

Carbonic Maceration

Carbonic maceration is a red wine-making technique that transforms a small amount of sugar in grapes to alcohol without the intervention of yeasts and without crushing the grapes.

Whole bunch clusters are placed in an anaerobic atmosphere, the weight of the top grapes crushes some of the bottom grapes and starts the fermentation process. The increased yeast activity in the environment creates fermentation within the intact berries at the top. A small amount of ethanol is produced within the grapes, along with flavourful aromatic compounds.

Grapes held intact in a carbon dioxide environment for several days produce a wine that is much brighter in colour, less tannic and more distinctly perfumed.

Whole grapes held under CO₂ lose about 1/5 of their sugar, show a ten-fold increase in glycerol, lose about half of their harsh malic acid and show an increase in pH of about 0.25, all within the berry.

Vins Doux Naturels

The oldest style of fortified wines (created 400 years before Port), originating in South-West France. Grapes typically used are Muscat and Grenache.

Partially fermented wines are fortified with 95% abv spirit to attain 15 → 20% abv.

Extensive ageing in barrels.

New World examples, such as Rutherglen Muscats/Tokays are run through a solera system.

Port

Traditionally, the requirements of Port production were for a rapid extraction of colour and tannins from the grapes. This would be done in granite troughs or *lagares*; often trodden by teams of people for up to 12 hours. Human feet were considered ideal for their ability to crush the skins of the grapes, but not damage the seed and release harsh bitter oils found in pips.

The need for rapid extraction of colour and tannins was that the maceration (period of grape must in contact with the skins) had to occur before fortification of the wine. Alcohol acts as a powerful solvent and if the wine was fortified during the period of skin contact then the alcohol would extract too many harsh and bitter compounds from both the skins and seeds. Therefore the need was to have a fast and very efficient extraction of colour, flavour and desirable tannins from the skins before fortification.

Special tanks called Autovinifiers put crushed grapes in sealed vats and the pressure of the CO₂ given off by the fermentation is used to force the juice up through the pipes so that it continually sprays over the cap of the skins. This is a more economical process, but there is a substantial capital cost in installing the special vats.

Fortification: when the sugar in the fermenting wines has been converted to between 6 and 9% abv, spirit at 77% to 85% alcohol by volume is added to the wine. The addition of spirit kills the yeast and stops fermentation.

By law in Portugal, Spain, Italy and France, the spirit used in fortification must be grape based.

As soon as fortification has taken place, the wine is drawn off into casks as there is a danger that the increased alcohol might release further harsh tannins.

Port Styles

White Port

Made from green grapes, notably Gouveio (Verdelho), Malvasia Fina, Rabigato, Viosinho and Donzelinho. It is generally low in acidity and golden in colour. The grapes are pressed at the time of picking and the wine is fortified at varying times during the fermentation depending on the style of the white Port and the desired level of sweetness.

They are generally non-vintage dated, even though many are from a single-year, matured in oak casks and generally sold at 2-3 years of age. The wine is filtered prior to bottling.

Red Ports

Ruby, Tawny, Crusted, Late Bottled Vintage, Colheita and Vintage Ports are typically, although not exclusively made from black grapes. There are over 80 allowed varieties of grapes that can be used in Port production but Touriga Nacional, Touriga Francesa, Bastardo, Tinta Barroca, Tinta Roriz, Sousão and Tinta Cão are considered favourites.

Ruby Port

This is a young, non-vintage, full-bodied, deeply coloured wine. They are blends from two or more vintages of high-quality wine that is then blended and matured for up to five years in barrel before bottling. They are filtered and ready for consumption when bottled.

Tawny Port

A Reserve Tawny Port is the result of at least 7 years maturation in cask. A Tawny Port with an indication of age such as, 10, 20, 30 or 40

years old. To qualify for such a designation, the shipper must show that they have a sufficient stock of wine consistent with the characteristics typical of a wine of that age. Age dated Tawny Ports are considered the best and can be exceptionally complex.

The wines can be filtered, but many do not require this as the extended periods of ageing in barrels has allowed the wines to fully clarify.

Colheita Ports

This style of Port is particularly popular in Portugal itself. They are wines from a single vintage that have been aged in cask for an extended period and are bottled just prior to sale. The minimum is 8 years in cask, but more often this is considerably longer. Effectively they are old Tawny Ports from a single year.

Crusted Port

These are high-quality multiple vintage blends that are bottled young and unfiltered; therefore they throw a lot of sediment and need decanting.

Late Bottled Vintage Port (LBV)

This a wine from a specific year, but not necessarily a “Declared Year” that has been aged in cask for between 4 and 6 years before bottling. Most LBV ports are made and then matured and are filtered before bottling, and are ready for consumption after bottling. LBV wines must state the vintage the grapes were picked and the year it was bottled.

Vintage Ports

These are among the longest-lived wines produced anywhere. They are exceptional wines from one specific year, typically from the best vineyards and they are bottled when they are only 2 years old, after being matured in oak casks. They are full, rich and tannic when young; they mature very slowly, often reaching their peak at 20 years of age. Each Port house can decide whether it wishes to ‘declare’ a vintage, some vintages there is not consensus, but most of the time there is a general unanimity. The declaration of a “Vintage Port” year is announced in the spring after a full year from the harvest (e.g.: 2007 was declared a vintage year in the spring of 2009).