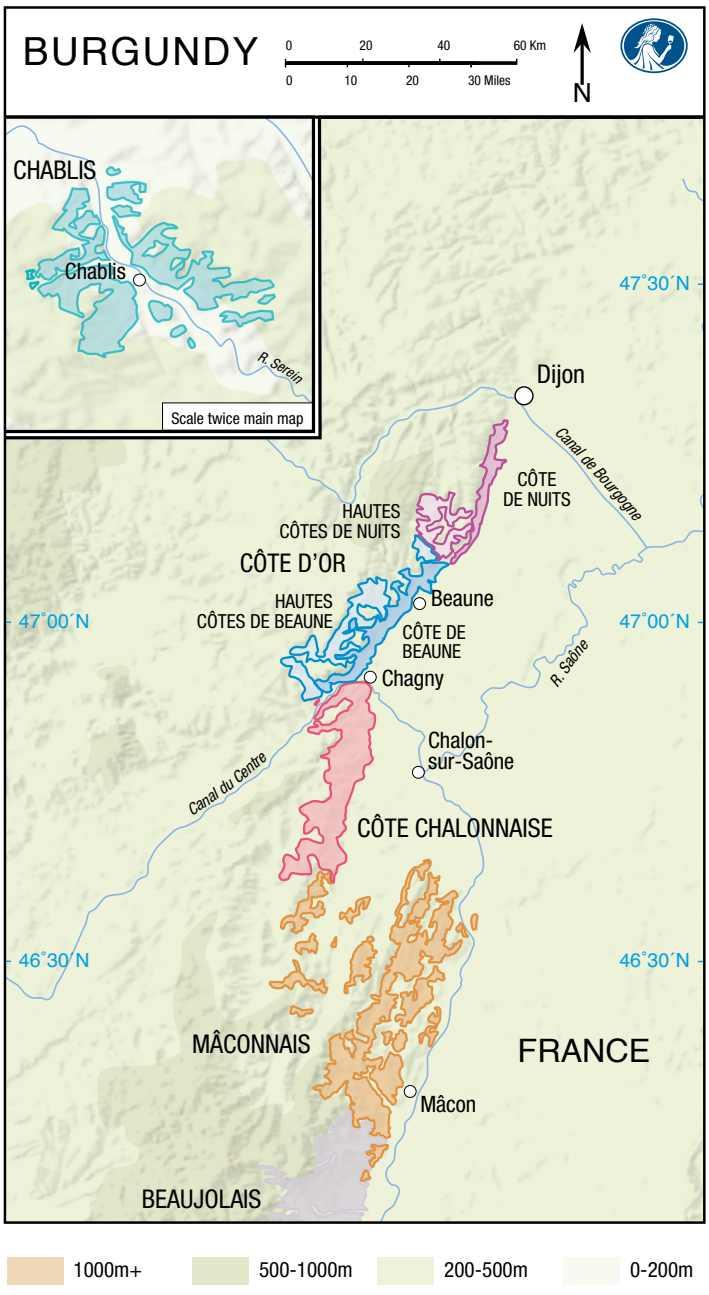
3. Burgundy

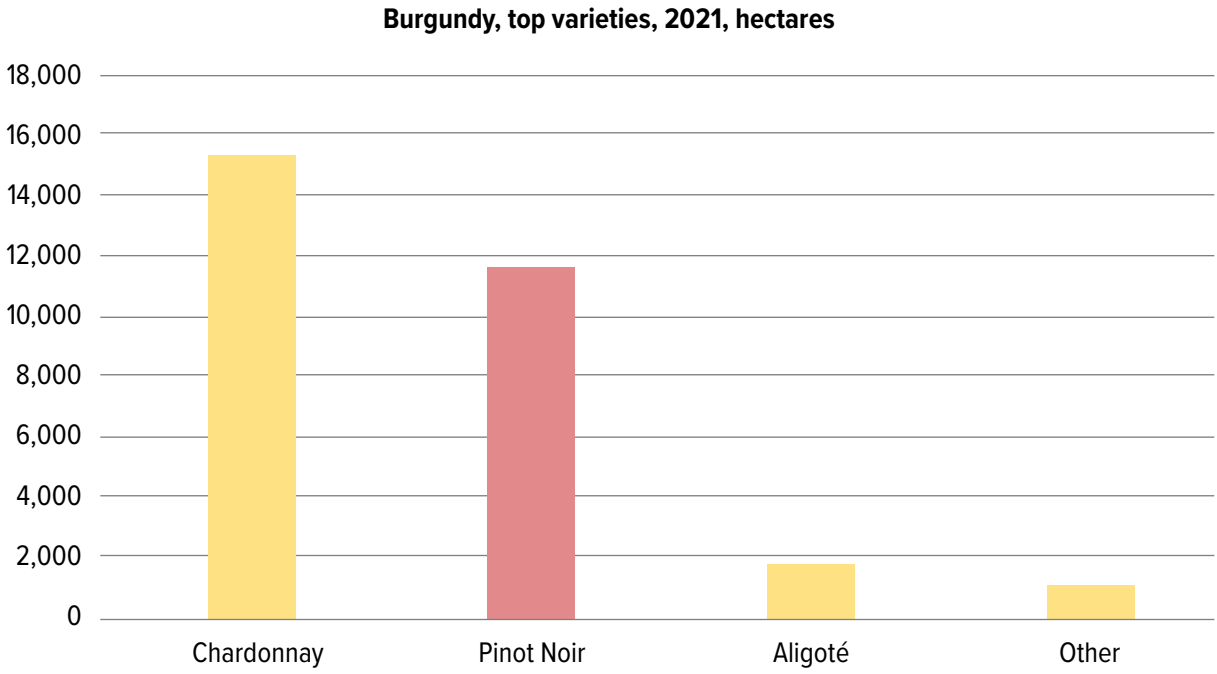
Burgundy is renowned for the quality of its single variety wines, made from Pinot Noir for red wines and Chardonnay for white wines. The wines are regarded as models for many producers and consumers around the world. It has a very long grape growing history going back to Roman times and then the period of the great monasteries (1000 CE onwards), in which vineyards began to be divided into individually named plots, known as *climats*.

The Burgundy wine region comprises a number of areas: Chablis, the Côte d'Or, the Côte Chalonnaise and the Mâconnais areas further to the south and finally Beaujolais (to which a separate chapter is devoted). All of these areas, except for Chablis, occupy a relatively narrow strip of land running approximately in a north–south direction between Dijon in the north and Mâcon, around 130 km (80 miles) to the south. The Côte d'Or is divided into the Côte de Nuits, which runs south from Dijon to just south of Nuits-Saint-Georges and the Côte de Beaune, which runs south from there to Santenay.

Plantings in Burgundy (excluding Beaujolais) are dominated by Chardonnay and Pinot Noir. The wines are produced at a range of quality levels but are mainly good to outstanding and sell for a range of prices from mid-priced to super-premium. Limited supply and surging worldwide demand mean that average prices are high.

The plantings in the sub-regions vary markedly: the Yonne *département* (which includes Chablis) is 80 per cent Chardonnay, while the Côte d'Or is over 60 per cent Pinot Noir.





Source: BIVB.[1] Note: 'Other' includes Gamay and Sauvignon Blanc

3.1. Chablis

Chablis is the name of a town and an appellation that lies in the valley of the River Serein in the northern-most part of Burgundy. 110 kilometres (70 miles) north-west of Dijon, it has a slightly cooler climate than the Côte d'Or. It is well-known for wines made with the Chardonnay variety. All the wines are dry, most are medium bodied, medium alcohol, with zesty high acidity, green apple and lemon fruit flavours. The general trend is for no or minimal oak flavour, although fermentation and ageing in oak can be used by some producers for premier and grand crus. (For the range of styles see below.) There is a range of quality from good to outstanding wines that can be cellared and aged. The prices range from mid-price to premium, with a few super-premium examples, even if generally they do not reach the heights of the most expensive wines from the Côte d'Or.

Chablis has experienced major swings in its popularity. In the early 19th century it enjoyed a boom due to its relative proximity to Paris. (The *département* of the Yonne as a whole had 40,000 ha in this period.[2]) However, plantings in Chablis shrank under the challenges of phylloxera and powdery mildew in the 19th century and, above all, the building of the Paris-Lyons-Marseille railway in the middle of the 19th century. After the coming of the railway, Chablis could not compete with cheaper wines from the south of France. Rural depopulation after the First World War and the devastating frost of 1945 reduced Chablis to a low point of just 500 ha. In more recent decades, demand has led to the land under vine growing back to 5,800 ha.[3]

THE GROWING ENVIRONMENT AND GRAPE GROWING

Climate

The climate in Chablis is continental with cold winters and warm summers. Because of its cool northern location there is uncertainty about ripening and considerable vintage variation from

year to year. The early ripening characteristic of Chardonnay is an advantage. Average annual rainfall is 670 mm,[4] but this is spread throughout the year making for a moist climate (high threat of fungal diseases) and difficulties in the period leading to harvest (threat of rot).

The region is vulnerable to spring frosts and hail storms during the growing season, both of which have had a severe impact on the region's yields in recent vintages.

The appellation has limestone and clay soils, some of which has a considerable amount of fossilised seashells and is known as Kimmeridgian soil.

The cool, northerly location means vineyards are susceptible to spring frosts. Options for managing this risk are:

- smudge pots: smoky, causes air pollution, requires staff in the vineyard;
- sprinklers ('aspersion'): this is now the most popular option, although the installation and maintenance costs mean that it is only a realistic option for vineyards with a good return on investment (premier crus, grand cru) or for well-funded companies;
- pruning choices: later pruning promotes later bud-burst, reducing the chance of damage to the new buds from early spring frosts.

Vineyard management

41B (*vinifera* x *berlandieri*) rootstock is widely used in Chablis as it is highly tolerant of limestone soils with a high pH. 420A (*riparia* x *berlandieri*) is popular for its low vigour and tolerance to high pH soils. The double Guyot replacement cane training system is typical: if one cane fails, the other may survive frost. (Taille Chablis, a multi- armed cordon system, is typical of Champagne, not Chablis.) As in other parts of Burgundy, Chablis can be badly hit by hail. For further details see Climate in the Côte d'Or, Côte Chalonnaise and Mâconnais.

Yields are higher than in the Côte d'Or, although recent years have seen severely reduced yields due to frost and hail damage. Unlike in the Côte d'Or, much of Chablis today is machine picked, although the grand cru vineyards are mostly too steep for mechanisation and are generally picked by hand.

Location and soil types of the Chablis appellations

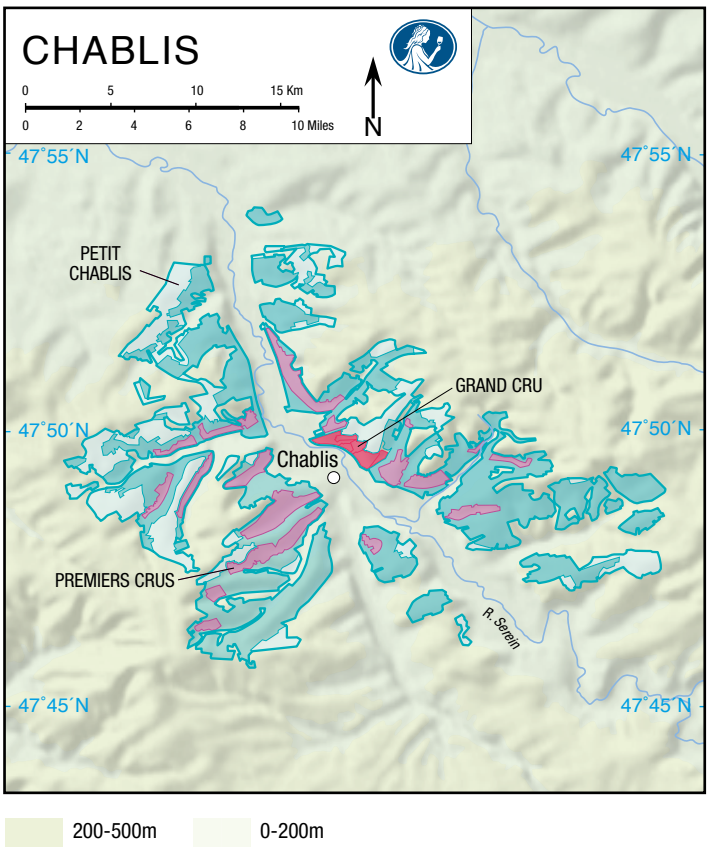
Petit Chablis – These are typically higher, cooler vineyards, predominantly with Portlandian soils (hard limestone with less clay).

Chablis – This is a large area of Kimmeridgian soil and mixed aspects.

The vineyards of both Petit Chablis and Chablis are predominantly on flat land or on gentle slopes. The aspects vary, with many north-facing sites. This leads to light bodied wines, notable for their high acidity, with light (Petit Chablis) to medium (Chablis) intensity and green apple and lemon fruit.

Chablis Premier Cru – 40 named vineyards have premier cru status and are predominantly on south- and south-east-facing slopes of Kimmeridgian soil. Some larger premier cru vineyards have specified named plots (*lieux-dits*) within them. Wines made from these can be labelled under their specific site (like Chablis Premier Cru AOC Troêsmes) or under the larger *climat* they fall within (like Chablis Premier Cru AOC Beauroy). (A *climat* is a named vineyard fixed in AOC legislation, a *lieu-dit* is a named piece of land in the centralised land register.)

Chablis Grand Cru – There is a single grand cru with seven named vineyards (*climats*, including Les Clos and Vaudesir). It is immediately next to the village itself, faces south-west, on the right bank of the River Serein, and is on Kimmeridgian soil. The south- facing slopes promote ripening and the wines have a greater weight and concentration than either premier cru or village level Chablis. The mixture of crumbly marl with good drainage and high clay content for water retention contributes to higher quality. Chablis Grand Cru represents just 1 per cent of Chablis production.[5]



As noted, the vineyards of both Chablis premier cru and grand cru are predominantly on south-facing slopes and often sited mid-slope. The slope means that vineyards are better drained and better protected from frost, and the southerly aspect means better light interception and therefore riper fruit. The grand cru vineyards also benefit from shelter from winds coming from the north due to a belt of trees between them and the adjacent Petit Chablis vineyards. As a result, the wines have greater concentration, body and capacity to age.

Chablis Grand Cru

Chablis Grand Cru slope

WINEMAKING

The option for chaptalisation up to the legal limit is used regularly in all but the warmest years. Fermentation is typically in stainless steel vessels with storage in stainless steel or concrete for a few months for most wines. Malolactic conversion is common to soften the acidity and the wines may also spend some months on the lees to enhance texture.

Oak aromas, flavours and textures are not typically desirable nor commonly found in most generic Chablis, which is celebrated for its crisp, bright citrus and green apple fruit flavours and high acidity. However, some wines, especially the grand crus and more occasionally the premier crus, may be fermented and aged in barrels. There is a range of styles from use of old oak (used, for example, by Dauvissat or Raveneau), some new oak (used, for example, by William Fèvre) and the use of stainless steel or concrete for grand cru wines (used, for example, by Jean-Marc Brocard). This issue has been controversial as some think that Chablis should not smell or taste of oak, unlike many Chardonnays from around the world.

WINE LAW AND REGULATIONS

Only Chardonnay is allowed within the appellation. Maximum yields are restricted to 60 hL/ha for Petit Chablis AOC and Chablis AOC, 58 hL/ha for Chablis Premier Cru AOC and 54 hL/ha for Chablis Grand Cru AOC.

WINE BUSINESS

As in the rest of Burgundy, the traditional distinction between *négociants* (merchants) and *domaines* (estates) is breaking down as *négociants* have bought land and some *domaines* supplement their own production with additional *négociant* business. One-quarter of all wine is vinified by the co-operative La Chablisienne, which operates at all levels of the appellation hierarchy. As elsewhere, more growers are making and marketing their own wines.

There are several associations of wine producers in Chablis. William Fèvre founded Le Syndicat de Défense de l'Appellation de Chablis in 1993 with the aims of combating fraud and addressing environmental issues. L'Union des Grands Crus de Chablis is a voluntary association to promote the quality of Chablis Grand Cru and therefore limited to those who own grand cru sites. It has a quality charter: members must practice sustainable viticulture and harvest by hand.

Market position: How can Chablis succeed when it produces both inexpensive if recognised wine, common in the supermarket and in the hospitality sector, and top premier and grand cru? Some argue that if anything Chablis Grand Cru is too cheap. Read Tim Atkins MW: Chablis can have its cake and eat it too

As with the wines of the Côte d'Or, both the name of the *domaine* and the level of the appellation can be very important drivers of price. Petit Chablis and Chablis AOC tend to be mid-priced, sometimes premium. Premier cru and grand cru wines are usually premium or super-premium in price. Wines from certain highly regarded producers, such as Francois Raveneau and Vincent Dauvissat, sell at extremely high prices.

In general, prices for Chablis are lower than corresponding wines in the quality hierarchy in the Côte d'Or. Two-thirds of Chablis by volume is exported, with the top markets being UK, USA and Japan.[6]

3.2. Côte d'Or, Côte Chalonnaise and Mâconnais

THE GROWING ENVIRONMENT AND GRAPE GROWING

Climate

The climate in these parts of Burgundy is moderate continental; Dijon, at the northern end of the Côte d'Or, being around 500 km (300 miles) from the Mediterranean, with cold winters and warm summers. The relatively short summers make early ripening Chardonnay and Pinot Noir suitable varieties. In the Côte d'Or the Morvan hills to the west provide protection from rainfall. The average annual rainfall is around 700 mm. Early autumn is typically dry, although rain can be a threat at harvest. The climate of the Mâconnais is typically slightly drier and warmer than the Côte d'Or.

Many factors influence the potential quality of individual sites: aspect, altitude, degree of slope and soils. Even though the climate is warmer than it was in previous decades, ripening Pinot Noir is still a precarious business, and a cool vintage can result in underripe tannins in the finished wines. Therefore, promoting the ripeness of skins and seeds is a priority for growers in the region.

Due to its northerly location, vineyard site and the particular weather of each vintage are incredibly important for both yield and quality. The variability of the weather from year to year leads to marked vintage variation.

Frost can be a challenge this far north. Spring frosts, if severe, are a significant problem and may substantially reduce yields if they occur after bud-burst. The risk is particularly acute as both Pinot Noir and Chardonnay are early budding. For details on the measures that

growers can take, see Chablis. This issue is further exacerbated by recent warmer than usual winters that encourage earlier growth, making the vines more vulnerable to frost.

Hail can be a problem throughout the growing season. In April–May the damage to the early growth of the vine can lead to reduced yields, or even in extreme cases a total loss of the crop. Hail later in the season will lead to fruit damage, particularly to exposed grapes. Unless extra care is taken to eliminate damaged berries there is a risk of grey rot tainting the wine. The use of sorting tables has played a critical role in alleviating such problems. Hail netting was not permitted in the past as it was thought to cause too much shading and appear an inauthentic part of the landscape; however, the limited use of anti-hail netting has been permitted from June 2018. Beyond nets, the most common preventative action is to seed thunderclouds with silver iodide to induce precipitation some distance from the vineyards under threat. Hail tends to be highly localised, but for those affected by it the problems that arise from hail damage can be substantial in both winemaking and commercial terms. Villages in the Côte de Beaune, most notably Volnay and Pommard, were particularly badly affected by hail between 2012 and 2015.

Rain can be a problem if it falls at the wrong time. Early in the growing cycle it can disrupt flowering and fruit set, lowering yields and leading to uneven ripening. Extended periods of rain during the growing season increase the threat of fungal diseases. Too much rain just before harvest can lead to dilution because of uptake of water by the grapevine and increase the chance of rot.

Conversely, drought-stress has also presented a problem in some recent vintages, where hot, dry summers have caused berries to shrivel and sometimes caused vines to shut down completely, creating a halt in ripening. Since irrigation is not permitted, water-stress is a concern for growers in a hot, dry vintage. Vineyards with high clay content cope better with water-stress due to their water-retaining properties.

Topography

The aspect and elevation of the various vineyards in Burgundy are among the most critical factors determining the style and quality of the wines. The Côte d'Or lies on a range of hills oriented north–south at elevations ranging from around 200 metres above sea level to around 400 metres. Side valleys are oriented in a more east–west direction at various points along the main slope. This means that, although the main ridge of the Côte d'Or is basically east-facing, there are in fact a range of aspects across its vineyards, many of which are more south-east or even southerly in aspect. The best sites are mostly found on the mid-slope. They benefit from well-draining shallow soils, good sunlight interception and comparative frost protection and better ripening potential due to their central position.

Vineyards at the very top of the slope can have very poor, thin soil and are exposed to cooling winds, while vineyards at the bottom of the slope have deeper soils and are vulnerable to frost. The coolest sites may be planted with Aligoté or used for the production of Crémant de Bourgogne.

Aspects are more varied in the Côte Chalonnaise and Mâconnais. Some of the best south-east-facing slopes of the Côte Chalonnaise are found in Bouzeron and Rully. In the Mâconnais, there are a range of sites, with the best sites of Pouilly-Fuissé typically on slopes with south-facing aspect.

Corton Grand Cru

Soils

In general, the vineyard soils comprise mixtures of various types of limestones and clay, although the proportions vary. The Côte de Nuits is more dominated by limestone in the mixture. The majority of the most highly regarded Pinot Noir wines is grown here. The Côte de Beaune has more clay and the soils are deeper. The majority of the most highly regarded Chardonnay wines come from this area.

The soil in the Côte Chalonnaise and Mâconnais are mixed with a range of limestones and clay. The depth of soil above the bedrock varies significantly, due in part to the movement of soils down the slopes by erosion. This is a source of continuing problems, even in gently sloping vineyards such as the walled Clos de Vougeot. There are thinner soils at higher elevations and deeper ones at the bottom of the slopes. At the top of the slope there is too little soil for vines to thrive. At the bottom of the slope, drainage is poorer, and the soil is deeper with more clay, resulting in greater fertility. In turn this leads to more vigour with an increased danger of shading, a factor that contributes to grapes being less ripe in these areas.

GRAPE VARIETIES

As noted, the region has effectively only one grape variety of each colour used in the production of quality wines – Chardonnay for white wines and Pinot Noir for the reds. Historically, there was a substantial proportion of Aligoté and Gamay grown here until the early part of the 20th century. Some well-regarded Aligoté is grown in the village of Bouzeron in the Côte Chalonnaise.

Chardonnay

Chardonnay is a versatile variety suited to a range of climates. It buds early and so can be susceptible to spring frosts. It also ripens early, making it suitable to grow in a cool region. It can produce relatively high yields without loss of quality. It is, however, prone to grey rot, powdery mildew, millerandage and grapevine yellows. It can be grown in a wide range of soils and climates, resulting in a range of styles; however, many top-quality examples are grown on limestone/clay soils, as in Burgundy.

In cool climates, for example in Burgundy, the resulting wines have apple, pear, lemon and lime fruit with wet stone notes, light to medium body and high acidity (Chablis). In more moderate climates, the wines have ripe citrus, melon and stone fruit, medium to medium (+) body, with medium (+) to high acidity (Côte d'Or).

In good growing seasons in Burgundy, the main challenge in making high quality wine can be vigour management to avoid excessive yield and shading, which would reduce the quality of the fruit.

Pinot Noir

Like Chardonnay, Pinot Noir is a variety that buds early and can therefore be susceptible to spring frosts. It also ripens early, making it suitable to grow in cool regions; however, unlike Chardonnay, yields must be limited to produce quality wines. It is a delicate variety and prone to millerandage, downy and powdery mildew, botrytis bunch rot and fan leaf and leaf roll viruses. In warm climates, it tends to ripen too fast (reducing the intensity of aromas) and the berries can shrivel and suffer from sunburn. In Burgundy, the concerns are more typically whether the fruit will ripen sufficiently to achieve the desired ripeness (tannins, colour and flavour).

Many of the clones used in both red and white Burgundy are drawn from the Dijon clone families developed at the University of Burgundy in Dijon. These clones are now widely used in many wine regions around the world growing Pinot Noir and Chardonnay. As different clones tend to vary in a number of aspects, such as yield, disease tolerance, speed of ripening and fruit characteristics, producers must decide whether to plant vineyard plots with a single clone, leading to a more uniform fruit profile, or plant a mix, leading to greater diversity in grape characteristics (whether good or bad) and potentially more resistance to disease. A number of producers choose to propagate their own vines via mass selection.

In Burgundy, Pinot Noir typically has strawberry, raspberry and red cherry flavours, with village wines and above having light, oak- derived flavours (smoke, clove), low to medium tannins (grand cru wines can have medium (+) tannins), medium alcohol and high acidity. The wines can develop earth, game and mushroom notes with time in bottle.

VINEYARD MANAGEMENT

Some vines are pruned using cordon training systems, including Cordon de Royat. This limits vigour and thus yields, although the high proportion of old wood can harbour disease. Traditionally, vines throughout Burgundy were pruned, trained and trellised using the Guyot system (replacement-cane pruned with VSP). In recent years, many growers have returned to this method as well as an even softer method of cane pruning known as Poussard-Guyot. (This system maintains the same sap route from one year to the next with pruning wounds only on the upper part of the cordon. This reduces the number of pruning wounds and seeks to cut down the incidence of Esca and other trunk diseases.) This method requires skilled vineyard

workers, but it can be hugely helpful in combating trunk disease and also aids canopy management during the growing season.

Planting densities are typically around 8,000–10,000 vines per hectare, although there are growers who have much higher planting densities. Denser planting is thought to encourage root competition, leading to better quality fruit, i.e. smaller berries with higher flavour intensity.

As well as through winter pruning choices, growers can manage and reduce yields by de-budding (usually before flowering) and green harvesting during the latter part of the growing season. Both de-budding and green harvesting have their advantages and disadvantages. De-budding can promote good balance in the vine, but, by reducing the potential yield so early in the season, damage inflicted by hail, frost or fungal disease can have a drastic effect on yield. Bud rubbing can lead to substantially reduced yields if the subsequent growing conditions are poor or later hailstorms reduce the crop. Green harvesting allows growers to assess the size, shape and position of bunches before they decide to sacrifice any. This decision made relatively late in the season allows growers to take into account unpredictable weather events (especially hail) before taking action; however, it can lead to changes in vine development through compensation via excessive growth in the remaining bunches and a resultant dilution in the grapes.

In general, the maximum yields are moderate for regional appellations and reduce steadily through the pyramid of the quality hierarchy. Thus:

- regional appellations rise to a maximum of 69 hL/ha (red) and 75 hL/ha (white);
- village level wines are restricted to 40–45 hL/ha (red) and 45–47 hL/ha (white);
- some grands crus have maximum yields as low as 35 hL/ha (red) and 40 hL/ha (white).

However, there are wide ranges within the quality levels as the rules for individual appellations can reflect local conditions.

Organic and biodynamic grape growing has become more popular, especially among leading growers; however, the climate makes this a challenge. Furthermore, many vineyards are shared in Burgundy and some organic practices require a minimum area to be successfully implemented. This can lead to friction between growers who adopt different approaches to grape growing.

Grape moths are now typically controlled by the use of pheromone capsules. Common fungal diseases (powdery and downy mildew, botrytis in the form of grey rot) have to be managed through canopy management and spraying. Since a recent outbreak of grapevine yellows, the authorities have become very vigilant in monitoring and attempting to restrict the spread of the problem. Esca (and the other trunk diseases) are also significant problems today.

The timing of the harvest in Burgundy is critical, given the marginal climate where storms can lead to dilution and to fruit damage. Judgements have to be made: harvesting early will preserve acidity but the fruit may not be fully ripe, harvesting late can lead to a softer wine style but there may be concerns about the weather. The majority of fruit is still picked by hand and therefore the availability of a workforce to harvest is a major consideration.

WINEMAKING

White winemaking

Acidification or de-acidification (rarely practised) is permitted within the EU limits. When musts have insufficient sugar to reach the minimum alcohol level required or, more likely, the style

desired (more alcohol adds to the perceived body of the wine in the mouth), winemakers will chaptalise the must. While chaptalisation was a regular occurrence in the past, with recent warmer growing season temperatures and better canopy management it has become less necessary. The maximum enrichment is +1.5–2 per cent.

Almost all grapes in the Côte d'Or are hand harvested, and certainly so for better quality wines. They are sorted, typically on sorting tables, to remove diseased, damaged or underripe fruit, which is especially important for consistent quality in a cool climate. Grapes are typically whole bunch pressed as the inclusion of stems aids drainage of the must. The grapes are usually pressed immediately rather than undergoing a period of skin contact as Chardonnay is not a particularly aromatic grape and most producers try to avoid the risk of extracting tannins.

The must for high quality wine is usually clarified by sedimentation; the level of solids remaining in the juice varying depending on the winemaker's view of the desirability of the flavours they impart. Musts for less expensive wines may be clarified by other, quicker methods.

Some producers practice hyperoxidation with the aim of producing a final wine that is less prone to oxidation. This may be in response to the criticism that protecting the must from oxygen during production has contributed to the problem of premature oxidation (see Premature Oxdiation box).

Fermentation by ambient yeasts is common practice, although some winemakers will inoculate with cultured yeast, particularly for high-volume regional wines. Ambient yeast usage is far more prevalent at higher classification levels because winemakers believe it encourages *terroir* expression and are prepared to monitor the fermentation more closely and intervene as necessary (e.g. warming up a sluggish ferment).

Fermentation for inexpensive and some mid-priced wines will usually be in stainless steel or concrete vessels. Fermentation temperature for these wines is around 16–18°C (61–64°F), to preserve the primary fruit and avoid the banana flavours of cooler temperature fermentation. Wines are aged in the same or in older barrels.

More expensive wines (including some of the more expensive Bourgogne Blanc wines from high quality producers) are typically fermented and aged in barrel for a creamier and more rounded style. Fermentation temperatures typically can rise to 20°C (68°F) in barrels.

These wines are aged for 8–12 months in barrel in contact with the fine lees. If the oak is new, or more likely if a proportion of the barrels is new, then the wine will show oak flavours such as vanilla and clove spice.

Wines often see little new oak at regional levels, but 20–25 per cent is quite common at village level, 30–50 per cent at premier cru level and 50 per cent and above at grand cru level (although 100 per cent is not unheard of).

The standard oak cask is the 228-litre Burgundy barrel (known as a *pièce*), but some producers are using larger (500–600 L) barrels, where the surface-to-volume ratio is lower and results in a subtler effect both of oak flavours and oxidation.

When the wine completes alcoholic fermentation, it will usually undergo malolactic conversion. If the desired style is for a fresher character, a proportion of the wine can have the malolactic conversion blocked. Malolactic conversion can be carried out in neutral vessels or in oak. During its maturation, wine may be stirred once or several times to agitate the lees (*bâtonnage*), a process thought to reduce any reductive flavours and add some creamier texture. White wines are more often filtered in Burgundy than red wines as any cloudiness is easily visible to the consumer.

PREMATURE OXIDATION

In the early 2000s, reports began to emerge that the wines (particularly those from 1996 and subsequent vintages) were showing very advanced flavours and colours after a relatively short period of time in bottle. This phenomenon was termed 'premature oxidation' or 'premox'. Multiple causes of the problem have been suggested, including changes in vineyard practices leading to higher yields and different chemical composition of the grapes, warmer vintages or later picking times, the use of over-clean musts resulting from the use of pneumatic presses, overzealous *bâtonnage*, lower levels of sulphur dioxide at bottling and both the quality of corks and changes in cork treatment before use.

The problem remains, although it appears from many reports to be at much lower levels than it was for wines produced in the late 1990s. Many producers have modified their practices to try to minimise the risk. This problem is not confined to the white Burgundy category and has been reported in other white wines.

Red winemaking

Due to its delicate character, aromatic nature and relatively light tannins, Pinot Noir has to be vinified carefully. Important aims are to maintain the primary fruit and not to overwhelm the delicate fruit with too much new oak flavour.

Sorting of the fruit is common for all but the least expensive wines; needed especially when rot or hail has been an issue. The grapes may either be loaded into the fermentation vessel as whole bunches or destemmed beforehand. Pinot Noir is well suited to whole bunch fermentation, and many producers in Burgundy practice this. It had been the historical norm before the invention of the destemmer, but during the 1980s the influence of one winemaker, Henri Jayer, who favoured destemmed fruit, brought about a major change in attitude in Burgundy, and many quality-minded producers followed where Jayer led. In recent years, however, the popularity of whole bunch fermentation has re-emerged.

Proponents of the use of whole bunches say they aid aeration of the must and can add perfume, freshness and fine tannins to the wine. If the stems are unripe, however, green astringent tannins can be extracted. The resulting lower acidity would not be welcome in warm vintages. Some producers use a proportion of whole bunches, depending on the vineyard and depending on the vintage.

Pinot Noir is low in anthocyanins compared to many other black grape varieties and therefore cold soaking for a few hours to a few days is common to maximise the extraction of colour.

Most producers rely on ambient yeast in the winery to ferment their Pinot Noir. Fermentation usually takes place in small open-top vessels. This design helps to facilitate the two most commonly used cap management techniques: pumping over (*remontage*) and punching down (*pigéage*). It is important for the cap to be regularly broken up during fermentation to introduce oxygen (essential for yeast metabolism), avoid reduction and the production of reductive sulfur compounds (Pinot Noir is prone to reduction), avoid the production of acetic acid, to extract colour, tannin and flavour from the skins, and to regulate

Fermentation tanks for red wines

temperature in the must (which reaches around 30°C/86°F in a healthy ferment). Most producers will use a combination of the two methods of pumping over and punching down. The length of post-fermentation maceration depends on the ripeness of the fruit and the style of wine to be made, with longer periods (2–3 weeks) for wines of more concentration and structure.

Maturation in small barrels

The wines are pressed off either in horizontal pneumatic presses or vertical basket presses. Free run wine and press wine are often kept separately, but may be blended back together before bottling. The wine is typically racked into oak barrels (228 L) for maturation. Ageing periods of 12–20 months are common for premium and super-premium wines, whereas less expensive wines may be aged for less than one year. The proportion of new oak varies widely across the region and producer style, with a higher proportion used in grand and premier crus than in village or generic-appellation wines. Attitudes to new oak are too diverse to generalise upon, and the two extremes of no new oak and 100 per cent new oak, as well as everything in between, can be found practised among the region's finest *domaines*.

Malolactic conversion is usually spontaneous and takes place in the spring following harvest, as the cellars begin to warm up again after the cold winter.

Mid-priced wines may be fined and lightly filtered before bottling, but many higher-level wines may not be.

VINEYARD CLASSIFICATION

As with many areas of France, the vineyards of Burgundy have been classified and delineated, but the degree of classification is on a far more detailed scale than in other parts of France. Although the medieval monks began the story of Burgundy's delineation, much of the current classification was formalised in the 1930s, which categorised all the *lieux-dits* (named places) into a four-tier hierarchy. The classifications are based on such factors as soil, aspect and microclimate. In brief, they are a classification of *terroir*.

There is a four-tier hierarchy in the Côte d'Or:

- regional or generic appellations (e.g. Bourgogne AOC, Bourgogne Hautes Côtes de Beaune AOC); an additional regional appellation, Bourgogne Côte d'Or, was introduced in 2017;
- communal or village appellations (e.g. Meursault AOC, Gevrey-Chambertin AOC);
- premier cru (e.g. Pommard Premier Cru AOC Les Rugiens, Vosne-Romanée Premier Cru AOC Aux Malconsorts);
- grand cru (e.g. Richebourg Grand Cru AOC, Bâtard-Montrachet Grand Cru AOC. (Note, for grand cru wines in the Côte d'Or, the labelling term is the name of the grand cru; the related village name does not appear.)

In terms of volume of production, the percentages are: 1 per cent grand cru; 47 per cent village and premier cru; 52 per cent regional appellations.[7]

In the Côte Chalonnaise and the Mâconnais the classification stops at premier cru.

Across Burgundy, excluding Beaujolais, there are 84 appellations, including 33 grands crus, 44 village appellations and seven regional appellations. Each grand cru of the Côte d'Or is an appellation in its own right (whereas in Chablis the *climats* are all part of one appellation, Chablis Grand Cru). However, the region's 640 premier crus are additional geographical denominations related to a village, not appellations in their own right. If the wine comes from more than one premier cru vineyard, it is labelled simply as Village + Premier Cru without a vineyard name.

Le Montrachet Grand Cru

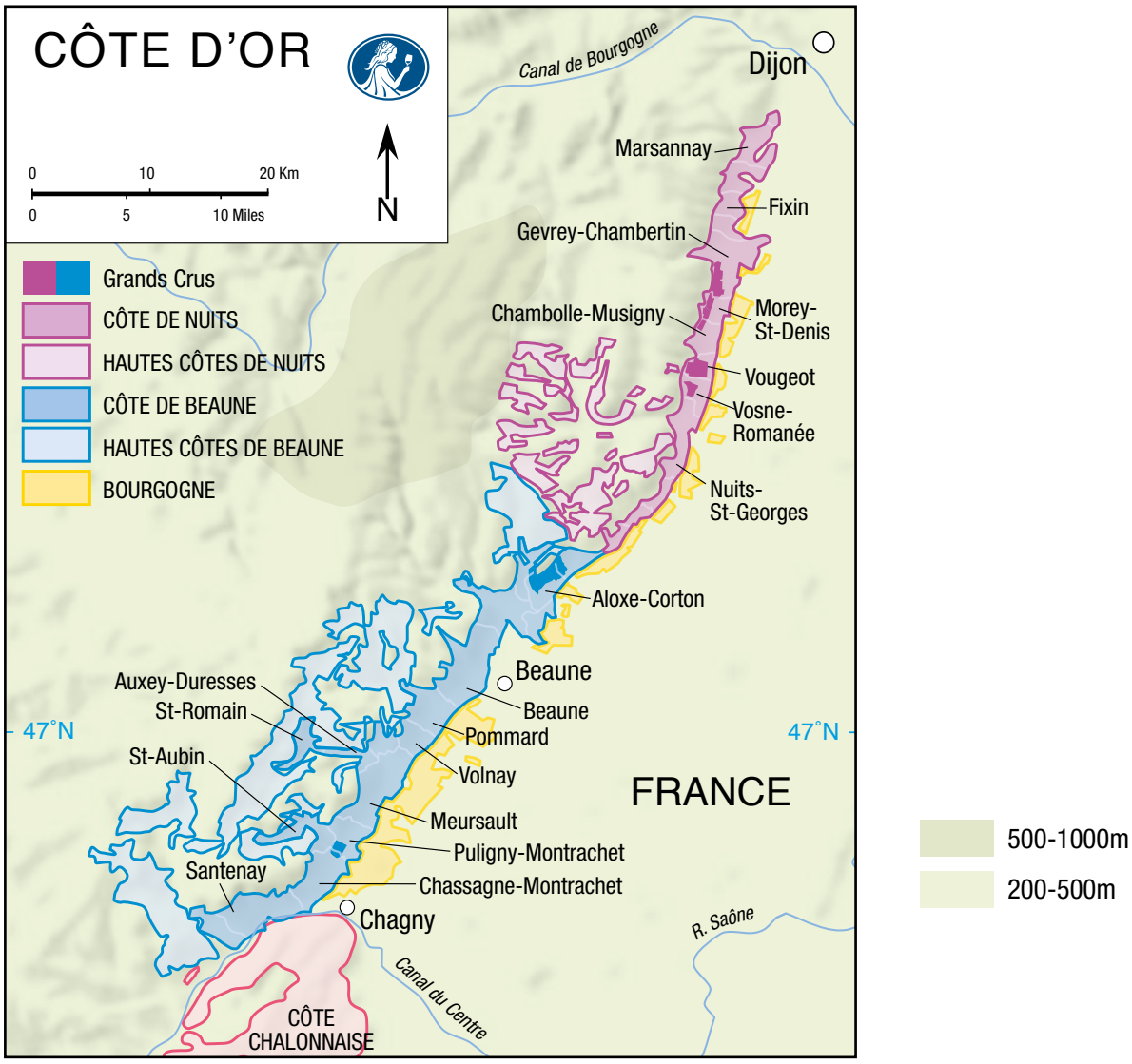
Many of the appellations can be followed by an additional geographical denomination. Examples include:

- regional appellation plus additional geographical denomination, which can be a general area (e.g. Bourgogne Hautes Côtes de Beaune AOC) or a village (e.g. Bourgogne AOC Chitry);
- village appellation followed by the name of a premier cru vineyard (e.g. Meursault AOC Perrières);
- Mâcon plus village name (e.g. Mâcon AOC Verzé);
- grand cru vineyard plus additional geographical denomination referring to a climat (e.g. Chablis Grand Cru Valmur AOC or Corton-Les Bressandes Grand Cru AOC).

Some appellations, even at the grand cru level, are much larger than others. For example, Clos de Vougeot Grand Cru is slightly over 50 ha, whereas the nearby Musigny Grand Cru is 10 ha and many other grands crus vineyards are much smaller, with the smallest, La Romanée Grand Cru, being just 0.84 ha.

The classification system itself is not a guarantee of quality. As a result of Napoleonic inheritance laws, the majority of vineyards in the Côte d'Or are owned by more than one *domaine* and hence the range of quality of the wines from even a small appellation depends as much upon the reputation and skill of the *domaine* as the reputation of the vineyard. As a result of its size, the wines of Clos de Vougeot are often said to show marked differences between those made from fruit of the middle or top sections of the vineyard (steeper slope, poorer soils) and those from the lowest section (flatter, richer soils); however, all such wines will only say Clos de Vougeot on their labels.

The Côte d'Or and the Hautes Côtes



In general, in the Côte d'Or the classification reflects the location of vineyards, including their position on the slope. The flat land beyond the top of the slope of the Côte d'Or comes under generic appellations such as Hautes Côtes de Beaune and Hautes Côtes de Nuits. Here the slightly higher altitude, the lack of protection from prevailing weather, poorer sunlight interception and richer soils encouraging vine vigour mean these wines are less concentrated and structured than those in the Côte d'Or, and can struggle to ripen in cooler years.

Grand crus are found in the mid-slope with premier crus often surrounding them. Here, full ripeness can be achieved even in the cooler years. The mid-slope has poor but adequate, shallow soils, good drainage, protection from the prevailing weather systems and good sunlight interception, all of which contribute to producing wines with concentration, balance and length in capable winemaking hands.

The lowest part of the slope is typically village level. Here the soils are richer and less well drained, and fruit does not reach the same level of ripeness, but can still produce wines of very good quality and character.

The flat land at the bottom of the slope is typically classified as the generic appellation, Bourgogne. The D974 road, from Dijon through and beyond Beaune, generally divides the village level above it from the generic appellation below it.

Principal appellations in the Côtes de Nuits
This area specialises in Pinot Noir, boasting some of the region's most celebrated grand and premier crus. A small amount of white wine is also made. The hyphenated names of the villages celebrate the grand cru vineyard connected to the village (e.g. the village of Gevrey-Chambertin is the home of Chambertin Grand Cru). The most important villages (from north to south) are:

Gevrey-Chambertin AOC – Red wine only. It is the largest village in the Côte de Nuits. Its grand crus also include Charmes Chambertin AOC and Chambertin Clos de Bèze AOC.

Morey-Saint-Denis AOC – Almost exclusively red wine. Its grand crus include Clos de Tart AOC and Clos de la Roche AOC.

Chambolle-Musigny AOC – Red wines only for the village wine. Its grand crus include Bonnes Mares and Musigny AOC.

Vougeot AOC – This is a tiny village appellation for red and white wines. Its grand cru is called Clos de Vougeot AOC and is much larger than the village appellation.

Vosne-Romanée AOC – Red wine only. Its grand crus include a number of the most famous grand crus, such as La Tâche AOC and Romanée-Conti AOC.

Nuits-Saint-Georges AOC – Almost exclusively red wines. There are no grand crus but there are important premier crus, such as Les Saint-Georges and Les Vaucrains.

As demand and prices have risen and skill in grape growing and winemaking has increased, focus has also turned to the other villages for more accessibly priced wines; for example, Marsannay (more red or rosé than white) and Fixin (mainly red).

Principal appellations in the Côte de Beaune
The Côte de Beaune is the most important area for white wine, although red wine is made and there is one grand cru for red wine. The most important villages (from north to south) are:

Aloxe-Corton AOC, Pernand-Vergelesses AOC and Ladoix-Serrigny AOC – These three villages cluster round the hill of Corton. While the villages and their premier crus mostly produce red wines, the hill's most famous vineyard, Corton Charlemagne Grand Cru AOC, is exclusively white. The substantial Corton Grand Cru AOC has many *lieux-dits* within it. It is mostly planted with Pinot Noir, but can produce Chardonnay.

The villages of Beaune, Pommard, Volnay, Meursault and Saint-Aubin have no grand crus but many important premier crus:

Beaune AOC – Predominantly red wines but white wines are made too. Leading premier crus include Le Clos des Mouches and Les Grèves.

Pommard AOC – Red wines only. The most prestigious premier crus include Les Rugiens and Clos des Épeneaux.

Volnay AOC – Red wines only. Sought-after premier crus include Clos des Chênes and Les Caillerets.

Meursault AOC – Mostly white wines with well-known premier crus including Perrières and Genevrières.

Puligny-Montrachet AOC and Chassagne-Montrachet AOC – Virtually all Puligny-Montrachet wines are white. Chassagne-Montrachet produces more white wine than red. Between them stretch the most celebrated white grand crus of Burgundy, including Le Montrachet AOC and Bâtard-Montrachet AOC.

Saint-Aubin AOC – Mostly white wines. Leading premier crus include Sur le Sentier du Clou and En Remilly.

As in the Côtes de Nuits, the next tier of village appellations has also become sought after, including St Romain AOC (mainly white), Auxey-Duresses AOC (mainly red) and Santenay AOC (mainly red).

The Côte Chalonnaise

The region produces more red than white wine. Its regional Bourgogne Côte Chalonnaise AOC wines can offer good value and are frequently labelled simply as Bourgogne AOC. Its village and premier cru wines have risen in quality in recent years and can offer excellent value for money when compared to their Côte d'Or neighbours. There is a substantial number of sites classified as premier cru, but no grand cru. The premier crus tend to be on the warmest, south-, south-east and east-facing slopes (good sunlight interception) with well-drained limestone soils producing riper fruit and wines of higher quality.

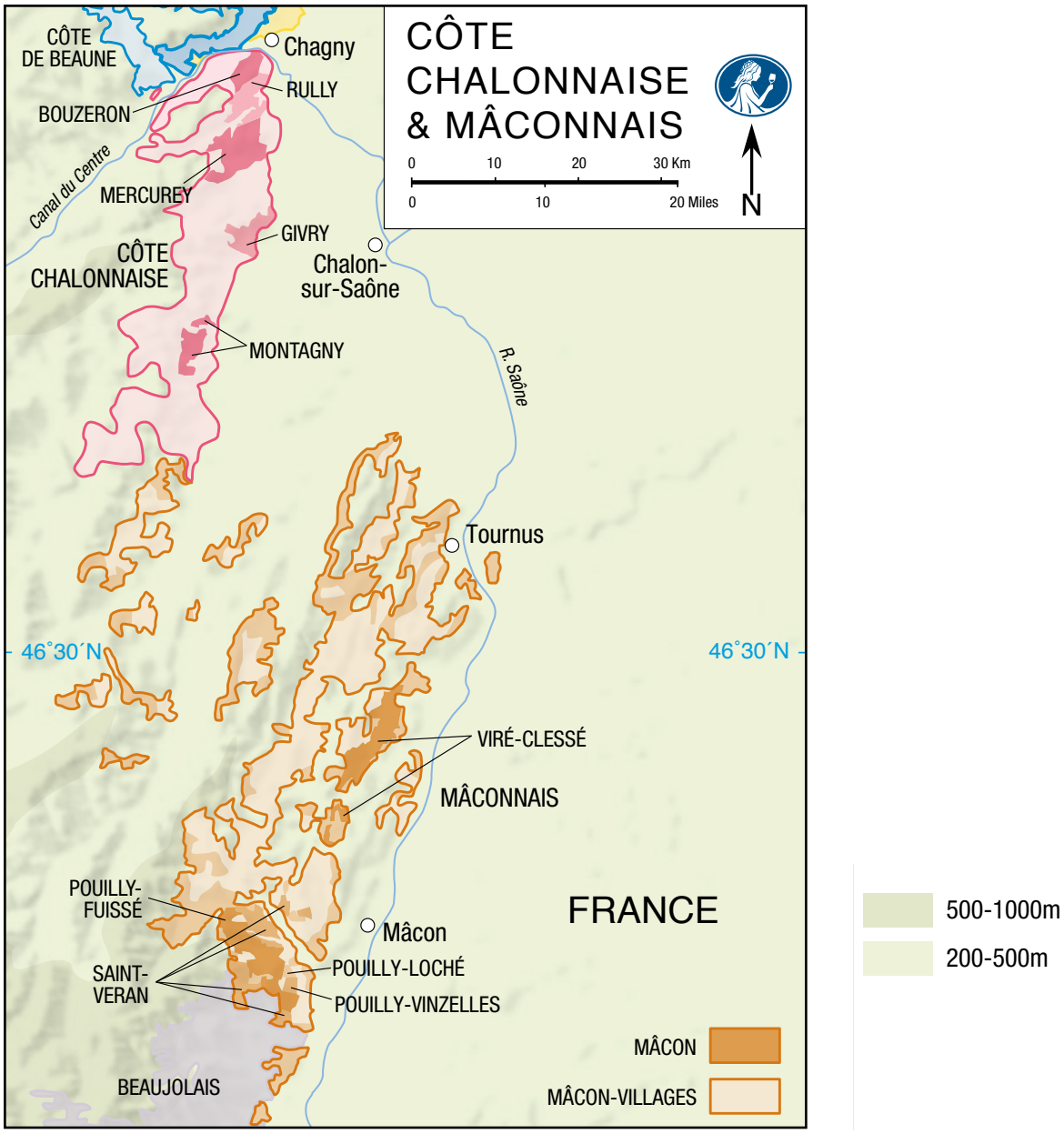
Bouzeron AOC – Wines bearing this appellation must be 100 per cent Aligoté, and this village is respected as the finest region for Burgundy's second white grape.

Rully AOC – Rully produces more white wines than reds, with premier crus for both. Just over a quarter of the appellation is premier cru. It is an important area for grapes destined for Crémant de Bourgogne.

Mercurey AOC – The largest producer of the communal appellations in the Côte Chalonnaise, producing significantly more red wine than white wine. Around a quarter of the vineyard area is classified as premier cru.

Givry AOC – Mostly red wines, with over 40 per cent premier cru.

Montagny AOC – White wines only. Two-thirds is classified as premier cru.



The Mâconnais

This region produces mostly white wines. Inexpensive regional wines are often labelled simply as Bourgogne AOC. The appellations in the Mâcon region are, in approximate order of quality (rising in quality and decreasing in size going from first to last):

Mâcon AOC – These are predominantly white wines, with a small amount of red and rosé.

Mâcon-Villages – White wines only.

Mâcon plus certain named villages (e.g. Mâcon-Fuissé) – White wines only.

Mâcon plus certain named villages (e.g. Mâcon-Lugny) – White, red or rosé wines.

Named village appellations – Pouilly-Fuissé AOC, Saint-Véran AOC and Viré-Clessé AOC (along with the much smaller Pouilly-Vinzelles AOC, Pouilly-Loché AOC) are currently the only separate appellations in the Mâconnais, although more may be added. All make exclusively white wines.

Solutré-Pouilly, Mâconnais

Wines from these appellations, especially Pouilly-Fuissé, may attain a higher quality than Macon-Villages; for example, grapes can ripen more fully in the amphitheatre of Fuissé due to better sunlight interception and good drainage.

In 2020 premier cru status was awarded to 22 *climats* in Pouilly-Fuissé.

Appellations, vineyards and wine style

Some of the characteristics of the wines from the individual villages or groups of villages are due to the natural factors already discussed. Thus, the village of Marsannay at the northern end of the Côte de Nuits is cooler than the rest of the Côte d'Or as the slope is gentler and there is less protection from cold winds coming from the south-west. This is reflected in the fact that it is the only village on the Côte d'Or which includes the option for a rosé within the appellation and which produces white, rosé and red wines. Similarly, the neighbouring village of Fixin typically produces red wines with very fresh red fruit and a light body.

Protection from the west is at its highest from Gevrey-Chambertin to Nuits-Saint-Georges, and slightly higher alcohols and greater ripeness are seen here. Most of the red grand crus are positioned here.

The differences in appellations are subtle but consistent. For example, in red wines, typically Volnay and Chambolle-Musigny are fruitier and more fragrant whereas Pommard and Gevrey-Chambertin are fuller bodied. Similarly, in white wines, Puligny-Montrachet is typically more floral and concentrated while Meursault is full bodied and powerful. However,

the reasons for these subtle differences are not clear. In all the appellations, winemaking decisions can affect style markedly: for example, whether new oak is used or not or; in white winemaking, to what extent the wine is subject to *bâtonnage*; and in red winemaking, the use of whole bunches.

WINE LAW AND REGULATIONS

These have been covered in Winemaking and in Vineyard Classification.

WINE BUSINESS

The Burgundy wine trade is complex. Historically much of the trade went through large *négociants* who would buy grapes, must or finished wine from other growers. Since the 1980s there has been a move towards more *domaine* bottling; however, there are still a number of very well-known and well-regarded *négociants,* many of whom date back to the 19th century, including Albert Bichot, Joseph Drouhin, Faiveley, Louis Jadot and Bouchard Père et Fils. The 2000s has also seen the rise of *domaines* who also act as *négociants,* such Dujac. Like others, Dujac bottles wine made from their own vineyards as Domaine Dujac and wine from purchased fruit or bought in wine simply as Dujac Fils et Père.

There are several different types of organisation:

- **Growers** – These are businesses that have vineyard holdings and sell their grapes or unfinished wines to négociants. There are several thousand growers and typically their holdings are divided in parcels in different vineyards and villages.
- ***Domaines*** – These are businesses that own vineyards and make wine from them, which they sell under their own domaine label.
- ***Négociants*** – These are typically large businesses that buy grapes and/or wines, finish them and bottle them for sale under their own name.
- **Micro-*négociants*** – These are smaller businesses that buy grapes from very good to top-quality vineyards, make the wines and sell them under their own name; for example, Benjamin Leroux.
- **Co-operatives** – These businesses are less important in the Côte d'Or but have a more predominant role in Chablis (La Chablisienne), the Mâconnais (e.g. the Cave de Lugny) and, to a lesser extent, in the Côte Chalonnaise.

Even at the level of the *domaine* there is the complexity of multiple producers with very similar names. Detailed knowledge is needed to identify the source of a particular wine. This is at least in part a consequence of the inheritance laws in France where all children have the status of equal inheritors of an estate.

One factor that has led to a significant rise in quality is that there are now many young winemakers who are both better trained technically and who have often travelled and made wine more widely. These factors have led to a more adaptable and open-minded approach to winemaking.

The route to market may thus be as simple as from a producer direct to an end consumer via cellar door sales or it could be via a *négociant* or a co-operative and thence on through the distribution chain until it reaches the end consumer. Direct to consumer sales are on the increase, as are those direct from producers to final retailers. Half of of all Burgundy by

volumes sold in France and half exported. The largest export markets by volume are the USA, UK and Canada (though Japan is third by value).[8]

Both the name of the *domaine* and of the appellation, including the single-vineyard names, are very important drivers of price in Burgundy. Very well regarded *domaines* can fetch high prices for their village wines – for example, a super-premium price for Domaine Armand Rousseau Gevrey-Chambertin AOC – and can easily out-price premier crus from the same village by different, lesser-known producers.

Village names also act as indicators of subtle style differences in both red and white wines. Thus, both wine sellers and wine consumers will talk about the elegance and intensely perfumed nature of the red wines from Volnay or the more robust, tannic wines of Pommard. Similarly, premier and grand cru single-vineyard wines are sold on the reputation for a particular stylistic feature. For example, a comparison might be drawn between two of the premier crus in Meursault, the steely concentration of Perrières and the full body and approachable style of Charmes.

The wines may be sold *en primeur* (for more details see the section on Merchants in D2: Wine Business), in specialist wine shops and in fine dining and, at generic and village level, more generally in supermarkets and in the hospitality sector.

Land prices in Burgundy have been increasing over recent years, driven in part by the relative scarcity of supply, particularly of the more highly sought-after vineyard names. As in other regions, foreign buyers of wine businesses have added to pressure on land prices.

High land prices along with increasing worldwide demand for a relatively small production and the dramatic differences in volumes produced due to weather hazards has meant that prices have increased substantially since the mid-2000s. Total production is approximately one-quarter of that in Bordeaux. Similarly, Domaine de la Romanée-Conti, the producer of one of Burgundy's most sought-after red wines, produces roughly a quarter of the volume of Château Lafite Rothschild's Grand Vin in Bordeaux. Increased interest in the most expensive Burgundy has led to steeply increased prices in wines being traded on the secondary market. The Liv-ex Burgundy 150 Index shows that prices rose by 200 per cent between 2003 and 2016.[9]

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