

Pardo Wine Grapes

Recommendations for Making

Red Wine from Grapes

Every wine making family makes wine differently, from the type of grape(s) used to the process of turning grapes into wine. Simplistically, grapes are crushed into a fermenter; when the natural yeast on the grape skin comes in contact with the sugar in the grape juice, fermentation begins; after fermentation, the grapes are pressed and the new wine placed into a barrel or jugs. What is not simplistic nor standard are the steps and procedures that individual home winemakers take in addition to the above. Some are science, and some may be folklore practiced by their families. The important thing is that we make wine that we enjoy and hopefully is enjoyed by others.

The wine making process I originally learned from my family was used for generations. I personally liked the comradery of making the wine more than the end product. The variety of grapes and the process I use today are different and have evolved over time to suit my pallet and taste. This document explains that process. It may seem a bit too involved for some people and that's OK. It's simply the way my son and I make our wine today to end up with the wine we want.

Equipment/Supplies Needed

Grapes – Good wine starts with grapes. A 36# box of grapes will yield approximately 2.5 to 3 gallons of wine depending on the amount of juice in the grapes that year (based on weather conditions and other factors), how long you ferment the grapes, how much and how many times you press the pulp. Whether you are making 5 gallons or 50 gallons, it is always advisable to plan on producing more juice than your jug or barrel will hold. You will lose some juice from racking off the sediment and evaporation with a barrel. The extra juice will allow you to top off your jug or barrel after several rackings to prevent spoilage and oxidation.

Crusher or Crusher/De-Stemmer - Crushers break the skin of the grapes (without smashing them), allowing fermentation to begin with the sugar in the grapes juice coming in contact with the wine yeast. Standard crushers allowed the stems to remain with the grapes during fermentation. If you ferment more than 2-3 days, this can produce a high tannin wine that can taste a little bitter. Crusher/de-stemmers remove the stems allowing you to ferment the grape berries alone for a longer period of time with reduced risk of your wine becoming bitter.

Open Top Fermenters – You will need a fermenter(s) large enough to handle twice the volume of finished juice. To make 50 gallons of wine you will need two 50 gallons fermenters to hold the amount of crushed grapes needed. To make 20 gallons of wine you will need a 40 gallon fermenter or two 20 gallons fermenters. Food grade plastic works well for fermentation and is less expensive than stainless steel fermenters. A drain nozzle installed at the bottom of the fermenter will allow the juice to be released prior to removing the grape pulp for pressing.

Grape Press – You will need a grape press to extract the juice from the fermenting pulp after fermentation. Presses come in several sizes to match your wine making needs. They are available in standard wood slat versions or in newer bladder press versions. A press will be the most expensive purchase of your wine making equipment, but will serve your family for years if cared for properly.

Punch Down Appliance – A garden hoe or other devise is used to punch down the cap of the fermenting grapes and stir them up.

Pots, Pans and Buckets – These items are used to collect and transfer the pressed wine.

Containers for Aging - Carboys (jugs) usually 5 gallon or a barrel, depending on the quantity of wine you are making.

Siphoning Hoses-

Air Locks

Potassium Metabisulfite – Sulfites (SO₂) have been used by winemakers for centuries to retard growth of bacteria, kill unwanted yeast, prevent oxidation, stabilize and clear wine. It is also used to sterilize wine equipment. Good wine can be made without the use of sulfites, but the wine will change over time, usually not for the better...especially in climates like Florida.

Hydrometer – Used to measure the sugar level of the grape juice and determine potential alcohol to be produced.

PH Meter – Used to measure the PH level of the grape juice or wine, and aid in measuring acid levels.

Cultured Wine Yeast – Used to improve the fermentation of the grapes over the wild yeast.

The Wine Making Process

Sanitization

Before anyone touches the 1st case of grapes, everything must be sanitized. That includes the wine making area and all equipment and containers to be used; anything that will come into contact with the grapes or juice. One thing that my Great Uncle Tony taught me was to be obsessive about sanitation. He used to tell me that when someone asked his advice as to why their wine went bad he quizzed them on their sanitation steps. That was usually the culprit. There are a lot of sanitization products available today. However, 1 ounce of sulfite dissolved in 1 gallon of water provides an effective solution for sterilizing most equipment. Glass, plastic containers, rubber hoses, wood and even metal can be effectively sanitized with this solution. Brush the equipment with the solution as needed. Use a bottle brush on wine bottles and jugs, especially if they are stained or have dried wine on the inner surface. Do not use soap or detergent. They will leave a film on the surface that you don't want. In the case of extremely stained or dirty glass bottles or jugs, we have brushed them with bleach to remove the stain, and then rinsed 3 times with water.

Wood is especially prone to bacteria. Grape juice or wine absorbed into the wood can harbor infection. My family used a mixture of lye and hot water to sterilize all the wood used. They then rinsed and soaked the wood in water to remove the lye residue. Today we use a product called Barokleen which is a mixture of lye and sulfite to clean our wood barrels, the slates on the press and other wood to be used. Follow instruction on the package. A pressure washer can be an effective tool in sanitation, even in removing and Barro-Kleen residue from wood. Never use bleach to sanitize wood.

After all equipment has been sanitized, the floor surface of our winemaking area is then sanitized with remaining sulfite solution or Barokleen. These sanitation precautions must be followed throughout the year with every step in the winemaking process.

Crushing the Grapes

Using a grape crusher, the grapes are crushed into open fermenters to initiate the fermentation process.

Once fermentation begins, the mass of grape pulp (called the cap) needs to be punched down and stirred thoroughly at least twice daily. The cap needs to be held down below the juice level to prevent the cap from rising to the top and spoiling from dryness. I use a series of sanitized wooden crosses wedged into my fermenters for this purpose. When grape pulp becomes dry it can form acetic acid (vinegar) in a day. I sprinkle a light amount of sulfite on the top of the cap to prevent growth of bacteria on the top layer of the cap and to repel gnats and other insects. Lastly, cover the open fermenter with a lid (if it has one), screen or cloth that is secured down. This will help to keep any insects or other critters out of your fermenting grapes. The product *Press & Peel* works well also.

Some winemakers like to warm up the grapes first for about a day or so to speed up the fermentation process once they are crushed. But in humid climates like Florida, mold grows easily, which can affect the finished wine. I crush my grapes right out of the cooler and mix in dissolved potassium metabisulfite to 1) protect the juice until fermentation begins and fills the head space with carbon dioxide, and 2) kill most of the wild yeast on the grapes. During this "cold soak" period the juice will receive elevated color extraction from the grape skins. The grapes will ferment naturally with the wild yeast on the skin, but these wild yeast can cause off odors and tastes in the finished wine. Also, if the vineyard experienced rain prior to picking, most of the wild yeast could have been washed off the grapes, causing an incomplete or "stuck" fermentation. In other words, there may not be enough natural yeast on the grape skin, to convert all of the grape's sugar into alcohol. Whether you sulfite or not, you can always add a wine yeast to match the wine you are making.

Taking Readings

As soon as your grapes have been crushed and stirred well, you should take a reading of the sugar level in the juice. A hydrometer is used for this purpose. You can also measure the PH/acid level of the juice using a PH meter. Neither item is very expensive. If you are inclined to modify the sugar or PH/acid level of the juice, now would be the best time to perform that function. I have never had to adjust either level and would only do so in extreme cases.

Initial Fermentation

24 hours after crushing the grapes I add cultured wine yeast as directed on the package and stir into each fermenter well. If you crush your grapes warm, fermentation should begin after 1 day (depending on weather temperature). The onset of fermentation will produce a protective blanket layer of carbon dioxide over the fermenting grapes. Stir your grapes several times a day to keep the cap from getting dry. This is called "punching down" the cap. I use a sterilized garden hoe to stir my grapes from the bottom up. Be sure to recover your fermenter to protect you're the must. The fermentation progress can be checked daily by using a hydrometer. Each day the sugar level will go down as it is converted to alcohol and carbon dioxide. As fermentation becomes slower it is producing less carbon dioxide, therefore your wine is less protected naturally. Make sure it is covered well, to keep air out. If fermentation seems to slow, you can aerate the must by removing some of the juice at the bottom of the fermenter (by drain nozzle or siphoning) and pour it over the top of the cap allowing splashing action. This will provide oxygen to the yeast needed for sugar/alcohol conversion. This procedure can be performed several times during fermentation.

Since I crush my grapes cold, it will take about 2 days to warm up enough to initiate fermentation. If you consider doing a cold soak, you need to take additional precautions until active fermentation begins. In order to keep bacteria from coming into contact with my grapes,

I blow a layer of tasteless, odorless argon gas in the head space. Argon is heavier than oxygen, so it produces a protective blanket over the cap until it is replaced by carbon dioxide.

Pressing the Grapes

When to press the grape pulp and extract the juice is a matter of preference. The longer the grapes ferment on the skins, the more color is extracted. But excess contact can produce bitter flavors from tannin extracted from the seeds or stems if they were not removed. I ferment my skins for 5 days before pressing the pulp. Fermentation at this point is still active but slow. The sugar levels in the juice are still about 1-3 points Brix (Balling) on the hydrometer. The slow fermentation at this phase is producing minimal carbon dioxide and minimal upward pressure to protect the juice. Remember, when the upward pressure produced from fermentation becomes minimal or stops, then air and bacteria can go in.

After 5 days, we press the pulp in order to extract the juice and transfer it to smaller open top containers such as 5 gallon jugs and barrels. These containers can be capped off with an airlock to help protect the wine from spoilage.

To press the grapes, remove the free run juice from the fermenter through the drain nozzle at the bottom of the fermenter (if you have one). When the juice stops running, remove the fermented pulp and begin to fill the press basket. If your fermenter does not have a drain nozzle, then scoop out the fermented pulp with a colander and place the pulp in the press. Juice will run out of the press immediately while you are filling the press, so have a pan ready to collect it. Tap down and level out the pulp as the basket is filled to eliminate any air pockets. When the press basket is full, begin the pressing process. Juice will flow rapidly from the press initially, then slow down. Keep tightening the press until little or no juice continues to be released. Allow for pressure in the press basket to go down before re-tightening. If you had more pulp than your press basket would hold, remove the pressed pulp from the basket and press the remaining pulp. In order for the wine to be a uniform mixture, another fermenter type container is ideal for blending the free run juice with the pressed juice. Some winemakers separate the lighter free run juice from the darker pressed juice, producing two separate wines that can be blended later if desired. Blending the free run juice with juice from the first pressing will produce a more balanced wine.

The compact pressed pulp being removed from the press basket is called the "mark". It usually still contains juice that can be released by breaking up the mark and repressing the grapes.

Doing a second or third pressing is a matter of personal preference. The juice will with each repressing will be darker and usually higher in residual sugar.

When you have completed the pressing process, fill your jugs or barrel with the juice, allowing some head space for rise during the final stages of fermentation. Your jugs or barrel should be secured with air locks to allow pressure to be released but protecting the juice from outside air or insects. When the active fermentation begins to slow down, jugs and barrels should be

topped off with extra juice to eliminate the head space (air space) and re-capped with an airlock. The juice will continue to ferment slowly. Continue to monitor the Brix readings.

Completing Initial Fermentation

For dry wine, allow the reading on the hydrometer's Brix scale to fall below zero. The presence of alcohol throws off the reading slightly so ferment below zero for dry wine.

The initial fermentation

For sweet wine, there are 2 options.

Option 1 is to stop the fermentation before all the sugar is converted to alcohol by the introduction of sulfite (SO₂) to make the yeast dormant. When the hydrometer reading on the Brix scale reads 1 to 3 points (depending on the sweetness you desire) take a small amount of wine out of the jug or barrel, and dissolve ½ teaspoon for 5 gallons / 1½ ounces for a 50 gallon barrel of juice. Pour in the sulfite mixture and blend in thoroughly. The addition of sulfite will stop the yeast from converting sugar to alcohol, leaving residual sugar in the juice, thereby allowing the wine to be sweet. This is not an exact procedure. If the fermentation is still strong at the point of adding the sulfite, fermentation may continue. In addition, precautions must be taken with the wine from this point forward, to ensure that re-fermentation does not occur.

Option 2 is to let the juice ferment to completion then sulfite the juice as above. After your wine has cleared by racking (see below) or filtering, add a natural wine fructose conditioner to the desired sweetness. This is a natural fructose product used throughout Europe. This option will allow you to sweeten the wine to your preference and produce a more stable wine that should not re-ferment.

Racking

Racking is the use of a plastic hose to siphon the clear wine off the sediment that has settled at the bottom of the carboy or barrel.

For carboys, it is best to cut a V notch at one end of the siphoning hose, and then wrap that end with a white surgical tape so that it is visible in the red wine. The v notch will keep the end of the hose from creating a suction on the inside of the glass jug restricting flow. That end of the hose should be inserted into the jug just above the sediment line. Siphon the clear wine into an empty jug with the hose at the bottom of the receiving jug, ensuring not to splash thereby aerating the wine. We want to restrict aeration at this point. If dormant yeast are present they could reactivate and start another fermentation which we don't want.

If your wine is in a barrel then you cannot see the sediment line but still need to restrict the amount of sediment that transfers with the wine. If you have a wine filter this is an ideal time to use the filter to remove the clearing juice from the barrel into a temporary container like your original fermenters. If you do not have a wine filter, then you will have to prepare a large

siphoning hose by taping it to a sanitized stick or yard stick with the end of the hose positioned at least 1 inch from the end of the stick. This will ensure that the siphoning hose will not reach the bottom of the barrel and suck up the unwanted sediment.

Whether by filter or siphoning hose, when the barrel is empty, wash out the sediment until the water runs out clear. Reposition the barrel and refill it with the new wine, Make sure that the barrel is filled and re-secured with an airlock.

Wine should be racked 3 times before bottling to ensure clarity.

- 1) The 1st racking should occur between 30 and 45 days after fermentation. Different grape juices clear at different rates.
- 2) The 2nd racking should occur between 30 and 45 days after the 1st racking.
- 3) The 3rd racking should occur between 30 and 45 days after the 2nd racking, or at bottling time. As long as the carboys or barrels are filled and closed with an airlock, the wine is protected and there is no need to rush bottling. Wine left in a barrel will improve with barrel aging. Oak products (dowels, staves, etc.) can be added to carboys and have the same effect.

To protect the wine and prevent oxidation, dissolve ¼ teaspoon of sulfite in the wine after each racking, except at bottling if you are going to begin drinking your new wine immediately.

We hope that these personal recommendations are helpful in making a great wine for your family and friends.

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