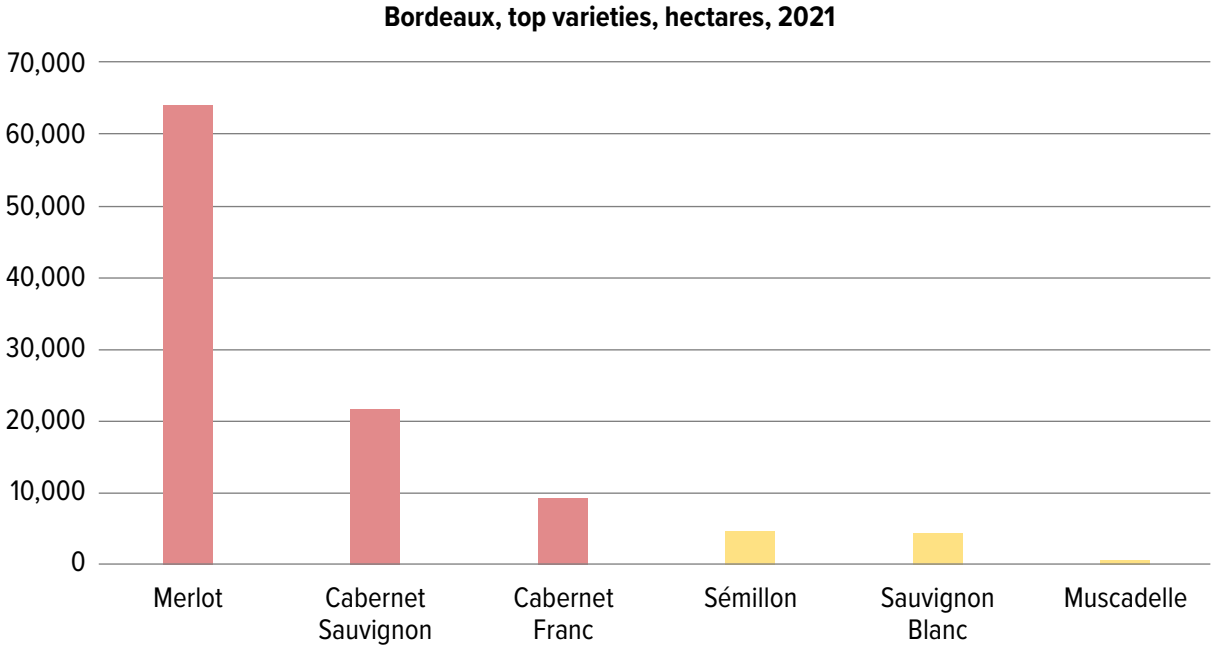
2. Bordeaux

The Bordeaux wine region lies in south-west France, close to the Atlantic Ocean. It is traversed by the River Garonne and the River Dordogne, which merge to form the Gironde estuary.

The vineyards to the west of the Garonne and Gironde form what is collectively known as the Left Bank, while those to the east of the Dordogne and Gironde form what is collectively known as the Right Bank. The majority of the area between the two tidal rivers, Dordogne and Garone, is called Entre-Deux-Mers. As can be seen from the chart below, nearly 90 per cent of the plantings are black grapes. The production of AOC wine is 85 per cent red, 9 per cent dry white, less than 1 per cent sweet white and 5 per cent rosé.[1]



Source: Conseil Interprofessionnel du Vin de Bordeaux

2.1. Key Developments in the History of Bordeaux

In the 17th and 18th centuries the large Médoc peninsula north of the city, which had been marshy and unsuitable for agriculture, was drained by Dutch residents in the city of Bordeaux and planted. By the mid-18th century, the wines from such properties as Lafite and Margaux were already widely appreciated across Europe and even in America. Their success was also because the city had long been a centre for wine exports from other regions such as Bergerac. This led to an entrepreneurial class of merchants whose origins lay in Britain, Ireland, Germany, Holland and elsewhere. These merchants and brokers distributed the wines of Bordeaux and established their international reputation. That system of distribution – undertaken by specialised merchants rather than proprietors – remains in place today.

In 1855, a major commercial exhibition, the *Exposition Universelle de Paris*, was to take place. The Bordeaux chamber of commerce asked the region's brokers to compile a

classification of the wines. This was based on price, and the estates of the Médoc plus Haut-Brion in Graves were classed into five bands, those of Sauternes into three. Although such classifications had been made before, they were informal assessments. The 1855 classification had official status and remains essentially unaltered to this day. It also still influences prices today. Other classifications have followed – see below.

The area under vine is enormous, with 108,000 hectares planted. However, the great majority (72 per cent) of AOC wine produced is only entitled to the Bordeaux, Bordeaux Supérieur, Médoc and Côtes appellations and are inexpensive to mid-price. By contrast, a prestigious appellation such as Pomerol occupies only 800 hectares and *cru classés* about 5 per cent.[2]

2.2. The Growing Environment and Grape Growing

CLIMATE

The region has a moderate maritime climate. The warm Gulf Stream, originating in the Gulf of Mexico, is a warming influence across Bordeaux and beyond. In the best years, warmth throughout the growing season, plentiful rainfall to promote growth and ripening, and a relatively dry and warm first month of autumn allow for steady and complete ripening. In those best years, such a climate can result in an excellent balance of tannins, sugar and acidity, which partly explains the remarkable longevity of great vintages here.

The Left Bank is partially protected from Atlantic storms by extensive pine forests, the Landes. Estates that fringe these forests, such as Domaine de Chevalier in Léognan and many in Listrac in the Médoc, are cooler and thus more marginal than their neighbours to the east. In the northern Médoc, the forest is less of a feature and the landscape is more open to maritime influence. As a result, its climate is cooler than the southern Médoc and Graves.

Rainfall is variable, an average of 950 mm a year but with marked variation from year to year and the times within the year when it falls. Excessive rain at key moments is an important factor in vintage variation:

- Rain at flowering can result in poor fruit set.
- Rain throughout the growing season can result in increased disease pressure.
- Rain at and following véraison can lead to unripe fruit and fungal diseases.
- Rain at harvest can dilute flavours.

By contrast, here as elsewhere in Europe, climate change has led to hot, dry summers with insufficient rainfall. The hardy grape varieties planted across Bordeaux can resist extremes of temperature, but hot dry years such as 2003 can lead to wines, both red and white, with low acidity that lack balance. They can also lead to wines being more alcoholic than in the past as growers wait for phenolic ripeness before picking.

The maritime influence is less pronounced in the easterly, Right Bank regions of Bordeaux such as the Libournais (Saint-Émilion, Pomerol and appellations that surround them), but remains a factor.

From time to time large areas of vineyards are affected by frost, as in 1956, 1991 and 2017 when the crop was decimated. In the Médoc, the most prestigious wines tend to be close to the Gironde estuary, which has a moderating influence on the climate and often protects those

vines from frost, while those located a short distance to the west can be devastated. Hail, which is always sporadic, has been more widespread and destructive over the past decade.

Vintage variation in terms of volume is marked. For example, in frost-affected 2017, 33 per cent less wine was made than the 10-year average and 40 per cent less than in the large 2016 harvest.[3] This level of variation of yield has significant financial implications for estates and for the wine business in the region as a whole.

SOILS

Soil too plays a major part in the quality of the wines of Bordeaux. The Left Bank – that is, the Médoc to the north of the city and Graves to its south – benefits from deposits of gravel and stony soils carried to the region by floodwaters from the Pyrenees and the Massif Central many thousands of years ago. Depending on their origin, the gravel is mixed with clay and sand. These gravel mounds are not especially high (highest in Margaux at 32 m) nor do they cover the whole region. All the top estates of the Left Bank are planted on gravel mounds known as *croupes*. Gravel, unlike clay, drains well, so even after the showers and storms, to which the Left Bank is prone, the roots of the vines soon dry out and the grapes can continue to ripen. In extremely hot years, such as 2003 and 2005, the excellent drainage can put some vines at risk of drought stress. This is particularly the case where soils are shallow. For example, in Pomerol soils are rarely more than a metre deep and, as a result, the vines can suffer, as was seen in the very dry summer of 2016.

A second contribution made by gravel soils is heat retention. After a warm summer day, the pebbles and stones retain their warmth and continue gradually to release it upwards onto the vines, facilitating their slow ripening.

There are also pockets of clay on the Left Bank, especially in Saint-Estèphe, but the wines from such soils, while robust and characterful, have not achieved the same acclaim as those grown on gravel.

Gravel soils in Bordeaux

On the Right Bank there is far more clay in the soil, although there are significant patches of gravel in certain sectors of the Libournais. That is one reason why the dominant grape variety here is Merlot, which is ideally suited to such soils. It ripens fully in almost all vintages. It also accumulates more sugar and thus alcohol than Cabernet Sauvignon and Cabernet Franc, which was seen a benefit in the past. The best wines come from grapes grown on the limestone plateau or the gravel section that borders Pomerol.

GRAPE VARIETIES

See the chart in the introduction for the breakdown of the overall plantings of the main varieties.

Merlot

This is an early budding variety, making it vulnerable to spring frosts, and mid ripening, giving the advantage that the grapes can be picked before early autumn rain. It is susceptible to coulure, drought and most botrytis bunch rot, making sorting necessary to maintain quality. All these hazards can reduce yields.

In Bordeaux, an important benefit of this variety is that it can ripen fully in cooler years, in comparison to the later-ripening Cabernet Sauvignon. It is the dominant variety in the whole of the Right Bank and in the cooler northern Médoc, which has more fertile soils with a high clay content. It ripens on these cooler soils and the water-holding capacity of clay enables it to produce the large berry size typical of Merlot. It also reaches higher sugar levels and therefore higher potential alcohol levels than either of the Cabernets. This was an advantage in earlier decades but, with a warming climate, is less so today. As a variety, it contributes medium to pronounced intensity fruit (strawberry and red plum with herbaceous flavours in cooler years; cooked blackberry, black plum in hot years), medium tannins and medium to high alcohol to the Bordeaux blend.

Old vine Merlot growing in Saint-Émilion

Cabernet Sauvignon

This is a late budding variety, giving it some protection from spring frosts. It is a small-berried thick-skinned variety with high tannin content, resulting in wines with high tannins. It is prone to fungal diseases, especially powdery mildew and the trunk diseases, Eutypa and Esca. It ripens late (and hence needs to be grown on warmer soils), making it vulnerable to early autumn rains. It produces the highest quality fruit on warm, well-drained soils, such as the gravel beds of the Médoc. In Bordeaux, Cabernet Sauvignon contributes pronounced violet, blackcurrant, black cherry and menthol or herbaceous flavours, medium alcohol and high acidity and tannins to the Bordeaux blend.

Cabernet Sauvignon growing in Pauillac

In cooler seasons in Bordeaux, especially in the past with a cooler climate, growers could struggle to ripen Cabernet Sauvignon fully, resulting in wines with high acidity, unripe tannins and little fruit. As a result, and due to Cabernet Franc and Merlot's earlier ripening, it was and still is regularly blended with these two varieties.

Cabernet Franc

For basic information, see Anjou-Saumur and Touraine, The Loire Valley. In Bordeaux as a variety, it contributes red fruit, high acidity and medium tannins to the Bordeaux blend.

Malbec

For basic information, see Cahors, South West France. In Bordeaux, after the hard frosts of 1956, Malbec was mainly replaced with Merlot, which is easier to grow in Bordeaux.

Petit Verdot

This variety buds early and ripens even later than Cabernet Sauvignon, making it unpopular with growers in Bordeaux in the past. It is also prone to spring frosts, a failure to ripen in cool years and to rain around harvest.

In Bordeaux, it does best in the warmer parts of the Médoc. When used, often as less than five per cent of the blend in Bordeaux, it contributes powerful, deeply coloured wines with spice notes and high tannins. While there are still very few plantings, it is increasingly valued, especially as a warmer climate means it is more likely to ripen in most years.

Sémillon

This is a mid-ripening variety, susceptible to botrytis bunch rot and to noble rot in the right conditions. It can carry high yields. Sémillon has low intensity apple, lemon and, if under ripe, grassy flavours, a medium body, medium alcohol and medium to medium (+) acidity. (The variety is often spelled Semillon in English-speaking countries.)

In high quality dry white Bordeaux blends, it contributes low to medium intensity aromas, weight and body, and medium acidity. As such, it softens Sauvignon Blanc's more intense flavours and high acidity. It has a strong affinity with vanilla and sweet spice flavours from new French oak.

In botrytis-affected sweet Bordeaux wines, it contributes pronounced honey and dried fruit (lemon, peach) character and a waxy texture. As it is more susceptible to botrytis than Sauvignon Blanc, top Sauternes wines tend to have a high proportion of Sémillon in the blend, for example as in Ch. Climens or Ch. d'Yquem. Sémillon is also prized for its ageability, developing toast and honeyed notes with age, in contrast to Sauvignon Blanc that can hold but whose flavours do not evolve.

Sauvignon Blanc

For basic information, see Central Vineyards, The Loire Valley. In Bordeaux, it contributes its grassy and gooseberry fruit and high acidity to dry white blends and to sweet botrytis-affected wines. Because of the worldwide popularity of the variety, increasing amounts of dominantly or single-variety dry Sauvignon Blanc white wines are being made.

Muscadelle

This white variety needs to be planted on a well-exposed site, as it is very prone to botrytis bunch rot. The vast majority is used in sweet white wines, where it contributes flowery and grapey notes. It is not related to Muscat.

VINEYARD MANAGEMENT

The tradition in Bordeaux for top quality vineyards is closely spaced vines at 10,000 vines per hectare, vines being planted one metre apart with one metre between the rows. This is suitable for the relatively infertile soils of the region, resulting in moderate vigour. Close planting adds to costs as more plants and more trellising have to be bought, specialist over-the-row tractors bought and more time is needed for vine training, ploughing and spraying. However, close planting makes the best use of expensive vineyard land. Vineyards in less prestigious appellations are often planted at lower density. For example, vines for basic Bordeaux AOC are typically planted at 3,000–4,000 vines per hectare.[4]

Close planting in Bordeaux

The most common system of managing the vine is head-trained, replacement cane-pruned, in which canes are trained along wires. On the Left Bank, two canes are trained, called Double Guyot. The single-cane Single Guyot is more common on the Right Bank. The second method is cordon-trained, spur-pruned, which is rare in Bordeaux, although some prestigious estates favour it, arguing that it reduces yields naturally and gives better aeration to the bunches.

In Bordeaux's moderate, damp climate, canopy management is important to reduce the incidence of downy mildew, powdery mildew and botrytis bunch rot. Leaf removal takes place during the summer and is intended to improve aeration and deter rot. This also exposes grapes to ultraviolet light to aid ripening. (When an attack of mildew is followed by rain, tractors may have difficulty entering the vineyards to spray and the rain washes away the treatments, which can compound the problems.)

In addition, Eutypa dieback and Esca have become major problems, rotting the vine from the inside. A relatively new treatment called 'soft pruning', increasingly popular across Europe, seems to be fairly successful. (Soft pruning includes making only small cuts if at all possible, leaving some extra wood at the cut site to allow the wood to dry out and maximising the opportunity for sap to flow around the plant.) *Flavescence dorée* can be contained by using insecticides, but such treatments make the growing band of organic and biodynamic producers uneasy because of the use of synthetic insecticides. The percentage of vineyard certified as organic or in conversion has risen in recent years and in 2021 stood at 18 per cent.[5]

Leaf removal can take place on either one or both sides of the row. However, leaves protect the bunches from sunburn and extreme heat. For example, vineyard managers who removed leaves in 2003 ended up with raisined grapes. It is less risky to remove leaves late in the season when extreme heat is less likely and the bunches can benefit from the better aeration.

About 20 years ago it became approved practice to remove bunches (or bunch-thin), either by hand or by machine. This was a way to correct vines carrying a high yield, and to improve concentration of flavour. It now is less popular, as some viticulturalists argue that it can unbalance the vine and that pruning short in winter is a better way to control yields. The emphasis today is in allowing vines to find their natural balance, avoiding corrective measures unless there is no alternative.

Yields have certainly decreased over the past two decades; they now average 50 hectolitres per hectare and the wines have benefited. However, there was a fashion for exaggeratedly low yields, especially on the Right Bank. This resulted in super-concentrated wines that could often be jammy or fatiguing. Moreover, the sense of place, which is a hallmark of fine Bordeaux, is obscured by excessive concentration that robs the wine of any nuance. However, this practice is in decline.

Harvest used to be a random procedure. Teams were hired to arrive for a defined period, based on an informed guess as to when the grapes would be ripe. Thus, in most vintages some grapes would be picked under ripe, others overripe and the remainder at the right moment. Today, harvesting teams are hired for a longer period and expect some days of paid idleness should the harvest be interrupted by rain. Large teams of workers (above 100) are hired by the big estates. Many properties hire workers from other EU countries and board the workers throughout harvest, further adding to the cost.

In some parts of the region, such as the northern Médoc, it is hard to find workers to harvest by hand, as the vineyards are a two-hour drive from Bordeaux. Because of this, many vineyards are picked by machine out of economic necessity. Some properties also use machines to collect grapes quickly if fungal disease pressure is high or if the weather forecast is for rain or storms.

Grapes intended for high volume, inexpensive wines are typically picked by machine. Advocates of harvesting by machine argue that it allows them to pick the perfect moment to harvest, without dealing with the vagaries of harvesting teams' schedules. Nonetheless, harvesting by hand undoubtedly gives greater quality control, which is why top estates routinely pick by hand.

2.3. Winemaking

Levels of sorting vary according to the value of the wine and the quality of the vintage. Grapes for inexpensive wines will not be routinely sorted, while grapes for high quality wines will be sorted first by those harvesting by hand as they pick, by hand on a moving or vibrating belt or, in very well-funded properties, by optical sorting. In the very best vintages, even top estates may decide not to sort in the winery because of the uniformly high quality of the fruit and because they have sorted in the vineyard.

Many properties, especially those producing high quality wines, have moved to plot by plot winemaking, picking individual plots for optimum ripeness and then making separate small lots of wine with those grapes. In addition to the added care needed over harvesting

Fruit being delivered to the Saint-Émilion co-operative

Machine-harvested fruit

dates, this also requires more, smaller vessels to be available in the winery, adding to cost but producing higher quality.

RED WINEMAKING

Fermentation takes place in closed vats with pump-overs as the usual practice. Most properties used cultured yeast for its reliability. Fermentation vessels include wood, stainless steel and concrete. All are fitted with temperature control.

Fermentation temperatures and the extent of post-fermentation maceration on the skins depends on the style of the wine to be made and the quality of the vintage. Mid-range fermentation temperatures and a short period on the skins after fermentation (5–7 days) is typically used for wines intended for early drinking to preserve primary fruit and to limit the extraction of tannins. Mid-range to warm fermentation temperatures and a total of 14–30 days on the skins may be employed for wines intended to be aged for many years in bottle. Maceration times are reduced in poor vintages if the fruit is not fully ripe.

The wine is drained off, and the remaining skins are pressed, either in pneumatic presses or in modern vertical or hydraulic presses, which are believed to give the best results because of their gentle extraction. The press wine is, like the free run wine, transferred into 225-litre barrels (barriques), and the winemaker will decide later what proportion of press wine the final blend will contain. That will depend on whether the free run wine needs more structure and tannin.

Malolactic conversion takes place either in tanks or in the barrels, some winemakers arguing that there is a better integration of wine and wood. As top-quality wines will be tasted initially in the following spring by buyers and wine journalists, many estates will inoculate to ensure rapid completion of malolactic conversion. Cellars may be heated to encourage an efficient conversion.

New concrete fermentation tanks, Margaux

Finished new barriques ready for delivery to wineries

Simpler wines are typically aged in stainless steel, concrete vats or large vats for 4–6 months and oak chips may be added for an oak flavour effect. High quality wines are matured in French oak barriques. Most common is a mix of new, one-year old and two-year old barriques, although some very prestigious properties will use up to 100 per cent new oak. However, the percentage of new oak has been decreasing in recent years to more moderate levels for many estates.

Winemakers choose the barrel makers, often opting for a range of cooperages for greater perceived complexity, and the level of toast, typically medium to medium plus. Wines will be matured for 18–24 months, depending on the quality of the wine (wines of greater concentration and higher tannins need longer) and the progress of maturation in any particular year. By tradition, wines are racked every three months, although some prefer to leave the wine undisturbed on the lees and may use micro-oxygenation to replace the oxygenation caused by racking, to prevent reduction and to help to soften tannins.

There are two approaches to blending. Most estates, especially those that opt to present their wines in the spring for the *en primeur* tastings (see Wine Business), blend over the winter. The outcome is not just a near-final blend of the main wine, but a deselection of wines that will end up in the estate's second or third label or that will be sold off in bulk to merchants. A minority of estates blend a few months before bottling, when the blending team can assess the evolution of each variety and each lot before making the final decisions. The majority of the top properties work with a winemaking consultant whose main role is to assist with the blending process.

ROSĖ WINEMAKING

Two styles of rosé are now made in Bordeaux, the deeper coloured, traditional Clairet and a lighter coloured rosé.[6] The main varieties used are Merlot and Cabernet Sauvignon. In the past wines were made either from younger vines or by the short maceration and bleeding off method. Here, the rosé is a by-product of red wine production in which the main aim is to produce deeper coloured red musts and wines. The newer style, lighter coloured rosé is more likely to be made by direct pressing.

WHITE WINEMAKING

Once the grapes have been picked, they are either pressed directly on arrival at the winery or left on the skins for up to 24 hours before being pressed. The first method delivers maximum freshness, the second more aromatic and phenolic complexity, although the grapes need to be fully healthy, otherwise off-flavours could be extracted.

Wines intended for early drinking are generally fermented at cool fermentation temperatures in stainless steel tanks. Inexpensive wine may then remain in the tanks for a few months before being clarified and bottled. Mid-priced wines are often left on the fine lees for 6–12 months, which will give them more weight and complexity.

Higher quality wines are fermented and aged in barriques, with a varying proportion of new oak. Many producers block the malolactic conversion to retain freshness and acidity. It used to be common for the fine lees to be regularly stirred (*bâtonnage*) to enrich the wines further. However, today many winemakers are wary of the technique, which can, especially in hot years, give the wines excessive body in relation to their levels of acidity.

The contemporary style of white Bordeaux owes a great deal to the work of Professor Denis Dubourdieu and André Lurton. They advocated an increased focus on Sauvignon Blanc, skin contact for the extraction of aromatics and a reduction in the proportion of new oak used in the fermentation and maturation stages.

SWEET WINE: GRAPE GROWING AND WINEMAKING

Bordeaux has a long tradition of producing sweet wines, often from botrytis-affected fruit. The production process is complex, as it begins in the vineyard. Yields must be kept low, often at levels one-third of those acceptable for still wines, to ensure very high sugar levels in the grapes. This is achieved by pruning to a low number of buds and then the removal of any fruit that shows any signs of disease or damage, as these would be highly prone to grey mould at the end of the season. Low yields and the reduction in juice created by botrytis mean that many estates do not achieve the low 25 hL/ha maximum allowed in the top appellations, Sauternes and Barsac. Below 10 hL/ha is common at the very top estates. These low yields alone increase production costs greatly.

Harvesters must be well trained and capable of identifying noble rot in contrast to grey or black rot, which are entirely negative. For wines of high botrytis concentration, teams of pickers must go through the vineyards more than once (in some vintages 10–12 times at the properties paying the greatest attention to detail) to select properly botrytised and ripe bunches or berries. The harvest can last from September to November. Thus, vital decisions affecting quality are made in the vineyard.

Cane pruning in Sauternes

Botrytised fruit, Sauternes

Barrel ageing Sauternes

The level of botrytis in the final wines depends on:

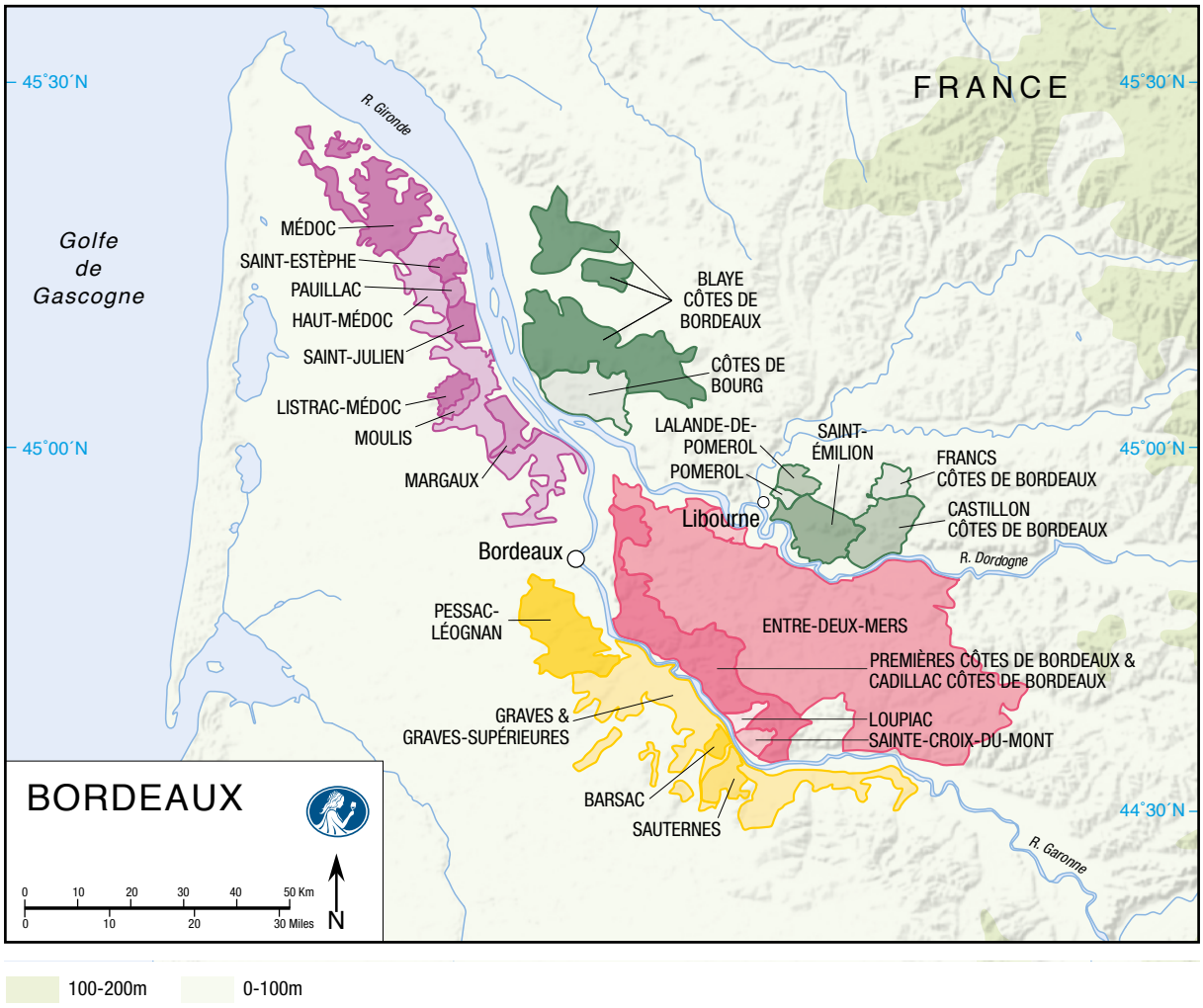
- whether the conditions are correct for the spread of noble rot, which varies from year to year;
- the position of estates (proximity to areas where mist forms most regularly versus other locations);
- the willingness of estates to wait for the best times to harvest and risk losing all or part of the crop due to adverse weather;
- the willingness of estates to pay for multiple passes through the vineyard to select botrytis-affected fruit.

As a result, the wines may be made from varying proportions of botrytis-affected and late-harvested fruit.

Once picked, the grapes are handled as for a dry white wine, being fermented in stainless steel tanks, concrete tanks or barriques, and then aged for varying periods in any of those containers. Top-quality wines are typically barrel-fermented (for the best integration of oak and fruit flavours) with a high proportion of new oak and barrel-aged (for 18–36 months for top wines) to encourage a gentle oxidation that will add complexity. The amount of new oak ranges from 30 to 50 per cent, but can be up to 100 per cent; for example, at Ch. d'Yquem. This adds significantly to production costs. Wines from the less prestigious sweet wine appellations are often unoaked and released a year after the harvest.

2.4. Key Appellations, Wine Law and Regulations

With 65 appellations in Bordeaux, some key examples are given here.



Most appellation regulations simply list the permitted Bordeaux varieties and do not require any particular proportions of named varieties. Thus, for example, while both Pauillac AOC and Pomerol AOC allow the use of the same list of varieties, namely Cabernet Franc, Cabernet Sauvignon, Carmenère, Malbec, Merlot and Petit Verdot, in practice the great majority of wines in Pauillac are dominated by Cabernet Sauvignon and in Pomerol by Merlot, reflecting the traditional plantings on the Left and Right Banks.

GENERIC APPELLATIONS

Bordeaux AOC and Bordeaux Supérieur AOC

Bordeaux AOC is the vast regional appellation for still red, rosé and white wines. Maximum yield is 67 hL/ha for whites, 62 hL/ha for rosés and 60 hL/ha for reds, resulting in some wines of low flavour concentration. In Bordeaux Supérieur AOC (also for the entire region) the maximum yield is 59 hL/ha for red wine. Bordeaux Supérieur AOC is also subject to slightly stricter rules regarding ageing and minimum alcohol levels than a Bordeaux AOC. These two appellations together account for 44 per cent of all wine produced in Bordeaux.[7] The red wines, which are mainly made from Merlot, typically have medium intensity red fruit, high

acidity, medium (+) tannins, medium body and medium alcohol. The white wines are made with increasing amounts of Sauvignon Blanc and have medium intensity gooseberry and lemon fruit, medium body, high acidity and medium alcohol. Most of the wines are acceptable to good quality and inexpensive to mid-priced.

LEFT BANK RED WINE APPELLATIONS

Médoc AOC and Haut-Médoc AOC

These appellations are situated on the left bank of the Gironde to the north of the city of Bordeaux. Both of these appellations are for red wine only and maximum yield is 55 hL/ha. Wines can only be sold for consumption from mid-June of the year after the harvest.

Médoc AOC covers the northern end of the area and is mainly planted with Merlot (55 per cent) and Cabernet Sauvignon (40 per cent), though the wines are often predominantly Merlot. Haut-Médoc AOC covers the area closest to Bordeaux city and includes the famous Left Bank individual communes discussed immediately below. Here, the soils include warm, gravelly sites for Merlot and Cabernet Sauvignon. As these are large areas, wines labelled Médoc AOC and Haut-Médoc AOC come in a wide range of prices and quality levels. However, as lower yields are required than for Bordeaux AOC, Médoc AOC and Haut-Médoc AOC wines typically have slightly higher fruit concentration, with medium (+) red fruit.

The Haut-Médoc sub-region is the location of four famous single commune appellations: Saint-Estèphe, Pauillac, Saint-Julien and Margaux. These appellations are adjacent to the Gironde estuary and its moderating influence and have a high proportion of warm, gravelly soils enabling Cabernet Sauvignon to ripen. These four appellations are for red wines only, with a maximum yield of 57 hL/ha. The wines typically have pronounced intensity blackcurrant, green bell pepper (especially in cooler vintages) and red plum fruit, with vanilla and cedar oak notes. They have medium to high alcohol, high tannins and are medium (+) bodied. The wines in these four communal AOCs are typically very good to outstanding in quality and premium to super-premium in price.

Saint-Estèphe AOC

This is the most northerly and coolest of the four prestigious Left Bank Médoc communes, as it is closest to the Atlantic Ocean. At 43 per cent, it has more Merlot planted proportionally than the other three, as it can ripen successfully here and is well suited to the clay soils away from the estuary. Cabernet Sauvignon makes up 49 per cent of the plantings and performs best on the gravel banks close to the estuary.

Due its cooler regional climate, Saint-Estèphe has a reputation for rustic wines that need many years in the bottle to soften the tannins. However, some wines are softer and more accessible, especially from the warmer gravel soils or where there is a significant proportion of Merlot in the blend. Furthermore, the water retaining capacity of the clay soils has proven to be advantageous in recent dry, hot summers. It has no First growths, but it does have Second growths and a large number of Cru Bourgeois.

Pauillac AOC

This appellation has a high proportion of Cabernet Sauvignon planted (around 63 per cent) often on the gravel banks close to the estuary, enabling the variety to ripen fully in most years.[8] Many of the top estates have an even higher proportion of Cabernet Sauvignon in the blend (70–80 per cent), resulting in wines of high concentration and great longevity. Stylistically, it

is regarded as the most structured wine of the Left Bank, with high tannins and high acidity, giving it the capacity for long ageing. Pauillac has three of the five First growths. It also has the highest proportion of production of *cru classé* wine, around 85 per cent of production, followed closely by Saint-Julien.[9]

Vines at Ch. Latour near the estuary

Saint-Julien AOC

Like Pauillac, this appellation has a very high proportion of Cabernet Sauvignon planted and a high proportion of *cru classé* production. It has very homogenous gravel soils. Stylistically it is often regarded as a mid-way point between the powerful structure of Pauillac and the finesse of Margaux. It has no First growths but five Second growths.

Margaux AOC

This appellation has a high proportion of *cru classé* production and one First growth. In terms of the varieties planted, while Cabernet Sauvignon continues to be the most planted variety, there is proportionately slightly less of this variety planted and slightly more Merlot than in Pauillac or Saint-Julien. It has stony, gravelly soils and, being slightly further south, grapes ripen a few days earlier than, for example, in Pauillac and 7–10 days earlier than the more northern Medoc appellations. This can be an advantage in cool years or if rain threatens. However, clay seams mean that some soils can require supplementary drainage, adding to the investment required. Margaux has a reputation for perfumed wines with silky tannins.

Listrac-Médoc AOC and Moulis AOC

These two appellations for red wines are further from the river than the four single commune appellations just discussed. As a result, they benefit from less of the moderating influence of the estuary and have less gravel in the soils. Apart from being able to release the wine for consumption slightly earlier, the AOC requirements are the same as for the four single communal appellations. The wines are typically good to very good and mid-priced to premium priced.

GRAVES APPELLATIONS

Graves AOC

This large appellation for white and red wines stretches from the city of Bordeaux southwards. Maximum yields are limited to 58 and 55 hL/ha respectively, with 85 per cent of wine being red. Most Graves AOC wine is acceptable to good quality and inexpensive to mid-priced.

Graves Supérieures AOC is restricted to late picked and/or botrytis-affected sweet wines, which allows higher yields (40 hL/ha) than Sauternes.

Pessac-Léognan AOC

This compact appellation includes some of the southern suburbs of the city of Bordeaux and is a sub-region within Graves AOC. It has both the gravel soils and the moderating effect of the Garonne like the top communes of the Médoc. It is known for high quality, often barrel-fermented and aged white wines and high quality red wines, although the red/white split is 80/20 per cent. It includes one First growth from the 1855 classification and all of the *cru classé* properties of the Graves classification. It has the reputation for producing the best white wines of Bordeaux. Maximum yield is 54 hL/ha for both red and white wines. The white wines are typically a blend of Sauvignon Blanc and Semillon and have pronounced aromas of gooseberry, lemon and grapefruit with vanilla and clove oak notes, medium (+) body, medium (+) to high acidity and medium to high alcohol. They are typically very good to outstanding and premium to super-premium in price. The red wines are similar in style and price to the red wines of the four most prestigious Médoc communes.

ENTRE-DEUX-MERS

Entre-deux-Mers AOC

This is the second largest appellation in terms of hectares, although much smaller than Bordeaux AOC, producing only white wines. (Red wine is produced within the appellation area but is bottled as Bordeaux or Bordeaux Supérieur.) The maximum yield is 65 hL/ha, resulting in some wines of light flavour intensity. The wines are typically acceptable to good in quality and inexpensive to mid-priced.

RIGHT BANK RED WINE APPELLATIONS

The Right Bank is characterised by many small estates (some as small as one hectare) and the dominance of Merlot in particular (which does well on the cool, clay soils), followed by Cabernet Franc and small plantings of Cabernet Sauvignon.

Saint-Émilion and Saint-Émilion Grand Cru AOC

These two appellations cover the same large area producing red wine only. Saint-Émilion Grand Cru has lower maximum yields (46 hL/ha, as opposed to 53 hL/ha) and longer minimum maturation time (20 months, as opposed to six months).

Merlot is the dominant grape variety (77 per cent)[10] and Cabernet Franc the next most grown variety.

Saint-Émilion has its own classification system, commented on further below in Classification Systems. There is a great range of quality from simple wines made for early drinking through to the top *grand cru classé* wines of comparable quality to the First growths of the 1855 classification. These top wines typically have pronounced red and black plum fruit with noticeable vanilla and clove new oak character, with a full body, high alcohol, medium (+)

to high acidity and medium (+) to high tannins. Because of the intense fruit concentration, high acidity and tannins, the best wines can age for many years in bottle.

Saint-Émilion satellites

This is the name given to four AOCs that are close to Saint-Émilion but further away from the River Dordogne. Similar wines are made to the same rules as Saint-Émilion AOC. The two largest satellites are **Montagne Saint-Émilion AOC** and **Lussac-Saint-Émilion AOC**.

Pomerol AOC

This is a small but very prestigious appellation for red wines with Merlot as the dominant grape (80 per cent)[11] and Cabernet Franc being the next most grown variety. The maximum yield is 49 hL/ha. There is no classification system in Pomerol, but many top-quality estates. The wines are typically very good to outstanding and premium to super-premium in price. The top wines are similar to the top wines of Saint-Émilion described above.

Partly because of the small size of the estates in Pomerol and consequent small production (compare Petrus, with fewer than 12 ha, to the Left Bank First growths with 80–100 ha each), the top properties command some of the highest prices in the world per bottle. Like the top wines of Saint-Émilion, the wines typically have pronounced red and black plum fruit with noticeable vanilla and clove new oak character, with a full body, high alcohol, medium (+) to high acidity and medium (+) to high tannins. Because of the high fruit concentration, high acidity and tannins, the best wines can age for many years in bottle.

Lalande-de-Pomerol AOC

This is a larger satellite appellation that allows slightly higher yields than in Pomerol AOC.

CÔTES DE BORDEAUX

Côtes de Bordeaux AOC is an appellation for red and white wine created in 2009 for a group of appellations on the Right Bank. A number of communes can append their name before the AOC name, for example, **Blaye** Côtes de Bordeaux. The same is the case for **Cadillac**, **Castillon** and **Francs**. For red wines, the maximum yield is 55 hL/ha and 52 hL/ha if a commune name is appended.

CÔTES DE BOURG AOC

This is a similar appellation to Côtes de Bordeaux AOC that is not under the umbrella of Côtes de Bordeaux. The dominant grape variety is Merlot and the wines are similar in style and price to Médoc AOC. This appellation has a focus on Malbec, with 10 per cent of its hectares being planted with this variety, the highest percentage of any Bordeaux appellation.[12]

SWEET WINE APPELLATIONS

Sauternes AOC and Barsac AOC

These two appellations in the southern part of the Graves are for sweet, typically botrytis-affected wines made from Sémillon (80 per cent of plantings), Sauvignon Blanc and tiny amounts of Muscadelle. They have the conditions to produce noble rot due to the meeting of the cold Ciron River with the warmer Garonne River, promoting morning mists. The ideal situation for noble rot is when these mists are burnt off by the middle of the day, with sunshine in the afternoon drying the grapes to avoid the development of grey rot.

Sauternes is the largest sweet wine appellation in Bordeaux, accounting for 50 per cent of all production. Wines from the commune of Barsac may be labelled as either Barsac AOC or Sauternes AOC. Maximum yields are limited to just 25 hL/ha in both appellations, but in reality much lower yields are often required to ensure grapes are fully ripened before noble rot develops. The wines have pronounced aromas of citrus peel, honey and tropical fruit (mango) with vanilla oak notes; they are full bodied, with high alcohol, medium to medium (+) acidity and a sweet finish. The wines are very good to outstanding and prices range from mid-priced to super-premium.

Sauternes has been facing a crisis for the past 30 years due to a lack of demand for the wines. In response to this crisis, many properties have started producing dry wines as an important source of income.

Older Sauternes vintages.

Other Sweet Wine Appellations

Sweet white wine is also produced in a number of appellations on both banks of the Garonne, such as **Sainte-Croix-du-Mont AOC** and **Loupiac AOC** (maximum yields are 40 hL/ha) and **Premières Côtes de Bordeaux AOC** (maximum yield is 45 hL/ha). These wines may be botrytis-affected or simply late harvest. The wines are good to very good in quality and inexpensive to mid-priced.

2.5. Classification Systems

In addition to its appellations, Bordeaux has quality hierarchies for nearly all of its high-quality wine. The 1855 classification of *grand cru classé* (often referred to as *cru classé*) is based on prices then being achieved for the wines of the Médoc (plus Ch. Haut-Brion in the Graves) and Sauternes. The wines of the Médoc were ranked into First to Fifth growths, and Sauternes into First and Second growths, with Ch. d'Yquem being awarded a special category of its own, Premier Cru Supérieur. There have been minor modifications to the 1855 classification, but it remains essentially unaltered today and continues to affect prices paid. *Cru classé* wine represents about a quarter of the wine produced in the Médoc. Classed growths must be bottled at the estate, although today many other wineries also bottle on their own estates.

Following the 1855 classification, some other sub-regions classified their wines. The four official classifications are:

The 1855 classification – As noted, this classification includes the 60 leading properties or châteaux from the Médoc and one from the Graves, ranked in five tiers, referred to as *crus* or growths, from first growths, or *premiers crus*, down to fifth growths, or *cinquièmes crus*.

The Graves classification – In 1959 the Graves established a list based on pricing, fame and quality as judged by tasting. Altogether there are 16 classified châteaux, for their red, white or both, all located within the sub region of Pessac

Léognan. The Graves classification is a simple list with no sub-divisions and can be for red and white wines.

The Saint-Émilion Grand Cru classification – This classification only applies to some wines within the Saint-Émilion Grand Cru AOC, the name of the appellation. (In other words, wines that are Saint-Émilion AOC or simply labelled as Saint-Émilion Grand Cru AOC are not within the classification.)

First growths (*premier cru classé*)
- Château Lafite Rothschild, Pauillac
- Château Latour, Pauillac
- Château Margaux, Margaux
- Château Haut-Brion, Pessac, Graves
- Château Mouton Rothschild, Pauillac (promoted in 1973)

The classification dates back to 1955 and has been revised at approximately 10-yearly intervals ever since. Châteaux are judged on their *terroir*, methods of production, reputation and commercial considerations and a blind tasting of at least 10 vintages. The classification includes Premier Grand Cru (which includes the higher category entitled to Premier Grand Cru A status) and Grand Cru Classé. The most recent revision was published in 2022.

The Crus Bourgeois du Médoc classification – Created in 1932, Cru Bourgeois is a level below Cru Classé, but still of superior quality. In 2010, it was revised with the Cru Bourgeois label awarded annually to individual wines rather than to châteaux as a mark of quality based on an assessment of both production methods and the finished product. Any property in the Médoc may apply. From the 2018 vintage on, châteaux will be classified as one of three tiers of quality (as was done in the past): Cru Bourgeois, Cru Bourgeois Supérieur and Cru Bourgeois Exceptionnel, and this classification will last for five years.

Pomerol is the only top-quality appellation that does not have a classification system at all, though some estates have the highest reputation, e.g. Petrus.

Some of the classifications have proved controversial. The Saint-Émilion classification has been challenged, and lawsuits have dented its reputation and value. Before the Saint-Émilion classification of 2022 was released, three prestigious chateaux, Angélus, Ausone and Cheval Blanc, decided to leave the system. More generally, the use of the term 'Grand Cru' in the name of this Saint-Émilion appellation is regarded by many outside of the region as misleading. The Graves classification is due for revision, with too many high quality estates not included in the current list, but that may not happen as the proprietors fear a repetition of the disputes that have discredited the Saint-Émilion classification.

2.6. Wine Business

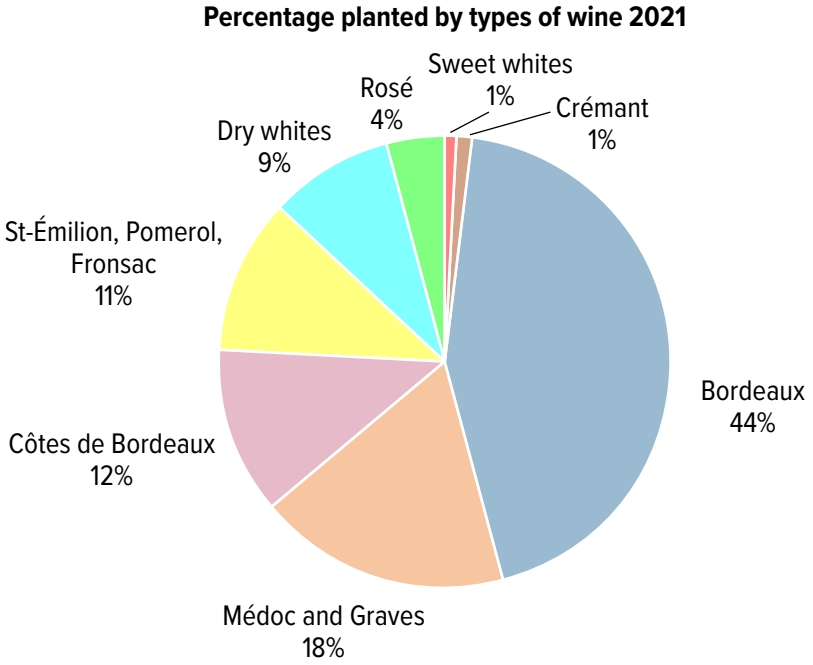
There are over 7,000 estates mostly called *châteaux*, even though a *château* can be a palatial country mansion or a dilapidated farmhouse. The number of estates is shrinking, as very small properties are being taken over by larger neighbours to create volumes of wine that are more viable commercially. The average estate size has been rising and in 2022 was 20 hectares.[13] The annual production fluctuates, but is generally over 800 million bottles.

Co-operatives continue to play an important role in Bordeaux. In 2018, they were responsible for just under a quarter of production from 40 per cent of grape growers.[14]

As noted previously, the vast majority of wines are inexpensive or mid-priced and this is reflected in the areas of vineyards planted in the appellations.

Ch. Pichon Baron, Pauillac

Ch. Fourcas Dupre, Listrac



Note: 'Bordeaux' includes red Bordeaux AOC and Bordeaux Supérieur[15]

Production costs for Bordeaux AOC, a Médoc estate and a classed growth are significantly different: €0.57, €2.35 and €16 per bottle (estimated on 2017 figures).[16] These figures do not include interest on bank loans or land costs, which would increase the costs significantly.[17] The main additional production costs for a classed growth are increased vine density, harvest costs, hugely higher viticultural costs, lower yield, rigorous grape selection and barrel ageing (both the cost of a higher proportion of new barrels and extended time in barrel).

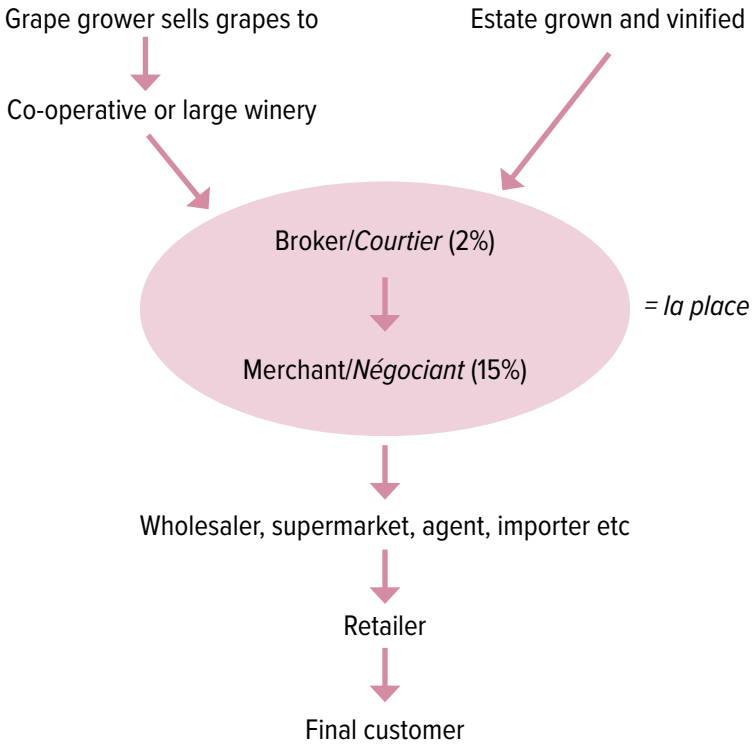
While the classifications (see above) have been an important way of selling wine, the 100-point rating system associated with Robert Parker and adopted by many top critics has become a vital tool for selling wine, initially in the USA and then around the world. Scores have become an easy to understand way of communicating with potential purchasers.

MARKETS

The total value of Bordeaux wine sales in 2021 was more than €4 billion. 55 per cent of Bordeaux wine by volume was sold within France, with 48 per cent of that being sold in supermarkets (average price €5.96). Exports accounted for 45 per cent of Bordeaux wine by volume and 52 per cent by value. The top export markets by value were China, USA and Belgium.[18]

LA PLACE DE BORDEAUX

Bordeaux has a unique commercial system, known as *la place de Bordeaux*. Few producers sell wine directly. Rather, the wine is sold to a merchant (*négociant*, collectively known as *la négoce* that sells approximately 70 per cent of wine) who in turn sells it on to wholesalers and retailers. In addition, the relationship between the producers (estates, co-operatives and large winery businesses) and the merchants is handled by a broker, known as a *courtier*. Each of the parties charges a percentage for their services. The *châteaux* sell their wines to *négociants*, who then sell and ship the wines to distributors (importers, wholesalers and retailers) throughout the world, taking an average of 15 per cent of the sale price that the



châteaux receive. *Courtiers* act as brokers between the *châteaux* and the *négociants*, earning two per cent.[19]

Bordeaux wines are distributed to more than 170 countries across the globe. In order for a *château* to ensure that its wines are in key markets, they will sell to a number of *négociants*, often as many as 40. The number of cases purchased by each *négociant* is determined by an allocation system, where each *négociant* is allotted a percentage of production every vintage.

There are two very strongly contrasting markets in wine in Bordeaux. The great majority of wine (Bordeaux and Bordeaux Supérieur) is inexpensive and has struggled to raise its price much above €1 per litre for wine in bulk over many years,[20] due to lower demand in France and huge competition from wines from other countries, (e.g. Chile, Australia) on export markets. This wine is made in co-operatives and by small producers, or the grapes are sold directly to larger wine companies (for example, Castel). Most of the wine is sold in French supermarkets.

EN PRIMEUR

By contrast, classed growths and other high-quality wines are sold mainly by the *en primeur* system. They are sold as futures, i.e. a paper transaction where the wine is sold a year to 18 months before it is bottled. This system is used in other regions, but is most commonly associated with Bordeaux. These wines are sold in the spring following the harvest, while the wines are still in barrel and not finished or bottled. The idea is that consumers can secure hard-to-buy wines and at a lower price than they will appear in fine wine shops once they are bottled and shipped. The estates benefit from early payment for wine. On the system in general, see the section on Merchants in D2: Wine Business.

Read more on *en primeur* campaigns in one view of the apparent failure of the 2017 *en primeur* campaign: Have we learnt nothing?

The contemporary *en primeur* system dates from the period after the Second World War when the chateaux were struggling financially. However, it was not until the late 1970s that

consumers began to take an interest in Bordeaux *en primeur* sales and it was the great 1982 vintage which really caught their imagination.

The *en primeur* campaign begins in April following vintage when barrel samples are provided by estates to be tasted by wine buyers and journalists; 5–6,000 wine professionals taste and assess the wines while they are still in barrel. The *châteaux* then release their prices throughout May and June. After the tasting, the *châteaux* – usually through their *négociants* – put up for sale a small amount of wine (the first tranche), the price of which will be heavily influenced by the individual *château*'s reputation and the experts' reviews. This first tranche is intended to gauge what the market is prepared to pay for the wine. Depending on how it sells, the price will be adjusted for subsequent tranches. Usually, the price goes up for each tranche. Trade buyers make decisions about what wines they will buy and in what quantities, and journalists publish their scores and reviews to guide consumers. The final customer of *en primeur* wine can put in orders through fine wine merchants.

Wines in demand, especially the rarest and most sought-after wines, will be on allocation. Thus, the *négociant*s and trade buyers may well have to buy wines in a less good vintage if they want to maintain their allocation of wines in top vintages. Wines that are less in demand may well remain on the books of a *négociant* for some years before they are sold; for example, in a year when there is little wine to sell or when prices of the current vintages are too high.

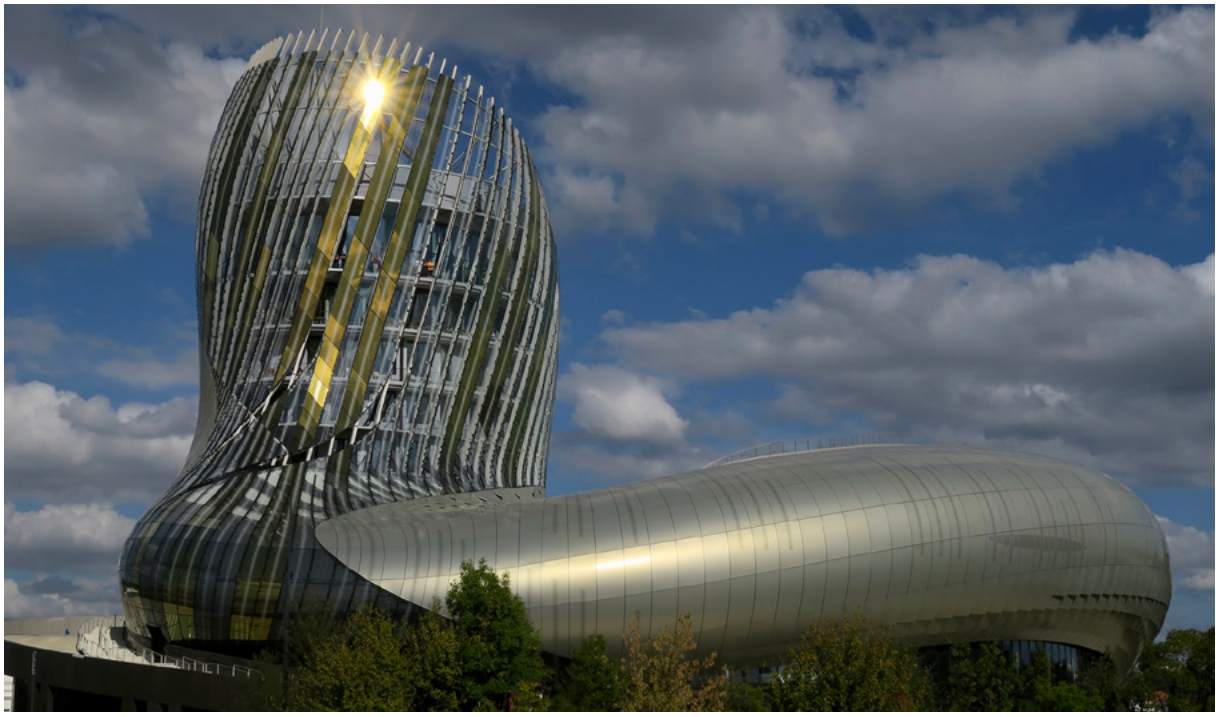
En primeur is a process that lasts for several months. The success or otherwise of the campaign depends on the quality of the wines (top vintages always attract the highest demand), the prices being asked and the state of the market. If the prices are set too high, the estates, *négociants* and retailers will end up with stocks of wine that may have to be stored for many years before they can be sold, compromising profitability. The state of the market also matters. For example, if an averagely good vintage follows a number of successful ones, the estates may need to reduce prices to attract buyers; however, they may well be reluctant to do so and this can lead to unsold wine.

The wines are bought for an *en primeur* price that includes the bottled wine being delivered to the storage of the retailer a year later. The price is ex cellar, i.e. it excludes any taxes that will be due in the final buyer's home market. The wines are typically held in a secure storage unit at the correct temperature and humidity for the long-term storage of fine wine. The final buyer can then decide whether to have the wine delivered, have it stored until it is ready to drink (which may be up to a decade) or to sell on the wine, the idea being that the price will rise as it matures and as the wine is no longer easily available. Bordeaux (particularly First growths and other top wines) accounts for the largest proportion of wine that is traded on the secondary market.

Since 2010 there has been a continuing debate about whether the *en primeur* system still works. In the boom period of the 2000s, in particular due to increased interest from China, *en primeur* prices rose considerably. *Châteaux* became accustomed to offering their wines at ever-higher prices even in relatively poor vintages such as 2011. In the end, this led to Bordeaux prices starting to fall, meaning that some of those who had invested in *en primeur* lost money. Various leading critics have expressed concern at how much their reviews influence the price of the wine, especially given that the wines they taste are often not even the final wine, simply a representation of what the producer expects it to be like after blending etc.

In 2012, Ch. Latour announced that it would no longer be selling its wines *en primeur* and several *châteaux* have reduced the volume of wine they sell in this way. The most prestigious *châteaux* can, of course, afford to keep their wine and only sell it when bottled, whereas smaller or less prestigious *châteaux* cannot and need the money *en primeur* sales generate.

Advantages and disadvantages of the *en primeur* system	Advantages	Disadvantages
For the estates	• Ability to test the market by releasing early lower-priced tranches • Early payment and return on investment, allowing the estates to finance the next vintage	• Potentially selling at a lower price than might be obtained for the bottled wine • Potential for financial mismanagement or losses by *négociant*s (which could lead them to go out of business) that could adversely affect an estate's reputation
For the final customer	• Ability to secure sought-after wines, and theoretically at the lowest price • Option to keep or trade sought-after wines	• Wines are bought on the basis of the opinions of trade buyers and journalists tasting unfinished barrel samples that may not truly reflect the final wine • Intermediaries (*négociants*, shippers) may go out of business before the wine arrives • Prices may fall before the wine arrives due to economic conditions or the quality of following vintages



La Cité du Vin, Bordeaux

WINE TOURISM

Historically, wine tourism has not been a major feature of the way that Bordeaux has promoted itself. However, the city of Bordeaux has become an important tourist destination that now includes La Cité du Vin, Bordeaux's wine visitor centre.

References

1 *Bordeaux 2022 key figures,* Conseil Interprofessionnel du Vin de Bordeaux (CIVB), received 4 October 2022

2 As above

3 Quinney, G. 2018, *Bordeaux 2017 Production Figures by Appellation: The Haves and the Have-nots* (retrieved 30 November 2022)

4 Quinney, G. 2020, *Ch. Bauduc, monthly review, February 2019* (retrieved 5 Octobler 2022)

5 Bordeaux environmental progress April 2022, CIVB, received 4 October 2022

6 Gabay, E. 2018, *Three Serious Bordeaux Rosés* (retrieved 30 November 2022)

7 *Bordeaux and Bordeaux Supérieur*, CIVB (retrieved 30 November 2022)

8 Les Vins du Médoc Bordeaux, Conseil des Vins du Médoc, PowerPoint, slide 8, 5 September 2023

9 Clarke, O. 2000, *Oz Clarke's New Essential Wine Book,* 3rd edition, Simon and Schuster, p. 45

10 Private communication (email, 10 January 2024), Conseil des Vins de Saint-Émilion

11 *Pomerol*,

12 *Wine appellation,* Côtes-de-Bourg (retrieved 6 October 2022)

13 *Bordeaux 2022 key figures*, as above

14 As above

15 As above

16 Johnson, H. and Robinson, J. 2019, *The World Atlas of Wine*, 8th edition, p. 87

17 Schmitt, P. 2012, *Pauillac More Costly to Produce Than Sauternes,* (summarising the study of Jean-Michel Valette MW) The Drinks Business (retrieved 5 October 2022)

18 *Bordeaux 2022 key figures*, as above

19 Anson, J. The Place de Bordeaux, www.newbordeaux.com (retrieved 12 May 2021; no longer available)

20 Quinney, G. 2014, *Bordeaux 2013 Yields Down 27%, Bulk Prices up 27%* (retrieved 5 October 2022)Syndicat Viticole de Pomerol (retrieved 6 December 2023)