

CHARDONNAY

Guide



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CHARDONNAY



AUSTRALIAN WINE DISCOVERED



Crafted from grapes grown under vast and diverse climates, across landscapes millions of years in the making, every glass of Australian wine tells a story.

Like those who came before us, our modern growers and makers continue to be passionate, resilient and creative; constantly driven to explore new ways to perfect old techniques. Our community is connected by a mutual respect and shared love of crafting exceptional wine, while protecting the natural wonders for future generations to enjoy. Applying modern thinking to our ancient lands, we take playful experimentation very, very seriously.

So, if you're looking for the taste of adventure, let Australian wine be your compass. Because in every bottle of Australian wine, you'll experience the wonders of Australia – a reminder of the adventure and diversity that defines our culture and our land.

CHARDONNAY THE EVOLUTION OF A CLASSIC

Chardonnay has enjoyed the industry's highs and weathered its lows with resilience, and it continues to hold a special place for Australian wine lovers. Its Australian journey is a roller-coaster ride of dramatic proportions.



LOOP VIDEO

Now is a great time to play the Chardonnay loop video in the background, as you welcome people.

FIRST TASTE – This may be a good opportunity to give everyone a taste of a classic Chardonnay. The full tasting comes later in the module.

CHARDONNAY: THE EVOLUTION OF A CLASSIC

Chardonnay is the most planted white variety in Australia, vinified into all manner of styles and expressions, showcasing the distinctions of each region in which it thrives and the artistic influence of the winemaker.

It's a variety that's enjoyed the industry's highs and weathered its lows with resilience, and it continues to hold a special place in the heart of Australian wine lovers. Its Australian journey is a roller-coaster ride of dramatic proportions.

- With origins in France's Burgundy region, Australia's first Chardonnay cuttings arrived in the 1830s, took root and thrived thanks to its disease resistance, hardy temperament and site adaptability.
- There's no such thing as a typical Chardonnay. Australia's expressions of this variety are informed by the region's climate and geography in which it is grown, and by the influence of the winemaker.

- Chardonnay thrives in a range of climates across Australia. From the warmer climate of the Hunter Valley to the cool crispness of the Yarra Valley and Tasmania, as well as classic regions like Margaret River. It's ideally suited to Australia and reflects a sense of place wherever it's grown, crafted into a variety of styles from light-bodied, crisp and unoaked through to full-bodied, complex barrel-matured versions.
- As well as being a popular still table wine, Australian sparkling winemakers use Chardonnay to craft single-varietal sparkling Chardonnay as well as blends.
- Today, Chardonnay is grown in 89% of Australian wine regions.

FUN FACT – #ChardonnayDay

Chardonnay has its own calendar day, held on the last Thursday of May.



DID YOU KNOW

Chardonnay is named after the French commune of the same name in Burgundy.



TODAY WE'LL COVER

- The history of Chardonnay in Australia
- How it's grown
- How it's made
- The different styles
- Where it's grown
- Characteristics and flavour profiles

THE HISTORY OF CHARDONNAY IN AUSTRALIA

1908

Penfold's experimental vineyard (now Tyrrell's HVD vineyard) is planted in Hunter Valley, and is now one of the oldest Chardonnay vineyards in the world.



1820s – 1830s

Chardonnay is one of the original varieties brought to Australia and thrives in the warm, dry climate.

1918

Chardonnay cuttings from Kaluna Vineyard in Sydney's Fairfield are given to a Roth family member, who plants them at Craigmoor Vineyards in Mudgee.

1969

Craigmoor's cuttings identified as one of the best Chardonnay clones with European provenance in Australia.

THE HISTORY OF CHARDONNAY IN AUSTRALIA

IN THE BEGINNING

1820s–1830s

While the exact origins of Australia's first Chardonnay vines are subject to debate, we know it arrived on our shores as a humble vine cutting in the early 1800s.

1969

Many of Australia's first Chardonnay cuttings in the early 1970s came from Mudgee, NSW. One of the prized vineyards was owned by Alfred Kurtz, a worker at Mudgee's Craigmoor. These vines were identified in 1969 by a professor from France as one of the best Chardonnay clones with European provenance in Australia.

Late 1960s

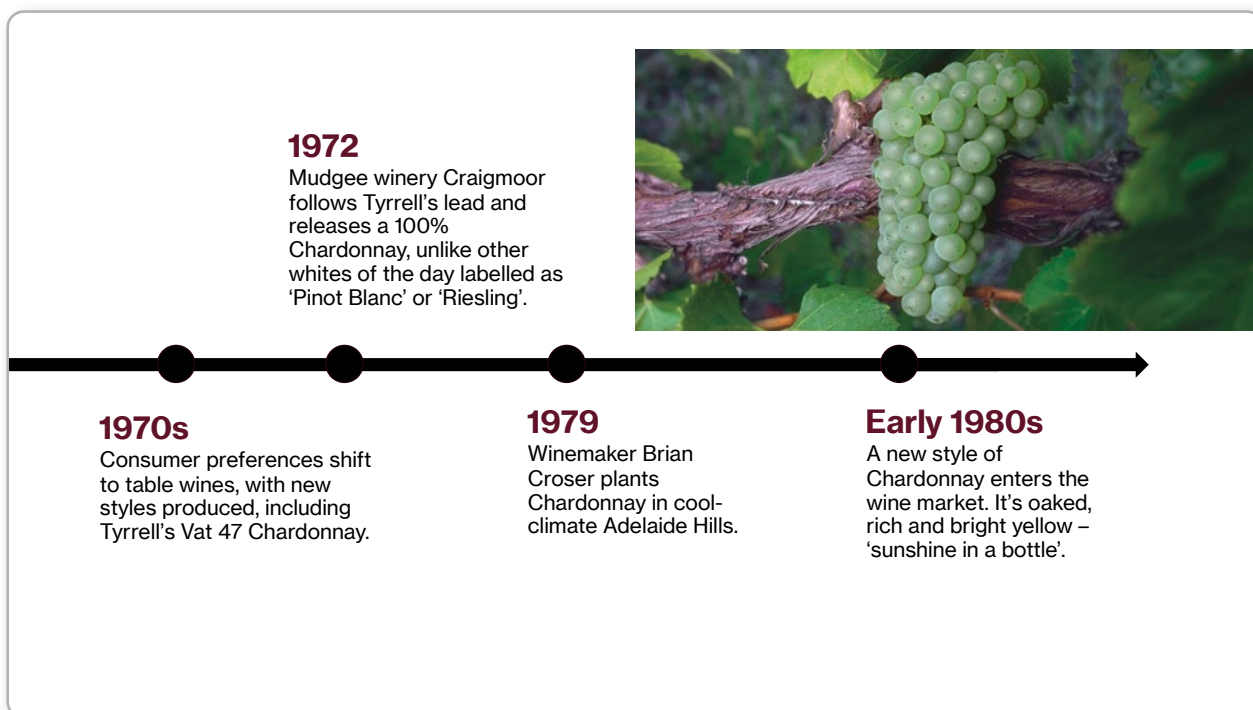
Folklore says Chardonnay's integral role in Australian wine culture is due to Hunter Valley winemaker Murray Tyrrell. While the real truth may never be known, the legend goes that in the late 1960s Murray Tyrrell jumped the fence of Penfolds' experimental vineyard in order to liberate and then plant Chardonnay vines in his family's Hunter vineyard. Whether it's true or not, the story of his Vat 47 Chardonnay epitomises Australian winemaking at its innovative best.

*See complementary reading**

1972

In synergy with Murray Tyrrell, Mudgee winemaker Pieter van Gent releases a Craigmoor Chardonnay, marketed as a straight Chardonnay, unlike other white wines of the day labelled as Pinot Blanc or Riesling.

Also in 1972, David Wynn from Mountadam Vineyards planted Chardonnay at the highest point in South Australia's Eden Valley. He recognised the potential of a cool, elevated site to produce wines of great elegance and structure. As a result, he became one of Australia's first noteworthy cool-climate Chardonnay producers.



1979

Croser identified the potential of the region as one of the best places in Australia to plant cool climate-loving varieties. It was innovations such as these that encouraged the Australian industry to grow.

Early 1980s

This new style of Chardonnay shone bright gold in the glass, influenced by lashings of oak and buttery characters derived from malolactic fermentation.

Mid to late 1980s and 1990s

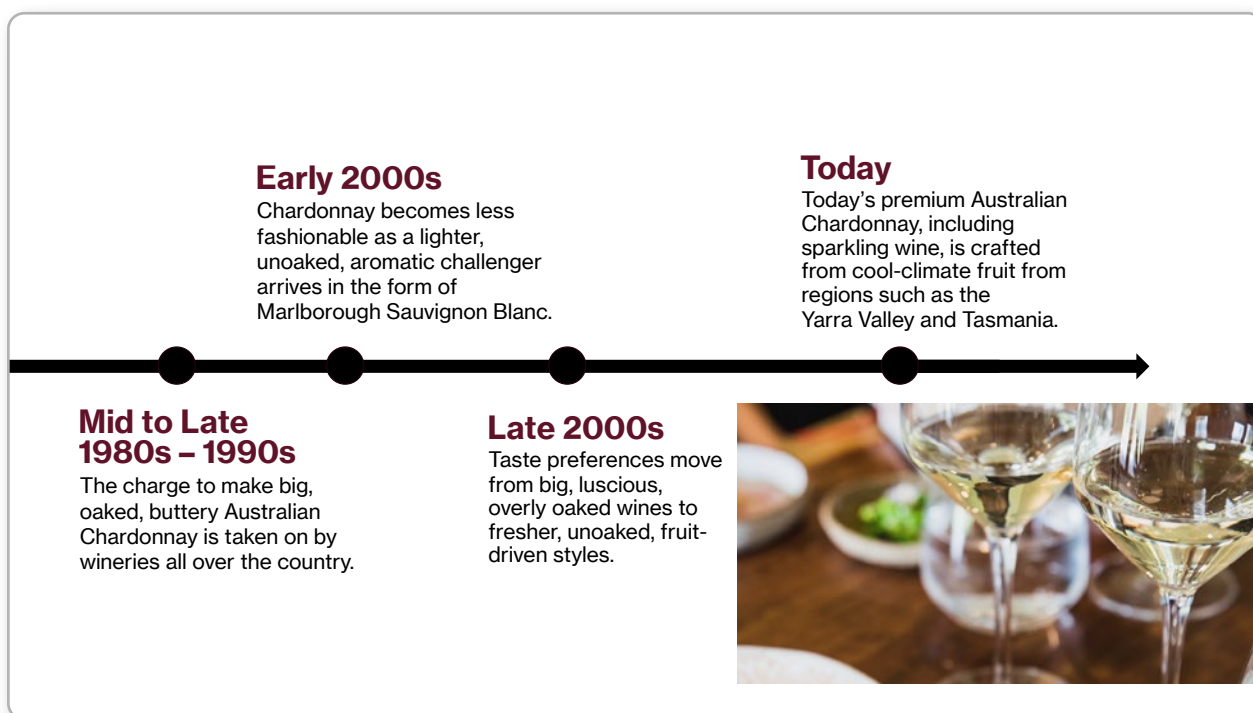
A river of bright yellow, oaky 'sunshine in a bottle' flooded the market. Rosemount led the way with its ripe, oaky wines like Roxburgh and Diamond Label with tropical fruit characters such as ripe peach, apricot, melon and guava. Warmer regions such as the Hunter Valley embraced the style, creating wines with rich flavours that were characteristic of heavy toast oak regimes. This style became hugely popular overseas and helped cement Australia's wine export success.

This preference for oaked buttery Chardonnay was part of a global trend also seen in California. But just as fashion trends like '80s shoulder pads and perms changed with the times, so did our drinking preferences. People started seeking fresher, lighter, lower alcohol and unoaked whites with aromatics they could drink without food. Drinkers began to move away from 'sunshine in a bottle', proclaiming their dislike as the Anything But Chardonnay (ABC) movement.

This Chardonnay style was a blessing and a curse – it brought Australia into the gaze of the world's wine-drinking population but its market saturation saw production climb sharply and quality decrease.

Early 2000s

The new aromatic kid on the block sashayed into Australia wearing showy tropical fruit and grassy notes on its sleeve. With its high acidity, pungency and tangy tones, it was the antithesis of ripe, oaky Chardonnay. Winemakers realised a new style was in fashion. The desire for a leaner, crisper style took hold.



THE AUSTRALIAN CHARDONNAY REVIVAL

Late 2000s

Chardonnay drifted from view but innovative winemakers began to experiment with a new style of Chardonnay. They pushed oak to the back and let crisper, fresher fruit do the talking. Australia's new-wave Chardonnay reflected laser-like acidity, elegance and minerality.

Today

Today, Chardonnay accounts for more than half of Australia's white wine production. Aside from the Mediterranean climates of Margaret River, cool-climate regions excel at producing Chardonnay. These regions include Tasmania, Great Southern (WA), Yarra Valley and Mornington Peninsula (VIC), Adelaide Hills (SA), and Canberra district, Orange and Tumbarumba (NSW–ACT). Regional diversity is as much a key selling point of Australian wine as winemaker influence. Warmer climates like the Barossa Valley and Hunter Valley continue to produce rich, ripe styles in contrast to lean cool-climate styles.

Australia's reputation for producing sparkling wines has also grown enormously thanks in part to Chardonnay being planted explicitly for sparkling wine production in suitable cool climate areas. Winemakers pick the Chardonnay for sparkling wines much earlier than for still wines, the higher acidity giving the structure needed for aging and secondary fermentation. Australia has a growing global reputation for crafting unique sparkling expressions from Chardonnay in a single-varietal 'Blanc de Blancs' style, as well as Chardonnay blends.

SUGGESTED DISCUSSION POINT

- Some argue the move away from big, luscious, oaked Chardonnays went too far towards lean, skeletal wines lacking in fruit and complexity. Do you think this is the case? Or is there a middle ground where freshness and fruit expression is prized, but oak can be used to add structure without dominating a wine?



THE STORY OF TYRRELL'S WINES A GROUND- BREAKING HUNTER WINERY

One of the Hunter Valley's most renowned winemaking dynasties is the Tyrrell family. Today, the winemaking baton is being passed from fourth-generation father Bruce Tyrrell to his fifth-generation son, Chris Tyrrell.

FUN FACT

While the real truth may never be known, legend has it that Murray Tyrrell jumped the fence to grab some Chardonnay vines from Penfolds' experimental vineyard to plant in his family's Hunter Valley vineyard, now home to the famous Vat 47 Chardonnay.



COMPLEMENTARY READING

THE STORY OF TYRRELL'S WINES: A GROUNDBREAKING HUNTER WINERY

Established in 1858 by English immigrant Edward Tyrrell, Tyrrell's Wines is one of Australia's pre-eminent family owned wine companies and boasts some of the oldest known Chardonnay vineyards in the world.

While the real truth may never be known, the legend goes that in the late 1960s Murray Tyrrell jumped the fence of Penfolds' experimental vineyard in order to liberate and then plant Chardonnay vines in his family's Hunter vineyard. From these vines, Vat 47 Chardonnay was produced and inspired the 'sunshine in a bottle' craze.

Tyrrell's: A history of excellence

One of the Hunter Valley's most renowned winemaking dynasties is the Tyrrell family. Today, the winemaking baton is being passed from fourth-generation father Bruce Tyrrell to his fifth-generation son, Chris Tyrrell.

A history of innovation

The founding father of Tyrrell's Wines, Edward Tyrrell, moved to Australia in 1854, and he and his family established the winery and an ironbark hut that still stands today. Vineyard plantings followed, including the 4 Acres Vineyard, in 1879. It's one of the oldest in the Hunter Valley still producing exceptional fruit today.

In the late 1800s, Edward passed the winery to his son, Dan, who expanded upon his father's legacy until his passing in 1959. Dan's nephew Murray took the reins and proceeded to take things to another level, ensuring all Tyrrell's best wines were bottled under Tyrrell's own label. Wines such as Vat 1 Semillon and Vat 47 Chardonnay became part of the Australian wine lover's vernacular.



COMPLEMENTARY READING (continued)

Tyrrell's: A legendary Australian wine name with a bright future

Murray's son Bruce Tyrrell has had a ruthless focus on quality and provenance since taking over the day-to-day running of the business. Tyrrell's global reputation for exceptional Semillon and Chardonnay is now matched by a reputation for their reds that is the envy of many in the valley and across Australia.

The solid foundation built by Edward, grown by Dan, shared with the world by Murray and matured into one of Australia's great family wineries by Bruce is stronger and tasting better than it ever has. Chris Tyrrell, one of Australia's brightest young winemakers and fifth generation family member, is now taking this special legacy and shaping it for the future. An illustrious history. A bright future. The Tyrrell's name and fine Australian wine will be synonymous for many, many years to come.

VITICULTURE HOW AUSTRALIAN CHARDONNAY IS GROWN

- An incredibly adaptable vine which takes on characteristics of the site where its grown.
- Tight yield control encourages lean flavours and good acid development.
- Lower yields give more intense flavour concentration in the grapes.
- Early harvest to capture good acid structure.



VITICULTURE: HOW AUSTRALIAN CHARDONNAY IS GROWN

The vine

The Chardonnay vine is incredibly adaptable and has a reputation for its ease of cultivation and as being an expression of the site its grown, assuming the characteristics of its terroir. It's a highly vigorous vine with wide-ranging leaf coverage controlled by heavy pruning, shoot thinning and canopy management. Without this careful management, vine vigour can reduce the quality.

Irrigation

Depending on the location of the vineyard, the climate and the surrounding water source, Chardonnay vines require careful monitoring as its thin skin is susceptible to developing rot.

Yield

In certain conditions, Chardonnay can be very high yielding, however fruit specifications have changed along with the palates of Australian wine drinkers in recent decades. In fact, in a desire to produce the highest possible quality of Chardonnay, there has been something of a trend toward lower yields to capture the very best fruits. Yields have also moderated down with a desire for leaner flavours, higher acids and a lower Baumé (measurement of the solids in grape juice indicating the grapes' sugar level and ripeness, and the potential alcohol). Yield control has a major impact on wine quality. Generally speaking, the lower the yield, the more intense the concentration of flavour in the grapes, resulting in higher quality and better structured wines. If the yield goes too high, the quality can be impacted.

Harvest

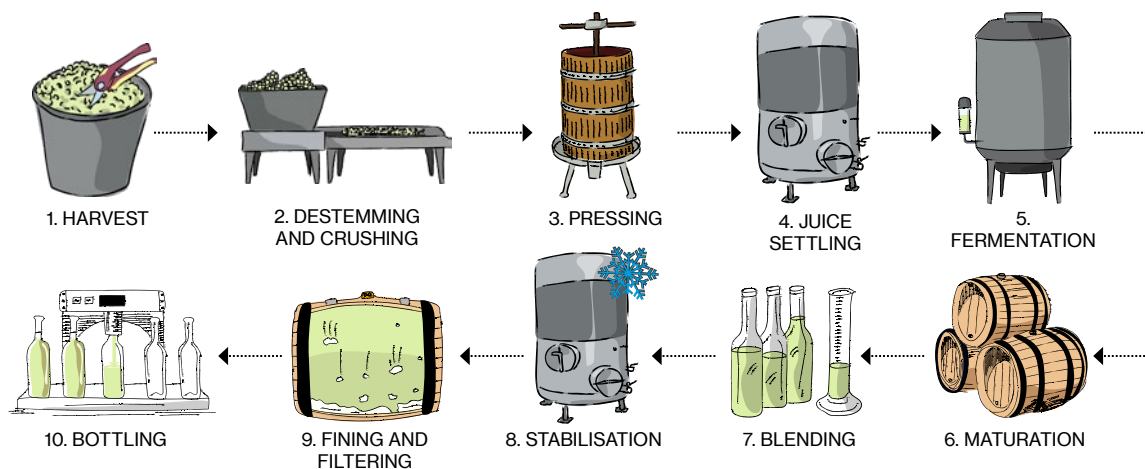
Chardonnay is an early-budding, and therefore early-ripening, vine. In Australia's pre-2000 Chardonnay boom, it was one of the last grapes to be harvested, as winemakers were looking for ripe fruit flavours. These days, many winemakers harvest Chardonnay earlier in the season. As the grapes ripen, the sugar content increases and the acid content decreases, so new-wave Chardonnay producers are looking to harvest at a time when the balance is right. In simple terms, the earlier the pick, the leaner the style and the less winemaking influence is applied to maintain purity and balance. In cooler climates, viticultural risks include damage to the early-budding grapes due to springtime frost.



SUGGESTED DISCUSSION POINT

- There has been a shift in the style of viticultural management and harvest schedule of Chardonnay pre- and post-2000. While big, rich Chardonnays are still in production, there is also a demand for leaner, racier expressions grown from cool-climate fruit. How do these differing Chardonnay styles affect viticulturists and winemakers?

HOW WHITE WINE IS MADE



FEATURE VIDEO

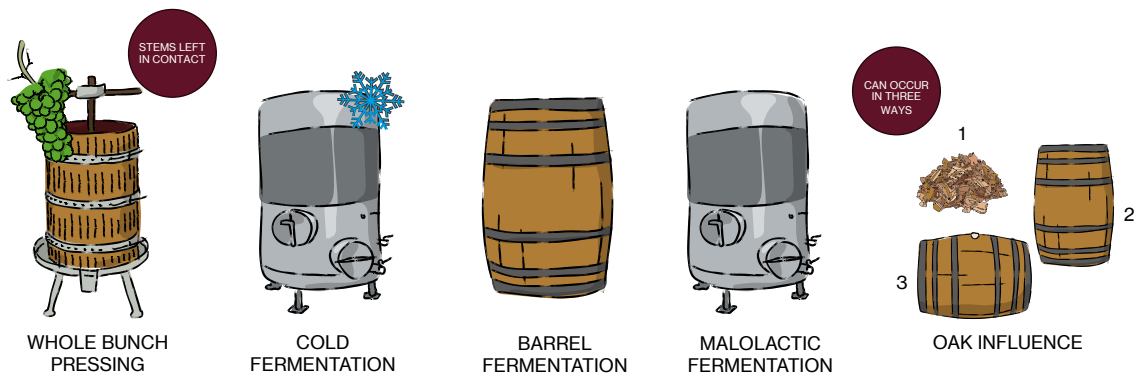
Now is an appropriate time to play the feature video, *How white wine is made*. While it's not specific to Chardonnay, it provides background context on the typical production process.



COMPLEMENTARY PROGRAM

Learn more about how wine is made in the Introduction to wine module, available at www.australianwinediscovered.com

WINEMAKING: TECHNIQUES INFLUENCING CHARDONNAY



WINEMAKING: TECHNIQUES INFLUENCING THE CHARDONNAY STYLE

Australian Chardonnay is inspiring interest all over the world due to the willingness of winemakers to apply the following techniques in the winery.

Whole-bunch (or cluster) pressing:

Entire grape bunches are pressed to extract juice, rather than de-stemming before the crush. The presence of stalks in the press makes for effective drainage and promotes clarity of juice. The result is a more refined, less stringent wine.

Cold fermentation:

A long, slow, cool fermentation heightens the aromatics of the ripened fruit and can deliver rich flavours such as mango and pineapple. Cool fermentation often occurs in stainless steel tanks and is followed by early bottling to capture the fresh, lean, mineral flavours.

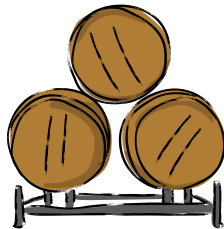
Barrel fermentation:

Wines that are barrel fermented have different characteristics to wines that are fermented in stainless steel. As well as imparting oak flavours, it helps to create wines with a rounder, broader mouth feel and firmer structure.

Malolactic fermentation:

Lactic acid bacteria is added to the fermented Chardonnay juice to trigger the conversion of harder malic acid into soft, smooth, creamy lactic acid, which creates a buttery flavour and texture. Winemakers can also choose to employ partial malolactic fermentation. As malolactic fermentation is a way of essentially decreasing acid in the wine, it may not be desirable in warmer climates or for specific styles of Chardonnay.

WINEMAKING: TECHNIQUES INFLUENCING CHARDONNAY



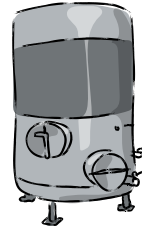
BARREL
MATURATION



EXTENDED LEES
CONTACT



BATONNAGE



WILD
FERMENTATION



SECONDARY
FERMENTATION
(IN SPARKLING WINE)

Oak influence:

The influence of oak can occur in three ways: by the addition of oak chips at various points of the winemaking process; during fermentation in oak barrels; or during maturation in oak barrels. This influence can sometimes result in a toasty overtone – depending on the oak regime used, and the age and provenance of the oak – with flavours spanning caramel, smoke, cream, vanilla, cinnamon and coconut.

Barrel maturation:

While oak flavours largely come from seasoning and toasting, ageing Chardonnay in oak barrels also imparts different flavour compounds depending on the age of the oak (new or used) and to a lesser extent its provenance (American, French or other European countries). Maturation in oak provides a stable environment for metabolic reactions, such as malolactic fermentation, to occur. Using larger-format oak barrels to mature the Chardonnay results in less oaky flavours.

Extended lees contact:

Wine is left to age on its lees, the leftover yeast particles from autolysis, which is the self-destruction of yeast cells created during fermentation. Lees contact can occur for as short a period as 3–4 months, or as long as several years. The result of extended lees contact can be sensed as a richer texture and fuller body in the wine. Ageing wine on its lees in oak barrels will extract additional compounds from the wood.

Bâtonnage:

When winemakers stir the lees in order to increase the surface area of the lees contact and therefore increase the level of extraction. This helps to integrate the wine with the oak, but can decrease the fruit expression of the wine at the same time.

Wild fermentation:

Wild or indigenous yeasts that are naturally present in the microflora of the grape are used to ferment the wine rather than adding cultured yeasts (wild yeasts that are isolated then cultured in a laboratory). There aren't always textural differences present after wild yeast fermentation, but it certainly makes for a more complex wine.

Secondary fermentation:

This practice is applied when making sparkling wine, and follows the time-honoured method of adding yeast and a small amount of sugar to the first ferment (called *cuvée*) in the bottle. During this secondary fermentation, carbon dioxide is confined in the bottle, thus carbonating the wine.

Bottling:

Most Australian Chardonnay is bottled under screw cap and tends to be made for early drinking (2-5 years), often sold without any bottle age. However, it's not uncommon to find high-quality expressions that can be cellared for more than five years and to find wines that are sold with some bottle age.



SUGGESTED DISCUSSION POINTS

- What challenges does a winemaker face when using wild yeast fermentation?
- What are the reasons for a winemaker to use malolactic fermentation?



ADVANCED NOTES

AUSTRALIAN CHARDONNAY: THE NEXT GENERATION

A new generation of winemakers are bringing expertise, experimentation and bold ideas to the Australian Chardonnay landscape. In Victoria's Yarra Valley, Luke Lambert has broken from tradition, creating naturally complex, multi-layered wines using wild yeast fermentation, wild malolactic fermentation and large, old oak casks to create wines that reflect the lean qualities of the harsh, rocky soils high in the Yarra Valley.

Mac Forbes is another Yarra Valley winemaker following a natural, sustainable path to craft his Chardonnay, with his complex, elegant style that reveals a tightly wound core of freshness.

Tasmanian winemaker Anna Pooley believes super-premium wines need to be handcrafted with minimal intervention to let the qualities of the vineyard shine through. Pooley's pristine single-vineyard 'Cooinda Vale' Chardonnay is made from fruit that was once destined for Penfolds' highest tier, 'Yattarna' Chardonnay.

Fermented in concrete eggs, Si Vintners is from the southern Margaret River and looks as if it's being hatched rather than made. The beautifully named Halcyon Block was planted in 1978 – making it one of Margaret River's oldest – and employs biodynamic practices to let the purity of the fruit shine.

In Geelong's cool climate, father-and-son winemaking team Gary and Nick Farr create boutique, single-vineyard Farr Rising Chardonnay that shows impressive drive, structure and length, achieved through hand-harvested, whole-bunch pressed grapes, natural fermentation, lees stirring and malolactic fermentation.

COMMON CHARDONNAY STYLES

Due to its adaptability, there's no one universal style. Australian Chardonnays express the diversity of the people who craft them and the unique regional characteristics of their origins.



COMMON CHARDONNAY STYLES

Due to the flexibility of Chardonnay and its ability to reflect its terroir, there's no universal style or set of constants that can be applied to Chardonnay produced in Australia. What we can do is divide Chardonnay into three broad primary styles that are influenced by region and climate, vineyard management and winemaking techniques.

Oaked Chardonnay

Oaked Chardonnays tend to be fuller-bodied, smooth, creamy and complex wines. The use of oak barrels allows an ingress of oxygen, which can soften the wine, making it more approachable at a younger age. Oak influence can also be seen in the aromas and flavours, from vanilla, cinnamon, clove and coconut tones, to smokiness, spice and toasted almond notes. Finally, if the wine goes through malolactic fermentation in the barrel, a further creaminess and rich buttery texture appears.

Unoaked

Unoaked Chardonnays tend to display fresh, vibrant characteristics of florals and fruitiness in lean, refreshing styles that come to life when paired with food. The flavours reflect the wide spectrum of Chardonnay and the nuances of the vineyard site, its region and seasonal variables, as these wines are not influenced by oak or malolactic fermentation. Winemakers of unoaked Chardonnays tend to work with the flavours of the fruit rather than applying a heavy-handed approach in the winery. Unoaked Chardonnays can display a fruit profile that spans from tropical fruits like pineapple and mango to a lean profile featuring green apple, pear and citrus.

It's worth noting that while oak certainly has the capacity to alter the flavour profile of Chardonnays, climatic differences are more powerful drivers in affecting the wine's overall style and expression – not simply the inclusion of, or lack of, oak in the Chardonnay's production.

CHARDONNAY STYLES



Sparkling Chardonnay

Chardonnay's less prominent role in Australian winemaking is as a component of, and as a single varietal in, sparkling wine. Cool-climate Chardonnay fruit is picked early to preserve its high levels of acidity before ripeness kicks in and acidity levels drop.

Single-varietal Chardonnay sparkling, described as a Blanc de Blancs ('white of whites' in French), produces elegant, savoury, dry and floral wines with a strong backbone of acid. When given time to age, especially with extended lees contact, they sometimes develop toasty notes – a result of yeast autolysis.

When sparkling producers decide to blend Chardonnay with its blending partners of Pinot Noir and Pinot Meunier (grown less in Australia), the wine tends to be more full-bodied with fruity fleshiness.

SUGGESTED DISCUSSION POINTS

- What is the flavour difference between an oaked Chardonnay and an unoaked Chardonnay?
- Which Australian wineries are producing age-worthy Chardonnays?
- What does Chardonnay bring to a blended sparkling wine?

WHERE IS CHARDONNAY GROWN?



AUSTRALIAN CHARDONNAY REGIONS

Chardonnay is a very robust and easygoing variety, thriving in both warm and cool climates. In Australia, this variety is grown in virtually every winemaking region, from the cool confines of Tasmania and Victoria to the warmer climates of the Hunter Valley and the Riverland.



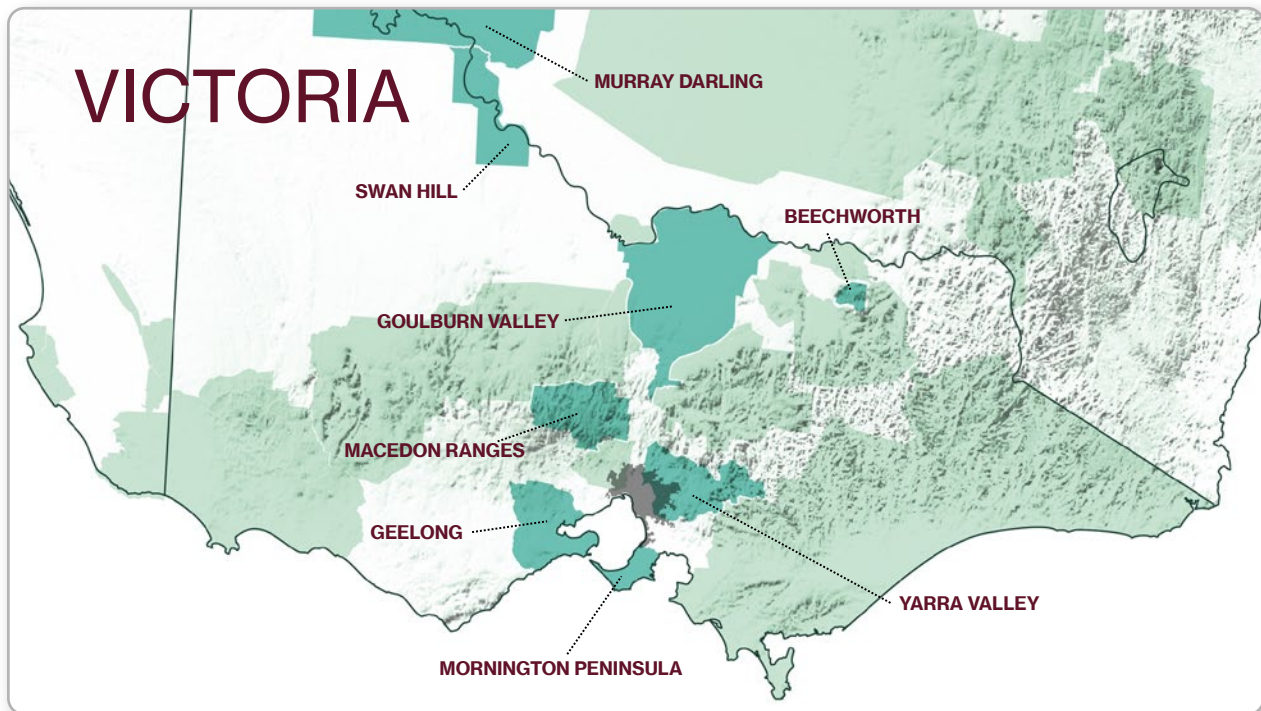
DID YOU KNOW

Chardonnay is grown in 58 of 65 Australian wine regions. This makes it the most planted white variety in Australia.



COMPLEMENTARY PROGRAM

To discover more about some of Australia's most prominent wine regions, explore our regional modules at www.australianwinediscovered.com



VICTORIA

Victoria is the most populated wine region in Australia, with more regions and wineries than any other state. Its geographical diversity allows each region to produce many styles, including elegant cool-climate Chardonnay and fine sparkling wine from the Yarra Valley, Mornington Peninsula, Beechworth, Macedon Ranges and Geelong. Warmer-climate examples come out of Murray Darling, Goulburn Valley and Swan Hill. We're focusing on two of the state's most prominent cool regions, the Yarra Valley and Mornington Peninsula.

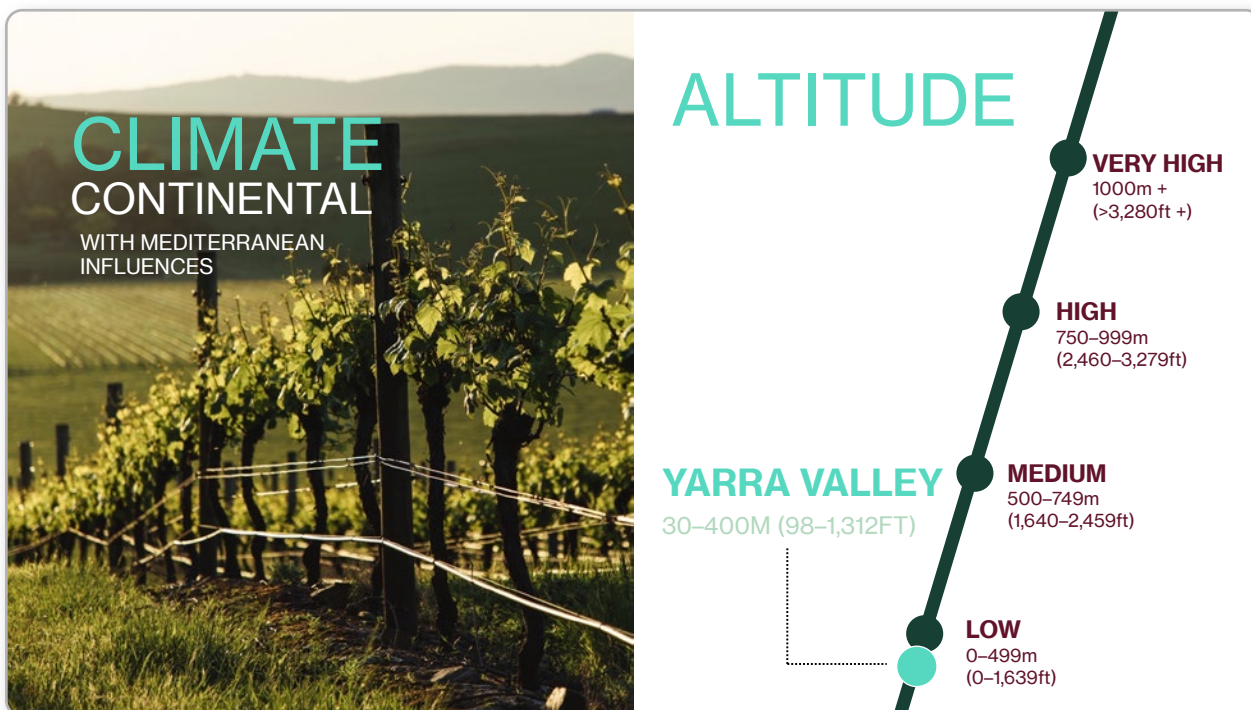


YARRA VALLEY

- Popular tourist destination
- Colourful history
- Groundbreaking winemakers
- Food and wine paradise

YARRA VALLEY

- **Popular tourist destination:** At less than an hour's drive from Melbourne's CBD, the Yarra Valley is one of Australia's most accessible wine regions, featuring cellar doors, quaint villages, cultural attractions, food producers and iconic scenery.
- **Colourful history:** Vines were first planted in 1838, making it Victoria's first wine-growing district. While increased demand for fortified wine saw the region cease production in 1921, replanting began in the 1960s, and the region is now recognised as one of Australia's foremost cool-climate regions.
- **Groundbreaking winemakers and growers:** The Yarra Valley is home to a bold and exciting new breed of revolutionary winemakers who are pushing the boundaries of cool-climate grape growing and winemaking.
- **Food and wine paradise:** The regional emphasis on the quality and flavour of the wines has spread to the local produce grown in the same fertile soil, making the region a little slice of food and wine paradise.



YARRA VALLEY SNAPSHOT

Latitude

- 37° 73'S

Climate

- One of Australia's coolest regions
- Rainfall dominant in winter and spring
- Cool, dry and humid summers.

Growing season rainfall (GSR)

- 559mm (22in)

Calculated from October to April in Australia, growing season rainfall is a good indication of how much water is available to the vine. The Yarra Valley experiences most of its rain during winter and spring, with the summer being relatively cool, dry and humid.

Mean January temperature (MJT)

- 18.9°C (66.02°F)

MJT refers to the mean temperature of the warmest month. In the cool-temperature range, Yarra Valley experiences a long, slow ripening period to produce some flavoursome grapes and wines. Temperature hazards such as spring frosts can be a risk.

Please check the Wine Australia website for up-to-date information. Altitude refers to the highest and lowest vineyard in the GI region, not necessarily the highest or lowest point within the region and is calculated using the National Vineyard Scan and state contour datasets. Latitude is taken at the central point of the GI region. Meteorological data is taken from the national climate data bank of the Bureau of Meteorology: the Australian Data Archive for Meteorology (ADAM). Climate indices have been calculated across the whole GI region by the Antarctic Climate and Ecosystem CRC as part of a research project co-funded by Wine Australia. Growing season rainfall (GSR) and mean January temperature (MJT) based on 1991–2017 averages from the Bureau of Meteorology (2018). GSR is calculated from October to April.



SOIL

The Yarra Valley's northern side feature soils of grey to grey-brown on the surface, and range from loamy sand to clay loam in consistency with red-brown clay subsoils, often filled with rock. The other major soil type is the immensely deep and fertile red volcanic soil on the southern side of the valley.

SOIL

The Yarra Valley's diverse topography is reflected in its various soil types. The traditional grape-growing areas on the northern side of the valley feature soils of grey to grey-brown in colour on the surface, and range from loamy sand to clay loam in consistency with red-brown clay subsoils, often filled with rock. The other major soil type is the immensely deep and fertile red volcanic soil in the southern side of the valley. The variation in altitude and soil types in this hilly region creates differences in climates and exposure, which suits some varieties.

Notable Yarra Valley Chardonnay producers:

The region's prominence for Chardonnay continues to evolve. Chardonnay is grown on diverse sites and styles are generally fine, textural and restrained. The grapes are often picked at lower sugar levels (Baumé) to keep acid levels high. Aroma and flavours span citrus and stone fruit, and are minerally and floral. With age, they can develop appealing flavours of fig and a savoury dimension.

- **TarraWarra Estate Chardonnay** – fine example of cool-climate Chardonnay.
- **Mac Forbes 'Hoddles Creek' Chardonnay** – emerging innovative winemaker.
- **Giant Steps Yarra Valley Chardonnay** – benchmark oaked regional Chardonnay.
- **Luke Lambert Chardonnay** – wild yeast and malolactic fermentation techniques.

Other Victorian regions renowned for their cool-climate Chardonnay production include (with examples):

- **Geelong** – Farr Rising Chardonnay.
- **Macedon Ranges** – Curly Flat Chardonnay.
- **Beechworth** – Giaconda Chardonnay.



SUGGESTED DISCUSSION POINT

- Tasmania, the Yarra Valley and Adelaide Hills are all premium wine-growing regions and, in addition to other varieties, are well known for their sparkling wines. Why do you think these regions are so suited to the sparkling style?



MORNINGTON PENINSULA

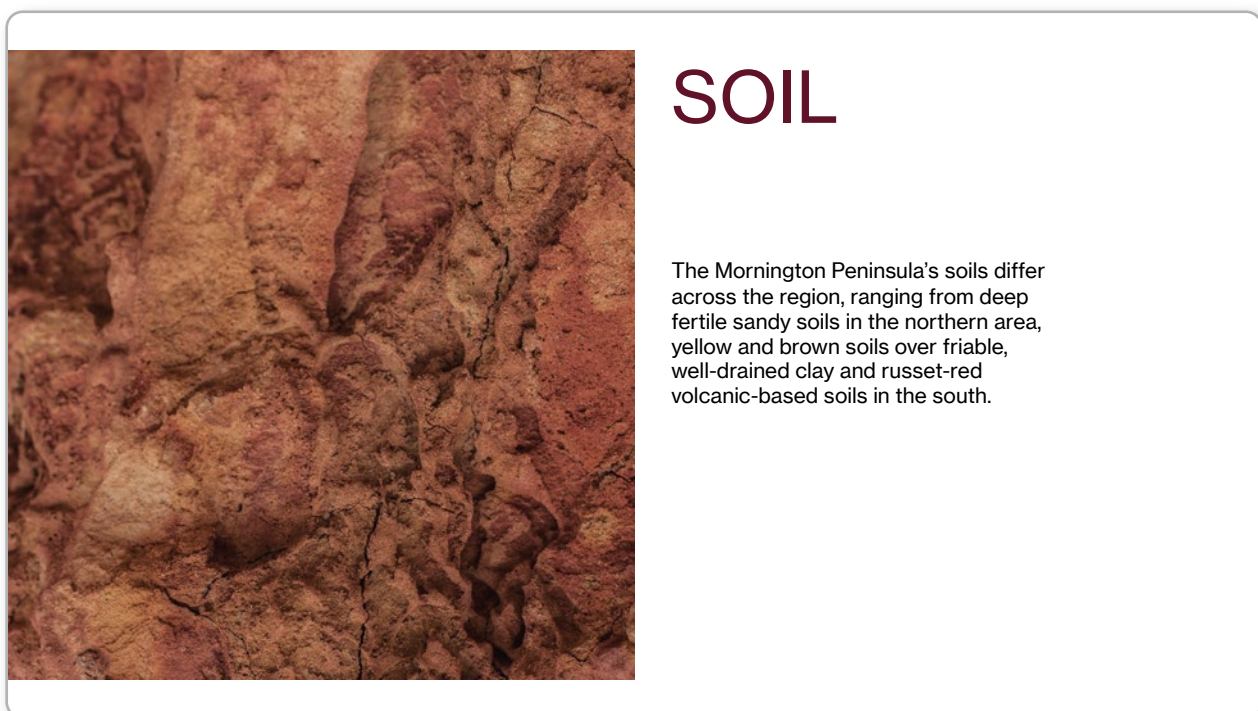
- Historical significance
- Seaside playground
- True maritime region
- Popular gourmet escape

FUN FACT

No vineyard site in the Mornington Peninsula is further than 7km from the ocean.

MORNINGTON PENINSULA

- **Historical significance:** Wine production dates back to the late 1880s. In 1886, a Mornington Peninsula wine picked up an honourable mention at London's Intercontinental Exhibition.
- **Seaside playground:** The region has built a reputation for producing fine cool-climate wines, as well as offering a seaside retreat thanks to its beautiful beaches, calm bays and natural beauty.
- **True maritime region:** Surrounded by Bass Strait, Port Phillip Bay and Western Port Bay, the region is a true maritime wine region.
- **Popular gourmet escape:** At only an hour's drive from Melbourne's CBD, this region is a popular weekend destination, with many gourmet dining options and boutique accommodation on offer.



MORNINGTON PENINSULA SNAPSHOT

Latitude:

- 38° 35'S

Climate

- Strongly maritime climate but site specific.
- Relative humidity is high.
- Frost is rare due to consistent winds.

Growing season rainfall (GSR)

- 371mm (14.6in)

Mean January temperature (MJT)

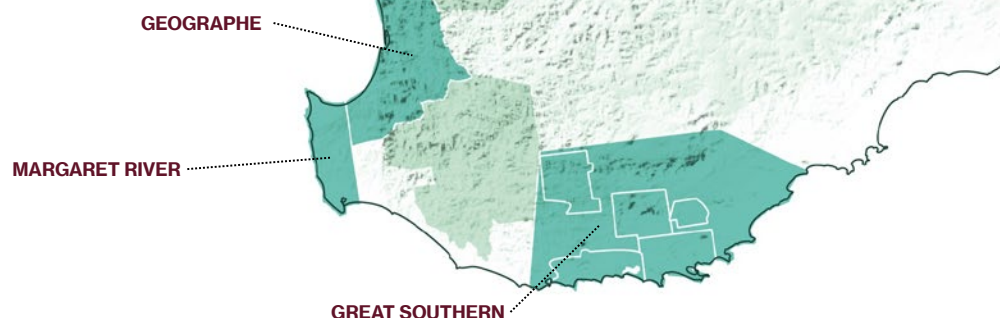
- 19.3°C (66.7°F)

Notable Mornington Peninsula Chardonnay producers:

Celebrated for their well-balanced elegance, the region's Chardonnays range from delicate, unoaked crispness through to medium-bodied wines with toasty notes and rich complexity. Expect typical fruit flavours of melon, citrus and fig. Chardonnay benefits from the extraordinary natural acidity that the cool Mornington Peninsula climate can produce, and emphasises the restraint and tight structure for which the region is renowned.

- **Kooyong 'Clonale' Chardonnay**
 - great entry-level example.
- **10 Minutes by Tractor '10X' Chardonnay**
 - dry, savoury and structured wine.
- **Garagiste 'Merricks' Chardonnay**
 - small-batch and site-expressive Chardonnay.
- **Yabby Lake Single Vineyard Chardonnay** – wild yeast fermented with a great length of drive and flavour.

WESTERN AUSTRALIA



WESTERN AUSTRALIA

Western Australia's winemaking regions are concentrated in the south-west and Great Southern divisions. Some regions are close to the state's capital, Perth, such as Swan District, but most are located further south. The regions include Blackwood Valley, Geographe, Great Southern, Peel, Pemberton, Manjimup, Margaret River and Swan District. Here we're focusing on the region that's home to Western Australian Chardonnay, Margaret River.

FEATURE VIDEO

Now is an appropriate time to play the feature video, *Margaret River Chardonnay*.



MARGARET RIVER

- History of research and development
- Trailblazers
- Coastal location

MARGARET RIVER

In less than 50 years, Margaret River has built an international reputation as a home of fine wine in Australia. Its Chardonnay displays fruit ripeness, flavour and depth, with refreshing acid that allows the wines to age gracefully.

- **History of research and development:** In the 1950s and '60s, Professor Harry Olmo and Dr John Gladstones identified the region as boasting superb conditions for viticulture. The area's high winter rainfall, a dry, warm summer and low risk of frost and hail – combined with grey loam on a subsoil of clay – have proven Olmo and Gladstones correct.

- **Trailblazers:** The next generation of winemakers are pushing boundaries and changing perceptions of the region. From organic farming and fermentation in amphora to experimenting with alternative varieties, emerging winemakers are finding a new audience around the world.
- **Coastal location:** Margaret River's coastal location makes this region a place of natural beauty, with its vineyards set back from some of the most breathtaking coastal shorelines in the world.



MARGARET RIVER SNAPSHOT

Latitude

— 33° 96'S

Climate

Margaret River's climate can be compared to that of Bordeaux in a dry year. It has the most marked maritime climate of any region in Australia in terms of rainfall and a low diurnal temperature range, which leads to even heat accumulation.

Growing season rainfall (GSR)

— 202mm (7.95in)

Mean January temperature (MJT)

— 20.9°C (69.62°F)



SOIL

The region consists of grey loam on a subsoil of clay, which is excellent for viticulture. The ridge from Cape Naturaliste to Cape Leeuwin is predominantly gravelly loam on granite and gneiss, but its overall water-holding capacity is low, and the granite layers encourage the vines to search deep for nutrients and water.

SOIL

Dr Gladstones' geological surveys produced encouraging results, with much of the region consisting of grey loam on a subsoil of clay, which makes excellent soil for viticulture. The ridge from Cape Naturaliste to Cape Leeuwin is predominantly gravelly loam on granite and gneiss, but its overall water-holding capacity is low, and the granite layers encourage the vines to search deeper for nutrients and water, striking the right balance between stress and struggle for these vines, which ultimately results in Chardonnays of elegance and complexity.

Notable Margaret River Chardonnay producers:

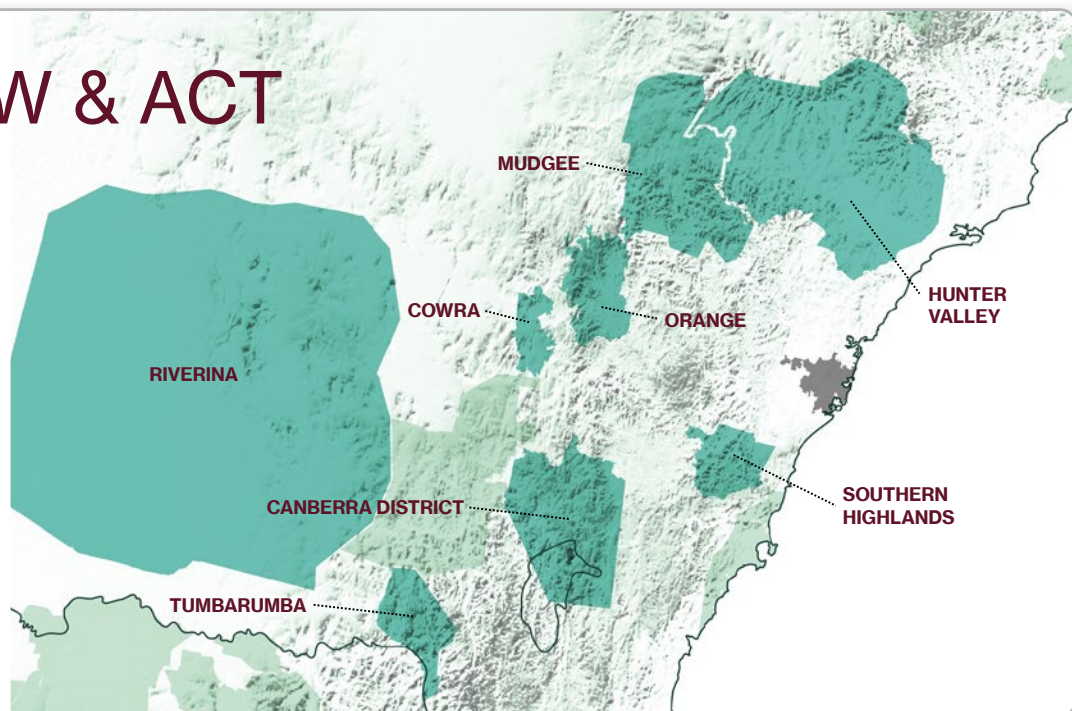
Margaret River is more than capable of producing wines to match the world's best. Its Chardonnay displays fruit ripeness, flavour depth and roundness of texture, with refreshing acid that allows the wines to age gracefully.

- Leeuwin Estate 'Art Series' Chardonnay.
- Cullen 'Kevin John' Chardonnay.
- Vasse Felix Chardonnay.
- Moss Wood 'Moss Wood Vineyard' Chardonnay.

Other Western Australian regions renowned for their cool-climate Chardonnay production include:

- Great Southern – Singlefile 'Family Reserve' Chardonnay.
- Geographe – Fifth Estate Wines Chardonnay.

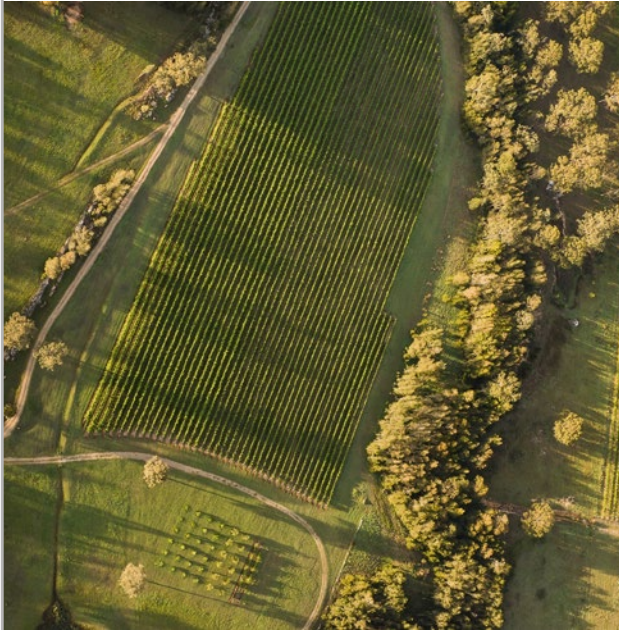
NSW & ACT



NEW SOUTH WALES

This state is home to 14 individual wine regions, from Australia's oldest continuous wine region – the Hunter Valley – to big-volume stalwart zones such as the Riverina and cool-climate spots such as Orange, Tumbarumba and the Canberra District (which is spread across both NSW and the ACT, a territory within NSW). The Great Dividing Range influences the climate of highly elevated Orange and Canberra.

Climbing up the climate scale, the Hunter Valley is very warm, with high humidity levels and substantial amounts of rainfall. Head further inland to Mudgee and Cowra, which experience a warm climate but boast drier conditions. Here we're focusing on the spiritual home of 'sunshine in a bottle' Chardonnay, the Hunter Valley.



HUNTER VALLEY

- The birthplace of Australian wine
- Home to the Tyrrell's family
- Popular tourist destination

FUN FACT

Hunter is Australia's oldest continuous wine region and is split into the Lower Hunter, where the majority of wineries are located, and the Upper Hunter.

HUNTER VALLEY

- **The birthplace of Australian wine:** James Busby helped establish the Hunter Valley as a key wine region. As one of the first regions in Australia to grow Chardonnay, its modern styles range from lean and mineral through to full-flavoured and richer examples.
- **Home to the Tyrrell's family:** Murray Tyrrell supposedly jumped the fence of Penfolds' HVD Pokolbin vineyard to grab vine cuttings, which went on to become the basis for Tyrrell's successful Vat 47 Chardonnay.
- **Popular tourist destination:** At just over three hours' drive from Sydney's CBD, the Hunter Valley has become a beacon of entertainment for Sydneysiders and tourists who are attracted by its rich history and to enjoy the taste of Hunter wines.



HUNTER VALLEY SNAPSHOT

Latitude

— 32° 34'S

Climate

The Hunter Valley's climate is characterised by warm and humid days in spring and summer, and chilly nights in autumn and winter. The rain, humidity, cloud cover and gentle sea breezes mitigate the warmth. The summer-dominated rainfall can occur during harvest in some years.

Growing season rainfall (GSR)

— 527mm (20.7in)

Mean January temperature (MJT)

— 23.1°C (73.6°F)



SOIL

Lower Hunter soils vary from sandy alluvial flats to deep loam and friable red duplex soils. In the Upper Hunter, the rivers and creeks contribute to the area's black, silty loam soils that are often overlaid on top of alkaline clay loam. The hills of the Brokenback Range feature strips of volcanic basalt.

SOIL

The soils of the Lower Hunter vary from sandy alluvial flats to deep loam and friable red duplex soils. In the Upper Hunter, the rivers and creeks of the region contribute to the area's black, silty loam soils that are often overlaid on top of alkaline clay loam. Throughout the hills of the Brokenback Range sit strips of volcanic basalt that are valued by growers as they restrict vigour and concentrate mineral flavours in the grapes.

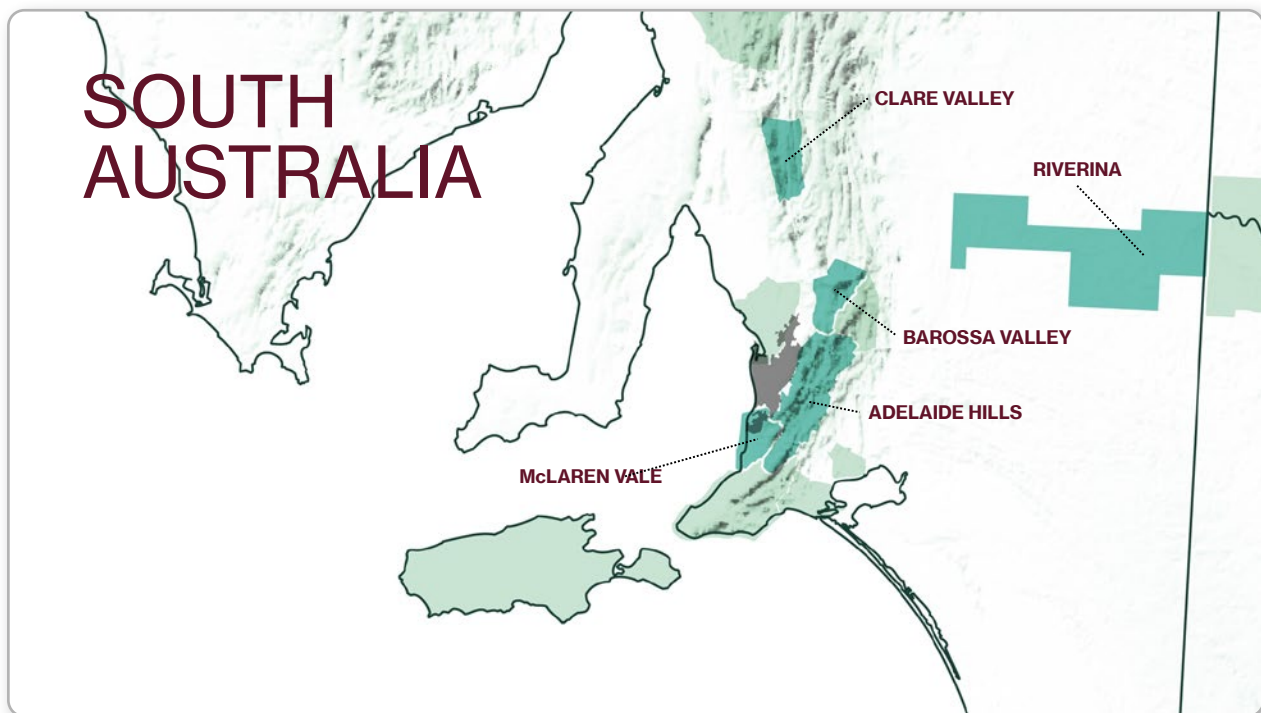
Notable Hunter Valley Chardonnay producers:

Hunter Chardonnay used to be represented by the 'sunshine in a bottle' style: big, oaky, rich and buttery drops. But the region has enjoyed a renaissance over the past 15 years, with producers still producing full-flavoured Chardonnays but with less heavy-handed oak treatment and less use of malolactic fermentation. Flavours tend to range from white peach to citrus, with a slatey acidity.

- Scarborough 'Yellow Label' Chardonnay – hugely popular oaked style.
- Tyrrell's Vat 47 Chardonnay – the pioneering style that launched Chardonnay's Australian success.
- Harkham 'Aziza's' Chardonnay – a natural wine and preservative-free producer.

Other NSW regions renowned for their cool-climate Chardonnay production include:

- Tumbarumba – Nick Spencer Tumbarumba Chardonnay.
- Orange – Philip Shaw 'No.11' Chardonnay.
- Southern Highlands – Centennial Vineyards NV Blanc de Blancs.
- Riverina – Calabria 'Three Bridges' Chardonnay.



SOUTH AUSTRALIA

South Australia is responsible for almost half of Australia's annual grape production. It's also home to some of the most famous regions and oldest vines in the country, in regions such as the Barossa Valley, McLaren Vale and Clare Valley. Here we're focusing on the state's cool-climate rockstar region, Adelaide Hills.



ADELAIDE HILLS

- German heritage
- Food lovers' haven
- Rebirth of a region
- Cool-climate centre

DID YOU KNOW?

Two sub-regions sit within the Adelaide Hills region: Lenswood and Piccadilly Valley.

ADELAIDE HILLS

- **German heritage:** Settled by German immigrants in the 1800s, Adelaide Hills' central town Hahndorf remains Australia's oldest surviving German settlement. This village hub boasts amazing art galleries, craft stores and museums, and it's a pathway to the region's vibrant cellar doors.
- **Food lovers' haven:** Foodies delight in visiting this region and it's only 30 minutes' drive from Adelaide's CBD. Treats abound for everyone in this gourmet region, from chocolate and chutney to cheese and cakes.
- **The rebirth of the region:** Vines were planted in the 1870s, but due to the difficulties of cool-climate viticulture in that era, most were removed by the 1930s. The rebirth of the region began with winemaker Brian Croser planting Chardonnay in 1979, identifying the region's potential as one of the best places to grow cool-climate varieties.



ADELAIDE HILLS SNAPSHOT

Latitude

– 34° 98'S

Climate

Adelaide Hills experiences cool winters with winter-dominant rainfall. A large proportion of the region is fortunate enough to have robust underground water supplies, with water quality ranging from 'spring water' in the Mount Lofty area to generally drinkable water throughout the rest of the region.

Growing season rainfall (GSR)

– 268mm (10.5in)

Adelaide Hills receives relatively low levels of rain during its growing season. However, rainfall varies throughout the region, increasing at higher elevations and mainly falling in winter and spring. A large proportion of the region is fortunate enough to have robust underground water supplies, with water quality ranging from 'spring water' in the Mount Lofty area to generally drinkable water throughout the rest of the region.

Mean January temperature (MJT)

– 20.4°C (68.7°F)



SOIL

Adelaide Hills soils are highly variable in structure and chemistry. The region has a mixture of grey-brown or brown loamy sands, with patches of sandy soils over clay subsoils. Soil depth is also variable due to topography, which can range from steep slopes to undulating hills, resulting in shallow stony soils to the top of hills and deep peat-like clays at the bottom.

SOIL

Low-lying areas with heavy soils provide potential for greater vigour, while higher, well-drained stony soils allow vigour control.

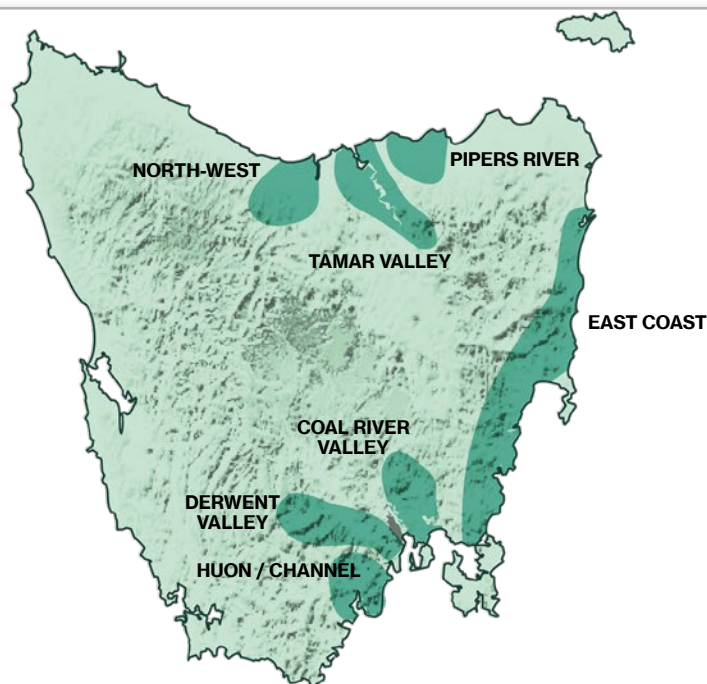
Notable Adelaide Hills Chardonnay producers:

Adelaide Hills is a premier cool-climate region, producing elegant, textured and lean Chardonnays with the acid structure to age and stand up against the finest cool-climate Chardonnays in the world:

- **Shaw & Smith 'M3 Vineyard' Chardonnay** – whole-bunch pressed, wild fermentation, with partial malolactic fermentation.
- **Geoff Weaver 'Lenswood' Chardonnay** – superb example of pristine cool-climate Chardonnay with ageing potential.
- **Brian Croser 'BC' Adelaide Hills Chardonnay** – a quintessential modern Australian Chardonnay.

TASMANIA

WINE GROWING AREAS



TASMANIA

Although 'Tasmania' is the only officially recognised Tasmanian wine region, the state government has divided the island into seven distinct regions: North West, Pipers River, Tamar Valley, East Coast, Derwent Valley, Coal River Valley and the Huon Valley. Today, we're focusing on the broader zone of Tasmania, as the entire island experiences a similar moderate maritime climate influenced by westerly winds off the Southern Ocean.



TASMANIA

- Fine cool-climate region
- Sparkling wine wonderland
- Gourmet paradise

TASMANIA

- **Cool-climate region:** Tasmania is one of Australia's finest cool-climate wine-producing regions, well known for producing award-winning sparkling wine, Pinot Noir, Chardonnay and Riesling. With a cool climate that has long, sunny and dry autumns, Tasmania boasts ideal growing conditions for developing naturally elegant, intensely flavoured and aromatic wines.
- **Sparkling wine wonderland:** A good proportion of Tasmanian Chardonnay is used in the production of high-quality sparkling wines.
- **Gourmet paradise:** Tasmania is a picturesque gourmet paradise. It has the perfect climate for producing cheeses, premium beef, specialty honey, mushrooms and some of Australia's leading boutique beers.



TASMANIA SNAPSHOT

Latitude

– 43° 08'S

Growing season rainfall (GSR)

– 477mm (18.8in)

Mean January temperature (MJT)

– 15.6°C (60°F)



DID YOU KNOW

Tasmania is Australia's coolest-climate winemaking region.



SOIL

On the lower slopes, the vineyard soils feature ancient sandstones, mudstones, river sediments and igneous rock of volcanic origin. Sandstone and schist appear in Derwent Valley. Peaty alluvial and sandy low humus soils in Coal River Valley. Pipers River boasts deep, free-draining, friable soils, while Tamar Valley is gravelly basalt on a clay and limestone base.

Notable Tasmanian Chardonnay producers:

Tasmania's cool climate and suitable soils produce dry, elegant Chardonnays with piercing natural acidity and intense fine flavours. Yet they are restrained and delicate, without being heavily oaked or overly ripe fruit forwardness.

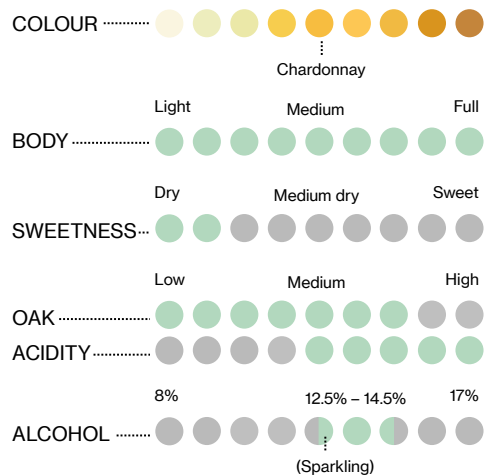
- **House of Arras Blanc de Blancs (Vintage)** – fine example of 100% Chardonnay sparkling.
- **Holm Oak 'The Wizard' Chardonnay** – refined, elegant and structured Tasmanian Chardonnay.
- **Pooley 'Cooinda Vale' Chardonnay** – pristine single-vineyard Chardonnay made from fruit once destined for Penfolds' highest tier, 'Yattarna' Chardonnay.
- **Tolpuddle Chardonnay** – reflects the cool maritime climate of Tasmania's Coal River Valley.



DID YOU KNOW

Champagne houses established vineyards, particularly in the Yarra Valley, Tasmania and Adelaide Hills, and led to the renaissance of Australian sparkling wine through the 1970s and 1980s.

CHARDONNAY CHARACTERISTICS



FLAVOURS

TYPICAL FRUIT FLAVOURS

- Lemon
- Apple
- Pear
- Peach
- Nectarine
- Melon
- Mango
- Pineapple

TYPICAL SECONDARY FLAVOURS

- Toast
- Vanilla
- Butter
- Toffee
- Honey
- Crème brûlée
- Cinnamon
- Coconut
- Nougat
- Toasted almond
- Spice
- Chalk
- Minerality

TIME TO TASTE – Now is an appropriate time to taste and discuss your selected mix of wines.

CHARACTERISTICS AND FLAVOUR PROFILES

Chardonnay's versatility goes a fair way to explaining the variety's resilience in a fickle market like Australia. It can express the vineyard in which its fruit has flourished, but it can also be a canvas for the winemaker's experimentation. The Chardonnay revolution has given Australian winemakers permission to embrace all flavours and characteristics of this fascinating variety, and as a result drinkers are embracing its resurgence, from lean and light-bodied cool-climate expressions to fuller-bodied, rich and ripe versions from warm climates.

FOOD PAIRINGS



FOOD PAIRING

The many styles of Australian Chardonnay make it one of the most versatile food wines on the market. A Chardonnay with a rich texture and high acidity works beautifully with soft cheeses. Richer oaked Chardonnay styles can also stand up to bold fish or poultry dishes. Unoaked lean styles of Chardonnay pair well with lighter and spicy dishes, featuring seafood and fish, as well as creamy dishes, as long as the wine carries enough acid to cut through the cream's fat.

Team oaked Chardonnays with:

- Gnocchi with burnt butter sauce.
- Poached salmon.
- Roast chicken.
- Blue cheese.
- Chicken korma.

Team unoaked Chardonnays with:

- Sashimi.
- Prawns.
- Roast pork.
- Grilled fish (barramundi, snapper or flathead).
- Chicken and mushroom risotto.

Team 100% Chardonnay sparkling wine:

- Oysters.
- Trout fillet.
- Scallops.
- Triple-cream brie.
- Scrambled eggs with crème fraîche.



DID YOU KNOW

A handful of winemakers still include big, buttery, ripe styles in their ranges – producers like Evans & Tate (Margaret River), Scarborough and Lake's Folly (Hunter Valley), Grant Burge (Barossa Valley) and Hardys (South Australia), to name a few.

CHARDONNAY AS DIVERSE AS THE COUNTRY THAT MADE IT

Australian Chardonnay wines are an expression of distinctive terroirs and the vibrant communities that cultivate them. From rogue to refined, classic to contemporary, it's a variety with more, you know, variety.



Australian Chardonnay wines express the diversity of the people who craft them and the unique regional characteristics of their origins. Winemaking techniques have adapted over time and we're continually evolving them. We're an innovative wine country unafraid to make adjustments in order to enhance quality and make great wine that we enjoy drinking. And that's what makes the future of Australian Chardonnay so exciting.

KEY POINTS TO REMEMBER

- In the vineyard, Chardonnay is adaptable and easily cultivated. It's highly vigorous and buds early in the season.
- Chardonnay can be shaped to the current-day trend or made to appeal to a particular slice of the market. Winemakers love this variety for its malleability and its propensity to respond well to winemaking techniques.
- Chardonnay reflects the character traits of the region in which it's grown.
- Chardonnay is produced into three primary styles: oaked, unoaked and sparkling wine.
- Chardonnay's flavour characteristics range from pure and piercing lemon and green apple through to pear and peach, and finally to more tropical notes of mango and pineapple.
- Australian Chardonnay is enjoying a resurgence of popularity as winemakers experiment with different styles, including lean and racy cool-climate Chardonnays.

Suggested timings

This module is designed to be taught in one to three hours. How long you spend on each topic – or whether you cover it at all – will depend on your attendees as well as time allocation. Below are two different examples of how you may wish to divide your time.

ONE-HOUR CLASS

Topic	Time
Welcome and introduction	5 mins
The history of Chardonnay in Australia	3 mins
How it's grown	3 mins
How it's made	5 mins
Common styles	3 mins
Where it's grown	15 mins
Characteristics and flavour profiles (including tasting)	20 mins
Food and wine pairings	3 mins
Summary and class close	3 mins

THREE-HOUR CLASS

Topic	Time
Welcome and introduction	10 mins
The history of Chardonnay in Australia	15 mins
How it's grown	10 mins
How it's made	15 mins
Common styles	10 mins
Where it's grown	25 mins
Break	15 mins
Characteristics and flavour profiles (including tasting)	55 mins
Food and wine pairing	10 mins
Summary and class close	15 mins

SUGGESTED WINES TO TASTE

These are just suggestions – you can select whichever wines best suit your tasting and audience. Wines may or may not be available in your area.

- Luke Lambert Yarra Valley Chardonnay – wild yeast and minimal malolactic fermentation techniques.
- Ten Minutes by Tractor Estate '10X' Mornington Peninsula Chardonnay – dry, savoury, structured example.
- Leeuwin Estate 'Art Series' Margaret River Chardonnay – pristine example of premium Margaret River Chardonnay.
- Scarborough 'Yellow Label' Hunter Valley Chardonnay – hugely popular oaked 'sunshine in a bottle' style.
- Shaw & Smith 'M3 Vineyard' Adelaide Hills Chardonnay – whole-bunch pressed, wild fermentation with partial malolactic fermentation. Fine, complex wine.
- House of Arras Blanc de Blancs (Vintage) – fine example of 100% Chardonnay sparkling.
- De Bortoli 'The Estate Vineyard' Yarra Valley Chardonnay – Chablis style Chardonnay.
- Vasse Felix 'Filius' Margaret River Chardonnay – light and fine.
- Stonier Mornington Peninsula Chardonnay – cool-climate Chardonnay at an affordable price point.
- Bird in Hand Adelaide Hills Chardonnay – ripe stone fruit characters and toasty oakiness.



THANK YOU

AUSTRALIAN WINE DISCOVERED