



Speaking
of **Wine**

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Winemaking is a tricky topic. Each oenologist has their own methods, tricks and tips depending on the type of wine they want to produce (and the business idea behind the wine and the winery).

In this chapter we will look at winemaking from a generic point of view, taking into account different basic methods and the equipment used.

BASIC EQUIPMENT USED IN WINEMAKING

SELECTION TABLE

This is used at the entrance of the winery for choosing and selecting grapes after the harvest. This selection is manual and makes sure that only the best quality grapes are used in the winemaking process.

Green, unripe grapes are removed as well as overripe ones, bad ones, leaves and small stems and anything else unwanted in the fermentation vats (this can include insects, stones, etc.).

DE-STEMMER

As its name indicates, this machine is used to remove the grapes from the stems. The grapes are then pumped into the fermentation vessels and the green waste (the stems in this case) are disposed of.

PRESS

A mechanical or pneumatic press is often used nowadays to crush the grapes and break the skins. This helps to extract the juice from the grapes and also the tannins.

Some more traditional wineries may still prefer to press the grapes using their feet!

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HOSES / PIPES

These pieces of equipment are vital to winemaking because they allow the winemaker to move grapes, fermenting wine juice or the finished product from one place to another without coming into contact with oxygen in the atmosphere.

PUMP

This machine is the force and power that pushes solids or liquids from one place to another.

FILTER

Filtering wine is an optional thing for a winemaker to do. Some believe that too much filtering can cause the wine to lose character and structure.

In the case of red wines, filtering is useful as it removes any particles left from the skin maceration and also the remainder of the fermentation (lees).

Filtering can be done after fermentation or just before bottling if the wine has been aged in oak or left standing on the lees for some time.

Can you think of what machinery you have seen in a winery you've visited recently?

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TYPES OF VESSELS USED IN WINEMAKING

Firstly, let's have a look at the different terminology for the recipients used for fermentation and when to use each one:

"**Vessel**" is a specialist word used to describe the container that holds liquids.

"**Vat**" is described as a large container for holding liquids, usually in an industrial process.

"**Tank**" can be used when describing the container that holds liquid or gas.

So technically, in winemaking we could use all 3 of these terms to make a reference to the recipients where we store and ferment the wine, HOWEVER, it is common to use one or another depending on the actual size of the container.

Here is a list of the most common recipients used to ferment wine in the modern day:

- **Stainless steel** (completely air-tight, none or very little oxygen contact)
- **Barrels** (made from wood, gives a flavour profile to the wine as well as tannins during the fermentation process. Some oxygen contact through the pores of the wood)
- **Ceramic amphorae** (smaller in size, some oxygen contact through the pores of the ceramic. Produces more mature wines)
- **Concrete** (can be very large in size, allows some oxygen contact)

What type of recipients do you use in the winery where you work?

Which recipients do you normally see in wineries that you visit?

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HOW IS WHITE WINE MADE?

Have a look at the flow diagram for this topic to see the process in order.

Generally, the white winemaking process follows these simple steps:

STEP 1: Mechanical or manual harvest

STEP 2: Grapes are usually sorted, destemmed and crushed

STEP 3: Free run juice is usually allowed a gentle clarification (settling) before fermentation begins.

STEP 4: Alcoholic fermentation happens in inert vessels (usually stainless steel). Oak or ceramic vessels may be used to allow for some oxidation to take place during the fermentation.

The optimum temperature for fermentation is between 12-22°C

STEP 5: Post-fermentation techniques depend on the style of wine that the winemaker wants to achieve.

MLF is avoided in some cases as the buttery aromas interfere with the pronounced fruit flavours of the grapes.

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HOW IS ROSÉ WINE MADE?

There is a lot of taboo regarding rosé wines. For many years they were considered to be the "ugly duckling" of the wine world - but that is not the case!

In some wine producing regions of the world, rosé is considered to be the best of the best and the wines are produced to the highest quality in various different styles.

If a winemaker chooses to make a certain type of wine it usually falls within the same quality bracket as the others - makes no sense to produce and sell something that goes against the quality standard of the company (basic stuff!)

Rosé wine can be made in 1 of 3 different ways:

METHOD 1: DIRECT PRESSING

Black grapes are crushed and pressed, the same as in white wine production.

Some colour is extracted from the skin, but winemakers must be careful not to extract too much tannin.

Some of the most delicately coloured rose wines are produced this way.

METHOD 2: SHORT MACERATION

Black grapes are crushed and left for a short period of time to macerate, extracting colour and flavour.

The amount of time is determined by the winemaker.

Free run juice is drained off and fermented at cool temperatures like white wine.

METHOD 3: BLENDING

Small quantities of red wine are added to white wine.

This method IS NOT PERMITTED IN THE EU, with the exception of rose Champagne.

Some New World, fruity rose wines are made this way.

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HOW IS RED WINE MADE?

Making red wine is a complex task. There are many factors to consider:

- Which style of wine is the winemaker looking to achieve?
- Do the grape varieties suit that style of wine?
- Is it going to be a premium wine?
- Is it going to be the star product of the winery?

After careful consideration the wine will be made in 1 of these many different ways:

USING CRUSHED GRAPES

STEP 1: Mechanical or manual harvest

STEP 2: Grapes are usually sorted, destemmed and crushed

STEP 3: Sometimes, wines undergo a cold maceration (pre-fermentation) to help extract colour and flavour compounds.

STEP 4: Alcoholic fermentation happens in inert vessels (usually stainless steel). Oak or ceramic vessels may be used to allow for some oxidation to take place during the fermentation.

The optimum temperature for fermentation is between 20–32°C

STEP 5: Cap management is important in red wine making for extracting colour, flavour and tannins: Punch down, Pump over or Rack and return

STEP 6: Malolactic fermentation happens in virtually all red wines – it helps soften the general acidity of the wine. Most red wines benefit from some time in oak.

STEP 7: Blending together different varieties of grapes can give a wine more balance, flavour and colour. If a winemaker wants to show off a particular variety, the style of wine or the terroir, the wine will most likely be "single variety".

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USING WHOLE BUNCHES OF GRAPES

In this case, the grapes are harvested and selected as usual, but then there are 3 different paths a winemaker can follow to make their wine

CARBONIC MACERATION

Uncrushed, whole bunches of grapes are placed into the tanks and covered with CO₂ to remove all the oxygen.

This method extracts a lot of colour from the grapes but not so much tannins.

The wines are usually soft and fruity.

SEMI-CARBONIC MACERATION

Uncrushed, whole bunches of grapes are placed into the tanks to fill them to the top. The grapes are naturally crushed under the weight of the ones on top.

This method usually allows for better aroma integration in the wines.

WHOLE BUNCHES WITH CRUSHED FRUIT

Whole bunches of grapes are added to the tank along with crushed fruit.

The whole bunches are crushed as the cap is regularly punched down.

*Do you really think that people want to know HOW the wine is made?
Are they really interested in the ins and outs of winemaking?
>> Debate topic <<*

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HOW IS SPARKLING WINE MADE?

Sparkling wine can be made all over the world in a number of various styles. All of them are essentially fizzy but they can come in a different range of colours, levels of sweetness and ultimately, taste and flavour profiles.

If you ask anyone to name a sparkling wine, probably more than 80% would say Champagne first! It is the most well-known style of sparkling wine, followed by Cava and Prosecco. There is also Cremant, Asti, Sekt and New World Sparkling wines.

In the last few years and depending on the market and destination, Prosecco has gained massive amounts of ground and respect within the sparkling wine world, pushing aside Cava and Champagne in some countries (for example, the UK).

For some people, Champagne has become stagnant with many producers failing to innovate and modernise their products. Cava on the other hand has undergone quite the opposite with lots of innovation and research into the final product. The separation of DO Cava and the rise of Corpinnat is just one example of the movement to strive for better quality.

For the sake of the course, we will look at how Cava is made as it follows the same process as Champagne.

*Do you like sparkling wines?
Which is your favourite?
Do you have a special one?*

*Does the winery where you work
produce sparkling wine?
Do you sell a lot of sparkling wine
in your place of work?*

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CAVA

Cava is the "Champagne" of Spain. It can be made in a number of regions but most of the production comes from the Penedes.

Cava must be made by the traditional method, with a second fermentation in the bottle in which the wine will be later sold.

For the production of Cava, only a certain number of grapes are permitted:

- Viura (Macabeo)
- Xarel-lo
- Parellada

Garnacha and Monastrell can be used for rose cava

Recently the use of varieties such as Chardonnay and Pinot Noir have been permitted but this is causing some controversy as they are not the traditional varieties used for Cava (they are used for Champagne).

Cava is made following these steps:

STEP 1: The base wine is made first, usually in stainless steel.

STEP 2: Blending the varieties of grapes helps improve balance and complexity of the wine.

STEP 3: The second alcoholic fermentation takes place after adding "liqueur de tirage" (mix of wine, sugar, yeast).

CO₂ that is trapped in the bottle producing the bubbles in the wine.

STEP 4: The yeast forms a sediment of lees in the bottle. Over a period of time, this breaks down releasing chemical compounds into the wine causing aromas and flavours of bread, biscuit, toast... This is called YEAST AUTOLYSIS.

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STEP 5: Riddling - moving the bottle slowly to a vertical position so the sediment can collect in the crown cap to be removed.

STEP 6: Disgorgement and corking - after riddling, the neck of the bottle is submerged in a cold solution to freeze the sediment. The crown cap is removed, "liqueur d'expedition" is added and the bottle is then corked.

The wine added will determine the style of the finished product and it's level of sweetness.

Some Cava will undergo bottling ageing before being sold.

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WHY IS WINE AGED IN OAK BARRELS?

Placing wine in oak can help soften tannins in red wines and give more complexity to the wine; primary flavours begin to fade and tertiary aromas appear after the time in the barrel.

Colours change in red wines from intense and bright purple to paler reds and brown; whites become deeper in colour and gain a hint of orange.

Wines can also extract tannin and oak flavours from the wood itself. Aromas like smoke, cloves, toast or vanilla are usually the most common.

There are many species of oak available to use, but most commonly, either European or American oak is used.

The 4 main factors that a winemaker takes into consideration when choosing an oak barrel are these:

1. **Species** - European or American?
2. **Size** - small vessels have more effect on the wine because more of the wine is in contact with the wood.
3. **Toasting** - arguably the most important part of the decision process. The wood is heated up to bend it into shape, changing the flavour and tannin profile of the wood. Light to medium toasting can give aromas of sweet spice and toast.
4. **Age** - new barrels give more of an effect on the wine than one that is more than 4 years old. Some winemakers prefer the subtleness that an older barrel has to offer.

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Many non-experts ask these questions...

How long can the barrel be used for?

What is best - old or new?

What is the difference between French and American oak?

Why is it so important to age wine in barrels?

What is the angel's share?

THE DIFFERENCE BETWEEN FRENCH AND AMERICAN OAK

This is a trend topic when it comes to visiting a winery and asking questions. Most people are aware of the fact that ageing wine in an oak barrel has a positive outcome, but most of them have no idea as to why a winemaker would choose either French or American oak.

Let's have a look at some of the main differences:

FRENCH OAK VS. AMERICAN OAK

The majority of the trees grown for barrels grow primarily in central France, although they can grow in most regions.

Just in the same way that grapes do, the wood takes on the characteristics of its region: soil, weather and climate impact the flavors and aromas the oak leaves on wine during the ageing process.

Grape varieties that work quite well with the subtle flavors of French oak are Cabernet Sauvignon, Pinot Noir, and Chardonnay. These grapes love the mellow spices and chocolate notes this oak provides.

The reason French oak offers these supple, complex flavors is because of how delicate the wood is. It must be hand-split rather than sawed. For this reason, French barrels are higher priced.

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In the case of American Oak, these trees grown all across America. Unlike its French cousins, this oak is hearty and strong. You can saw it with or against the grain.

Because there are so many of these trees and the fact that they are very durable, American oak barrels are less expensive than their French counterparts – but be aware that just because they are cheaper, doesn't mean they are less useful.

While winemakers prefer French oak for gentle grapes like Pinot Noir, Chardonnay, and Tempranillo, many of these same varieties also see time in American oak.

Some Cabernet Sauvignon aged in American oak does well, but where American oak shines are the deep varietals that can stand up to its robust flavor. Varieties like Zinfandel, Merlot, and Syrah all blend well with American oak aroma and flavor.

The characteristic flavour profiles of this oak are vanilla, tobacco, dill, and baking spices.

So what exactly is the difference between French and American Oak? It is important to know if you're a producer or consumer that French oak tends toward the elegant thanks to its softwood and tight grain whereas the American oak lends a bold, vanilla flavor during the aging process.

*Which do you prefer? French
or American oak in your
wines?*

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NATURAL CORK OR SCREW CAP?

Get a group of winelovers, experts and professionals together and ask them this question...

What do you think about screw caps in wine?

I guarantee you the answers, opinions and debate will be endless!

Leaving personal opinions aside, there are many practical and debatable advantages for each type of closure.

FACT: the closure must protect a wine from any harm until the moment of opening.

For young wines, or wines designed to be opened within a year of bottling a closure will be chosen based on consumer factors or on practical factors in line with the bottle.

But for older wines, wines that are intended to be aged and matured in the bottle, the closure must allow the wine to do just that - mature.

A **cork** is the most natural and traditional type of closure. With modern-day technology advancing at massive rates every year, the risk of Cork Taint due to TCA (trichloroanisole) is decreasing rapidly.

The natural cork allows some oxygen flow into wine producing an optimal balance between primary and tertiary flavours.

Obviously for countries where cork is a natural product (Spain, Portugal for example) the vast majority of wines are closed using a cork. This can vary however when the same wine is destined to 2 or more different countries.

For example, a white wine that is made and sold here in Spain will be closed with a cork (just because the market demands it) but the exact same wine made here and sold abroad, to the UK for example, will be a screw cap.

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NATURAL CORK OR SCREW CAP?

Synthetic corks are made of some type of plastic and originally were thought to be of use for younger wines but there are studies that show the more premium ones to have a positive effect on long term storage.

The **screw cap** provides a perfect airtight seal for the wine. Some studies have proven that they manage to preserve the primary, fruity character of the wine for longer than a natural cork. The lack of oxygen means that there is still some debate as to whether they are good and useful for longer-aged wines.

In some markets, consumer acceptance is still very low on screw caps (Spain, Italy, France... the older, traditional wine world) but in newer wine world countries where cork isn't naturally sourced, screw caps are normalised and seen as a part of the process of modernising wine.

What is your personal opinion on natural corks, synthetic corks and screw caps?



Speaking of Wine

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