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Table of Contents for Basic Winemaking for Amateurs

This is a very short-cut print out of basic winemaking for amateur winemakers.

A GLOSSARY OF EQUIPMENT THAT YOU WILL NEED and OTHER TERMS.

An airlock is a fermentation trap that allows the escape of carbon dioxide gas and prevents the entrance of air.   We carry 2 plastic styles, a twin bubble airlock and a 3-piece cylinder airlock. The main difference is the ease of cleaning. Airlocks are important for all home wine and beer makers. Affixed to the top of a closed fermenter by inserting in a bored bung and filling half way with water, they allow the escape of carbon dioxide gas produced by fermentation. The gas bubbles up through the water. The water prevents any outside air from entering the fermenter. This helps to prevent oxidation and possible contamination from airborne microbes. The covers are not airtight and while allowing carbon dioxide to escape, they keep out fruit flies and other small creatures.

Watching bubbling airlocks becomes a serious pastime of home brewers and vintners. The cylinder airlocks are not as much fun to watch as the double airlocks. Some of the "double" airlocks have smooth rather than bubbled sides. NOTE: Check your water level in the airlock frequently. They can go dry. Some winemakers use colored water to help visibility. Some use a metabisulfite solution for airlocks.

Books, information, look at www.101winemaking.com for our free presentation of winemaking information for amateurs ‘May Your Wines Fall Bright”, plus we have hard copy books for sale at the shop

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Bungs or rubber stoppers  come as solid or bored to fit the airlock. PET plastic carboys (3,5,6) all take a #10 bung. Number 6.5 and 7’s are the most popular size for a 5-gallon glass jug. Gallon jugs can take a #6 or #6 ½. We also have small bungs (#2,3) to fit wine bottles for topping fermentations, plus many other sizes..

Buon Vino bungs have a longer taper and will fit more sizes. We have them for the 5-gallon glass carboys (small Buon Vino bung) and PET carboy openings and a large on for demijohns. They can be called universal bungs. 

Carboys A carboy is a glass or PET plastic container (jug). Popular sizes are 3,5,6 gallons. You'll always need an empty one for racking.

They crack if clicked together so always pad between carboys. Use the cardboard box, buy or make a carrying crate or use a plastic crate to protect your jug. Sometimes we have wooden carrying crates at the shop for sale. The brew hauler is a great carrying aid and padding could be worked in on the sides under the straps.

When cleaning your jug in a porcelain bathtub or a stainless steel sink, place a towel on the bottom of the tub or sink so the jug will not click against the hard surface and crack. Glass carboys that are not PYREX may crack with the use of hot water. Use warm or cool water to clean.

Do NOT use HOT water on your PET plastic better bottle. They can warp.
PET (Better Bottle) is rated for safe use with wine. Your blue plastic water bottle is not.

Fermenters - Pails, Buckets White or food grade plastic or Stainless Steel:

Our 7.9-gallon pail will hold about 70 crushed grapes. They come with a lid that has a very tight fit. If transporting whole grapes in bushel baskets or cardboard boxes, plastic liners are a must. Plastic liners (clear garbage bags or our fermenting bags) tied off at the top are advisable to aid in the transportation of crushed must (crushed grapes). Even if your crushed grapes are in a container with a top, unless it is a tupper-ware tight seal, a tied bag will prevent sloshing.

Fermenter: Primary is the first one used. This container will be part full (2/3) of must (crushed grapes) or juice to allow room for fermentation.

Fermenter: Secondary is the second container the wine is racked into and filled more full.

Hydrometer is an inexpensive tool to test brix or sugar percentage.

The triple scale scales are:

potential alcohol, brix, and specific gravity.

Hydrometer: +5-5 is a narrow range hydrometer used at the end of the fermentation to more accurately determine the brix.

Hydrometer jar holds the juice or wine sample for the hydrometer test.

Potassium Metabisulfite or campden tablets: anti-oxidant and anti-bacterial additive.

Racking is the transfer of wine via siphon to a clean container.

Racking set up may consist of a racking wand, tubing and at bottling time, a bottle filler.

Racking wand is a rigid length of clear hard plastic in different diameters to attach tubing to.

Siphoning is the best means to transfer wine. Attach the tubing to a racking wand and "suck" from the tubing end, pulling the wine UPHILL until it reaches a point in the tubing that you can cap of the end of the tubing with your thumb and lower the tubing down into the new container. Auto siphon units that double as a racking wand are available.

Sugar, corn sugar, which is Dextrose, is used to adjust the "Brix" or sugar percentage. Dextrose is a simple sugar in powdered form.

Sugar (sucrose, table sugar) is recommended to sweeten to taste if needed at finishing time.

Thermometers are needed to check temperatures of samples for hydrometer readings, water used in re-hydrating yeast, must or juice temps when adding yeast, checking fermentation temperatures.

Tubing for siphoning, is used in transferring your wine to a clean container. This transfer is called racking. Your racking set up will consist of siphon hose (tubing) and a racking tube (rigid) and holder for racking. The image on the left (below) shows a spring clip that holds the tube in place. Siphon can be started by mouth or by automatic siphon. The auto-

siphon (on the right) will replace the racking wand in your racking set up.


Yeast: Your pick, our recommendation. 1 pack of yeast will inoculate 5-7 gallons. Most amateur and commercial winemakers select cultured yeast for consistent results and full fermentation.

Testing needs.
The hydrometer is a testing device, but it is so necessary that it is listed above with the initial winemaking equipment.

Acid Testing Kit contains sodium hydroxide .1N, a syringe to draw a sample, and a test tube to run the test. Knowing the initial TA (total acid) allows the winemaker to adjust the acid up if needed or down. Most eastern cool climate grapes are too high in acid.

Residual sugar test kit (Accuvin) is for testing RS (residual sugar) in your finished wine.

Vinometers test the alcohol IF the wine sample is dry. Sugar in the sample will distort the reading.

Fining agents aid in settling and clarification. (see pages 16-19)

Bottling needs:

Closures: Corks: Agglomerated, First, Premium, Thermoplastic! What to use?? This depends on the life of your wine, long or short, the corker you have, and the budget you have.


Corkers: hand or floor corker? The smaller Portuguese floor corker is the cat's meow.


Yes, corking is a challenge and you do need a corker.

Screw caps twist on by hand; crown caps require a capper and a crown cap neck bottle. Champagne closures can be pushed on by hand with appropriate bottles and wire hoods are always a consideration.

Bottle fillers fill from the bottom of the bottle, usually. Start your siphon, attach the filler to the tubing, place in the bottle, push down and fill to the brim of the wine bottle, let up and remove. The filler will leave just the right space for the cork if using 3/8 filler in a 750 ml bottle.


A ½ bottle filler will leave too much of a headspace in a 750 ml bottle. The filler on the right is a Ferrari automatic bottle.

Bottles needed 2-dozen (750 ml) bottles per 5 gallons of wine.

Cleaners: If cleaning with bleach (Clorox), rinse with cold water and a potassium metabisulfite water solution to chase. At Fall Bright we use a citric acid solution with potassium metabisulfite added for a very powerful cleaner. Oxygen cleaners are available such as C Brite, B Brite, One Step and others.

Labels and Capsules are optional. You can be creative or use masking tape! Actually there are 'easy remove' self-adhesive labels available at office supply shops. We carry a self-adhesive parchment color blank label sheet.

More Terminology used to confuse you!

Acetic acid is formed if conditions exist for the formation of vinegar. There is no cure, just prevention, which is to have a proper TA (total acid) and brix in the juice or TA and alcohol in the wine, the use of metabisulfite and the minimization of oxygen, headspace.

Amelioration is the addition of water.

Aroma: smell, odors.

Bouquet: odors

Balling: brix with presence of some alcohol.

Brix, degrees brix: % of sugar in fresh grape juice.

Browning: oxidation, an undesirable brown, amber, dark yellow color change in wine resulting from oxidation. Contributes to an off flavor and is more noticeable in whites than reds. It can be a stepping stone to sherry and vinegar.

Cap: grape solids that separate from the juice of crushed grape must. They float and compact on the surface.

Chaptilization is the addition of sugar usually before fermentation.

Cold stabilization is the removal of excess potassium bitartrate, which prevents it from crystallizing on the cork and/or precipitating in the bottle of finished wines stored under cold conditions. This process reduces acid in a finished wine.

Crusher is a machine for breaking grape berry skins to permit juice extraction.

Crusher de-stemmer breaks the skins and removes the stems.

De-acidification is the reduction of the TA (total acidity) in the juice, must or wine.

Dry is an absence of fermentable sugar. The finish taste is not sweet. There may still be fermentable sugar present and the taste may be 'dry'.

Ethanol, ethyl alcohol is a product of grape sugar fermentation.

Fermentation is the conversion of grape sugar by yeast to ethanol and carbon dioxide.

Fermentation trap or airlock is a device that allows the escape of carbon dioxide gas and prevents the entrance of air.

Fermenter is a vessel, bucket, pail, or carboy, used to conduct fermentation.

Fining agents are various materials that remove certain wine constituents for improved wine quality and clarity or stability.

Free run is the juice that separated freely from grape solids without the use of mechanical pressure.

Free SO2 is the sulfur dioxide ions in a solution that are not chemically bound but are free or available to react with such substances such as dissolved oxygen, etc.

Fructose is one of two simple fermentable sugars present in grapes.

Glucose is one of two simple fermentable sugars present in grapes.

Hydrometer is an instrument used for measuring dissolved solids such as sugar in grapes or wine.

Hot stabilization is fining for protein stability with use of Bentonite or LQ Superkleer or other fining agents. If you are taking wine to Arizona or Florida, fine first.

Lactic acid is produced from malic acid by malolactic bacteria, such as in a malolactic fermentation.

Lag is the end of the period of time it takes the yeast to achieve enough of a population to begin fermentation.

Lees is the residue of wine fermentation that settles to the bottom of the fermenter during fermentation.

Malic acid is one of several organic acids present in grapes.

Malolactic fermentation is the conversion of malic acid in wine into lactic acid and carbon dioxide by lactic acid bacteria. Lactic acid is much softer on the palate and its presence gives wine an enhanced mouth feel. It is a tradition finish for many reds and white wines.

Metabisulfite, potassium or sodium is a solid form of sulfur dioxide. It is an anti-bacterial and an anti-oxidant agent widely used in winemaking (for centuries). When used in solution with citric acid, it is a powerful cleaning agent.

Must is a slurry of crushed grapes.

Oxidation is a process whereby grapes, juices or wine react with oxygen resulting in undesirable odor and taste.

pH denotes the hydrogen ion activity in an aqueous solution. There are safe and desirable parameters for wines and juices.

Pomace is the remaining grape sins, seeds and pulp after pressing. It is usually spread back into the vineyard and may be used for making a “second wine”.

Pressing uses pressure to extract the juice or wine from the grape must such as a wine press, basket press, bladder press.

Punching down is pushing the floating cap back into the juice to facilitate color and flavor extraction during fermentation of the grape as must.

Racking is the transfer of clear juice or wine from the lees via siphoning.

Racking wand is a rigid, usually acrylic (clear) rod to aid in siphoning or racking.

Residual sugar (RS) is remaining un-fermented sugars in wine after fermentation. It may have a taste of sweetness if the percentage is high enough.

Stemmer separates the grape stems from the berries.

Stuck fermentation is the premature cessation of fermentation and may be desired or un-desired.

Sulfur Dioxide (SO2) as metabisulfite, potassium or sodium is a solid form of sulfur dioxide. It is an anti-bacterial and an anti-oxidant agent widely used in winemaking (for centuries). When used in solution with citric acid, it is a powerful cleaning agent.

Tannins are a phenolic compound occurring naturally in grapes and wines giving astringency and or bitter flavors in wine. Tannins are highly present in the stems, which is the reason for de-stemming. We like to leave about 10% of the stems.

Tartaric acid is the principal organic acid of most grapes.

Thief is a straw like tool to steal some wine for a sample. Some are glass straws and the plastic Fermtech wine thief can double as a hydrometer jar.

Titratable acidity is the concentration of organic acids in juice or wine determined by titration acid test using sodium hydroxide. The acid is expressed as total acid (TA) as grams tartaric acid per liter. There are desired parameters for initial and finish TA in winemaking.

Topping up is the process of keeping carboys of wine filled to the top or desired level by the addition of wine.

Total SO2 is the total of free SO2 and bound or combined SO2.

Remember there is always more than meets the eye.

How grapes become wine. Fermentation and the importance of:

Sugar
Latour, Schwann, and Kutzing (and probably other microbe-hunters) discovered that sugar was converted to alcohol by microorganisms around 1837. Louis Pasteur published a report on fermentation in 1861. Mankind had been making wine and beer for centuries, just did not know how or why…

Today the amateur winemaker knows that sugar is converted to alcohol by yeast. General conversion of sugar to alcohol is approximately 58% (0.575%~).

Yeast

Different yeast strains have various tolerances to alcohol. There are many different yeast cultures available in large quantities for winemakers, but just a hand full in 5-gram packages for the amateur winemakers. The following yeast cultures are packed in 5-gram packs, freeze dried and will inoculate 5-6 gallons.

Lalvin EC-1118 (Prise de Mousse), alcohol tolerance to 18%, is rapid starting yeast that settles well with low foaming characteristics. It exhibits a killer factor, which is a protein produced that is capable of inhibiting or even killing a sensitive yeast. It you start with this yeast, stay with it. It is tolerant to cold and SO2 to 50 PPM. EC-1118 is nitrogen efficient yeast. It is recommended for grapes low in nutrients i.e. Chardonnay and Seyval, however, **not for Malolactic fermentation.**

Lalvin K1V-1116, alcohol tolerance to 16%, also exhibits a killer factor, which is a protein produced that is capable of inhibiting or even killing a sensitive yeast. KIV-1116 has good activity at high temperatures and is a fast starter. It is used to restart stuck fermentations and is an all purpose red/white wine yeast.

Lalvin 71B-1122, alcohol tolerance to 14%, is a specific strain selected for its production of fruity aromatics. It is recommended for Gamay and "Vin Nouveau" wines. It promotes development of malolactic bacteria by reducing malic acid levels and by slightly increasing

the pH. It may or may not finish bone dry.

Lalvin D-47 with alcohol tolerance to 14% is recommended by Lalvin for whites, rosé, meads, and malolactic fermentations. Yeast nutrient is advised. It is a low foaming, quick fermenter that settles a compact lees. It tolerates temperatures from 50-86^{o}.

Lalvin RC 212, alcohol tolerance to 14%, was selected for its ability to ferment a traditional heavier-style Burgundian Pinot Noir. It is a low foaming, moderate-speed fermenter with an optimum fermentation temperature of 60 to 86^{o} F.

Red Star Cotes des Blanc (formerly Epernay 2), Alcohol 12-14%, is a slow fermenting, low foaming yeast strain that enhances fruit flavor and aroma. We recommend it for

Riesling, Gewurztraminer, Cayuga, Vidal, Niagara and Diamond. This yeast is more SO2 and temperature sensitive and tends to slow down or stick. It is a good choice if you want fruity wines with residual sugar. Avoid this yeast if you desire a dry finish. Use complex yeast nutrient (energizer: Fermaid).

Red Star Pasteur Champagne, alcohol 13-16%, (Saccharomyces bayanus) This yeast has a higher tolerance of SO_2 and will tend to ferment vigorously to dryness. Give it more shoulder room in a carboy for its vigorous fermentation. It settles nicely and achieves a dry finish.

Red Star Montrachet, alcohol 13-15%, produces a fast fermentation with good SO_2 tolerance. Many winemakers prefer it for an austerely dry finish. It also needs more headspace for a vigorous initial fermentation. Yeast nutrient is especially recommended with this to minimize hydrogen sulfide problems.

Red Star Pasteur Red (a strain of Saccharomyces cerevisiae), alcohol tolerance: ~14-15%, is a strong, even fermenter that produces full-bodied reds. It is necessary to ferment cool to prevent unwanted temperature increase due to fermentation. It also needs more headspace for a vigorous initial fermentation.

Red Star Premier Cuvee (Saccharomyces bayanus) alcohol to 18%, is low foaming and is the fastest, cleanest and most neutral fermenter of the Red Star Wine range. Especially recommended for Prise de mousse.

Fruit wines retain their fruitiness longer with a lower alcohol, ~ 10 %. Ale yeast with a tolerance for a 10 % alcohol is a consideration for making fruit wines.

Acidity and pH

For best results, take an acid reading on your fruit (and water mix) juice with an Acid Test Kit and adjust accordingly, slowly and retest.

The ideal total acidity (TA) of a **finished** wine ranges from about 0.6% to 0.8%, expressed

as tartaric acid (TA). A fresh juice should run 0.1 to 0.3% higher because some acidity is lost by the completion of the winemaking process (fermentation and cold stabilization). The acid test will permit you to make prudent corrections with unbalanced musts or wines.

Sweet wines can tolerate a higher initial and finished TA, making the difference between a balanced wine and a flat, but sweet wine.

A spike in the TA may indicate vinegar production. Heads up if you get a test result that is out of line from your base line test results. Taste! If it is a vinegar taste, then make vinegar. The wine will not be able to be corrected and salvaged as wine.

To test the progress of a malolactic fermentation requires a test for malic acid, before, during and after. This test is available and is better to monitor malolactic fermentation than a regular TA test during a malolactic fermentation.

pH

pH is a dimension that expands the **quality aspects** of wine. It ties in with acidity and places limitations on use of various additives that the winemaker commonly uses. It is sometimes the reason a jug of wine goes down the drain, when everything was done correctly.

A final pH of 3.4 to 3.45 may be desirable. A pH of 3.5 or 3.6 for a finished wine will not yield a long living wine. A higher pH finished wine will feel soft and rounded but will not have a long shelf life. pH is difficult to put into a nutshell, as it is complicated. However, the amateur winemaker needs to acknowledge its existence and the limitations that it places on winemaking and wine.

pH is often overlooked or ignored. pH meters are expensive and fussy and pH strips are totally un-reliable.

TA (total acid) shows how much acid there is and **pH** indicates the strength of that acid. A low pH of 2.75 in grapes will indicate immature fruit with a low pH and a high TA.

A pH of 3.4 or 3.5 in a fresh grape must or juice warrants attention to a low acid. Increasing the acid in such a juice or grape must, will shift the pH downward to a safer range. We recommend tartaric acid for adjusting the low acid to shift the pH. If too much is added (tartaric acid), the acid (tartaric) can be “dropped” out with cold stabilization later. If acid blend with citric acid is used, citric acid is not going to adjust with cold stabilization.

The pH in fresh nicely ripe grapes should be 3.1 to 3.25.

This is a simplified caution regarding several products limitations:

Bentonite: Wines with a higher pH will required more Bentonite for good fining results.

Calcium carbonate: (CaCO3) 0.3-0.4 grams /liter will increase the pH by ~ 0.1. This shift must be taken into consideration and is the restriction in the use of CaCO3 and the other acid reduction agents noted below. The pH shift will vary depending on the chemistry of the must. Must means the grape mess.

Potassium Bicarbonate: Because it neutralizes the acid, potassium bicarbonate raises the pH of the wine more than calcium carbonate**.** This can be an advantage in dealing with problem varieties with a pH below 3.0 and a TA above 1.0. Raising the pH of such wines will help soften their acid taste. However, this can also be a major disadvantage or limitation in its use. It is recommended only for use with wines with a pH below 3.0 and a T.A. above 1.0 **to insure that the final pH will not exceed 3.5.** Maximum reduction of TA with any of these acid reducing agents is in the .25 to .3% range.

Nutrients

WINEMAKERS ALERT: . Every year we have alerts from Cornell Cooperative Extension that…"Yeast available nitrogen content is low... in grapes and other fruits. Make sure you USE YEAST NUTRIENT: Fermaid K or DAP

The amateur winemaker can-not measure the "primary amino acid content of the grape must….for a good fermentation -without nutrient stress - the yeast should have approximately 400 mg/L of yeast available nitrogen",

SO we do recommend the addition of a yeast nutrient or "energizer" on a routine basis.

Please remember to make DAP and Fermaid K (and other yeast nutrient) additions. These nutrients help to prevent off odors. Better to intervene early than having to correct off-odors later! Reduced sulfur odors, hydrogen sulfide, rotten egg odors, can develop early in the first 3 to 5 days of fermentation. In such cases, the addition of 0.2 to 0.5 g/L of DAP or 0.2 g/L Fermaid may correct the off-odor. With the addition of the complex nutrients such as in Fermaid K, the yeast can re-metabolize the sulfur compounds and thus remove the off-odor. This is certainly the preferred way, rather than correcting reduced sulfur off-odors later with additions of copper."

There is a new nutrient available for use at the end of fermentation if there is a hydrogen sulfide, rotten egg odor called REDULESS.

We carry DAP (di-ammonium phosphate) and Fermaid K. and Reduless (and GoFerm).

PLEASE, use label recommendations**. DAP, di-ammonium phosphate,** is a nutrient and is labeled for use at 1/2 pound or 8 ounces per 1000 gallons. That translates to 1.13 grams per 5 gallons. Due to the differences in densities of DAP from different companies, weigh it. If you have no gram scales, 1.13 grams is about 1/4 heaping teaspoon (per 5 gallons).

Yeast "Energizer" is a term that indicates a nutrient that is more complex and is recommended for fruit wines other than grapes and yet is very acceptable to use in grapes.

We currently are using Fermaid K, non-Kosher, which is a complex nutrient (energizer).

It has come to our attention that certain yeast, such as Cotes Des Blanc prefer the more varied components of a more complex yeast nutrient energizer type such as Fermaid K and can stall with just the DAP nutrient.

Fermaid is also the type of nutrient (energizer) to use with fruits other than grapes in winemaking.

The overuse of any nutrient may render your wine too "hot" of an environment for the yeast to function in.

Fall Bright Usage Conclusions for Fermaid K non-Kosher: 4 1/2 grams per 5 gallons.
1 level teaspoon is ~4 1/2 grams. **Dissolve in water before adding to an active**

fermentation to reduce foaming. If your "recipe" calls for 1 teaspoon of nutrient per gallon, do NOT use that much Fermaid. Use the recommended rate on the label of your products.

It is recommended to split the dose. The first 1/2 dose, which is ½ teaspoon per 5 gallons, should be added at the end of **the lag stage**, which is just before fermentation

starts. The second 1/2 of the dose of ½ teaspoon per 5 gallons should be added at 50% sugar depletion.

ANOTHER NUTRIENT: Reduless is a nutrient for use AFTER fermentation **if hydrogen sulfide (rotten eggs) odor is present**. It may be RE-TREATED.

Do NOT use Reduless during the active primary fermentation. It is not preventative. Reduless is a new, proprietary formulation of inactivated yeast developed by Lallemand to improve the overall quality of both red and white wines. Its formulation is naturally rich in copper; making it a useful option to decrease H2S, dimethyl sulfide and other sulfur defects. Reduless helps increase roundness and smoothness and can decrease phenol related defects. Grape varieties prone to negative sulfur compounds (such as Syrah, Pinot Noir, and Chardonnay) particularly benefit when treated with it. (quote from Lallemand)
100-150 ppm 10-15 g/hL 0.83-1.25 lb/1000 gal
0.378 to 0.568 g/gallon
1.89 to 2.84 g/ 5 gallons

Dissolve Reduless in 10 times its weight in water. Add immediately to tank mixing well. If prepared in advance, re-suspend the product prior to its addition. Additions can be made during pump-overs or during tank agitations/mixings. Recommended contact time is 48-72 hours after homogenization. Rack off or filter the wine when treatment is complete. Reduless can be dosed twice, if the first dosage improves but does not clear up the problem.

GoFerm is a micronutrient for use during the yeast re-hydration process. It is NOT a nutrient for the juice. Add GoFerm to 2 ounces of warm NOT HOT distilled water (43°C or 110°F) at the rate of 6.25 grams (or 2 teaspoons) per pack of yeast. Mix well, allowing it to cool to 104 degrees F (40degrees C) and THEN sprinkle the yeast on top of the water-GoFerm mixture. Let stand for 10-15 minutes without stirring and then stir well to suspend all the yeast. Let stand for another 15-30 minutes. Stir gently again. Combine an equal amount of must or juice to be fermented. This will help the yeast to adjust to the cool temperature must. This "atemperation" may need repeating in very low temperature must. Add immediately to must or juice that is room temperature. Our juices and some grapes have been refrigerated. Let them come up to room temperature before inoculation.

Temperature

Temperature for your fermentation is best at around 55-70-80 degrees F. Quite a range, isn't it? Fermentation itself produces heat and the winemaker needs to pay attention

to a high temperature created by the fermentation that can actually stunt the yeast. Reds ferment better at higher temperatures, but monitor the fermentation temperature in that it should not go over 85 degrees F.

It is recommended that white wines ferment at a lower temperature if possible, to retain fruit and esters (55-65). The air temperature next to a carboy is not the same as the interior temperature of a fermenting must or juice.

Oxygen
In order for yeast to grow, reproduce and get started, they need oxygen. Do not hesitate to shake a yeast starter. It needs to be aerated for the yeast culture to expand. If the juice in your carboy was poured in with splashing, that air will help the yeast expand after it is "pitched" or introduced to the juice. After the yeast has enough of a population to start the fermentation, oxygen is not needed nor desired.

When the fermentation is under way, an airlock placed in a bored bung on top of the container will permit the escape of CO2 produced by the fermentation without allowing oxygen back in. Fill your airlock ½ full of water and replace the dust cover. The cover on airlocks does not provide a tight seal. It allows CO2 to escape and prevents fruit flies and other foreign objects (pebbles and toy soldiers) in. Oxygen is not desired in your wine from this point on, unless you are making a sherry or vinegar. Once the primary fermentation activity is over, rack and top up; OR if the primary fermentation is very slow and low foaming, the fermenter may be topped up to a higher lever to prevent oxidation.

Sulfur Dioxide SO_2

Sulfur has been used in winemaking since Roman times. It pointed nature in the right direction of making wine and not vinegar, at least, not at first.

Potassium Metabisulfite, "Meta", is an anti-oxidant and anti bacterial additive. The recommended rate is 20 to 40 for reds and to 80 ppm for whites. The lesser amount is recommended for reds, as it has bleaching characteristics. "Meta" is added at racking. Racking is the transferring of wine via siphon to a clean container. Meta can also be used for cleaning and chasing chlorine rinses.

Red wine is dosed with Meta at the rate of 1/8 teaspoon per 5 gallons.
White wine is dosed with ¼ teaspoon per 5 gallons.

Do NOT use at a high rate, if planning malolactic fermentation. The sulfur level must be 10-20 ppm or less for malolactic bacteria to survive. If you are planning malolactic fermentation and are comfortable without its use, then go without.

TITRETS determine the sulfite in (white) wine. This simple test will indicate the free SO2 and allow you to make a decision if the SO2 is where you want it to be for the use of a malolactic culture (10 ppm) or for the use of Sorbate (40-80 ppm). Do not use the Titret test if ascorbic acid has been used in the winemaking process.

Campden Tablets are a tablet form of Sodium or Potassium Metabisulfite for use in small lots. One tablet is 75-120 ppm in 1 gallon. We have seen ratings using both numbers. It makes us wary. Read the label and add recommended rate by ppm, which is 20 to 40 for reds and to 80 ppm for whites. Some winemakers start with 50 ppm. Pay attention to the label on Campden tablets.

Sulfur Strips need a hole in them to insert a piece of wire (picture hanging wire, etc) long enough to reach the center of the barrel. Used for dry storing a barrel. Should re-burn monthly if storing a dry barrel.

The winemaker controls the fermentation environment.

The role of the winemaker to:
Measure sugar and acid, pH. Adjust, monitor, and control

FIRST: Clean, Clean, Clean. All vessels used for winemaking must be clean. There are many commercial cleaners for the amateur winemaker. Use label instructions. IF you use Chlorine (Clorox ^{tm}), rinse well with cold water and rinse with a solution of Potassium Metabisulfite of 1 teaspoon per quart of water. You may use the Citric-Meta solution to disinfect, also.

For Cleaning with Sodium or Potassium Metabisulfite and Citric Acid Cleaning solution: **Caution: Be careful of fumes!** Tom likes to use 300 ppm of meta and 1% solution of Citric Acid. In one gallon of water he dissolves 1 1/3 ounce of citric acid and adds 1/2 teaspoon of meta. Some instructions recommend equal parts. **Dissolve the citric acid in water first. Then add the Meta. When you add the Meta to the citric acid solution be careful where your nose and eyes are. Sudden fumes can be over-powering.**

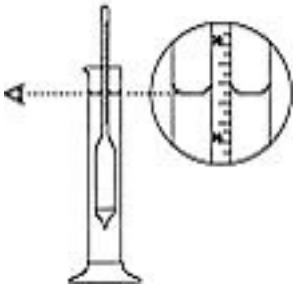
Making Wine…..
To make 5 gallons of wine from juice requires about 5 ½ to 6 gallons of juice. Grape yield is 12-13 pounds per gallon, if fermented on the skins OR 15 pounds of either red or white grapes per gallon if cold pressed.

Measure the initial sugar or brix. Measure, calculate and add your sugar, stir.
The most popular testing item for brix is the triple scale hydrometer. The triple scales on this hydrometer are specific gravity, potential alcohol and brix or balling, which is the sugar percentage.

A stable wine has 9 to 14 percent alcohol. In order to achieve this level of alcohol, the juice or fruit to be fermented must have an adequate sugar level. General conversion of sugar to alcohol is approximately 58% (0.575%~). A brix of 21 degrees yields around 12% alcohol.

View the hydrometer floating in the juice sample at eye level. Take the reading from the bottom of the meniscus (see illustration below) of your selected scale. In addition to the

Brix scale, a triple scale hydrometer offers a scale for specific gravity and one for potential alcohol.



Hydrometers are calibrated for different temperatures. Check your hydrometer and the enclosed instructions for calibration temperature that the hydrometer is calibrated for and the follow instructions for correction.

TEMPERATURE *ADJUSTMENTS*: Most hydrometers are calibrated for a sample of a certain temperature and will give adjustment factors with the instructions.

Brix test is a measurement of dissolved solids in a juice/wine being tested. Should there be any alcohol in the wine sample, the test would be properly called a Balling. The alcohol in any initial test needs to be none 0, else it is NOT the initial brix. The actual testing procedure is, however, identical.

1. Take the temperature of the sample. Adjust the temperature required as indicated on the hydrometer stem or plan on making adjustments after taking the reading. If the sample contains any carbon dioxide gas, the gas should be removed by careful agitation. 2. Pour

the sample into clean and dry hydrometer jar up to about 2 inches from the top. If your jar is not dry, rinse it with some of the juice.
3. Insert a clean and dry hydrometer, holding the top of the hydrometer stem in a pendulum effect (weighted end down).
4. Spin the hydrometer in the sample. This helps to release any trapped CO2.
5. Read the instrument at the bottom of the meniscus (see illustration above).
6. Retake temperature immediately and make necessary adjustments.

Adjusting the sugar:
The rates given in the chart below are subject to rounding off to the nearest tenth. The rates are for pounds to add to 1 gallon.

Fact: .125 pounds of sugar will raise 1 gallon 1 brix or degree.
One ounce is .0625 pounds.
Dextrose (Corn Sugar) 1 pound is ~ 3 cups

Sucrose (table cane sugar) 1 pound is ~2 1/4 cups
Honey: 5 pounds of honey is equivalent to 4 pounds of cane sugar.

To calculate sugar adjustment to 21 brix using straight math:
We use corn sugar (dextrose), as it is a simple sugar ready for yeast consumption and its powdered form dissolves easily.

Take the initial Brix reading of the juice with a hydrometer. Compute the increase in brix desired (i.e. 15 to 21=6^0). Estimate your gallonage after fermentation based on 12-13 pounds of fruit per gallon. Approximate yield from 65 pounds of grapes (fermented on the skins) will be ~5 gallons.

Multiply the increase of brix desired (6) by the number of gallons to be adjusted, which is 5 gallons (5gal x6 brix=30 total brix).
As 0.125 pounds of sugar raises 1 gallon 1^0 brix, multiply this (30) by 0.125. That number will equal the pounds of sugar to add to the entire batch of must (or crushed grapes) or juice. The amount of sugar to add for this batch (30 X .125) is 3.75 pounds.

Three (3) cups of corn sugar is approximately 1 pound (no heating required to dissolve) and 2 1/4 cups of cane sugar is about 1 pound. Add the required sugar. If you use cane sugar it is recommended to heat it in some of the juice. The heat and acid will convert it to a simple sugar. Sucrose breaks down to glucose and fructose.

(Honey Five pounds of honey = 4 pounds of sucrose, cane sugar. Retest brix.)
If you use honey, it may be recommended to boil and skim the top off of the boil to remove impurities from the honey sweetened juice mix.

Our Sugar to add (pounds) per Gallon Chart is on the following page.

Pounds of Sugar to Add per Gallon for							
Desired degrees Brix in green							
Starting Brix	**21**	**21.5**	**22**	**22.5**	**23**	**23.5**	**24**
11.5	1.2	1.3	1.3	1.4	1.4	1.5	1.6
12.0	1.1	1.2	1.3	1.3	1.4	1.4	1.5
12.5	1.1	1.1	1.2	1.3	1.3	1.4	1.4
13.0	1.0	1.1	1.1	1.2	1.3	1.3	1.4
13.5	0.9	1.0	1.1	1.1	1.2	1.3	1.3
14.0	0.9	0.9	1.0	1.1	1.1	1.2	1.3
14.5	0.8	0.9	0.9	1.0	1.1	1.1	1.2
15.0	0.8	0.8	0.9	0.9	1.0	1.1	1.1
15.5	0.7	0.8	0.8	0.9	0.9	1.0	1.1
16.0	0.6	0.7	0.8	0.8	0.9	0.9	1.
16.5	0.6	0.6	0.7	0.8	0.8	0.9	0.9
17.0	0.5	0.6	0.6	0.7	0.8	0.8	0.9
17.5	0.4	0.5	0.6	0.6	0.7	0.8	0.8
18.0	0.4	0.4	0.5	0.6	0.6	0.7	0.8
18.5	0.3	0.4	0.4	0.5	0.6	0.6	0.7
19.0	0.3	0.3	0.4	0.4	0.5	0.6	0.6
19.5	0.2	0.3	0.3	0.4	0.4	0.5	0.6
20.0	0.1	0.2	0.3	0.3	0.4	0.4	0.5
20.5	0.1	0.1	0.2	0.3	0.3	0.4	0.4
21.0	0.0	0.1	0.1	0.2	0.3	0.3	0.4
21.5		0.0	0.1	0.1	0.2	0.3	0.3
22.0			0.0	0.1	0.1	0.2	0.3

Retest your adjusted and well-mixed juice.
The initial brix or specific gravity figure is important, **please record**.
If your juice has already been fermenting, the reading you take will not be the initial brix. If your supplier knows the initial brix, record that figure for the initial brix and go with that.

Acid (TA total acidity) is expressed as tartaric.
The ideal total acidity of a **finished** wine ranges from about 0.6% to 0.8%, expressed as tartaric acid (TA). A fresh juice should run 0.1 to 0.3% higher because some acidity is lost by the completion of the winemaking process (fermentation and cold stabilization). The ideal start TA for still wines is .70 with ranges to .85 and 1.1 or higher for very sweet, late harvest or dessert wines.

This test will permit you to make prudent corrections with unbalanced musts or wines and to indirectly observe the progress of Malolactic fermentations as well as spoilage by vinegar production. Vinegar production is marked by an increase in acidity in the wine.

Retyped from **Wine Analysis Bulletin, by Harold E Applegate**, with permission from American Wine Society
http://www.americanwinesociety.org
Total acidity as tartaric acid in must or wine:
Reagents: 0.1Normal (N/10) sodium hydroxide (NaOH)
1% phenolphthalein in 95% ethyl alcohol
1. Must or white wine: First clarify the must or wine by filtration through Whatman #1 filter paper or by centrifugation. (We use cheesecloth.) The latter method is a fast and most efficient method for those who can afford a small clinical centrifuge. Add 5 ml of must or wine to 75 ml of boiling distilled water followed by 5 drops of phenolphthalein indicator. Agitate well and continuously. Titrate with N/10 NaOH to the faint pink endpoint stable for at least 1 minute.
Volume of NaOH used X (times) 0.15 = grams of acid/100 ml of must or wine.
2. Red Wine: Add 5 ml of red wine to 75 ml of boiling distilled water and with adding the indicator, titrate with N/10 NaOH until the solution is blue-green in color. Now add 5 drops of phenolphthalein indicator and complete the titration to the pink endpoint. The endpoint is very tricky and requires practice. One way to avoid the difficulty is to stir the red wine vigorously with a little bone charcoal and clarify as done initially. The resultant decolorized wine is then used as a white wine. Use the same equation that was used for white wine to calculate the result. (**End of AWS excerpt**)

For red wine (and white also) Tom will filter the juice or wine that he is taking the sample from through multiple layers of cheesecloth, drawing his 5 ml sample with a pipette or a syringe. He uses a graduated beaker or a white interior container for the test. The use of boiled or hot distilled water drives off any CO_2 that may be in the wine/water. CO_2 present in the sample will give a false reading. CO_2 is less soluble in hot than cold and will go off. The amount of water for the test is not important. 75 ml is fine for a white wine test, but for a red wine he uses 150 ml of water to dilute the color. Very dark red wine is almost impossible to do without a pH meter.

When titrating a red sample without a pH meter, Tom adds the 5 drops of phenolphthalein when his sample turns a tinge of green and holds for a while. The end point then is very near and is easier to see.

He uses the pH meter to determine the end point in red samples. If using a pH meter, the color indicator is not even necessary. So he titrates and agitates the sample with the pH meter probe in it. The pH endpoint is 8.2. Isn't that wonderful? Plus we have a magnetic stirrer and a self-leveling burette that we picked up used from a lab. These tools definitely make the task easier. Tom and several of our winemakers use 8.2 as the end point when testing with use of the pH meter. 8.2 is the end point of the color indicator, phenolphthalein.

(I have in the past indicated the end point as 8.4, which was in text of Technology of Wine Making by Amerine, Berg and Cruess, AVI publishing Co. 1972)

To calculate the acid reading (tartaric) TA, multiply the amount of NaOH used by 0.15. **Record your test results**. If the sample is 0.3 or 0.4 TA, then acid needs to be added. We recommend using tartaric. If there is an over-correction, it can be reduced by cold stabilization later. If the sample is 1.1 and you are making a dry table wine, the TA needs to be reduced by various means.

1. Water
2. Acid reducing agents, such as calcium carbonate while the juice is still fresh or potassium bicarbonate after fermentation and/or
3. Cold stabilization.

If the sample is 1.1 or higher and you are going to finish sweet, the TA will be ok.

Add Potassium Metabisulfite initially to prevent bacterial contamination.
If using grapes, we recommend adding 1/4 teaspoon per 30-35 pound box of grapes at crushing time. Juice may already have sulfur added, inquire or know. If there is none, it is recommended to add it initially, even before inoculation. If it was added at crushing and then pressed, there is no need to re-dose the Meta. Use label recommendations.

Inoculate with your chosen yeast 1-2 days after adding sulfur.

Fill your fermenter (container carboy, food grade bucket or pail) with juice or crushed grape "must". Crushed grapes go in the bucket, never a carboy. If using a carboy, which is a gallon-jug-shaped glass or PET wine safe plastic carboy, fill the juice to the shoulder. Place the balance of your juice in a gallon jug or spit the juice between two carboys. The initial or primary fermentation needs a little headroom for activity.

Make a yeast selection based on the properties of the yeast and your desired results in the wine type or finish.

The least you need to do with yeast preparation is to re-hydrate the yeast as indicated on the back of most yeast packs. Re-hydrate with non-chlorinated water. We prefer distilled water for this task. Add the dry yeast to ¼ cup or about 50 ml of warm, not hot water: 40-43 degrees C or 104-109 degrees F. Temperature recommendations may vary by brand or type of yeast. Let stand for 15 minutes without stirring, and then stir well to

suspend all the yeast. Add to previously sulfited must or juice. The yeast will start expanding and will disperse.

Another way to prepare your yeast: **Go-Ferm is a micronutrient for the yeast re-hydration process. It is not a nutrient for the juice.** Add GoFerm to 2 ounces of warm NOT HOT distilled water (43°C or 110°F) at the rate of 6.25 grams (or 2 teaspoons) per pack of yeast. Mix well, allow it to cool to 104 degrees F (40degrees C) and THEN sprinkle the yeast on top of the water-GoFerm mixture. Let stand for 10-15 minutes without stirring, and then stir well to suspend all the yeast. Let stand for another 15-30 minutes. Stir gently again. Combine an equal amount of must or juice to be fermented. This will help the yeast to adjust to the cool temperature must. This "atemperation" may need repeating in very low temperature must. Add immediately to must or juice that is room temperature. Our juices and some grapes have been refrigerated. Let them come up to room temperature before inoculation.

Yeast may also be expanded in a starter. This starter uses 1 pack of yeast for inoculating multiple containers.

Tom Mitchell's short cut starter: Yeast starters take about 2-3 days to fully expand. If you wish to use GoFerm, follow the above procedure. When the yeast re-hydration process is completed, add to equal amounts of sterile grape juice and distilled water, shake to aerate. It will take up to two days to become active. Make up however much you want. (A 5-gram pack of yeast is rated for 5-7 gallons and yet a starter made with one pack of yeast in a volume of 3 quarts will inoculate much more than 5-7 gallons.)
Add to previously sulfited must or juice (after a couple of days).
The yeast will start expanding and will disperse.

The time from inoculation to the start of visible fermentation is called lag. The lag time ends when the fermentation starts.

THE END OF LAG IS THE TIME TO ADD ½ DOSE OF YEAST NUTRIENT SUCH AS FERMAID K.

The fermentation itself is anaerobic. After inoculation the water trap or a water-filled airlock is placed in a bung or grommet on the fermenting vessel to allow CO2 produced by the fermentation of the sugars to escape through the water without allowing oxygen to enter. The fermentation is now anaerobic, not needing oxygen. The resulting CO2 provides a blanket on top of the wine and protects the wine from oxidation. (Oxidation of wine results in a browning and off flavor). As long as the fermentation is active, the wine is protected from oxidation by the CO2. Once this ceases or the fermentation slows down, you may top up the vessel to finish the initial fermentation or when a line of sediment (lees) is present, you may rack (transfer to a clean container via siphon) and adjust the sulfur and top it up. If you did not have extra juice for topping, you may use wine.

There are many size bungs to hold airlocks and bungs and grommets for bucket lids. One size does not fit all, but the plastic airlocks and the bungholes for the airlocks are pretty standard.

Review temperature desired and keep track of temperature.

Grape fermentation: **Use quality fruit.**

Crush and De-stem. 10-25 percent of stems in the must are ok. They are a source of tannin. (We like fewer stems.)
Recommended initial **TA** is .7 to .85 Test a sample.
Initial sugar or brix should be 21 to23%. Take a sample and test. See Sugar adjustment by calculation or chart.
General conversion of sugar to alcohol is approximately 58% (0.575%~)
Re-hydrate the yeast and add to room temperature grapes ("must").

This is a good time to add wood chips or sticks to soften tannins. OR
Wood chips or sticks may also be added after pressing. Ferment 1-2 weeks.

Add ½ dose of the juice nutrients to must or juice at the end of lag, which is the start of the fermentation. Add the second half of the dose at 1/3 sugar depletion.

Every day during fermentation you have to push the skins down, as they float and form a cap. This blends the skins with the resulting juice/wine, which extracts the color and flavors from the skins into the wine. Some recommendations are for pushing the cap down twice a day. Pressing prematurely before there is adequate alcohol to extract color may result in a light red even though you fermented on the skins. The usual time frame for skin fermentation is about 10-14 days.

Some varieties, such as **DeChaunac**, have a shorter recommended time for fermenting on the skins of only 5-7 days.

On the last day, leave the cap in place, siphon the juice from underneath via racking rod and siphon hose into a clean carboy, press the skins, adjust sulfite levels and continue the secondary fermentation, which is much slower in glass. Top up the carboy as much as whatever fermenting activity will allow (within 1 inch of the bung). The primary fermentation has finished, so there probably will not be much activity.

Wines fermented with Red Star Cotes des Blanc or Premier Cuvee and all of the Lalvin yeast may be topped up sooner due to the low foaming nature of this yeast. Ferment 1 to 2 months more.

Rack when bubbling has ceased or has become very slow and a definite line of sediment (lees) shows. Sulfite and fine as necessary. Top up the new vessel with a compatible wine to within 1 inch of the stopper. We do not recommend topping up with water. Water will throw off the acid structure and change the brix or residual sugar.

Grape Juice Fermentation

Recommended initial **TA** is .7 to .85 Test and adjust if necessary.
Initial sugar or brix should be 21 to23%. Adjust the sugar by calculation or chart.
General conversion of sugar to alcohol is approximately 58% (0.575%~)

1. Our juices are sulfited; **no additional sulfite should be added prior to fermenting.**
2. To ferment take the level of the juice down to the shoulder of the carboy and equip with an airlock ½ filled with water. The balance of the juice may ferment in a glass gallon jug with an airlock. You may ferment the full volume in a fermenting bucket.
Juices from Fall Bright are refrigerated. Warm to room temperature by waiting 24 hours to avoid cold shock to the yeast.
3. Re-hydrate the yeast with water according to packet instructions (no longer than 10 minutes as there are no nutrients present) or with GoFerm per instructions.
4. Add yeast to room temperature juice to avoid "cold shock". Do not stir
5. Add ½ dose of Fermaid or DAP just as the fermentation begins. Add second half of the dose at 2/3 sugar depletion.
6. Ferment 1 to 2 weeks or until a definite line of sediment is evident. Transfer via siphon to a clean container, add proper metabisulfite: 1/8 teaspoon per 5 gallons of red and ¼ teaspoon per 5 gallons of white wine and top up with the reserved juice and/or wine from your cellar to within 1 inch of the stopper. This transfer is called racking.
7. Ferment 1 to 2 months more. Rack when bubbling has ceased or has become very slow and a definite line of sediment (lees) shows. Add proper metabisulfite. Top up the new vessel with wine to within 1 inch of the stopper.
8. Rack, sulfite, and fine as necessary.
9. Wine should be brilliant, having fallen bright.

Post –fermentation:
Racking is the transfer of wine to a clean container siphoning off the lees for the secondary fermentation. We generally rack 3-5 times and add meta each time.

Topping up is necessary to minimize the surface area of contact with oxygen. We top up with wine, not water! You may use extra juice or grapes purchased and fermented for this purpose or commercial and compatible wine. Secondary fermentations need to be topped.

Temperature control is necessary to optimize the fermentation. If it is too cool, it will stall, it too hot, the yeast will perish.

Secondary fermentation is a slow, slow fermentation of what sugars are left after the fast and aggressive initial fermentation. Bubbling will be much slower. This takes 4-6 months.

Malolactic culture is used primarily for traditional finishes on Chardonnays and many reds. Malolactic bacteria consume lactic acid present in the wine and convert it to lactose. The

recommended inoculation time is near the end of or after the alcoholic fermentation is completed. Optimum alcohol level is below 14%.

Do not use citric acid or EC-1118 if you are planning malolactic fermentation.

SO_2 levels: Total SO2: less than 30 ppm (Do not exceed 40 ppm) Free SO2: less than 10 ppm

IDEAL: NO SO_2, when wine conditions allow. Use quality fruit, no rotten grapes!

Fermentation: Ensure sufficient level of nutrients for the yeast fermentation.

Select yeast with low SO_2 production. To minimize the risk of starter culture failure due to inhibition by yeast and production of large amounts of acetic acid or SO_2, do not use citric acid or EC-1118.

The **recommended inoculation time** is near the end of or after the alcoholic fermentation is completed. Optimum alcohol level is below 14%.

- Do not add during active yeast fermentation.
- pH: Malolactic starter cultures perform best in wine of greater than pH 3.1.

- Wine Temperature: Performance is best achieved in wine temperatures greater than 16°C or 61°F. Temperatures below 14°C (58°F) strongly inhibit MLF.

Temperature for storage of culture: Unopened freeze-dried cultures may be stored in the refrigerator at about 35 – 39°F (2-4°C) up to 6 months. Long-term storage is possible in your freezer at below 7°C or 30°F. Once opened it must all be used.

Oak

French OakPLUS chips are a smaller chip with a MEDIUM toast.

French OakPlus Medium Toast chips provide complex, pleasantly mild and delicate toasted oak characters and aromas of vanilla, caramel, chocolate, hazelnut, oatmeal with honey, graham cracker, with a touch of cinnamon and nutmeg. The flavors provide sweetness, creaminess and roundness to the mouth feel with a lingering non-aggressive toast character.

French OakPlus Chips take 8 weeks for full extraction but 5-6 weeks could be sufficient. Due to the length of time required for extraction, add these chips after the primary extraction. If you want to use them in the primary fermentation of grape must, put them in a grain or hop bag for retrieval or forfeit them when you press the must.
Usage rate: is 3-10 grams per liter of wine. We recommend trying one sample with 3 grams, one sample with 6 grams and one sample with 10 grams to determine the different intensities of our flavors and aromatics.

1 ounce is 28.35 grams
1 gallon is 3.78 liters
5 gallons is 18.9 liters

French OakPlus chips:
3 grams per liter rate for 5 gallons would be 56.7 grams or 2 ounces.
6 grams per liter rate for 5 gallons would be 113.4 grams or 4 ounces.

OAK MOR
If you forgot to oak your wine and you are almost ready to bottle, use oak mor, as this product is small saw dust like particles. It will impart about 90% of the taste in 24 hours. You will be able to taste and re-dose again as needed. It settles nicely for racking. Guide-line for use is 19-38 grams per 5 gallons of white wine or 0.7 to 1.4 ounces per 5 gallons.
Usage for red wine is 38-95 grams or 1.4 to 3.4 ounces per 5 gallons of wine. 1 level Tablespoon is about 3.3 grams
8.5 Tablespoons are about 1 ounce.

Wine Stix™ for Carboys
(Peter DeVivi Productions, Inc.)
Peter DeVivi begins with American White Oak, properly seasoned and toasted to perfection.

The unique WineStix™ design allows the impact of short grain exposure (as in beans, cubes and spirals) and the complexity of long grain exposure in the same piece of wood. Not more oak, just more complex and subtle results!

One stick per 5-6 gallons, packaged as 2 Wine Stix™ per sleeve of the same toast level. The ends are drilled for use with monofilament line to suspend into the vessel.

Wine Stix™ for Carboys: Four toast levels:
Light: light vanillin, almonds, coconut, fresh oak
Medium: more vanillin, caramel, roasted nuts, hints of spick, cinnamon
Medium Plus: light chocolate, roasted coffee, spices, nutmeg, honey
Dark Toast: caramelized, toasted oak, dark chocolate, subtle black pepper

Impact time 2-3 months, useful two seasons.

Easy clean up, there are no clogged pumps.
When done, scrub off tartrates and dead yeasts with a stainless steel brush, rinse with clean water, tightly double wrap in plastic wrap and freeze until needed again or transfer to another carboy.

Tannin is present in grape stems, skins and seeds and we do not usually need it in a bottle for cool climate winemaking! The recommended rate of use of adding tannin for flavor in other wines will vary with recipes.

(Dark powder) We generally use tannin for flavor rather than for fining. Tannin is present in grape stems and is not often a required additive. However, if you add too much or if your wine is naturally too high in tannin, it can be removed with the use of gelatin at the rate of 2 grams per 5 gallons of gelatin only.

To remove excess tannin from a red wine, fine with gelatin without adding any additional tannin. The attraction between gelatin and tannin is great for a red wine that has too much tannin.
For fining white wines with gelatin.
Add equal **weights** of tannic acid & gelatin (**please note that our tannin is NOT white, but dark in color**).

Red or white rates of use.
2 grams per 5 gals of each: Tannin (dark) or Tannic acid (white) AND GELATIN..
Dissolve tannin or tannic acid in hot water. Add during racking.
Follow with gelatin that has been dissolved in some warm water. Add to wine.

Mix well. If haze occurs, chill wine and add 1-2 grams more of tannic acid.
2 grams. tannic acid = 1 1/4tsp. 2 grams. gelatin = ¾ tsp.
Fining or clearing a wine. You wine may clear on it's own, but if not, you may fine.

Note: Fining agents are more efficient in clearing wine when a sediment base exists. It is very important to properly prepare the fining agent and to mix the agent thoroughly with the wine or beer and the sediment.

Negatively charged fining agents such as bentonite will attract and bring together particles having a positive charge. Agents such as isinglass and sparkolloid will attract negatively charged particles. This process allows for the molecular weight structures of the particles to become larger. Larger and heavier particles fall to the bottom of the carboy when their mass becomes large enough. **If the fining agents do not find enough particles to join together into larger particles (which will fall out) then the clarification process stalls.**

Small particles on their own remain suspended and the effectiveness of the fining agents is reduced. If your fining stalls, then it is time to filter.

Bentonite has a negative charge. Bentonite is best added immediately following the completion of the primary fermentation. Wine with a high pH will require more bentonite to obtain the same results as less bentonite at a lower pH. Use rate is 2.6 to 4.5 grams per gallon. (2.6 grams of granular Bentonite is about 5/8 teaspoons) Mix Bentonite with 5 ounces of water. Let stand overnight or for at least 2 hours. Mix some wine back into the slurry and add to the wine. This is fast acting. You can probably rack in 24 hours.

Egg White is used only on red wines. Using 1 egg per 5 gallons, separate and discard yolk, add a pinch of salt and 100 ml. or a ¼ cup of water and stir well. Add to wine, stirring.

Rack within two weeks to avoid off flavor problems.

Allergies to egg albumin must be taken into consideration in using this old time fining process.

Gelatin has a positive charge and precipitates with negatively charged **tannin**. It is excellent to reduce tannin. Sprinkle 2 grams or approximately 3/4 to 1 teaspoon of gelatin per 5 gallon onto a small amount of water or wine, soak for 5 minutes, warm until dissolved but avoid excessive heat. Allow it to dissolve and cool before adding to the wine. Add to the wine. Allow 2-3 weeks to settle. There may be slight color loss.
Gelatin is usually not recommended for white wine as it requires tannin to work and most whites are low in tannin. If using for whites or beer, during a racking process, first add 2 grams of tannin or Tannic Acid (about 1 heaping teaspoon) per 5 gallons dissolved in a small amount of wine or water. After racking add 2 grams of gelatin per 5 gallons, which has been dissolved in hot water and allowed to cool.

Irish moss (Chondrus Crispus) is used to settle out protein-tannin complexes in beer wort. Add recommended rate per recipe during the last 15 minutes of the boil. Irish moss is very effective.

Isinglass, having a positive (+) charge, is used at the rate of 15-40 milligrams per liter in beer or white wine. Dissolve (usually sold pre-measured for 10-12 gallons) in ½ pint of water, shake vigorously for a few minutes. Let this set for an hour and then add another ½ pint of water. Shake again and keep cool or refrigerated, allowing it to set for a day or two before using. Mash lumps with a brush and strain through a cheesecloth or a tea sieve before adding. Follow manufacture's instructions. Isinglass is a made from Sturgeon (fish). We sell Biofine, which is dry and is made up as needed. Pre-prepared Isinglass has a short shelf life.

LQ Super-Kleer KC Finings: Liquid clearing agent with a one-two pouch combination of Kieselsol and Chitosan, creates both strong negative and positive charges in the wine, allowing for faster and successful clearing. It is added directly to the wine followed by thorough stirring.

Add Kieselsol to carboy of wine, etc. Stir gently. Wait an hour. Dissolve Chitosan in 1 fl. oz of warm water. Add to carboy of wine etc. Stir gently. Attach airlock and bung. Clears wine, etc. brilliantly in 12-48 hours. May not clear pectin haze or products made with hard water. One package is sufficient to clear a 5 or 6-gallon batch of beer or wine in ***two days.***

CAUTION: Chitosan is a shellfish derivative. (We have read that this is not an issue if you are allergic to shellfish, however, it may warrant concern. Marcy)

Chitosan comes from shellfish – it's actually derived from chitin, a natural polymer found in the shells of shellfish and crustaceans. Allergic reactions come from the proteins of the shellfish organism, not from the shells.

Any residual shellfish proteins that may have been left on these shells are completely removed during the process of transforming chitin into chitosan. Plus virtually all traces of

chitosan are removed from the finished wine after the chitosan drops out of the must during the clearing process by means of racking and/or filtering.

So, the origin of chitin, the process of creating chitosan and the limitation of the chitosan means that, even those with shellfish allergies can use chitosan with confidence.

However, as with any serious allergy issue, talk to your doctor first or request a test for chitosan. There may be concerns of processing equipment being used on the actual protein of the shellfish, such as cautions on some nut products that are processed in plants that process peanuts, etc.

Sparkolloid is a polysaccharide in a diatomaceous carrier with a positive charge. It does not strip color. For 5 gallons dissolve 2.3 grams (1 ¾ teaspoon) in ½ cup of boiling water, if the sparkolloid is a **hot mix**. Simmer about 15-30 minutes until mixture is smooth and creamy. Replenish water if necessary, may agitate in a blender. Add some wine to thin and add to the wine while still hot. Agitate well. Wait 1-2 weeks for settling.

Sparkolloid Cold Mix also contains diatomaceous earth and alginates. Use ½ teaspoon per gallon. Mix required amount with a small amount of cold water. Stir well until solution is smooth and creamy. Add mixture to the finished wine and stir. Let settle for one week or more, then rack or filter. Cold mix sparkolloid may be used for juice or wine.

Pectic enzyme: MUST use with other fruits and highly recommended with grapes.

Pectic enzyme Powdered instructions indicate a usage rate of 1/2 teaspoon per gallon with no differentiation for the different fruits. **Store at room temperature**.

Pectic enzymes hydrolyze and depolymerize (break down) the naturally occurring pectin in grapes and other fruits. Resulting juices and wines have improved rates of pressing, settling, clarification, fining and filtration. Added at crushing, it releases juice from the pulp, increasing both free-run and total juice yields at any given level of pressing effort.

Enzyme activity doubles with each 10°F rise in temperature with maximum activity at about 140°F. It has thermal stability within a range of 25° to 140°F (-4° to 65°C). It is stable within a pH range of pH 2.5 to pH 6.5. Refrigerate, if liquid, as optimum storage temperature is 41 degrees F (5°C). It will lose 15% to 20% of its strength per year if not refrigerated during storage, but only about 3-5% if refrigerated.

If cold pressing, calculate the gallonage at 15 pound to the gallon. **Let set on enzyme 4-8 hours** before pressing. **Cover the fruit with clear plastic to minimize oxidation**. There are about 20 drops in 1 ml and 28 ml in 1 ounce or ~560 drops. **Refrigerate liquid pectic enzyme**.

Pectic enzyme **Color Pro**: SCOTTZYME COLOR PRO *Refrigerate* 1 fl. oz. Approx 600 drops per ounce. 30 drops = 1 ml from our squeeze bottle. We also have a different size plastic syringes that work for measuring ml.
Dilute to 10% solution in distilled water to add.

Crushed red grapes 60-100 ml/ton:
1 ml (30 drops) per 20-33 pounds, 9-15 drops per 10 pounds
Red Juice: 125-150 ml/1000gal 4-5 drops per 5 gallons BEFORE FERMENTATION
Red Wine: 150-300 ml/1000gal 5-9 drops per 5 gallons BEFORE FERMENTAION
Crushed white grapes: 15-20 ml/ton: 2-3 drops per 10 pounds.
White Juice: 50-60 ml/1000gal: 0.5-0.6 ml per 10 gallons, 15-18 drops per 10 gal, 7-9 drops per 5 gallons.
White Wine: 100-200/1000gal: bench trial recommended: 1 ml to 2 ml per 10 gal,
30-60 drops per 10 gal 15-30 drops per 5 gallons

Use the upper rate for American varieties and other fruits.

On the press deck Tom uses pectic enzyme. He has been using Zyme-O-Clear and Color Pro. I don't sell the Zyme-O-Clear to the amateur, as the rate per ton is so low it is hard to measure for gallons. Tom uses 2-5 ml per ton for this item.

Color Pro is better suited for the amateur, as it requires more per ton.

PVPP or Polyvinyl-polypyrrolidone, alias Polyclar, reacts with tannins and phenols, **reducing browning** due to a strong affinity for catechins. It removes color in both red and white wine. Used for wine and beer. Polyclar may be added during primary fermentation or to a finished wine or beer at the rate of ¼ ounce per 5 gallons for red wine or beer and ½ ounce per five gallons of white wine. The lesser amount is suggested where color loss is a concern. Make slurry of the required rate with a small amount of wine or beer, allow it to sit for 1 hour and add directly. Agitate well. Proper potassium metabisulfite should be added at the same time. Stir vigorously several times during the first hour. Wine may be racked or filtered after 24-48 hours and bottled any time after that. Filtration is highly recommended for separation.
Polylact from Laffort USA (Scott Labs pdf for rate use information)
Polylact is a blend of PVPP and casein in a cellulose base from Laffort USA. Polylact acts evenly on all types of phenolic compounds and can be used as both a curative and a preventative against browning and pinking in white wines and musts.
The rates below are for Polylact.
Curative Usage rate: 0.3-0.7grams/L (5 gallons is 19 liters)
Prevent Oxidation: 15-30 grams/hl = 0.15-0.30 grams/L (such as use on a white wine that will be exposed to long or extreme storage conditions.)

Reference for fining summaries above: Winemaking Basics (Ough), Technology of Wine Making (Amerine), Brew King News and product instruction label from Fall Bright.

Filtration

Filtering tips: Muddy looking wines should NOT be filtered, rather they should be clarified with proper fining. Check the brix, TA and pH. Make necessary adjustments and additions such as SO_2 and Sorbate. Fine and cold stabilize prior to filtration. NOW you are ready to filter!

Coffee filters and milk filters do not work well for wines. There are gravity feed units and manual pump units, but we have come to the conclusion that if you were going to filter, you would be better off using a motorized pad filter. Buon Vino has 2 affordable (sort of) filter units for the amateur winemaker. The Mini Jet and the Super Jet range in price from 200-400 dollars. The mini jet will filter 5 to 10 gallons of wine at one time, after which a rest of 45 minutes to 1 hour is recommended to cool the motor. The Super Jet will do larger volumes with a gauge for determining the maximum use.

Sorbate (preservative)
My wine has "fallen bright" and hasn't bubbled in a long time. It taste slightly sweet, can I bottle it now?

Potassium Sorbate greatly inhibits yeast and is used as a preservative for sweet wine.

Test the sugar level, using a -5 to +5 hydrometer. If the reading is below a (negative) -1.5 degrees or -2 degrees brix, then the wine is dry and safe to bottle without sorbate. If the hydrometer reading is higher than a minus 1.5, such as a 0 reading or a plus 1degree, then there is residual sugar.

Add sugar to sweeten to taste AFTER you have added the sorbate to the wine that has had proper metabisulfite levels and is stable. Of course, if you add meta and sorbate, the wine won't be stable anymore and you are advised to cold stabilize. See instructions.

First the taste…
If you add sugar to sweeten to taste, use cane sugar (dissolve first) instead of corn sugar. Calorie for calorie there is twice the taste of sweetness with cane sugar. If there is residual sugar, both red and white wines should be treated with sorbate prior to bottling. Wine should be brilliant, having fallen bright.

Test the SO_2 level of the stuck or sweetened wine with a Titret SO_2 test kit. It should be above 40 (to 80) ppm. If needed, dose the metabisulfite to at least 80 ppm at about the same time you do the sorbate, but prior to.

If you have not been using Potassium Metabisulfite during the winemaking process, you may NOT be able to achieve the proper meta levels by adding it at this time. Re-run a Titret test to determine the ppm. Adjust the meta again, if needed.

If you do not have proper K Metabisulfite levels at the time sorbate is added and any malolactic bacteria are present, it will consume the Sorbate. The result is an off taste and an odor of geraniums for which there is no fix.

ADD SORBATE, at the rate of 1-2 grams per gallon: 1/2 teaspoon is approximately 1 gram. The density of sorbate is different from one supplier to the next. If you do not have a gram scale, you should probably dose at the higher rate of 2 grams per gallon, which would be approximately 1 teaspoon per gallon.

Now, you can cold stabilize. Put glycerin or sufficient alcohol (vodka) in the airlock to prevent freezing. Place the carboy at 20-25^{o} F for 2 weeks or more. Excess tartrates will

precipitate from the wine. This mellows the wine by reducing the acid. It will help stabilize the wine by preventing these tartrates from settling out after bottling. Rack into a clean carboy while cold, adding proper metabisulfite. Top up with wine. (If you don't have time to rack while still cold, it is ok. The crystallization of the tartaric acid will not reverse instantly but it will over time.)

If you added SORBATE and are not going to cold stabilize, allow 24 hours before bottling.

However, the addition of any potassium ion will make the wine unstable and this is why cold stabilization is recommended after adding sorbate.

If you do not want to use sorbate and have a sweet wine to bottle, use pressure safe bottles such as champagne or beer bottles. The residual sugar should be 2% or a difference of 1.000 on the +5-5 hydrometer.

Filter if desired and bottle when stable. Always rinse bottles with C, B Brite or a meta solution.

Stabilization, chill-proofing, cold stabilizing.

Have you ever opened a bottle of wine that was in the refrigerator to chill and there were crystals on the end of the cork? Those are tartaric acid crystals. If the wine is cold stabilized, those crystals settle out before you bottle. They are not harmful on the end of your cork or in the bottom of the bottle and they are not glass.

During January and February the cool climate winemaker needs to cold stabilize his wines. Cold stabilization reduces some of the acid. If you used Potassium Bicarbonate to reduce the acid, cold stabilization is part of the equation and you MUST cold stabilize.

Put glycerin or sufficient alcohol (vodka) in the airlock to prevent freezing. Place the carboy at 25-30^{o} F for 2 weeks or more. A temperature of 25-30 degrees F is safe temperature for the amateur winemaker dealing with glass as a container. The PET plastic Better Bottles are great for this. You could rig up an old freezer or refrigerator with a thermostat for this task. Tom uses a small out building that he has equipped with a thermostat connected to a heater, that will kick on at 26 degrees F. He runs a fan for air circulation

Cold stabilization may take several weeks or more. Dessert wines with higher sugar levels and higher alcohol will require lower temperatures and longer time.

Excess tartrates and bi-tartrates will precipitate from the wine. This mellows the wine by reducing the acid. It will help stabilize the wine by preventing these tartrates from settling out after bottling. Cold stabilization is also recommended after adding sorbate.

After you are finished with the cold stabilization, rack into a clean carboy, and add proper metabisulfite. Top up with wine. If you don't have time to rack while still cold, it is ok. The crystallization of the tartaric acid will not reverse instantly but they will over time. So don’t procrastinate forever.

Bottling: The amateur winemaker can use pressure safe champagne or crown neck beer bottles with crown caps and a capper. Some champagne bottles require a 29 mm crown cap and a 29 mm bell housing for the capper. He can use screw on cap-wine bottles or cork finish bottles. Corks, as natural corks, agglomerated corks and thermoplastic corks are available in smaller lots for the amateur. It is not recommended to re-use corks due to bacterial and other contaminations. Tools are necessary to put a cork in the bottle. Hand corkers and floor corkers are available. There are variations in neck and cork diameters that the amateur has to deal with.

If friends are saving bottles for you, they must rinse them, please. If they have a screw cap bottle, it is a good idea to save the cap. There are some odd size lids in our world. We carry the standard 28 mm screw cap and have some 30 mm caps.

Maturation (aging) We have concluded from years of making wine on an amateur scale, that wine ages better in the bottle. (Plus you can have a bottle of wine instead of stealing it off a carboy, leaving it with a large airspace.) The amateur attempting to age in a carboy has to keep close watch on jugs. The wine needs to be properly topped up. The airlocks cannot go dry. Bungs cannot come off. If he is aging in a barrel, the same is also true. Wine will transpire in a barrel and it will need to be topped up routinely. The airlock cannot be broken or bumped off or go dry.

Storage: Traditional storage of corked wine is sideways. This keeps the natural cork moist and prevents shrinkage. Higher humidity also helps to keep the corks from shrinking. Consistent cooler temperatures are recommended; so many wines are stored in cellars and caves. Darker bottles and darker storage areas protect the wine from light and help prolong wine life.

White fruity wines generally are best-consumed young, within 6 months to a year. White wines with less fruitiness, such as Chardonnay, will age longer. Red, more robust wines age longer well.

The pH is also a factor in aging wine. A finish wine should not be over a pH of 3.4 to allow for a longer shelf life.

High acid wines mellow with age and often the last bottle is the best. Once in a while a wine will go overlong, but most amateur winemakers do not have that problem often.

Now that you have some basic information, how many grapes or gallons do you need to get started?

Grapes will be crushed into your open top container (fermenter, bucket), never a carboy. Juice, if ordered, is ready to pump into your container. To start winemaking, you'll need...

Juice: 1/2 to 1 extra gallon of juice for yield of 5-6 gallons finished wine.
Juice: 5 gallons, topping up with finished wine from your cellar.
Five (5) gallons will yield about 2 dozen: 750 ml bottles.
Six (6) gallons will yield about 30 bottles 750 ml size.

Order red grapes at the rate of 12-13 pounds per gallon if fermenting on the skins.

If cold pressing red grapes prior to fermentation, you'll need 15 pounds per gallon.

Order your white grapes at the rate of 15 pounds per gallon. They should be cold pressed, but not while you wait. White grapes are not fermented on the skins. They oxidize too rapidly.

White grapes may be skin soaked (cold soaked) to extract flavor for a short period of time.

If you want a rose or pink wine, order some of both, red to color a white. Some red varieties lightly pressed will yield a rose. Merlot, Zinfandel, and Corot Noir can give a white or slightly blushed free run.

1 full bushel is about 40 pounds of whole grapes. Our picking boxes hold ~30 pounds level full.

GRAPES in the vineyard:
Use quality fruits for a quality wine
Grapes (and all fruits) are high in acids and low in sugar until ripening begins.

Rain at harvest time can actually dilute the sugars and flavors, and acids. In the 2011 we lost brix with a rainy harvest but the acids were very manageable! Rain at harvest can cause rot and spoilage on the vine.

Record Log suggestions on the following page

Type of wine:		Vintage year:	
Grape or juice variety		Source:	
Winemaker			
Date	Brix	TA	pH

Cellar Operations

Cellar operations	Date	Notes
Yeast variety:		
Sugar additions		
Acid adjustment		
Fining agents		
Cold stabilizing		
Racking date	SO2 dose	Topped with
Racking date	SO2 dose	Topped with
Racking date	SO2 dose	Topped with
Racking date	SO2 dose	Topped with
Final hydrometer reading	Date	
Filtered		
SO2 level		
Sorbate		

PROBLEMS??

Yes, you may have problems. Preventing Wine Faults

Oxidation: Oxidation is browning. Effects taste and eye appeal. Prevention by use of potassium metabisulfite, airlocks, and as full a fermenter as allowed.

- Cure is use of PVPP. Often used by brewers.

Cloudiness faults. Wine did not fall bright. Cloudy can be from lack of racking, from not using pectic enzyme or other fining agents. This may be called heat stable. Clear wine can become cloudy if subjected to heat (after bottling, as in traveling to Florida with a gift of clear wine).

- Cure is racking, use of pectic enzyme and other fining agents and or filtering.

Not cold stable: Tartrate crystals on cork or in bottle

- Cold stabilize before bottling

Taste Acid Balance: Test, Taste, Adjust before or after fermentation, de-acidification or increase.

If flabby and easy to drink and it may not be an acid factor, the pH may be too high. Drink it, as it will not age well.

Bad aromas: Microbiology Bad: Brett, Mold, Candida yeast, Bacteria, Acetobacter vinegar, Malolactic and others.

- Prevention usually no cures: Causes: Contaminated juice, Contaminated equipment, Poor Sanitation, Low SO2, Too much head space oxidation, High humidity.

- Usually no fixes, try fixing with 50 ppm SO2

Malolactic: Good if you want it, bad if you do not. Reduces acid, Traditionally used in Reds and Some Whites. Cultures available.

- Low SO2 if using
- High SO2 to prevent
- High SO2 when finished to terminate. To determine if finished, run a malolactic test. It consumes malolactic acid, but it will go after any citric acid and result in another fault.
- Do not use citric acid in a wine you are going to have a malolactic fermentation in.
- Do not use Lalvin EC-1118 yeast in a wine you are going to have a malolactic fermentation in.
- If Malolactic bacteria are present when using sorbate, it will result in a geranium nose.

Hydrogen Sulfide presents a rotten egg smell during or toward the end of fermentation.

Prevention: Use Fermaid as a nutrient in the juice, see instructions. Avoid yeast such as Montrachet if sulfur has been used in the vineyard spray program.

When hydrogen sulfide is formed in detectible quantities, it will usually be toward the end of fermentation. You should smell your young wine during the first or primary

fermentation. If the rotten egg smell is evident you should rack your wine allowing aeration even if it is still fermenting.

If the smell hasn't disappeared in 24 hours, rack again. Aerate and splash about.

You may also bubble an inert gas such as carbon dioxide or nitrogen through the wine.

ANOTHER NUTRIENT: Reduless is a nutrient for use **AFTER** fermentation **if hydrogen sulfide (rotten eggs) odor is present**. It may be RE-TREATED. If this fails, you need to use Copper Sulfate.

SO NOW YOU DON'T WANT TO MAKE WINE AS YOU MAY HAVE PROBLEMS?!

Go ahead and make wine. Do it right the first time.
CLEAN, CLEAN, CLEAN for starters.
Use quality fruit for starters. Use meta, the Roman's did and we are still here. Add a cultured yeast for more control. Sure the wild yeast will do the job, but there may be problems.

Follow recommended usage dose on the product label! If a friend or a written recipe says to add a teaspoon per gallon and the label indicates ¼ teaspoon per 5 gallons, FOLLOW THE LABEL RECOMMENDATIONS! PERIOD.

OK, So now, starting over!
What kind of wine do you want to make?
Red or White grape wine? Or a Rose? Fruit wines, grape wines with fruit infusion?
Find fruit infusion newsletter at http://www.fallbright.com/fruit-infusion.html
Red from juice will be lighter in color but is done often. We call these wines, red whites.
Red grapes cold-pressed can have decent color if ripe. We sell lots of red juice.
Red wine from grapes will have the deep red color and flavors you are more acquainted with (red commercial wines are generally fermented on the skins).

What kind of finish? Dry is the least sweet, semi-dry, then sweet.
This will determine your yeast choice.
Sweet to semi dry: Cotes des Blanc, 71B-1122, both are low foaming fermenters.
Dry to semi dry white or rose: D 47, 71B-1122
Dry and higher alcohol white or red: Pasteur Champagne (very volatile), Red Star Premier (lower foam)
Dry red: RC 212 (low foaming), Pasteur Red (very volatile)

High alcohol any wine: EC1118, KIV-1116 both of the last yeast listed have a killer factor that kills or inhibits other yeast, do not cross inoculate.
Stuck wine: EC1118, KIV-1116

Yeast less chosen: Red Star Montrachet, traditional wine for Chardonnay, but tends to have problems with hydrogen sulfide, rotten eggs smell. MUST use nutrient! Yes, we know it is traditional for some wines.

Grapes or juice:
If using grapes for a deep red wine, the winemaker will need to follow fermentation procedure for grapes and will need to press after the primary fermentation.
Juices, white or red, are fermented for white and a lighter red.

Fruit Wines: http://www.101winemaking.com/fruit_wines.htm
Fruit wines chart in Enjoy Home Winemaking. This is just a guideline! Use dosage of meta or nutrient from product labels.
Fruit and vegetable wines in (the purple) Winemaker's Recipe Handbook, same caution. Read the label.

OK, Now lets get started! Back to the beginning again!

May your wines Fall Bright!

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