



- B. *Viniculture* is a term used for winemaking or the influence of the winemaker. There are several steps involved in making wine:
1. *Destemming* involves the taking off of material (stems) attached to the grapes; *crushing* involves the cracking of the grape skin in order to allow the free-run juice to exude. These are often well-mechanized processes.
 2. Addition of sulfur dioxide to the “must” (i.e. juice extract) before it is added to the fermenters kills the naturally occurring yeast on the grape skins.
 3. *Vatting* is the pumping of the must into fermentation tanks.
 - a. When certain flavor characteristics are desired, oak tanks/barrels are used as fermenters. These can add a lot of flavor, but they can only be used for 3-4 years, since the wood loses its ability to hold flavor with time.
 - b. Stainless steel can also be used to create fermentation barrels of all sizes. These are extremely low maintenance, and can last indefinitely. They also allow for temperature regulation because hot or cool water can be run through them to change the fermentation temperatures.
 4. A particular strain of *Saccharomyces* yeast is then added.
 5. Fermentation is the process of converting grape sugar to carbon dioxide and alcohol. The carbon dioxide serves as a “blanket” that protects the wine from oxidation.
 6. In order to extract the liquid, the grapes are pressed. Usually, the free-run juice is extracted first, and then the rest of the pulp is sent to a press.
 - a. In some places, the pressing is done by foot.
 - b. Sophisticated mechanical presses can allow for the adjustment of pressure (so as not to break the pits, for example).
 7. The wine must then be aged in various types of wood, stainless steel, or glass lined tanks. The amount of aging required varies for different varieties. The length and type of aging also affects cost.
 - a. Some wines are aged in oak barrels, which provide a “seasoning” for the wine.
 - b. When wines are aged in stainless steel, oak flavors can be introduced via the addition of oak staves, oak chips, or oak dust. This is a less costly strategy than using oak barrels, but the flavor that is introduced will be slightly different.
 8. Almost all wines will go through some sort of clarification process to make them clear and brilliant. There are four ways to do this: racking, fining, filtering, and stabilization.
 - a. Racking involves pouring the wine out of one barrel into another, thereby leaving accrued sediment behind.
 - b. Fining involves adding a number of egg whites to the wine, which act as a sponge and take up sediment.
 - c. Most mass-market wines are also put through a filtration system to remove any particles that may cause the wine to go bad in the bottle.
 - d. Stabilization is an additional method of clarification that may be required if tartrate crystals precipitate out of the wine. These may be removed by using temperature (i.e. chilling the wine to remove the crystals), or chemically.