

# **Making Superior Red Table Wine by Making Saignée First**

By Clem Joyce

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As winemakers and most of us who appreciate wines with full bodied, intense character, we're always looking for ways to make wines in that style.

By increasing the grape to juice ratio in making red table wine, the flavours and aroma are concentrated, thereby making a more intense character and superior style red wine. One technique to change the ratio is Saignée.

Saignée is the French term for bleeding and when red grapes are crushed and de-stemmed and some of the juice is bleed off and separated from the pulp, this wine of blush or rosé tone is referred to as Saignée. This bleeding usually happens in the first hour of crushing.

This Saignée juice is sulphited at crush and allowed to settle for a day while being kept as cool as possible, then racked off the sediment. The settled juice is then treated like a white or rosé wine fermentation and the sediment is put back with the red pulp. My standard extraction volume is about 20% of the expected normal red wine yield. I have done trials from 10 – 30% juice extraction and found 20% to be a good result. While the 30% added slightly more intensity, it also resulted in higher tannins that would require longer aging. So, it's a trade off.

So, for example, for 100lbs of grapes, the normal yield I would expect is about 30 litres and 20% of that is 6 litres of Saignée juice. Then, the red wine yield from the 100 lbs would be 24L. Plan your expected yield and needs accordingly on ordering your grapes.

See the attachment article by Scott Lab on 'Tips and Tools for Making Rosé' also available from the Scott Lab website.

## **MAKING THE SUPERIOR RED TABLE WINE**

Making a superior red table wine starts with using grapes sourced from vineyard of known grape yields and good growing conditions. Areas with very hot, short growing seasons will not produce the quality of grapes that a longer growing season and reasonable heat can. Also, the vineyard grape yield will also affect quality. The lower grape yield in tons per acre will produce better quality grapes and result in more intense character in the finished wine. Vineyard yields of 1.5 – 5 Tons per acre like Napa Valley and Washington's Columbia Valley will produce better quality grapes than 8 – 15 Tons per acre typically sourced from Central Valley California.

Some grape suppliers crush and de-stem their grapes near the vineyard and ship in drums of 400 -500 lbs. Shipping transport usually takes 2 days minimum to BC and longer. These grapes are not suitable for drawing off Saignée juice.

Using only fresh grapes that you can check for MOG (matter of than grape), any infected grapes before crushing is important to finished quality wine. At crush, the red grapes are sulphited to 30 – 50 ppm, the Saignée juice is drawn off and kept separate while the red grapes are delt with in your usual manner.

**See my 'Red Wine Fermentation Guidelines', below**

# Red Wine Fermentation Guidelines

## Crush to Pressing

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**This is my process and some general rationale for making superior red wine.**

Some winemakers cold soak their grapes for 2-3 days keeping them as cool as possible, 5°C ideal, with frozen water jugs in the top of the must and changed daily. The idea is to extract colour and flavours early in a non-alcoholic state. This way they can press early for early drinking wines without extracting harsh tannins that come later in the ferment. I am not a believer of this because of the problems that can develop and there are plenty starting with high volatile acidity (vinegar) and the consumption of nutrients by wild yeast and other bacteria that can give unpleasant character. If we were getting our grapes directly from the vineyard and crushing that day, it might be a consideration. But because it is days since they were picked, with the handling, bruising, travel, it is just not safe. I am not at all in favour of conducting natural fermentations because of its many pitfalls.

Others, like me, get their grapes fermenting as soon as possible and will ferment as long and with as much extraction as possible. Some will do extended maceration for max intensity; this requires much longer aging before drinking. As I age my wines in barrel, this method works well for me. Colour (grape anthocyanins) must bind to tannin to be retained in the wine, so early tannin additions will help to retain colour when it is extracted early. Natural grape tannins are extracted later in the ferment and early colour can be lost without the addition of these tannins. The enzymes help to extract the colour and flavours from the grape skins and they work slower at cooler temps and better at warmer temperatures.

You may choose to add some or none of these additives, but at a minimum you should add yeast and nutrients to a pre-ferment balanced must.

- 1) **Inspect grapes** before crushing and remove and discard any clusters that are badly bruised before crushing. They are probably infected with vinegar bacteria and may actually smell.  
400 lbs of grapes will yield about 120 litres of wine and nicely ferment in a 200L primary.

Or grape weight in lbs x .28 - .30 = litres of wine or 30L /100lbs is my grapes to wine estimate.

- 2) **Crush and de-stem grapes** and add **KMS potassium metabisulphite** at crusher, 20-30 ppm (parts per million) If grapes have any slight mold, add double this amount. For 120 litres (4- 6 grams), about one level tsp is 7 grams.  
I like to bleed off about 20% of the expected yield of the juice coming from the red grapes right at the crusher/ de-stemmer and treat it like a white wine. It makes a fabulous blush/rosé. The French call this Saignée. From 400 lbs, at the crusher, I would fill a 23L pail, let settle, keeping as cold as possible for a

day, rack off about 20 litres and ferment in a 23L carboy. Add the sediment back to the regular must. See Guide for white wine for additives.

- 3) **Testing the specs of the saignée juice:** These specs will remain constant and give you an idea of your red wine must. But, the pH and TA of your red must juice is going to change over the course of a couple of days and through fermentation. With skin contact and the extraction of potassium from the skins, the pH will rise and the TA drop. Your juice specs for red wine will be more accurate by taking samples just before adding yeast, 24-48 hrs after crushing. Malolactic bacteria, if added, will also cause the pH to rise. More on a starting pH, later.
- 4) **Enzymes:** Shortly after crushing when KMS has been mixed well, you can add an enzyme like **Lallzyme EX .75 – 1.5 g/h#** for lighter extraction or **EX-V .5 – 1.0 g/h#** for heavier extraction of tannins leading to deeper, stable colour and aromas in wines. (g/h# = grams per hundred pounds)
- 5) **Fermentation Tannins.** These tannins will also help to prevent oxidation, retain fruit and bind colour pigments. Tannins like **FT Rouge** or **FT Rouge Soft** at 20-50 g/hL can be added at crusher or if enzymes are added, 6 – 8 hours after, and **FT Rouge Berry** at 5 -20 g/hL can be added 24-48 hrs after yeast added. Some winemakers also add oak chips into the must at 3-4 grams per litre. I also add tannin **FT ColorMax** at **SG 1.070** at dose rate of 30 g/hL.
- 6) **Add Opti-Red** at 30g/hL, or **Booster Rouge** at 30 g/hL or **OptiMUM Red** at 20-40 g/hL on day one or early in the ferment. Some Opti-Red can also be added later in the ferment to shape and round mouthfeel.
- 7) **Just before starting your yeast starter,** draw off 2-3L of juice from the primary fermenter and let settle for a couple of hours. From this sample use the clearest juice you can, check the juice specs. SG with hydrometer, temp at 60°F; Brix with refractometer, temp at 20°C. I do a TA, measure the YAN (yeast available nitrogen) and calculate for potential alcohol. Testing for YAN requires a pH meter and some chemicals, is not difficult and only requires patience.
- 8) **Check the SG of the must**  
Fill your hydrometer cylinder with clear juice, check temperature with a thermometer. It should be 60°F to be accurate. Chill in a fridge if necessary. If S.G. is higher than 1.105 (which will give you 15% alcohol), then it will be necessary to add some water, otherwise the wine will be too high in alcohol. The best way to do this is use your graduated cylinder, add 200mls of juice and measure SG. If necessary, add water, mixing well until your SG comes down to where you want it. Remove your hydrometer and read new volume. The difference is the water added giving you the amount of water to add to the must. Eg. If you have added 20 mls of water to the 200mls, your addition is 10% water. You can then estimate the amount of water needed for your entire must. If you don't have a graduated cylinder, add a measured volume in your cylinder, use a syringe to add water. You can not just add water to the must, mix and recheck SG. It is not accurate because you are not mixing water with berry contents.

If you need to add sugar to your must, you do the same by adding a measured amount of cane sugar to a measured volume of juice and rechecking your SG until you get your SG where you want it. These are called bench trials and need to be done.

### **Now Check pH and TA** of the sample used to check SG.

If the pH is over 3.7 - 3.8 add tartaric acid. pH will drop by about .20 for every 1 g/L of tartaric acid added. Add only tartaric acid as per rule. Calculate acid addition amount, add half the acid to your measured volume, recheck pH after mixing well and then add the second half if the addition seems correct. Your target pH for red wine is about 3.50 – 3.60 before ferment. It can rise again during skin contact of fermentation and a recheck and possible further addition may need to be done after ferment. Depending on the varietal and style of the red wine, your finished wine pH target will probably be in the range of 3.60 – 3.70. If you are planning on conducting a malo-lactic fermentation, the TA will give you more insight into the best pH to start at. I also like to do a titration for Titratable Acidity (TA). This will help you estimate the amount of Malic acid vs Tartaric acid in the must. More on this later.

- 9) **Starting the fermentation: Prepare the yeast and hydration nutrient.** Yeast is usually added at a dose rate of 25gr/hL (30 gr or more if sugar is higher than 25°Brix), so you will need **25g of yeast** for your 400lb of grapes yielding 100L of wine.

You will also need some yeast nutrients at 1.25 times the amount of yeast or about 30g of yeast hydration nutrients, **Go-Ferm** or **GoFerm Protect**, for more difficult ferments. Check must temperature, ideally around 15 - 20°C before making the yeast starter. I like to use the two 5 gal plastic pails method for yeast starter. Yeast starter volume should be about a 10 - 15% of must finished volume. Fill one pail with about 10 -15L of juice taken from the primary fermenter. If cooler than 15°C, you can warm juice by heating some from the pail in the microwave and add back to the pail.

You will need to dissolve the **Go-Ferm** in warm water, a volume 20 times the weight of 30gr of Go-Ferm of non-chlorinated water or 600 mls at 43°C. Previously boiled and cooled tap water is good for this. It is important that the water be 43°C when the Go-Ferm is added.

Warm the 600mls non-chlorinated water in your microwave, to slightly warmer than 43°C, perhaps 50°C and add this to your other previously sterilized empty pail.

It will gradually cool, check with a thermometer. When 43°C temp, add the 30gr of Go-Ferm, mix and swirl to dissolve.

When the temperature has dropped to 40°C sprinkle the yeast on the surface, and let slowly hydrate. The yeast will sink as it hydrates, swirl mixture to dissolve yeast. Let hydrate for about 20 minutes maximum. The temperature will continue to slowly cool. Monitor temperature.

After about 15-20 minutes, you can slowly add juice from your pail to the yeast pail. You want to slowly acclimatize the yeast to the juice bringing down the temperature of this yeast solution. So, measure an equal amount of juice, 600mls and over a 10 minute period slowly add the 600mls of juice to the yeast.

You will have to repeat this a few times. The reason for being cautious about the temperature difference is the “shock” to the yeast can kill off up to 50% of the yeast cells if the temperature difference is more than 10°C. Every 10 minutes, double the starter volume, slowly adding juice from the must pail. When all the juice is added to the starter, let it rest. It may foam or show activity. Usually, you will see slight foaming to show the yeast is active. There are times when the yeast is dead if it is old or not stored properly. I place my starter with lid or cover on, beside my primary fermenter for a while to allow it to come to about the same temperature. When the starter is within 5°C of the primary must temperature, I add the yeast starter to the entire top surface of the must. The yeast will need a great deal of air/oxygen in the first couple of days as the yeast grows.

- 10) Cover your primary fermenter with a good lid or a plastic sheet held with a strap to prevent fruit flies getting in. They are usually a big problem at that time of year. The lid still needs to vent. You should see the cap (layer of grapes floating on the surface of the must) begin to form within a few hours. Allow for enough head space in your primary fermenter.
- 11) At a minimum 3 per day, punch down the cap; more often is better. Actually, 4 – 5 times is better if you can manage it. A blanket of carbon dioxide will form over the cap which your nose will pick up if you breathe too close. Your must will need some oxygen in the first few days as the yeast needs to grow, so a little aeration is good. Some home winemakers even use a small aquarium air pump with hose to bottom of primary for the first few days to give it some oxygen. Must temperature should be monitored during fermentation. Avoid letting temperature get higher than 25°C. I wrap my primary fermenter with a bubble wrap material to conserve and maintain heat. I use an electric space heater to raise and maintain the temperature of the primary must.
- 12) **Cap pusher.** I use a solid plastic rod with a six inch disc on the end made of food grade plastic. This rod stays in the fermenter the entire time of fermentation. This is better than rinsing and sitting out for fruit flies to contaminate. If I have two fermenters beside each other with different yeasts, I don't cross contaminate yeasts by using the same pusher in each other.
- 13) **Yeast Nutrients ; Fermaid-K and Fermaid-O :** you will usually need to add some nutrients for the yeast. **Fermaid-K**, the dose rate is 25g/hL, so add 25g of Fermaid-K, one day after yeast addition. You may need to add more and I recommend everyone test their must for YAN –Yeast Available Nitrogen. On day 3 you can add **Fermaid-O** at a dose rate of 20g/hL, then again at the 1/3 drop in SG about 1.070 at a dose rate of 20g/hL. If you know your YAN, you are better able to add any nutrients. Keep your ferment temperature between 20 – 25°C. Higher temperatures tend to consume nutrients faster. If you smell a stink like rotten eggs, or hydrogen sulphide (H<sub>2</sub>S) your yeast needs nutrients immediately, add 20 g/hL Fermaid-O.  
  
If you smell H<sub>2</sub>S in the last 1/3<sup>rd</sup> of ferment, you can only add organic nitrogen like **Nutrient Vit End or Fermaid-O**. Other nutrients like Noblesse or Nutrient Vit End can be added about 1.050 – 1.030. Fermentations generally last 14 – 20 days depending on temperature.

## **Malolactic Fermentation,**

If you add a malolactic culture like I do, you can conduct a co-inoculation on about day 3-5 or wait till the end of AF. I like to add the ML culture early in the ferment, about day 3 or day 5 if I have added Lysozyme to grapes at crush. Add **Opti'Malo Plus** at 20 g/hl to a little water and add to the must just before ML culture. I use an ML hydration nutrient, **Acti-ML** at 20g/hL dissolved in some chlorine free water, add the culture, let sit for 15 minutes then add to must.

## **Lysozyme**

Lysozyme is a great enzyme derived from egg whites for destroying natural harmful lactic bacteria present on the grapes that when fermented can cause unpleasant biogenic amines to form in wine. They cause headaches, stuffy sinuses, blotchy skin, watery eyes to name a few.

Some vineyard areas are known for hosting these lactic bacteria. The addition of Lysozyme at crush can help eliminate this problem. Lysozyme will work for a few days until it is neutralized by the grape tannins. If adding Lysozyme, it is recommended to add your malolactic bacteria culture 4-6 days after.

**You should check the grape seeds for colour** when you first get the grapes. Take a grape, taste the juice for acidity and sweetness, separate the seeds in your mouth, look at the colour, chew the skins for tannins, then chew the seeds. If the seeds are whitish or green, they can be bitter. This bitterness is extracted later in the ferment. If they crack when you chew them, they will have little or no bitterness. Racking the entire must from the fermenter after a few days when the grapes have broken up well, will allow you to remove a lot of these seeds from the fermenter bottom and avoid letting any bitterness get into the wine. Some ripe seed tannin can give a little complexity to the wine.

**Pressing** - Once fermentation is completed, between SG .992 and SG .990, I like to press when the cap is sinking or sunk. As the fermentation activity subsides, the skins will sink to the bottom. I like to use my perforated strainer tube and rack as much free-run juice out of the primary as possible. Raising the primary up if you can, will help with the racking. When you have taken all the free-run wine out, you can press the skins. I usually press the skins once, remove them from the press, break up and press them a second time before discarding. (Some home winemakers will make a second run wine by adding red juice to these skins and re-ferment. If doing so, skip second pressing). I separate the free run from the pressed juice if I can, but many times it all goes into a barrel together. I usually like to put my wine into glass carboys after pressing until first racking, with air locks. It can be easily racked this way. You will find there is much less sediment in the wine and it settles out quickly. Rack off the sediment in three days. Monitor the SG, and ML complete before sulphiting. Racking regime is 3 days, 3 weeks, 3 months.

**Sulphite** to 50ppm when alcoholic and malolactic fermentation is completed. As much as half of the first SO<sub>2</sub> addition can become bound in the wine, usually up to about 50ppm. Further SO<sub>2</sub> additions are needed to maintain a minimum of 30ppm free or .8 molecular SO<sub>2</sub>. **Testing** for Free SO<sub>2</sub> is very important. The aeration oxidation method is easy use and very accurate.

## **Aging your wine**

How you age your red wine will define a large part of its' character. Red wine is usually aged on oak barrels that help round the wine and give some possible oak character to it. If you are lucky enough to have a new barrel of American, French or Hungarian oak, you will have to decide how long to leave the wine in the barrel. Depending on barrel size, your wine can become over oaked from too long in barrel. You may need to transfer the wine to a neutral barrel after picking up enough oak character to allow the tannins to mellow further. Sometimes, some tannin may need to be removed before bottling by the use of egg white or gelatin addition.

If you have an older oak barrel that is not giving off any oak character anymore, oak additions can be made to the barrel by the use of oak cubes, staves or chips. Most of my barrels are now neutral and I regularly add oak character to my wine by the use of one or two of these methods. For oak chips and cubes, I usually add 4 grams of oak per litre of wine. The chips will extract more quickly than the cubes, being thinner. Oak chips will hydrate in the wine in 3 – 4 weeks and settle to the bottom of the vessel. The oak character will have been completely removed from the chips in that time. Oak cubes can take 2 -3 months to completely integrate into the wine.

I like to add my oak chips to the glass carboys shortly after the first racking, when I have 3 – 6 weeks between racking. This way, I can remove the oak chips from the wine before the wine gets put into the barrel. Racking wine out of barrels with oak chips in it is always a problem. Oak cubes in the barrel don't cause as much of a problem for racking but they still are a hassle to flush out of the barrel when cleaning it. My usual dose of oak addition to my red wine is about 4 gr / litre. Depending on the character of the wine and style I intend to make, I will add a little more oak, up to 6 gr or possibly 8 gr per litre. You may find that you have wine in carboys and can make separate additions to them as trials to get an idea of how much oak the wine can take before it becomes overpowered by the oak character. Not all wines from the same vineyard in consecutive years will have the same intensity of character and the oaking level may need to be adjusted from year to year.

Another option for oaking is to make our own oak from spent barrels. Commercial barrels are routinely refinished on the inside to expose new oak to the wine. Wine in barrels rarely penetrates more than 3/16 of an inch into the stave. By taking a spent barrel apart, cleaning the staves before drying, you use these staves for oak addition to your wine. I would recommend toasting them in an oven for a few hours before cutting them up. I have used an oven at 300°F for 18 hours that produced a wonderful roasted character. I know of others that use a barbeque to toast the staves but this can cause a slight burnt surface to occur. When barrels are first toasted over fire pit they too can pick up a slight burnt or heavy toasted character. Trials will help you find a good results.

If you have a jointer, the staves can be easily chipped up. I like to take my toasted staves, cut them into about a foot long piece and then cut them with a thin band saw blade into approximately ¼ inch strips. I drill a small hole in each end and stack 2 – 4 of these together, (barrel bung hole will dictate how many will fit through) and tie with monofilament line, and make a chain of oak strips that can be hung in my barrel. I still use the dose rate of about 4 grams of oak per litre of wine that I can adjust when I feel the wine can take a little more oak. In most cases the oak chain stays in the barrel for the life of the wine in barrel.

## **Topping Barrels**

This is a hot topic among winemakers, as many believe in only topping their barrels with wine. We have learned that by topping with wine, we can increase the alcohol level above where it should be and make an out of balance wine, sometimes making it unpleasant to drink. This is a common mistake by many home winemakers.

We have learned that the humidity the barrel is in, dictates whether the barrel respire water or alcohol. For most of us home winemakers, our barrels are in an environment that usually loose water. So, topping with water is the best way to keep the wine in its' original balance.

**Happy Winemaking, Clem Joyce**