 and Red 3 will be best in the lower range here; 22° to 24° Brix. If you need to add sugar, do not go much above 22°. Red 1 and Red 4 typically taste better made in the higher range; 24° to 26°. If I had to water back one of these, I might even sneak it to 27° and let it ride (a calculated ABV at the end of around 14.8%).

Step 4: Sulfite. Sulfiting advice applies to all groups. For estimation, 17 lbs. of Red 2 or as little as 14 lbs. of Red 1 will yield one gallon of juice; adjust estimates accordingly. The Lallzyme EX enzyme is strongly recommended for Red 3 to improve color extraction. Red 2, with its characteristic low yields, also benefits from the EX addition for better maceration. Red 2 is also prone to over-cropping and excessive vegetal character; EX helps with that, too. If you do not use enzymes, a cold soak between Step 4 and Step 5 may be considered. Once again, Red 3 is the biggest beneficiary for improved color. Add enough dry ice to cool the must to below 50° F. (**Warning! Do this in a well-ventilated area! Dry ice produces Carbon dioxide gas which is a powerful asphyxiant!**) Add more dry ice as needed to maintain that temperature for three to six days, then allow the temperature to rise above 60° F before moving to step 5.

Step 5: Add yeast. For all reds, calculate the yeast addition based on the entire Must volume. Choose varietally appropriate yeast strains from the table on p. 11. If working with very high brix must (Red 1 or Red 4), use the upper end of the yeast addition: 2 grams per gallon. A stuck fermentation may be avoided under these conditions by using a Go-Ferm yeast rehydration program. See the 2012 Summer Newsletter (<http://www.thebeveragepeople.com/pdf/WineCatalogWeb2012.pdf>) for details.

Step 6: Stir and punch down. Once again, Red 3 will gain the most benefit from winemaking enhancement products FT Rouge Soft and Opti-Red®. Use both. Remember the risk of vegetal character in Red 2! Opti-Red® can help with that and can also help round out a big wine in Red 4 when high brix carries the risk of alcohol harshness. In terms of actual punchdowns, three times per day will provide more extraction for Red 3 musts as compared with the standard twice a day. For Red 3, you may even find it worth setting up a system for rack-and-return (or délestage), allowing full wetting of the cap and removal of some seeds.

Step 7: Temperature. Do your best to get above 85° F at least once with groups Red 1, 2, and 4. Lower temperatures will have less negative impact on Red 3 and may even be helpful for preserving delicate aromas in these varieties.

Step 8: Press. The 0° Brix guideline works for most reds most of the time. However, some tannins are more soluble in alcohol than in water. The longer seeds and skins are in contact with alcohol, the harsher the tannins. For Red 2 wines, often high in tannins, you may want to press at 4° or 5° Brix to minimize tannin extraction and allow the fermentation to complete in tank or barrel. For Red 1, though, additional tannin extraction is often desirable. In that case, you may want to extend maceration beyond the completion of primary fermentation. To do so, you need to protect the must from oxidation during the extended maceration time, since carbon dioxide is no longer being produced.

Step 9: ML. Sometimes Red 1 and occasionally Red 3 wines are not inoculated for ML. Skip it if you are trying to make a bright, fresh, young-drinking wine (malolactic fermentation tends to mask fruitiness). Otherwise, ML for all reds.

Step 10: First racking. Wines with color stability challenges, especially Red 3, will benefit from addition of Tannin Complex at this stage. (Keep in mind Tannin Complex comes from Quebracho and Oak wood— if you are adverse to adding oak characteristics, do not use.)

Step 11: Second racking. For all wines, test for ML completion (if inoculated) and add sulfites. Oak is very beneficial for Red 2 and Red 4, less so for Red 1, and sometimes not used at all for Red 3. Tannin Refresh untoasted oak tannin can help round out and improve maturity in overly fruity wines in Red 1 or Red 4.

Step 12: Third racking. Skip this one for Red 3. Consider Tannin Riche for Red 2 wines that are still showing vegetal character or have a “donut hole” problem: a nice start and a long finish, but missing mid-palate character.

Step 13: Bottle. Red 1 and Red 2 traditionally go in claret (Bordeaux – straight sided) bottles. Some Red 3 and Red 4 wines are bottled in Burgundy bottles instead. But it’s just tradition—the wine doesn’t change because of the bottle shape. Some winemakers like a bottling addition of Flashgum R for Red 3 wines, noting improved smoothness and reduced need for bottle aging before drinking.

As I put together based on grape variety. Here are some red wine remarks:

Primitivo: *“I really wanted Zinfandel this year, but couldn’t get my hands on any. I was able to get some Primitivo, which is basically Italian Zinfandel. I like my Zinfandel to have fruit and berry flavors with strong vanilla character from the oak. Therefore I chose 71-B Beaujolais yeast to enhance the fruit quality and French dark oak cubes to impart the vanilla. I also used Opti-Red to ensure a deep, dark purple color. I’m happy with how this wine came out and am going to try to make about a gallon of port with it!” – Joseph Hanson-Hirt*

Pinot Noir: *“Given that Pinot Noir tends to be light in both body and color, I wanted to make sure I did what I could to preserve the natural tannin and color structure that the grapes provide. To that end, I treated my 2013 Pinot with FT Rouge Soft at the beginning of fermentation. FT Rouge Soft is a sacrificial tannin that substitutes for the natural grape tannin/color compounds in reactions with the grape proteins, allowing the natural compounds to stick around instead of dropping out in the lees. So far the color looks great!” –Alex Ponting*

White Wine

Step 1: Crush. Usually the same for all varieties. Commercial whites are sometimes whole-cluster pressed without crushing, but the only home wine presses capable of that technique are water-filled bladder presses or hydraulic ram presses. Ratchet presses won’t do it.

Step 2: Test acidity. The 0.65% level may be too low for some White 3 wines, especially if you intend to bottle with a bit of residual sugar. On the other hand, it may be too high for White 1, especially Chardonnay, if the goal is to make a fat, oaky, buttery version of the wine.

Step 3: Test for sugar. As noted, at least 20° Brix for White 3, 22° for White 2, and a range for White 1. For a bold outcome from the White 1 group, even 23° or 24° Brix could work very well.

Step 4: Sulfite. White 1 and White 2 will usually yield about the amount listed—one gallon for every 16 lbs. of grapes. White 3 will often go higher, perhaps a gallon from only 14 lbs. of grapes. Estimate sulfite for the must accordingly.

Step 5: Pectic enzyme. If you are making a fairly neutral white wine from White 1, a simple pectic enzyme will help increase juice yield. In White 2 or White 3, you may be more interested in releasing distinctive aroma precursor compounds from the skin cells. Lallzyme® Cuvée-Blanc is formulated with a high level of beta-glucosidases to facilitate that release during soaking.

Step 6: Press. White 1 grapes can tolerate just about any pressing you can deliver with a manual ratchet press at home. For White 2 or White 3, go a bit lighter. Either stop after the grapes are gently pressed and remove the wet must from the press, or separate the hard-press fraction (if you continue to press) and ferment it separately. Smell, taste, and evaluate the finished wine later before blending it back in if quality is preserved.

Step 7: Siphon away and add yeast. Glass or stainless fermenters are usually best for White 2 and White 3 wines. Oak barrels may be used for some White 1 wines (new or used oak for Chardonnay, used oak for Pinot Blanc). If you want to emphasize grassy, gooseberry, or citrus aromas in White 2 wines, you may want to skip the entire settling and removal of gross fruit lees, instead fermenting the whole juice as it has come from the press. For tropical fruit aromas in White 2 and grapefruit notes in White 2 or White 3, use OptiMUM-White® Specific Inactivated Yeast Derivative Nutrient. Choose a varietally appropriate yeast from pg. 11.

Step 8: First racking. Applies to all whites. Stainless steel or glass may be used for any of them, with oak barrels optional for White 1 wines. White 2 wines are occasionally aged in oak, particularly blends of Sauvignon Blanc and Semillon for the “fumé blanc” style of wine. Barrel-aged wines may also be kept “sur lie” (on the lees, with stirring) for some period of time on these fine lees. Malolactic inoculation at this stage is also an option for some White 1 wines, most commonly Chardonnay.

Step 9: Second racking. Applies to all whites.

Step 10: Third racking. For highly aromatic White 3 wines, you may want to bypass this step and go directly to step 11 and 12 in the early spring. The wine will clarify better with longer aging and one more racking, but distinctive varietal aromas will decline. Oak additions are primarily for White 1 wines, or for fumé blanc from the White 2 group.

Step 11: Fourth racking. This racking is into the bottling bucket or tank and it applies for any wine not bottled early.

Step 12: Bottling. White 1 and White 2 wines are not commonly sweetened at bottling, but White 3 wines very often are sweetened. A range of 0.5 to 3% is common; trials just before bottling will help you make the determination. An addition of Flashgum R can help maintain clarity, especially in sweetened wines, which may otherwise produce some sediment on aging. White 1 wines are bottled in dead-leaf green or antique green Burgundy bottles (Chardonnay), or flint (clear, colorless) claret bottles. White 2 wines are usually bottled in flint or antique green claret bottles. White 3 wines are attractive when bottled in flint, green, or amber Hock bottles (a tall, narrow German-style bottle).

As with the red wines, my colleagues had some comments on varietal fermentation of whites:

No-Oak, No ML Chardonnay: *“This past harvest was my first as a home winemaker. I was lucky enough to get my hands on three varieties of grapes: Chenin Blanc, Riesling, and Chardonnay. I chose to keep my winemaking simple this year. I love a crisp refreshing dry white wine. That being said, I went with QA23 as the yeast for the Chenin and Riesling. My Chardonnay finished on the sweet side and I needed to decide if I wanted to restart the fermentation or leave it. I decided to leave the sweetness as is and carbonate. Chardonnay is an important component of many sparkling wines, and the bite from the carbonation should offset the sweetness.”* – Preston Malm

White Riesling: *“I decided to sweeten my Riesling mostly because it’s a Riesling! A certain level of sweetness is expected of the varietal. Although I personally do not enjoy a sipping wine with a lot of sweetness, I found a happy medium at a level of 1% residual sugar (medium dry). This serves to balance the acidity while heightening the perception of fruit. I also now have a white in my cellar, i.e. the garage, that will pair well with spicy foods!”* – Kimi Wilkinson