



GRAPE VARIETIES

CHAPTER THREE

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LEARNING OBJECTIVES

After studying this chapter, the candidate should be able to:

- State the differences between *Vitis vinifera* and other vine species.
- Discuss hybrids, crossings, and clones.
- Describe the primary characteristics of the classic international white grape varieties.
- Describe the primary characteristics of the classic international red grape varieties.

Grapes are an extremely diverse agricultural product. A few other crops, such as apples and tomatoes, may have as wide-ranging a selection of cultivars and varieties as wine grapes, but in no other instance are so many different varieties grown commercially. Diversity even exists within the grape varieties themselves, as certain varieties of grapes are well-known to show radically different characteristics when grown in different soils, climates, and viticultural configurations.

GRAPEVINE SPECIES AND VARIETIES

As a vine, grapes belong to the genus *Vitis*. Within the *Vitis* genus, there are a few dozen different species of grapes. However, only one, *Vitis vinifera*, is used on a widespread basis in commercial winemaking. It is believed that *vinifera* vines developed in the Caucasus Mountains region between Europe and Asia and spread, largely due to human intervention, across southern Europe, into the

Middle East, and eventually around the world.

As the habitat of vinifera vines expanded to encompass most of the temperate Western world, differences developed among the grapevines growing in disparate areas, due partly to natural evolution and partly to the encouragement given to certain strains of vines over others by early grape growers. Eventually, the differences became distinct enough that they could be identified as discrete subspecies, in the same way domesticated wolves over millennia became the vast array of dog breeds. The vine subspecies are more commonly called *grape varieties*, and thousands of them are recorded. Many are quite familiar to wine consumers, such as Sauvignon Blanc and Merlot, while others are known only among growers in obscure regions.

Beyond vinifera, there are several grape species native to North America that are also important to the wine industry, although not necessarily for wine production. One such example—*Vitis labrusca*—while commercially important, is primarily appreciated for its sweet, flavorful grapes that are used for fresh consumption or unfermented grape juice. Labrusca grapevines were found growing wild in America during the colonial period and were cultivated for winemaking, but these grapes were found to have extremely high acidity and a characteristic flavor component—often described as a *foxy* character—that, while pleasant in fresh grapes, is generally less desirable in wine.

One notable advantage that native North American vines have over vinifera is their natural resistance to the aphid-like insect phylloxera, which ravaged European vineyards in the nineteenth century and continues to wreak havoc worldwide. Attempts were made to breed vinifera with native North American vines to create phylloxera-resistant hybrid wine grapes, but the results were less successful than expected. However, growers soon discovered that the vinifera part of the vine, known as the *scion*, could be grafted onto the trunk, or rootstock, of North American vines to achieve a phylloxera-resistant plant. These days, *Vitis labrusca* rootstocks are still used for

grafting, as are several other native North American vine species such as *Vitis riparia*, *Vitis aestivalis*, and *Vitis rupestris*.

TERMINOLOGY

Some terms that relate to vine types include the following:

- **Species**

A species is a scientific grouping of plants or animals that are genetically similar, have broad characteristics in common, and can produce viable offspring through sexual reproduction. Grapevine species include *vinifera* and *labrusca*.

- **Variety**

A variety is a subspecies. In winegrowing, a variety is an identifiable group of vines of the same species that share many characteristics of appearance, flavor, and growth. For example, Chardonnay and Syrah are varieties of *vinifera*.

- **Cross or crossing**

A cross is the offspring of sexual reproduction between different subspecies within the same species. An example is Cabernet Sauvignon, which has been shown to be a cross between Cabernet Franc and Sauvignon Blanc.

- **Clone**

In commercial viticulture, virtually all grape varieties are reproduced via *vegetative propagation*. This typically involves a cutting or offshoot from a single parent vine that is encouraged to sprout roots and produce a new plant. Initially, this new plant could be considered identical to the parent, at least in theory. However, with time it will likely develop some unique characteristics as it adapts to its new environment. If the new vine shows consistent distinctions (from its parent or other vines)—such as being slightly more vigorous or showing more aromatic intensity—it may be determined to be a new clone. Clones are therefore slightly different from their parent, but not so unique as to be classified as a new variety. Pinot Noir is an

example of a grape variety that is available in hundreds of clonal variations (although not all are viticulturally significant). Some clones of Pinot Noir are identified via a number (such as *115* or *447*), while others have acquired specific names such as the *Pommard*, *Dijon*, and *Wädenswil* clones.

- **Mutation**

A *mutation* is a grape that has—via successive adaptation—developed characteristics distinct enough from its parent (or other plants) to be considered a separate variety. For example, Pinot Blanc and Pinot Gris are color mutations of Pinot Noir and are considered commercially distinct grape varieties.

- **Hybrid**

A hybrid is the result of sexual reproduction between two closely related but different species, such as *Vitis vinifera* and *Vitis labrusca*. Many hybrid grape varieties have been developed over the years in an attempt to create a grape that could withstand the ravages of powdery mildew, phylloxera, cold weather, humidity, or other such challenges. Hybrids generally struggle to develop adequate levels of tannin and can be exceedingly acidic. For these reasons, hybrids are not universally accepted for use in commercial wine. However, some are consumer favorites, even in areas where *vinifera* thrives. Hybrids are normally not fertile, but they may still be propagated indefinitely through cuttings. Seyval Blanc, Vidal Blanc, and Baco Noir are among the more well-known and widely grown hybrids.

INTERNATIONAL VERSUS INDIGENOUS

Among the thousands of recognized grape varieties, most are relatively unknown. For example, few consumers have ever heard of Airén despite the fact that it is one of the most widely grown white wine grapes in the world. Perhaps this is because it is grown primarily in central Spain, whose wines are just beginning to be discovered by international consumers, or because it is so often

distilled into brandy.

Among the several dozen or so grape varieties that have become well-known on an international scale, most became famous as the result of a single great wine produced in a specific area. Examples of this include Cabernet Sauvignon and Merlot from Bordeaux, as well as Pinot Noir and Chardonnay from Burgundy.

Other grape varieties have been found to thrive in a wide range of growing conditions and are currently grown throughout the wine-producing world. Informally referred to as “international varieties,” these grapes have the potential to be successful in many different areas. For example, Cabernet Sauvignon is now planted in nearly every major wine region in the world—particularly so in Bordeaux, Napa, Chile, and Australia; but including many other areas as well—and can produce wines with the unmistakable varietal character of Cabernet Sauvignon in most of them.

Among the thousands of other important grape varieties, many have either not been widely transplanted in areas beyond their native home or have been tried in other growing areas with unimpressive results to date. Such grapes, when planted in their native area, are often referred to as *traditional*, *native*, or *indigenous*. The term *autochthonous*, a more technical term, typically refers to indigenous grapes that are the result of natural cross-breeding or natural mutation in a specific area.

Whatever the term that is used—whether *traditional*, *native*, or *indigenous*—these labels are meant to imply grapes that are grown primarily in one place, have a long history in the area, and have throughout their development adjusted extremely well to local conditions. It is believed that such grapes reach their highest quality under specific conditions that may be impossible to duplicate away from their native area. Nebbiolo is a good example; it is an indigenous grape quite famous for producing fine wines in northwest Italy, but it is rarely planted in the rest of the world.

The line between international and indigenous varieties is an

arbitrary one; however, the grapes profiled below are some of the most widely planted of the vinifera varieties.



Figure 3–1: Chardonnay grapes in a harvest tub

WHITE GRAPE VARIETIES

Grapes and wines that do not have any red or purple pigmentation are typically called “white,” even though they are almost always some shade of yellow or green. (Be careful not to confuse the color of “green” grapes with the term “green grapes,” which usually refers to underripe grapes rather than to their actual color.)

CHARDONNAY

Chardonnay is among the world’s most popular white grape varieties, with wide recognition among consumers. It is considered relatively easy to grow and as such, is planted in nearly every major wine-producing area in the world.

The variety is thought to be indigenous to the Burgundy region of

France, and many consider it to produce its highest expression when planted in the area's limestone soils. It is also important in nearby Champagne for the region's classic sparkling wines. Hoping to replicate the outstanding wines of Burgundy and Champagne, winegrowers around the world have planted Chardonnay and, in some cooler climates, have produced similarly styled wines.

However, Chardonnay can show markedly distinctive characteristics depending on the climate. Chardonnay planted in warmer climates will generally have ripe, tropical fruit flavors and will produce wines with high alcohol and considerable body. In contrast, grapes grown in cooler climates will tend to have citrus flavors and green fruit aromas and will produce wines with crisp acidity and a light to medium body.

Chardonnay is among the white grape varieties that are most likely to benefit from interaction with wood and is often aged in new oak barrels to allow it to take on flavors from the oak. Oak-aged Chardonnay is often considered to be quite age-worthy and likely to improve with time in the bottle. Many topflight white Burgundies, for example, can continue to evolve toward a more complex and flavorful wine for a decade or more.

However, there are also many examples of Chardonnay that are unaged, as well as those that are briefly aged in used barrels (which impart little, if any, oak flavor) or in stainless steel tanks.

While Chardonnay is rarely made into a truly sweet wine, it is not unusual for winemakers to leave a minimally detectable amount of residual sugar in the wine to round out the body and appeal to a certain type of consumer.

Chardonnay Profile

Well-known examples: cool climate versions include white Burgundy, Champagne, Oregon, and the coastal areas of California; warmer climate versions include the inland areas of California and Australia

Top-producing countries: France, United States, Australia

Characteristic aromas: green apple, melon, pears (cool climate);

tropical fruit (warm climate); butter (malolactic fermentation); vanilla, butterscotch, caramel, toast (oak-aged) *Acidity*: medium to high *Alcohol*: medium to high

CHENIN BLANC

Chenin Blanc is among the most versatile of all grape varieties. It can produce world-class wines at all sweetness levels, from dry to very sweet, in either still or sparkling versions. Chenin Blanc is known for its high level of acidity, especially when grown in cool-climate vineyards, making it ideal as a base for sparkling wines. In still wines, a little residual sugar is often used to take the edge off the sharp acidity; taken to its extreme, this results in superb late-harvest dessert wines, sometimes with the added influence of botrytis. These sweet Chenin Blancs can last for decades.

Beyond its home in the Loire Valley, Chenin Blanc has been adopted by the winegrowers of South Africa, where it is still sometimes called Steen. Chenin Blanc is the most widely planted grape variety in South Africa, representing 18% of all plantings. In fact, there is twice as much Chenin Blanc in South Africa as there is in France. Significant plantings are also found in California's Central Valley. These wide plantings show Chenin Blanc's adaptability to climate, as it thrives in some of the warmest regions of the winemaking world, as well as in the very cool, continental climate of the Loire.

Chenin Blanc Profile

Well-known examples: Vouvray, Savennières, Saumur

Top-producing countries: South Africa, France, United States

Characteristic aromas: green apple, yellow pear, melon, green plum, citrus, almond, white flowers, chamomile tea; honey and quince (aged)

Acidity: medium-plus to high

Alcohol: medium to high

MUSCAT

Muscat is an ancient grape variety that has been carried to nearly

every wine region of the world. It is used primarily to produce sweet wines. Muscat's ability to produce a range of sweet wines has made it very popular with consumers in recent years, propelling the grape to double-digit growth in the US market. Muscat is also capable of producing excellent dry wines, although these are less well-known than the sweet versions.

Having mutated many times, Muscat forms a family of several related varieties, of which the most prevalent and well-known members are Muscat Blanc à Petits Grains ("white Muscat with small berries"), Muscat of Alexandria, and Muscat Ottonel. Muscat Blanc à Petits Grains is generally considered to be of a higher quality than the others, but all Muscats share a characteristic powerful floral aroma and, often, the scent of fresh white grapes in the finished wine. This grape seems to perform best in warm-to-hot climates, although the Ottonel variety does well in cool climates.

Dessert Muscats are produced in many countries; well-known examples include several *vins doux naturels* from southern France, Rutherglen Muscats from Australia, and Moscatels from the south of Spain. Perhaps the best-known Muscat-based wine is the wildly popular, slightly sparkling, moderately sweet Moscato d'Asti of northwestern Italy.

Muscat Profile

Well-known examples: southern France, northern Italy, Australia

Top-producing countries: Italy, France, Chile, Australia

Characteristic aromas: musk, honey, orange blossom, floral, apricot, table grapes

Acidity: low to medium

Alcohol: medium to high



Figure 3–2: Pinot Gris grapes on the King Estate

PINOT GRIGIO/PINOT GRIS

Pinot Grigio and Pinot Gris are two well-known names for the same grape variety, which developed as a mutation of Pinot Noir in the Burgundy area of France. Both mean “gray Pinot,” in reference to the grape’s dusky or lightly pink-colored skin. The Pinot Gris of France became the Pinot Grigio of Italy when it was planted in Italy centuries ago.

Although the two names are technically synonymous, each has become associated with a particular style of wine. While the French term, Pinot Gris, is used to identify the type of wine produced in the Alsace region of France, it is also frequently used in Oregon, which has had success with this variety since its introduction in the mid-1960s. This style of cool-climate Pinot Gris has medium-plus acidity, medium to full body, neutral aromas displaying an apple-, pear-, or almond-like character, and sometimes a moderate amount of residual sugar. This is also the style generally found in Germany, where the grape is called *Ruländer* or *Grauburgunder*.

Pinot Grigio is the more recognizable name among consumers, having become a popular Chardonnay alternative after it was introduced into the US market from northeastern Italy in the late 1970s. Its popularity led to significant new plantings of the variety in

California and Australia, as well as more expansive planting in Italy. Pinot Grigios from the warmer regions of California and Australia typically display medium-minus acidity and higher alcohol than those grown in the cooler regions of Alto Adige and the Veneto of Italy. Wines labeled Pinot Grigio are normally dry and are often neutral and unoaked, although some versions can be aromatic and lees-aged.

Pinot Grigio/Pinot Gris Profile

Well-known examples: northeastern Italy, Alsace, Oregon

Top-producing countries: Italy, United States, Germany, France, Australia

Characteristic aromas: apple, lemon, melon, peach, minerals, almond

Acidity: low to high

Alcohol: medium

RIESLING

Riesling is indigenous to Germany and, because of its ability to withstand cold weather, is one of the few quality grapes that can be grown there and in other regions with similarly marginal climates. Riesling's intense floral aroma profile varies a bit with climate and growing conditions and easily reflects variations in *terroir*. Nevertheless, its highly aromatic style and unique "petrol" scent make it an easy variety to recognize in just about any guise.

Riesling wines cover the full spectrum of sweetness levels. In recent years, dry Rieslings have become more common and are highly regarded in many cases. However, many commercial Rieslings are made in the off-dry or medium-sweet range. These wines often have low levels of alcohol; some are as low as 7% or 8% abv (alcohol by volume). Riesling also produces luscious dessert wines from late-harvest or botrytis-affected grapes.

An outstanding characteristic of Riesling is its naturally high acidity, which the grape is able to retain even with increasing levels of

ripeness. In finished wines, this high acidity is often balanced with some residual sugar, both of which have a preservative effect. As a result, Rieslings are among the most long-lived of white wines, both in the bottle and after opening. Oak aging is rare.

It should be noted that there are grapes the world over that use the word *Riesling* as part of their name, but many of these are unrelated to true Riesling. For example, in the United States, *White Riesling* is the only synonym for true Riesling, while *Missouri Riesling* is an indigenous American grape and, thus, a completely different variety.

Riesling Profile

Well-known examples: Mosel, Rheingau, Rheinhessen, and Pfalz in Germany; Alsace in France; Clare and Eden Valleys in Australia; Finger Lakes in New York; Washington State

Top-producing countries: Germany, Australia, France, United States

Characteristic aromas: lime, peach, nectarine, apricot, honeysuckle, wet stone, petrol/kerosene (depending upon ripeness and bottle age); baking spices (well-aged)

Acidity: high to very high

Alcohol: very low to high

SAUVIGNON BLANC

Like Chardonnay, Sauvignon Blanc is native to France, where it achieved its reputation in the Loire Valley and Bordeaux. From France, it was taken to most overseas wine regions and prospered in many of them, especially in the cooler zones. Sauvignon Blanc acts as a true barometer of soil, site, and viticultural practices and can produce many different styles of wine, depending on where it is grown and how it is handled in the winery.

Sauvignon Blanc has a particular affinity for New Zealand, where it produces wines with distinct herbal character and fruit-forward flavors of grapefruit and tropical fruit. Beginning in the 1980s, this style of wine was eagerly embraced by the market, establishing a strong reputation for New Zealand Sauvignon Blanc. Today, other

regions are producing wines that mirror this highly aromatic, zesty style.

Oak-aged Sauvignon Blanc is another popular style. While white Bordeaux is often aged in older oak, a more pronounced style of oaked Sauvignon Blanc was created by California winemaker Robert Mondavi in the 1960s. Called “Fumé Blanc” for marketing purposes, the wine became an instant hit. In the United States, *Fumé Blanc* is an approved synonym for *Sauvignon Blanc*, and the two terms are legally interchangeable.

Table wines made using Sauvignon Blanc are usually quite high in acidity and are almost always dry. Due to its naturally high acidity, the juice of these grapes is often blended with that of low-acid grapes, such as Sémillon, as is done in Bordeaux. Sauvignon Blanc also plays a role in the classic sweet dessert wines of the Bordeaux area, including Sauternes.

Sauvignon Blanc Profile

Well-known examples: Sancerre, Pouilly-Fumé, white Bordeaux, Fumé Blanc, New Zealand

Top-producing countries: France, New Zealand, Chile, United States, South Africa

Characteristic aromas: grass, hay, grapefruit, green pepper (cool climate); asparagus, melon (warm climate); flint (Loire); gooseberry (New Zealand); toast, smoke (oak-aged)

Acidity: medium-plus to high

Alcohol: medium

OTHER IMPORTANT WHITE VARIETIES

Sémillon is perhaps best-known as a blending partner rather than a stand-alone varietal. Sémillon is often paired with Sauvignon Blanc, as is done in Bordeaux and Bordeaux-influenced blends. In Australia, it is often blended with Chardonnay. On its own, it has a distinct

waxy or oily character on the palate and typically shows aromas of citrus (lemon, yellow grapefruit), flowers (honeysuckle, lemon blossom) and tree fruit (peach, pear, or green apple). When slightly underripe, Sémillon may display herbal notes reminiscent of Sauvignon Blanc. The Hunter Valley in Australia is one region well-known for producing 100% varietal wines from Semillon. (Note: Outside of France, the grape is typically spelled without the accent over the e.)

Viognier would have been considered an indigenous variety not many years ago, as very little of it was found outside of the Northern Rhône Valley in France. However, it has quietly been gaining devotees around the world and, since the mid-1980s, has been widely planted in Australia, California, South America, Texas, and the East Coast of the United States. Viognier's admirers appreciate its rich, viscous, full-bodied heft and potent aromas of flowers, peach, and tangerine.

Pinot Blanc is a descendant of Pinot Noir, having mutated from Pinot Gris. While it may not be the best-known grape in any particular region, Pinot Blanc is grown in quite a few places in Europe and beyond. The majority of it can be found in Italy, where it is called *Pinot Bianco*, and in Germany and Austria, where it is known as *Weissburgunder*. It is also one of the main grapes of Alsace. Pinot Blanc is similar in many ways to Pinot Gris, and depending on the specific clone and the growing conditions, the two can be difficult to tell apart. However, Pinot Blanc is generally lighter on the palate and more exotic in its aromas than Pinot Gris.

Gewürztraminer is one of the most aromatic of the white grape varieties, with a unique perfume of flowers, spice, lychee, and rose. It is not a major variety in any region, but its pronounced flavors have endeared it to a cadre of consumers, and there are small plantings of it in most countries. It was first recorded in the Italian Alps, but it is probably most prominent today in Alsace. (Note: Outside of Germany and Austria, the grape is often spelled without the umlaut over the u.)

Trebbiano Toscano is a commercially important grape variety. This neutral white grape is principally associated with Italy, where it is the most common variety used for white wines as well as for commercial balsamic vinegar. In France, where it is known as *Ugni Blanc*, it is grown in considerable quantities and used for the production of brandy, including cognac. Small amounts of Trebbiano Toscano/Ugni Blanc are grown in several other countries as well.

Other significant white grapes include the following:

- *Argentina*: Torrontés Riojano
- *Austria*: Grüner Veltliner
- *France*: Aligoté, Marsanne, Roussanne
- *Germany*: Müller-Thurgau, Silvaner
- *Greece*: Assyrtiko, Moschofilero, Rhoditis
- *Hungary*: Furmint
- *Italy*: Cortese, Garganega, Glera, Verdicchio, Vermentino, Vernaccia
- *Portugal*: Alvarinho, Arinto, Fernão Pires, Loureiro
- *Spain*: Albariño, Godello, Macabeo/Viura, Palomino, Parellada, Pedro Ximénez, Verdejo, Xarel-lo
- *Switzerland*: Chasselas

RED GRAPE VARIETIES

Grapes with red or purple pigmentation in their skins are called “red” or, sometimes, “black” grapes, regardless of their exact color, which may run from bluish to garnet to coal black when fully ripe. Following are some of the red grapes that are most commonly found in wine around the world.

CABERNET FRANC

Cabernet Franc is perhaps best known as the blending partner of Cabernet Sauvignon and Merlot in the famous reds of Bordeaux and similar blends produced elsewhere. Not surprisingly, given that

Cabernet Sauvignon is its offspring (crossed with Sauvignon Blanc), its red fruit and herbal flavors are complementary with the flavors of Cabernet Sauvignon.

Cabernet Franc is less commonly bottled as a varietal wine, but it is a mainstay in some cooler regions that have trouble ripening Cabernet Sauvignon. Several regions in France's Loire Valley, such as Chinon and Bourgueil, as well as some parts of California and the eastern United States, produce wines dominated by Cabernet Franc. In these areas, it is sometimes used for rosé wines as well.

Cabernet Franc Profile

Well-known examples: red Bordeaux, Loire Valley, northeast Italy, New York State, California

Top-producing countries: France, Italy, United States

Characteristic aromas: cranberry, strawberry, tobacco, mushroom, bell pepper, tea (cool climate); raspberry, violet (warm climate)

Acidity: medium to high

Tannin: light to medium

Alcohol: medium



Figure 3–3: Cabernet Sauvignon at harvest

CABERNET SAUVIGNON

Cabernet Sauvignon is one of the world's most respected and widely grown wine grape varieties. Cabernet's reputation comes from a combination of consistency, reliability, depth of flavor, and its ability

to develop complex flavors over a long, graceful aging period. Much of this can be attributed to its high tannin levels, which are often bolstered even further by maturation in new oak barrels.

Cabernet Sauvignon originated in Bordeaux and is an important ingredient in the traditionally blended red wines of the region. Bordeaux wines made from a majority of Cabernet Sauvignon came to be recognized as some of the best wines of France, and therefore of the world, in the mid-nineteenth century. Thus, it is not surprising that this vine was brought to new vineyards far and wide for experimentation. It turned out to be one of the most successful of the traveling vines, not only surviving but also thriving in diverse growing conditions.

As a result, there is more Cabernet Sauvignon planted than any other quality wine grape in the world. A late-blooming variety, Cabernet Sauvignon is not particularly well suited to areas that have early winters, and in fact, it requires sufficient heat and sun exposure to fully ripen. Conversely, it is quite at home in regions much hotter than Bordeaux, and is a leading variety in California's Napa Valley. Because of the warmer growing conditions, as well as different winemaking priorities, Napa "Cabs" are usually higher in alcohol, lower in acidity, and more fruit-forward than the typical Bordeaux.

In addition to being bottled as a varietal wine, Cabernet Sauvignon often finds its way into red wine blends. Mimicking the classic wines of Bordeaux, it may be blended with Merlot, Malbec, or Cabernet Franc; in Australia, Cabernet Sauvignon is often blended with Shiraz (Syrah).

Cabernet Sauvignon Profile

Well-known examples: red Bordeaux, Napa, Washington State

Top-producing countries: France, Chile, United States, Australia

Characteristic aromas: black currant, black cherry, eucalyptus, mint, bell pepper (cool climate); dark chocolate, cedar, vanilla, tobacco (aged in new oak); coffee, caramel, cigar box (well-aged)

Acidity: medium to high

Tannin: high

Alcohol: high

GRENACHE

Grenache is an important grape variety, but it is not often bottled by itself. Instead, it typically appears in blends such as G-S-M (Grenache-Syrah-Mourvèdre) for added color, acidity, and complexity. Grenache thrives in hot, dry conditions where it develops considerable sugar and, therefore, high alcohol.

The variety grows in abundance in the South of France, but it did not originate there. It was recorded earlier in both Spain, where it is called Garnacha and is equally abundant, and on the Italian island of Sardinia, where it is known as Cannonau, although it is not clear which region had it first. Grenache is also planted in Australia, where it is made into both varietal wines and blends, and is increasingly grown in California and Washington State.

Old-vine Grenache is highly prized for its concentration of flavor. Grenache is often made into distinctive rosés, and it may be used to make sweet fortified wines. Grenache-based wines tend to oxidize quickly, picking up a salmon or somewhat orange tinge as well as a rusticity noticeable in the wine's aroma or bouquet.

Grenache Profile

Well-known examples: southern Rhône, Priorat, Rioja, Navarra, Australia

Top-producing countries: France, Spain

Characteristic aromas: strawberry, sour cherry, flowers, black pepper, cranberry

Acidity: low to medium

Tannin: low to medium

Alcohol: high

MERLOT

Merlot and Cabernet Sauvignon have a lot in common in terms of style and aromas. Some Merlot is even every bit as powerful as a Cabernet Sauvignon, but Merlot, in general, tends to be a little less intense, less tannic, and less alcoholic—and it has lighter, brighter fruit flavors.

Like Cabernet Sauvignon, Merlot was first noted as a distinct variety in Bordeaux, and the two grapes are normally blended together in Bordeaux reds. Often, particularly on the Right Bank, Merlot represents the majority of the blend. Merlot and Cabernet Sauvignon complement each other because their aromas are similar but not identical, giving the combination a much richer array of flavors. For this reason, these varieties are frequently blended in many wine regions, even in varietally labeled wines that are dominated by one or the other. They also complement each other viticulturally, as Merlot ripens early and Cabernet ripens late, thus mitigating the risk of damage from extreme weather at either end of the growing season. Merlot is one of the most popular red wines among consumers and is successfully grown in almost every wine-producing country in the world.

Merlot Profile

Well-known examples: red Bordeaux, Napa, Washington State

Top-producing countries: France, United States, Spain, Italy, Chile

Characteristic aromas: blueberry, plum, black cherry, mint, coffee, chocolate

Acidity: medium

Tannin: medium

Alcohol: medium to high

PINOT NOIR

While the true origin of Pinot Noir has been the subject of much debate, it is generally considered to be native to Burgundy, France. To many wine lovers, Burgundy is the standard for perfection in Pinot Noir. Pinot Noir is a unique red grape that is able to thrive and ripen in cool climates, and for this reason, many of the moderate-

and cool-climate wine regions in the world have at least experimented with Pinot Noir. Oregon, New Zealand, and the cooler regions of California have had the greatest success.

The ability to produce flavorful grapes in cool conditions also makes Pinot Noir a natural choice for use in sparkling wines. Worldwide, a substantial proportion of Pinot Noir goes into sparkling wine production—including in France, where more Pinot Noir is planted in the Champagne region than in Burgundy. Its affinity for cool climates also makes it popular in Germany, where, known as Spätburgunder, it is the most widely planted red grape variety.

Pinot Noir is characterized by low to moderate tannin, high levels of acidity, and pale to medium color. Its aromas when young include berry (raspberries, strawberries), cherry, and red flowers. As it matures, it may take on earthy and rustic characteristics that are described as “forest floor,” “leather,” or “mushroom.”

As a variety, Pinot Noir is genetically unstable and highly prone to mutation, as evidenced by the large number of clones that have been cataloged. Some of these genetic mutations have become popular grape varieties in their own rights, such as Pinot Gris, Pinot Blanc, and Pinot Meunier.

Pinot Noir Profile

Well-known examples: red Burgundy, Champagne, New Zealand, Oregon, California

Top-producing countries: France, United States, Germany

Characteristic aromas: cherry, raspberry, strawberry, earth, violet, lilac, sandalwood, mushroom

Acidity: medium to high

Tannin: low to medium

Alcohol: medium



Figure 3–4: Shiraz grapes growing in the Yarra Valley

SYRAH/SHIRAZ

Syrah is a well-known grape of southern France, but it is perhaps just as well-known under its alternative name, Shiraz. In addition to its status as the leading grape of Australia, Syrah/Shiraz is widely planted and gaining popularity in California's Central Coast region, Washington State, South Africa, and Argentina.

There are numerous styles of Syrah. As a stand-alone varietal wine, it can be inky, dark-flavored, and tannic, with some examples rivaling top Cabernet Sauvignons in price and reputation. It is also used to produce dry, full-bodied rosés full of bright flavors. Like Cabernet, it is often blended with other grape varieties. In southern France, Syrah is often blended with an assortment of locally grown varieties, often including Grenache and Mourvèdre, to create some of the region's unique wines, such as Châteauneuf-du-Pape. In Australia, it is often part of a Grenache-Syrah-Mourvèdre blend or a Cabernet Sauvignon-based blend.

Syrah/Shiraz Profile

Well-known examples: Rhône Valley, Australia, Paso Robles

Top-producing countries: France, Australia, United States

Characteristic aromas: blackberry, tar, leather, anise, rosemary, black pepper, smoke, lavender, forest floor, earth, dried fruits; smoked meats (well-aged)

Acidity: low to medium

Tannin: high
Alcohol: high

OTHER IMPORTANT RED VARIETIES

Zinfandel is perhaps best known for its success in California, where it is often used to produce densely pigmented, high-alcohol, spicy red wines. These full-bodied wines generally possess jammy fruit character with notes of raspberry, blackberry, and raisin. Zinfandel is also made into delightful dry rosé, although many consumers still equate Zinfandel with the widely distributed, sweet, blush-style wine known as White Zinfandel.

Zinfandel's long lineage has been a subject of much debate. In 1994, it was determined by Dr. Carole Meredith and her research team at UC Davis that Zinfandel is genetically identical to both Italy's Primitivo and Croatia's Tribidrag grape varieties. The European Union (EU) has recognized *Zinfandel* as a legal synonym for *Primitivo*; however, citing a lack of evidence, the US Alcohol and Tobacco Tax and Trade Bureau (TTB) has not.

Sangiovese is the backbone of Chianti and other Tuscan wines in Italy. While traditionally used in a blend, as of 1996 Chianti producers have the option of producing Chianti with 100% Sangiovese. As a result, Sangiovese is increasingly seen as a stand-alone varietal. However, Sangiovese's tradition as a blending partner continues in the wines of Italy (where it is often blended with traditional grapes such as Colorino and Canaiolo Nero) and elsewhere, where it may be blended with nontraditional partners such as Syrah, Merlot, and Cabernet Sauvignon. Sangiovese-based wines are often noted for moderate-to-high levels of acidity and earthy aromas accompanied by flavors of orange zest and sour cherry.

Nebbiolo is the sole ingredient in some of Italy's most highly respected wines, particularly Barolo, Barbaresco, and others

produced in the northwest region of Piedmont. Nebbiolo is used in other regions of Italy as well, in 100% varietal wines and some blends. Its unique flavors and aromas are often described as “tar and roses” and as cherry, blackberry, and licorice. Nebbiolo produces long-lived, highly tannic wines that benefit from oak and bottle aging.

Tempranillo, the leading red grape of Spain, often produces wines dominated by leather, tobacco, and chalky dust flavors, although much of this is attributable to traditional winemaking. The grape itself shows aromas of strawberry, red cherry, currant, and spice. In Rioja, Tempranillo is generally blended with Mazuelo and other red grapes. However, more recently, 100% Tempranillo wines have become a bit more common. As Tinta Roriz or Aragonêz, Tempranillo is a significant grape in Portugal. Outside the Iberian Peninsula, Tempranillo has been discovered by many American producers, especially in California and, to a lesser extent, Texas and Oregon.

Malbec is a relatively minor French grape mainly known for being a minor component in some red Bordeaux blends and as the main ingredient in the “black wine” of Cahors. Yet it has achieved stardom in Argentina, where the climate and soil seem to bring out the best this grape has to offer. Malbec produces wines that are deeply colored—often inky black—and have corresponding flavors of blackberry and plum. Much of the world’s Malbec is found in Argentina and southwestern France, but small amounts are also grown in the Loire Valley, California, Washington State, Oregon, and Chile.

Gamay (technically known as “Gamay Noir à Jus Blanc”) is primarily known for producing the low-tannin, fruit-forward red wines of Beaujolais. These wines, traditionally made at least partially through carbonic maceration, tend to show aromas of red cherry, strawberry, banana, and red candy. However, Gamay has a more serious side and is capable of producing rich, age-worthy wines redolent of fruit (raspberry, cranberry, currant), flowers (violets, lilacs), spice (black pepper), savory green herbs, and earth (wet stones).

Gamay is also planted in the Mâconnais, the Loire Valley, and Switzerland. In these regions it is primarily used as a single variety; however, it is sometimes blended with Pinot Noir and sometimes made into rosé. Until the early 2000s, Gamay grown in California was the subject of some confusion and debate. Grapes formerly known as “Napa Gamay” or “Gamay Beaujolais” have now been determined to be unrelated to true Gamay, and these terms are no longer permitted to be used on wine labels. These days, however, small amounts of Gamay Noir à Jus Blanc are planted in California.

Alicante Bouschet is a red grape variety with a unique difference—it is a *teinturier*, meaning that it has red flesh in addition to red skin. The grape, a cross of Petit Bouschet and Grenache, was first cultivated by the family of French grower Henri Bouschet in 1866. From that point up until the end of the 1900s, Alicante Bouschet became one of the most widely-planted vinifera grapes in both Europe and North America. In more recent times its popularity has waned, but it is still planted throughout Spain, southern Portugal, parts of southern France, Australia, and central California. Due to its red-colored flesh and thick skins, the grape is often used in blends in order to add body and color intensity to red and rosé wines; however, it is certainly possible to find excellent examples of varietal wines produced from Alicante Bouschet. In Spain, the grape is referred to as *Garnacha Tintorera*.

Other significant red grapes include the following:

- *Chile*: Carmenère
- *France*: Carignan, Cinsaut (Cinsault), Meunier (Pinot Meunier), Mourvèdre
- *Germany/Austria*: Blauer Portugieser, Blaufränkisch, Zweigelt
- *Greece*: Agiorgitiko, Mavrodaphne, Xinomavro
- *Italy*: Aglianico, Barbera, Corvina, Dolcetto, Montepulciano, Negroamaro, Nero d’Avola
- *Portugal*: Touriga Franca, Touriga Nacional
- *South Africa*: Pinotage

- *Spain:* Monastrell (Mourvèdre)
- *United States:* Petite Sirah
- *Uruguay:* Tannat