

Introduction to Winemaking Part 7: Red Wines

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Red Winemaking Techniques

- Warm Fermentation
- Skin and seed contact time
- Mixing Techniques
- Extended Maceration
- Press fractions
- Enzyme Additions
- Tank fermentations
- Barrel aging
- Dry w/ML
- Blending

Warm Fermentations

- **Most reds ferment at warm temperatures (70-90°C)**
- **Oxidation is generally not an issue because surface layer of CO₂**
- **Skins and seeds are less dense than fermenting liquid forming a cap (about 1/3 volume)**
- **Cap requires mixing to prevent drying**
- **Mixing techniques vary and influence the color and astringency of the wine**

Skin and Seed Contact

- **Duration of contact time is controlling factor for extraction of color and tannin extraction.**
- **Tannin impart astringent character to wine and act as a color stabilizer**
- **[EtOH] also helps to extract color and tannin**
- **Technique known as extended maceration will increase the tannin of a wine but not the color**
- **Higher tannin is desirable in wines that are meant to be aged (unpleasantly too tannic young)**

Cap Example



Mixing Techniques

- **Punch Down**
 - **Device used to break up cap and submerge it into fermenting liquid**
- **Pump Over**
 - **Volume of liquid is taken from racking valve and pumped back onto cap to wet it**
- **Rack and Return**
 - **Entire volume of liquid is racked off and then poured back onto cap to fully submerge it**
 - **Often seeds are removed from bottom of tank during this process to avoid extraction of bitter compounds**

Punch Down Example

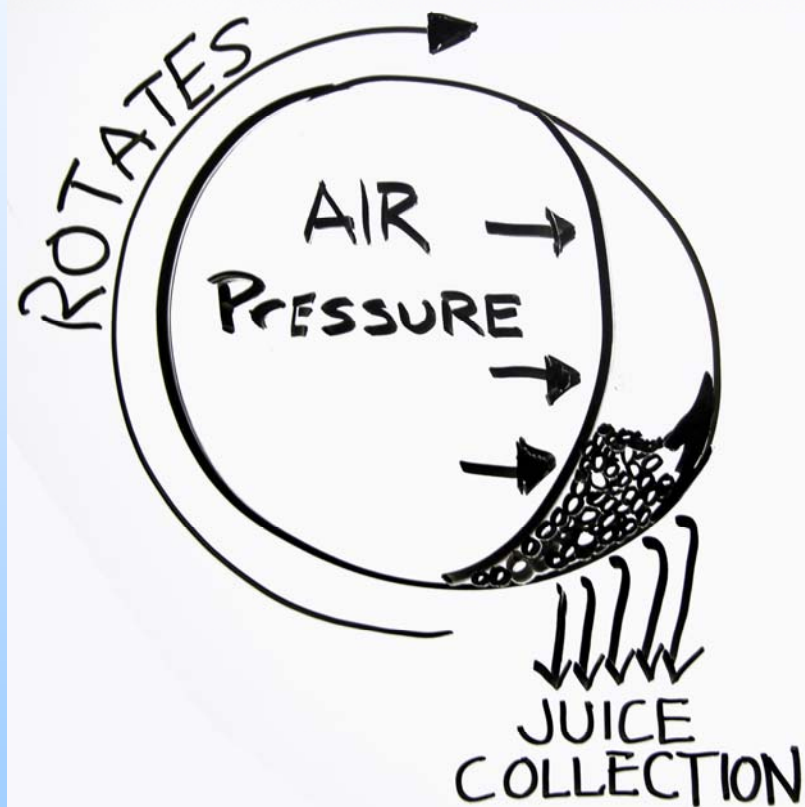


Pressing

- A press is used to extract juice from the skins and pulp of grape
- Determining when to press depends on wine type
- Different types of presses are used to achieve different outcomes
- Bladder presses are the most commonly used
- Screw and basket presses are old effective means
- Continuous presses are more rare
- Both screw and continuous presses are avoided because they often damage seeds and skins and extract unwanted components

Press Fractions

- Bladder Press uses air pressure to release juice
- Amount of pressure and rotation speed is controlled
- Gently process that does not damage seeds or skins
- Increases juice yield
- Free run is “high quality”
- Press fractions kept separate for topping



Barrel Aging

- **Reds are stored in barrel and undergo ML**
- **Stored for 6-8 months generally**
- **Barrel components are extracted into wine depending on Barrel type and age of barrel**
- **Young barrels contain more extract**
- **Toast type and wood origin change extraction and price (French \$300-600 US \$150-300)**
- **After 3 years barrels are usually sold**

French Examples

- **Burgundy and Beaujolais**
 - **Pinot noir and Carbonic Maceration**
- **Bordeaux**
 - **Cabernet Sauvignon, Merlot, Cabernet Franc, Malbec, Petite Verdot**
- **Rhone**
 - **Syrah, Grenache, Mouvedre, Viognier**

Burgundy

- **100% Pinot noir Cool Region**
- **Typically strawberry and earthy characters**
- **Low, acid, color and astringency**
- **Chaptalization (can have high EtOH)**
- **Made in small tanks aged in barrel**
- **Challenging variety because it is difficult to extract a lot from lightly colored berries**

Beaujolais

- **Southern Burgundy (Gamay noir variety used)**
- **Described as a lightly colored low astringency distinctive wine**
- **Beaujolais Nouveau**
 - **Harvested and quickly made into wine**
 - **Released on the third Thursday in November**
- **Carbonic maceration technique**
- **Grapes blanketed in CO₂ and begin to partially ferment themselves (up to a week; ML begins usually during this time)**
- **Skin breaks down during this process and coloration is achieved**
- **Skins removed and juice is fermented normally**
- **End product has distinctive aroma (aldehydic)**

Bordeaux

- **Blended wines with dark color and high astringency**
- **Heavy extractive techniques are used in making these wines (extended maceration, mixing techniques)**
- **Cabernet Sauvignon, Merlot, Cabernet Franc are major**
- **Petite Verdot and Malbec are minor**
- **Some regions of Bordeaux are all Cabernet Sauvignon or Merlot**
- **Aged in barrel and consumed after a long period of aging**
- **Bottles have pronounced shoulders to easily collect sediment**

Rhone

- **High color and medium to high astringency wines**
- **Mixing techniques primarily, oak aged**
- **Northern Rhone is cool Southern Rhone is warm**
- **Blended wines**
- **Syrah, Grenache, Carignan, Viognier**
- **Northern Rhone makes Syrah based wines**
- **Southern Rhone makes Grenache based wines**
- **Village in N. Rhone called Cote Rotie makes Syrah, Viognier blend**