



Toasting the future

Pioneering flavour in no-alcohol,
low-alcohol, and mid-strength wines



TREASURY WINE ESTATES



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About the authors



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Senior Research Scientist

The Australian Wine Research Institute

Wes is a senior research scientist and sensory group manager at The Australian Wine Research Institute in Adelaide, South Australia. He holds a BSc in Wine Biochemistry from the University of British Columbia, a diploma in Applied Sensory and Consumer Science from the University of California Davis and a PhD from Charles Sturt University.

He has worked in the sensory group at the AWRI since 2010, completing hundreds of sensory studies and authoring over 25 research papers in that time. He is an alumnus of the Len Evans Tutorial and of Wine Australia's Future Leaders program. He has judged at multiple capital city and regional wine shows and has been an educator/judge for the AWRI's Advanced Wine Assessment Course for more than a decade. He is also an accomplished winemaker, having made wine in Canada and France, and currently makes wine under his *Juxtaposed* label in McLaren Vale, South Australia.

About The Australian Wine Research Institute

The Australian Wine Research Institute (AWRI) is the Australian grape and wine industry's own research organisation. It supports a sustainable and successful grape and wine industry through world-class research, practical solutions and knowledge transfer. Established in 1955, the AWRI is governed by an industry-led, skills-based Board and is a member of the Wine Innovation Cluster located at the Waite Research Precinct in Adelaide, South Australia.

The AWRI's activities are guided by its mission and values, an industry-endorsed research, development and extension plan and an internal business plan. Affinity Labs, powered by the AWRI, provides advanced analytical and consulting services.



Kerrin Petty

*Chief Supply & Sustainability Officer
Treasury Wine Estates*

Since joining Treasury Wine Estates in 2002, Kerrin has held a range of senior roles in Australia and the US across viticulture, wine production, wine packaging, and supply chain management.

In his current role, Kerrin has responsibility for wine production across TWE's full global portfolio of brands including Penfolds, Pepperjack, Squealing Pig, Matua, 19 Crimes and Wynns Coonawarra Estate. He also leads the company's global sustainability strategy, which is focused on building a resilient business, fostering healthy and inclusive communities, and producing sustainable wine.



Angus Lilley

*Managing Director, Treasury Collective
Treasury Wine Estates*

Angus has more than 20 years' experience in the wine industry, across marketing and commercial roles in the Australian and international market, and held a number of senior roles since joining Treasury Wine Estates in 2013 including Chief Marketing Officer. In his current role as head of the global premium wine division, Angus is responsible for leveraging a global portfolio of award-winning brands including Wynns Coonawarra Estate, Squealing Pig, Matua and 19 Crimes to create memorable experiences for consumers to drive category growth.

Angus previously held a Board role with *The Drinks Association*, a member-based organisation representing Australia's drinks industry, and is one of the industry nominee directors of evidence-based social change organisation *DrinkWise*, where he represents industry association Australian Grape & Wine.

About Treasury Wine Estates

Treasury Wine Estates (TWE) is one of the world's leading luxury and premium wine companies and is listed on the Australian Securities Exchange. TWE's global, multi-regional sourcing model includes world-class vineyard and production assets in internationally acclaimed winemaking regions including Barossa Valley and Coonawarra in Australia, Napa Valley and Paso Robles in the United States, Marlborough in New Zealand, Bordeaux in France, Tuscany in Italy, and Ningxia in China. The company has a strong focus on sustainability and cultivating a brighter future.

TWE's global portfolio is available in more than 100 countries and includes luxury and premium brands such as Penfolds, DAOU Vineyards, 19 Crimes, Pepperjack, Squealing Pig, Wynns, Matua, Beaulieu Vineyard, and Frank Family Vineyards. The company employs a global team of approximately 2,500 people.



TREASURY WINE ESTATES

Executive summary

People have always enjoyed a drink.

The range of alcoholic beverages has expanded dramatically over time – from the earliest traces of alcohol production dating back thousands of years to the range on offer at today's bottle shop.

Sharing a beer at the pub, enjoying a glass of wine with dinner, proposing a Champagne toast, or sipping a cocktail all have flow-on effects for commerce and society. The cultivation, production, distribution and retail aspects of the industry make a significant contribution to regional and urban communities around the world – for business, trade, diplomacy, agriculture, and the broader economy.

The health benefits of interacting in a social setting like a local pub are also becoming better understood; at the same time, consumers are increasingly aware of their physical and emotional wellbeing.

Wellness products and services ranging from alternative therapies to plant-based food, biometric devices and vitamin supplements have flooded the market. The health impacts of alcohol consumption, particularly excessive consumption, are leading more consumers to moderate by choosing drinks that are lower in alcohol (also known as mid-strength or lighter in alcohol) or have no alcohol at all – collectively known as 'NoLo' beverages.

Consumer drinking habits have changed in recent decades, but one thing is certain: the NoLo category is more than a passing trend.

The USD1.7 trillion global beverages industry is adapting to the cultural shift toward moderation. The CEO of Asahi, Japan's biggest brewer and owner of CUB Beverages in Australia, predicted in 2024 that zero and low-alcohol drinks would generate half of the company's sales by 2040.¹

While rudimentary dealcoholisation processes have been around for centuries, today's advanced technology and winemaking expertise is improving the flavour profile and appeal of NoLo alternatives. Alongside boutique outfits are larger producers with specialist in-house teams spanning winemaking, viticulture, production, chemistry, marketing and engineering.

This research report explores the growth of the NoLo category in key global markets, outlining the current range of dealcoholisation technology and approaches, and exploring the consumer trends driving the category's popularity in retail and on-premise environments.

The NoLo market in numbers

Double digit growth

for NoLo products in the world's 10 biggest drinks markets last year, capping a period of strong gains²

USD4 billion

forecast incremental growth by 2028

7% CAGR growth

forecast 2024 - 2028

Half of the world's regular wine drinkers are moderating⁴

27% not drinking at some occasions

21% switching to lower-alc options at some occasions

16% switching to non-alc options at some occasions

+37 million

new no-alcohol consumers

+36 million

new low-alcohol consumers in the US, between 2022 and 2024³

NoLo global sector size

USD22 billion

in 2022, predicted to grow to

USD43 billion

by 2027⁵



Investing in flavour

Treasury Wine Estates' AUD15 million investment at its Barossa Valley facility in South Australia marks a new era in no-alcohol and low-alcohol (NoLo) wine production. The industry-leading equipment and world-first patent pending technology is complemented by winemaking craft to produce a new generation of flavour and quality.

Leveraging a 180-year history of making award-winning wines in some of the world's best-known winemaking regions, its global winemaking team has cultivated a new generation of NoLo offerings that cater to consumers wanting to moderate their wine consumption, or explore different flavours.

The customised onsite equipment is complemented by a world-first patent pending process for processing the aromatic portion of wine – its essence – to retain the wine's integrity and preserve complex and robust flavour profiles. The complex and sensitive components responsible for a wine's flavour and fragrance are highly volatile, and removing the aromatic portion during conventional dealcoholisation processing can create a flavourless wine that's flat, lacks depth, and has a poor taste profile.

Since introducing its first reduced-alcohol product in 1993 under the Seppelt brand after 5 years of research, TWE has created brands and products that meet evolving consumer demands. With an award-winning NoLo product range across iconic brands including Pepperjack, Lindeman's, Yellowglen, Squealing Pig, 19 Crimes, Wolf Blass, and Matua, the combination of winemaking expertise and technological innovation cements the global wine producer's leadership in the category.

Image: Treasury Wine Estates Cellar Operator Liam Donohue, Wine Process Technologist Mick Hage, and Group Winemaker Toby Barlow at the Barossa Valley NoLo facility that features cutting-edge equipment and patent pending processes for wine dealcoholisation and essence extraction.

Recognising the importance of the NoLo segment to the industry, TWE is also partnering with industry and government – including through the Australian Government's Cooperative Research Centre Projects program, with a AUD7 million 'Advancement of Australian Lifestyle Wines' project that aims to ensure the competitiveness, productivity and sustainability of the sector while responding to global moderation trends that are shaping alcohol consumption.

While currently a small proportion of total wine volumes, generating revenue of USD2.26 billion in 2023, the market is predicted to grow at a compound annual rate of 7.6% until 2030 with revenue of USD3.78 billion.⁶

"More than any other alcoholic beverage, wine is an expression of people, place and a point in time – what we call a vintage. This is a defining moment where we're elevating the no- and low-alcohol wine experience for consumers. Our new in-house facility means we can significantly improve taste by retaining more aroma and mouthfeel compounds, as well as accelerate our capability to manipulate and better understand wine flavour composition across our portfolio of NoLo and traditional full-strength wines."

Toby Barlow
Group Winemaker, Treasury Wine Estates



Social connection at a local where everybody knows your name

In the inner-city suburb of South Melbourne, The Montague is a quintessential corner pub known affectionately by locals as 'The Monty'. Located in a heritage building originally constructed in 1869, the hotel has been operated by third-generation publican siblings Patrick and Eloise Glenane since 2018.

It's always been a community hub: in historical documents, South Melbourne local Robert Stephenson recalled the original publican 'Ma' Corley sitting with a bucket behind the counter, reluctant to leave her post lest someone steal her beer. Today, the hotel serves a cross-section of patrons with classic pub fare: families from surrounding suburbs, professionals stopping in after work, and locals making the most of the sunny footpath seating for lunch.

"A glass of red poured to a person at a bar is never just a glass of red poured to a person at a bar. There's a whole story in that glass: the person who's grown the grapes in the vineyard, the winemaker who made the wine, the people who transported it, made the glass, and poured the wine. Just as important is the story of enjoyment that comes from the social occasion of being at the local."

Stephen Ferguson
CEO, Australian Hotels Association

*Image: The Montague Hotel owner Eloise Glenane serves patrons at her South Melbourne venue.
Photo: Kyla-Jane Rickard.*

In some ways, The Monty is a microcosm of Australia's pub culture. We've been the cornerstone of the community through good times and bad – even after a challenging period like the COVID lockdowns in Melbourne, pubs and clubs have bounced back as the heart of communities. There's nothing in today's society that can replicate the social connection that happens in a pub, where a friendly face behind the bar knows to ask a regular whether they're ok if they don't seem themselves. We know that some of those conversations can be life-changing."

Eloise Glenane
Co-owner, The Montague Hotel and Councillor of the Australian Hotels Association's Victorian branch

A storied history, a bright future



Winemaker Greg Jarratt at the Treasury Wine Estates-owned Coldstream Hills winery in Victoria's Yarra Valley.

Alcohol

Part of our societies for thousands of years

There's evidence from prehistoric times of alcohol production through fermentation of sugars, and its consumption by religious figures and ordinary citizens.

In 2018, Stanford University archaeologists uncovered evidence of what is thought to be the first human-made alcohol in a 13,000 year-old cave in Israel's Haifa region. Their analysis uncovered starch and microscopic plant particles characteristic of cereal-based beer brewing, with the team concluding that the wheat or barley-based beer was used "as a part of their mortuary rituals to venerate the dead and/or to enhance group cohesion among the living" by the Natufian culture.⁷

The appeal of producing and consuming alcohol transcends time and place. Traces of a mixed fermentation of rice, honey, and fruit have been found in sealed bronze vessels dating back to 7,000 BC in the early Neolithic village of Jiahu, in northern China's Henan province.⁸

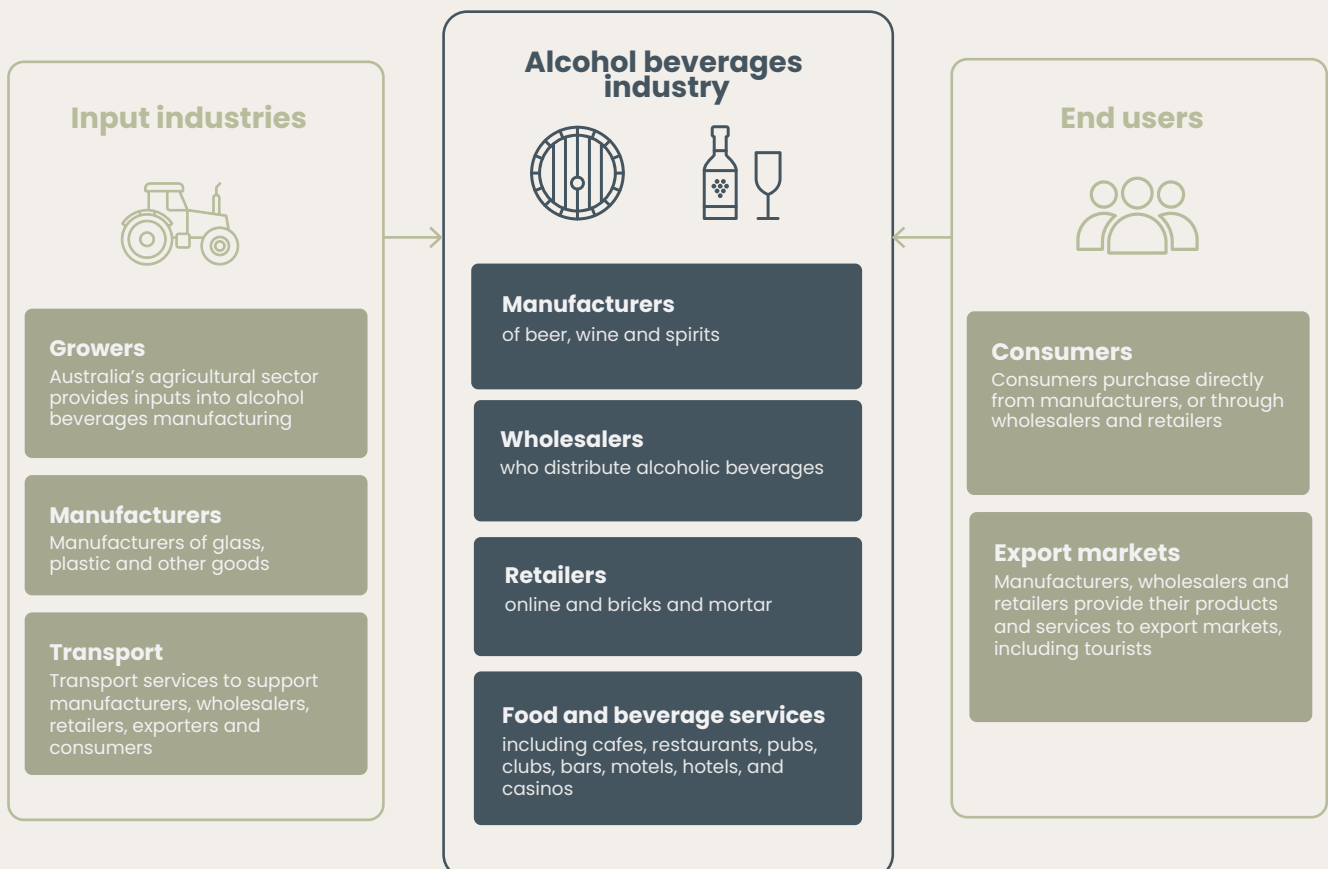
European countries such as France, Italy, and Spain have centuries-old wine legacies of their own.

Fast forward to the role of alcohol today: boutique wineries, breweries and distillers in idyllic settings are the cornerstone of regional tourism, and the world's most recognisable stars lend their celebrity power to build brands: Snoop Dogg for wine and gin, George Clooney for tequila, and Kylie Minogue for wine. Influential critics shape contemporary tastes and consumer understanding through a growing range of channels: in books, newspaper columns, magazines and TV shows, and increasingly, online and in social media.

More recently, farming for alcohol production and its marketing and distribution have become significant contributors to regional and urban economies around the world. Segments of the global supply chain cover a broad range of sectors including manufacturing, logistics, hospitality and retail, creating employment opportunities and driving economic prosperity.

The alcohol beverages industry in Australia

A supply chain view of an AUD52 billion economic contribution⁹



Alcohol

Part of our societies for thousands of years (continued)

In the wine segment of the alcohol category alone, the industry is sizeable. Analysis by the International Vine and Wine Organisation shows that in 2024, 7.1 million hectares of vineyard surface area produced an estimated 22.6 billion litres of wine, leading to global wine trade of around EUR36 billion – the top dozen countries by vineyard surface area are shown on page 13.¹⁰

In the world's largest wine market, the US, the industry generates more than USD276 billion of total economic activity – comprising direct production activity, and induced impact through activity such as tourism, manufacture, and retailing.¹¹

When it comes to distribution, today's consumer is spoilt for choice: boutiques, online retailers, and bricks-and-mortar stores offer thousands of brands from local and global producers across dozens of categories: craft beer, luxury wine, spirits, ciders, seltzers, and ready-to-drink options.

On the flipside, consumers are considering the health impacts of alcohol, with a growing number of people choosing to moderate their consumption by reaching for options that are lower in alcohol, have no alcohol at all, or are 'better for you' beverages that feature a functional benefit for digestive health (such as probiotics or fibre), recovery after sports (antioxidants) or adaptogens that promote feelings of wellbeing (ashwagandha or reishi mushrooms).

In EY's *Future Consumer Index* focusing on Australia, 23% of respondents had consumed more products that provide functional health benefits in the last 2 years, as a way to maintain their health.¹²

Recent advances in dealcoholisation technology have allowed alcohol producers to create options that respond to consumer demand: either reflecting the flavour profile of their full-strength counterparts, or providing an alternative style of drink for the same occasion.

The growing range of NoLo products, coupled with the broader wellness trend, has underpinned the spectacular growth of the category: NoLo products saw double-digit growth in the world's 10 biggest drinks markets last year, capping a period of strong gains for the category. According to IWSR's *No- and Low-Alcohol Strategic Study*, 61 million people were recruited into the no-alcohol category between 2022 and 2024, and 38 million into low-alcohol across those markets.¹³

While alcohol removal techniques have been around for some time, dealcoholisation technology has moved on from its origins, where ethanol's low boiling point made its extraction possible using heat. Today's technology includes reverse osmosis and vacuum distillation, designed to remove alcohol from wine and optimise flavour. Increasingly, specialist NoLo winemakers are using advanced aroma capture and flavour reconstruction techniques in consultation with other elements of the wine production process (such as viticultural techniques that promote full flavour ripeness at lower sugar levels so the wines display ripe fruit flavours at lower alcohols levels).

Treasury Wine Estates entered the NoLo category with the launch of the pioneering Seppelt mid-strength wine range in the early 1990s. Since then, it has released NoLo wines across its portfolio of brands, relying on third-party suppliers for the dealcoholisation process. The launch of an in-house dealcoholisation facility cements TWE's industry leadership position in wine with state-of-the-art technology based on customised vacuum distillation technology used in conjunction with a patented process to craft the next generation of wines that are lower in alcohol, or have had alcohol removed altogether, but retain all the components of a great-tasting wine: aroma, flavour and mouthfeel.

"The no/low-alcohol market has been experiencing significant growth for several years now, driven by moderation trends and younger demographics. It is not all about moderation, however, as no/low becomes more established and categories outside beer gain participation. Other drivers besides health and moderation are now increasingly important, particularly in those emerging no-alcohol categories. Factors such as taste, availability and brand are becoming key drivers of choice, especially among younger legal drinking age consumers."

Susie Goldspink

Senior Insights Manager – RTDs and No/Low Alcohol, IWSR ¹⁴

Changing consumer behaviours create market opportunity

As a health-conscious generation re-evaluates its relationship with alcohol, sales and consumption of alcohol have generally been declining since the mid-2000s.

The trend is consistent across major markets including the US, UK and Europe. Australia is following suit; drinking has been falling across all age groups to its lowest level since the 1960s.¹⁵ Even markets famous for their wine culture are experiencing the shift: a 2022 study by France's Ministry of Agriculture and Food, FranceAgriMer, showed that only 10% of French consumers enjoy wine daily, down from 50% in 1980.¹⁶ Some surveys show a quarter of French 18 to 34-year-olds never drink alcohol at all.

Last year was consistent with the longer-term growth pattern, with consumption of no-alcohol wine in the US increasing 28% between 2019 and 2024, and low alcohol increasing 7% over the same period.¹⁷ Baby Boomers and Gen X have been active in the category for some time, and younger generations are now entering the category without established drinking patterns – they're more likely to make purchase decisions driven by brand and sensory characteristics.

At the same time, the industry is increasingly characterised by premiumisation, with the 'drink better' movement and shift toward quality over quantity

particularly pronounced since COVID-19. The trend is evident in Treasury Wine Estates' financial results between 2021 and 2025, where the luxury portfolio has grown as a contribution of net sales revenue from 37% to 56% over the 4-year period. Part of this growth can be attributed to the international appeal of its global luxury brand, Penfolds, and Californian brands Frank Family Vineyards and DAOU Vineyards.¹⁸

Wellness trends around food and drinks as part of a healthier lifestyle are accelerating the shift to non-alcoholic beverages, particularly among younger consumers. Campaigns including the Australian-born annual fundraiser Dry July, Febfast and the international Sober Curious (and newer 'Sober Glamorous', describing a celebratory lifestyle without alcohol) movements are increasingly popular.

With the social media landscape also changing how people consume information, public figures are guiding tastes and choice; celebrity-endorsed brands and 'sober influencers' are promoting greater social acceptance around reducing or avoiding alcohol. Even the world's most famous beer festival, Oktoberfest, introduced an alcohol-free beer garden called *Die Nulle* (The Zero) in 2024, offering soft drinks, mocktails, juices, water and non-alcoholic beer alongside live entertainment.

Mind The Sip – a platform to support mindful consumption

Ange Chappel, CEO and Founder of mindful drinking network Mind The Sip, created the platform to tap into the moderation movement.

The platform's online resources and in-person events are designed to support people who recognise that they want to reduce their consumption – not necessarily go sober. Tapping into a cohort of people looking for an alternative to the 'all or nothing' approach to alcohol, Ange's personal experience of transitioning to moderation inspired the app: "My alcohol consumption wasn't excessive, but I realised that having a few generously-poured drinks on the weekend was putting me over the Australian guidelines for reducing the risk of alcohol-related harm – which are 10 standard drinks a week and no more than 4 standard drinks on any one day. I created the Mind The Sip app as a personalised resource that helps people change their relationship with alcohol, acknowledging that it's often a significant lifestyle change that won't happen overnight."

After launching in Australia, New Zealand, and the US, Mind The Sip has become a hub for people exploring different approaches to moderation or sobriety, as well as a marketplace for the growing no-alcohol drinks category.

"Around three quarters of Mind The Sip members are looking for support to moderate their alcohol consumption but would like alcohol to continue as part of their lives, while the remainder are working towards sobriety. Our membership base is 90% female, but what's been surprising is the variety of age groups represented – we have everyone from young adults to people over 65, with the strongest uptake between 36 and 55. There's a commonality though: they're keen to undo habits and perceptions of alcohol that have sometimes been ingrained over decades, and start approaching mindful moderation from a place of empowerment rather than restriction."

Ange Chappel,
CEO and Founder, Mind The Sip



The world of wine

The Australian context



In Australia, the wine industry contributes an estimated AUD51.3 billion to the national economy annually, measured by direct and flow-on contribution in economic activity associated with grape growing, wine production, and economic activity associated with wine-related tourism.

With 65 winemaking regions and more than 2,150 wineries, the flow-on economic contribution goes beyond wine sales at the cellar door to regional tourism. Some 7.5 million visits to wineries from domestic and international travellers in the year ending March 2024 created an estimated AUD11.6 billion of spending in the visitor economy.¹⁹

Image: Nick Baverstock, Sue Hodder, Ben Harris, Chris Plummer, and Sarah Pidgeon - the winemaking and viticultural team at Wynns Coonawarra Estate in South Australia.

Australia's key winemaking regions

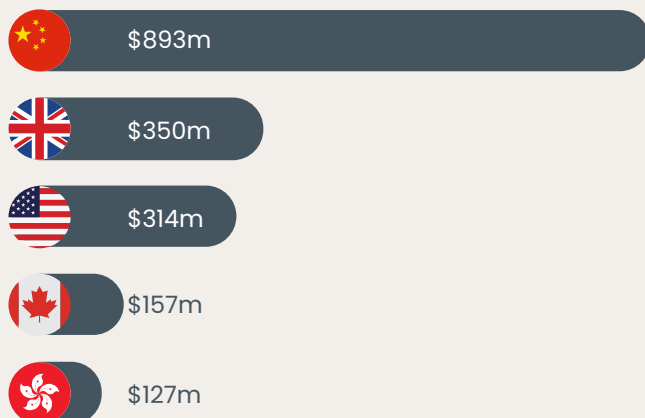
The sector supports the employment of more than 150,000 people across Australia; most of them in rural and regional grape growing and winemaking areas including:

- **South Australia**, which accounts for almost 50% of the country's wine production, including in its Barossa Valley, Clare Valley, Coonawarra, Riverland and McLaren Vale regions
- **Victoria**, the country's second-smallest state but home to wine regions and individual wineries including in the Yarra Valley and Rutherglen
- **Western Australia's** Margaret River region, several hours' drive south of the capital Perth
- **Tasmania**, the island off the south-east coast of mainland Australia, known for producing cool-climate varieties.



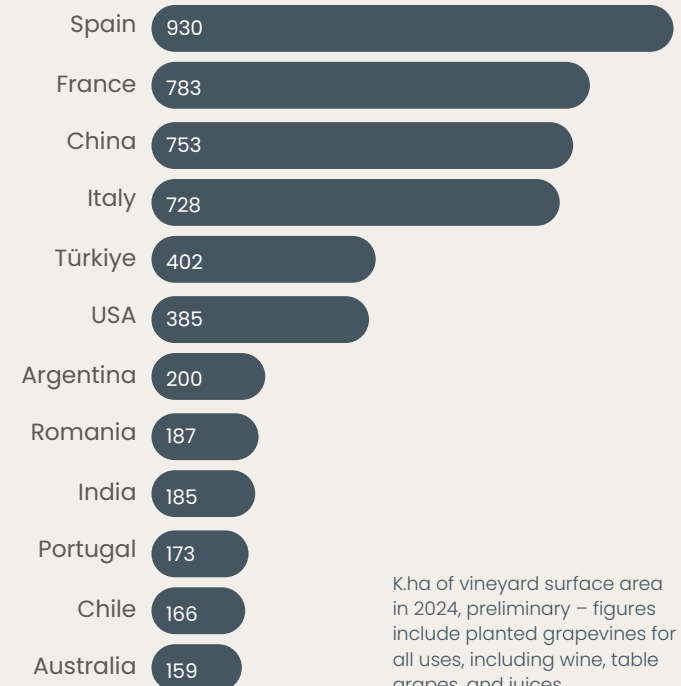
Top 5 export countries for Australian wine by value

Australian wine has broad international appeal - in the 12 months to June 2025, Australia exported close to AUD2.5 billion worth of wine, with the top export destinations below representing some of the world's major markets.²⁰



The engine rooms of the wine world

International Vine and Wine Organization (OIV) analysis shows that in 2024, 7.1 million hectares of vineyard surface area, including the the top dozen countries shown below, produced an estimated 22.6 billion litres of wine, leading to global wine trade of around EUR36 billion.²¹



K.ha of vineyard surface area in 2024, preliminary – figures include planted grapevines for all uses, including wine, table grapes, and juices.

Wine culture

An enduring global phenomenon



Both the supply and demand side of wine have evolved enormously since the French Benedictine monk Dom Pierre Perignon made important contributions to the production of Champagne in the 17th century – made famous with his apocryphal quote of *“Come quickly, I am tasting the stars!”*.

Wine production has become increasingly sophisticated. Consumers are more informed and engaged with the wine they’re drinking – including varietal characteristics, sustainable growing and production process, personal styles of individual winemakers, and geographical indications. Iconic brands have built appeal with global audiences, and many have transcended the alcohol category to become luxury brands and household names in their own right: Moët & Chandon, Veuve Clicquot, Penfolds.

Wine across the full spectrum of price points is enjoyed at everyday occasions and special events in many cultures, with a growing number of paths to purchase: through cellar doors, e-commerce channels and bricks-and-mortar retailers, together with on-premise trade including restaurants, bars, and pubs.

Image: Cultural icon and one of TIME Magazine’s 100 Most Influential People of 2025, Snoop Dogg, partners with Treasury Wine Estates’ 19 Crimes wine label.

Wine culture has been popularised in movies such as the *Somm* series, which follows candidates hoping to pass the highly-contested Master Sommelier exam administered by the UK-based Court of Master Sommeliers, and the documentary *Red Obsession*, about the popularity of Bordeaux Premier Crus with Chinese wine connoisseurs and collectors.

Wanting to stand out in a crowded global marketplace, producers and distributors are harnessing the international star power of celebrities, with endorsements and collaborations from sports personalities (Formula 1 driver Daniel Ricciardo partnering with St.Hugo for DR3) and singers (Kylie Minogue with UK distributor Benchmark Drinks). In 2020, Treasury Wine Estates’ 19 Crimes wine brand joined forces with rapper and entrepreneur Snoop Dogg, named one of the *100 Most Influential People of 2025* by TIME magazine. In the US, 10-time NBA All-Star Carmelo Anthony and business partner Asani Swann Benjamin’s wine brand *VII(N) The Seventh Estate* collaborates with Napa Valley producer Robert Mondavi.

Fine vintage wine – a rarified marketplace

In 2018, Sotheby's auctioned a collection of more than 200 bottles of rare wines from the personal cellar of the Burgundy winemaker Robert Drouhin.

In a testament to the extraordinary international appeal of rare wines, two bottles of Domaine de la Romanée-Conti Romanée-Conti 1945 were purchased by American real estate developer and wine collector Rob Rosania for USD558,000 and USD496,000 respectively²³

According to Sotheby's, Domaine de la Romanée-Conti is one of the most important producers in terms of global auction sales, a 'powerhouse' in terms of both volume sold and prices achieved. DRC, as the producer is often abbreviated, accounted for 13% and USD21 million across 70 sales in its 2023 *Wine & Spirits Market analysis*, and 25% of all of its sales of Burgundy wine.²⁴

"Sotheby's is proud to hold the world auction records for the two most expensive bottles of wine ever sold. A bottle of DRC Romanée-Conti 1945 achieved \$558,000, with a second bottle reaching \$496,000. We are honoured to be entrusted by the Drouhin family to present these exceptionally rare bottles to the world."

Richard Young

Head of Auction Sales – Americas, Sotheby's

Image: Bottles of vintage Domaine de la Romanée-Conti from Burgundy winemaker Robert Drouhin's cellar sold for around USD500,000 each.



At the other end of the scale, fine and rare wines have captured the imagination of collectors around the world. The world's best-known and most highly prized brands are traded at dedicated wine and spirits arms of international auction houses including Christie's and Sotheby's, as well as by specialist houses like the Davis Hart Auction Co. in the US and Langton's Fine Wines in Australia.

The fine wine market is considered an important sector of the global luxury industry, with Bain & Company analysis showing that the fine wine market contributed EUR30 billion to the overall EUR1.48 trillion luxury market.

Recognised as an asset class in its own right and resilient in economic downturns, fine wines have appreciated more than twofold over the past decade and outperformed other luxury assets. In the last 5 years, some fine wine indices have grown by up to 34%.²²

Perfecting flavour

An AUD15 million investment in South Australia



With winemaking credentials dating back more than 180 years, Treasury Wine Estates has been producing NoLo wine since 1993. Offering consumers choice and providing product information to support responsible consumption is a critical component of its 'Commitment to the responsible consumption of alcohol' policy.

More recently, it has invested in research and development alongside its time-honoured winemaking craft and collaborated with global industry leaders to raise the bar on flavour and respond to increased consumer interest and taste expectations for the category.

The Barossa Valley, South Australia facility was officially unveiled in mid 2025. The centre features world-leading technology and innovation designed to preserve more of the wine components that are hallmarks consumers have come to expect from a premium and luxury product. The facility houses customised vacuum distillation technology which, together with proprietary and patent pending processes, forms an end-to-end method for producing superior NoLo wines.

With a range of additional engineering considerations, the 1,800m² facility was constructed over a 2-year period in the heart of the TWE's Barossa Valley production area.

Ethanol is considered a hazardous material, so the facility has been designed and constructed to comply with relevant Australian standards, including fire-rated walls for separation from adjacent production processes, improved firefighting coverage, and flexible movement of liquid without the use of hoses.

The plant produces several products simultaneously, each with a base wine, essence, low-alcohol wine, and additional components. Enhanced traceability throughout the complex process gives winemakers visibility and assurance of the wine production at each stage. Automated production and cleaning processes ensure high alcohol by volume (ABV) ethanol is moved through the system safely and efficiently to maintain product integrity and hygiene – akin to a beverage production facility. With the technology for dealcoholisation evolving rapidly, the production facility has in-built flexibility to allow for experimentation today and process improvements in the future.



Image left: Sarah Parkes, General Manager, Sales & Marketing for Treasury Wine Estates' Treasury Collective division, with Group Winemaker Toby Barlow at the launch of the NoLo facility in South Australia's Barossa Valley in 2025.

Image above: The Treasury Wine Estates Barossa Valley site at Nuriootpa, which houses the proprietary NoLo equipment and processing facility.

World-leading innovation in South Australia

Standard industry practice using conventional technology has been to create reduced alcohol wines from a full strength wine, or with grape juice that's altered before fermentation.

Efforts to reduce the alcohol by processing the complete wine have historically impacted flavour by compromising or losing the aromatic compounds.

In an effort to improve the quality of the NoLo wine, the Treasury Wine Estates technology was developed to separate the aromatic portion of the wine from the body of the wine. Alcohol reduction processes were then performed solely on the body of the wine – limiting the alcohol reduction that was possible because some alcohol remained in the wine's aromatic portion.

The unique and proprietary closed loop production method is used in conjunction with winemaking techniques developed over almost 2 centuries, and involves processing and separating alcohol from both the body of the wine and the aromatic portion of the wine using different techniques for each. In particular, alcohol is separated from the aromatic portion of the wine through a gentle process that results in minimal loss and damage to the aromatic components, which are then reconstituted into a finished product. This significantly reduces the alcohol in the final product while preserving its complex taste and fragrance profile.

The end-to-end process:

- **separates fragile volatile essence** from the parent wine using comparably low temperatures in a single pass – particularly important given other technologies require multiple passes of wine through the equipment, with each one resulting in more losses of quality attributes
- **creates high quality alcohol spirit**, which can be used in fortified wine production
- **allows for high-capacity production**, with a processing throughput of up to 2,200 litres per hour
- **has low minimum run volumes**, helping winemaking teams continually improve quality through small trial R&D runs
- **is energy efficient** through the use of a heat pump – contributing to the broader sustainability credentials of the site.

Locking in flavour with Flavour Lock Technology™

Flavour Lock™ is the consumer-facing representation of Treasury Wine Estates' science-led commitment to reimagining NoLo wine.

With proprietary patent-pending process that carefully maintains the hallmarks of full-strength wine such as flavour, complexity and balance, the breakthrough in production ensures that consumers no longer have to choose between taste and lower alcohol content.

To help build awareness and educate consumers, the Flavour Lock™ trademark now features on bottles across Treasury Wine Estates' NoLo portfolio in Australian stores, making it easy for wine consumers to recognise the new taste innovation.



China's baijiu: appealing to a new generation

Baijiu is a grain-based spirit that contains up to 60% alcohol. Ubiquitous in China, it's often consumed straight as part of a business banquet or combined with a mixer.

Baijiu is available in a wide range of aroma variations broadly categorised into intense, saucy, fragrant and floral, and ricey. Around 10 billion litres are distilled annually and it's the best-selling spirit in the world by volume – the China market is valued at around USD167 billion. But after historically high growth rates for the spirit, consumption levels have been moderating as a younger and more health-conscious demographic in China engages with alcohol in a different way. Millennials are now the largest group of consumers for alcohol in China, with a preference for lighter styles suited for more casual occasions including beer, wine, and sweeter spirits. But producers have a challenge to overcome: the NoLo category is less developed in emerging markets, particularly Asia.

The leading producer of baijiu, Kweichow Moutai, is also the world's largest alcohol company and one of China's most valuable listed companies. A bottle of its top baijiu retails for around CNY3,000 (AUD645). Looking for ways to attract a new demographic, it launched a baijiu latte in collaboration with Luckin Coffee in 2023. After going viral on social media, the coffee chain sold 5.4 million cups of the spirit-infused latte in its first day, reflecting the appeal of limited-edition offerings including its recently-launched blueberry sparkling wine, unconventional novelty flavours and exclusivity in the China market.

To counter baijiu's image problem as the older businessman's drink, producers including JIANGXIAOBAI are offering lighter-flavoured, lower in alcohol options to appeal to changing consumer tastes. With the tagline *"The world's oldest spirit reimagined"*, small-scale UK distiller Baijiu Society creates a lower-alcohol fruit-infused baijiu that features yuzu, dark cherry, peach, bitter orange, honey, and spices that appeal to the Chinese millennial palate.



Image: A promotion for Kweichow Moutai's collaboration with Luckin Coffee: a Moutai latte. The coffee product was a social media sensation, with customers queueing for up to 2 hours for a taste, and some missing out on the USD5.20 cup altogether because it sold out.

No-alcohol and low-alcohol

Set for long-term growth



Australia-headquartered ANZ Bank valued the global NoLo sector at around USD22 billion in 2022, predicted to grow to USD43 billion by 2027 on an annual growth rate of almost 8%.²⁵

Although significantly smaller than the general alcoholic beverage market and growing off a low base, there is industry-wide consensus that NoLo is set to outperform growth rates of the conventional, or full-strength, alcohol market.

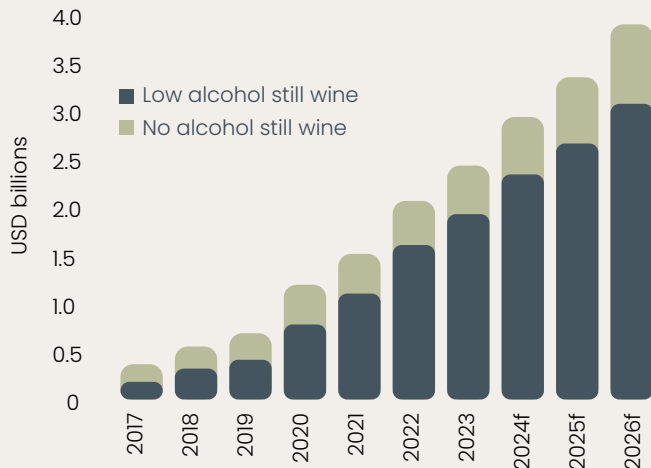
Who’s buying NoLo, and where

Consumer attitudes to purchasing NoLo alternatives show a marked increase in willingness to buy in a different way the future. The upward trend in a willingness to explore a variety of outlets reflects the general increasing acceptance of NoLo alternatives.

Purchase locations	Today	Future
From the local bottle shop	23%	79%
Supermarket	23%	72%
Online retailer	18%	70%
Bar	10%	63%

Purchase motivations for NoLo wine²⁸

Global sales of no-alcohol and low-alcohol wines²⁷



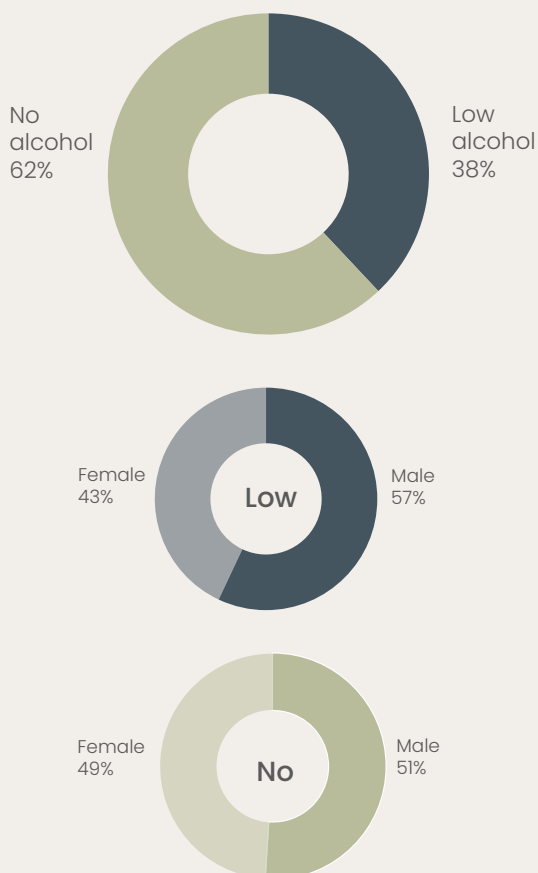
New and established companies are responding to the younger crowd and a new crop of purchase motivations with innovative products that extend beyond taste by using safe sensory substitutes to replicate alcohol experiences.

These botanical and synthetic compounds imitate alcohol's effects without the hangover or health implications.³⁰ For example, New Zealand alcohol-free brand AF uses a capsicum-derived botanical extract to mimic the warming sensation of alcohol, activating receptors responsible for body temperature regulation and feelings of warmth and euphoria. The low-calorie and low-sugar cocktail range has enlisted US celebrities and entrepreneurs Khloé Kardashian and Kris Jenner to promote the range.

Motivations to purchase wine that's lower in alcohol are interconnected and expressed across all demographics, including:³¹

- thoughts of one's future self
- desire to maintain social interaction
- desire to enjoy the taste of wine
- adherence to health values and goals.

NoLo market size²⁶



Motivation to purchase²⁹

	Low	No
"It's better for my health"	52%	46%
"I enjoy the taste"	41%	34%
"I like to stay in control"	40%	36%
"I'll be driving"	34%	46%
"Fewer calories"	33%	27%

"A family gathering by the ocean. Someone has to drive and be responsible so low alcohol drinks would be an attractive option without missing out on having a wine."

Research study participant considering purchasing lower-in-alcohol wine, aged 56-70

Australian consumers reaching for lighter options

Part of the Endeavour Group, Australia's largest drinks network and operator of the country's largest portfolio of licensed hotels, Dan Murphy's says no-alcohol wine continues to grow share of the wine category.

After a couple of years of strong sales from Endeavour's lighter in alcohol range of wines, they are now growing at 3 times the rate of its no-alcohol range. In more recent times, that trend has accelerated: in the latest 12-month period, the lighter in alcohol range has grown 8 times faster than the no-alcohol range.

There are different sources of growth for each segment, with significant growth from new customers entering the lighter in alcohol segment as its range evolves. In the no-alcohol range, growth is coming from increased purchase engagement from a relatively flat customer base.

Endeavour Group notes the majority of customers who purchase no-alcohol products in the leadup to a festive season have also purchased alcoholic drinks during the year, providing an opportunity for occasion-based marketing to play a more important role in growing the category.

As the retailer and hotel operator looks to provide options for customers who want to consume wine more mindfully, it considers two propositions to meet the needs of its customers:

- **different demographics** – who want approachable, lighter liquids to consume as part of their mid tempo, social occasions
- **core wine customers** – who are looking for liquids that allow more mindful consumption without compromising on the flavour of the parent full strength varietal they enjoy.

NoLo in wine: the best of both worlds

With around half of the world's wine drinkers actively limiting their alcohol intake, the wine industry is responding to changing consumer drinking habits and embracing the NoLo category.

The NoLo trend has broadened the wine category, creating dual buying and consumption patterns: almost 80% of people buying non-alcoholic beverages simultaneously purchase alcoholic drinks. Consumers are 'substituting' or 'blending', terms that reflect the trend to abstain or switch between alcohol and NoLo options – popularised through trends such as 'zebra striping' (alternating between alcohol and non-alcoholic drinks) and 'damp drinking' (reducing alcohol consumption without cutting it out altogether).

One purchase occasion that's becoming better understood is the 'good host'; many NoLo products are purchased by hosts of a social gathering so they're inclusive of all attendees, including those looking for alternatives to full-strength options or preferring not to drink alcohol at all on that occasion.

Australian wine drinkers are echoing these trends, with studies showing that some two-thirds of consumers are actively reducing the amount of alcohol they drink, either through not drinking alcohol at some occasions (32%), switching to lower-alcohol options at some occasions (20%), or switching to no-alcohol drinks at some occasions (14%).³²

Heritage meets innovation: Coopers Brewery goes Zero

As consumer habits shift and health-conscious drinkers seek out 'beer/life balance', Australia's largest independent family-owned brewery, Coopers, is recognising the opportunity to tap into the rising demand for NoLo alternatives. The first non-alcoholic beer under the iconic Coopers roundel, Coopers Zero was launched in August 2025, with subtle hop aroma and moderate bitterness brewed using Coopers Pale Malt, Crystal Malt, and Malted Wheat. The result is a golden pour and crisp and smooth finish that delivers a full-flavour experience, with 0.5% ABV.

The launch of Coopers Zero continues the family-run brewery's pioneering spirit, which has seen it offer NoLo beers to Australian drinkers for more than 40 years and demonstrates its commitment to strategic innovation with heritage at heart.

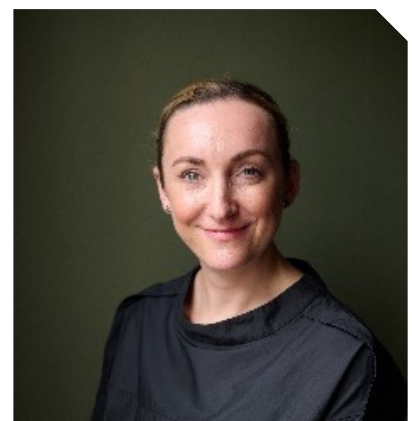
"We set out to develop and deliver a great-tasting, full-flavoured beer to cater for Australians seeking to lower their alcohol intake or switch up their drinking habits. Coopers Zero draws on our 163 years of brewing heritage, combined with our proven track record in low-alcohol beer – our brewing team were determined not to compromise on the renowned quality and taste of a Coopers beer."

Michael Shearer
Managing Director, Coopers

Pairings inspired by nature at award-winning restaurant Brae

Responding to the consumer expectation that menus and wine lists cater to their interest in NoLo options, wine lists and menus at casual and upscale venues all around the world are becoming more considered.

Award-winning regional Victorian restaurant Brae offers a seasonally influenced non-alcoholic pairing option with botanical-based beverages grown and produced onsite alongside its matched wine selection. The selection of full-strength wines and liqueurs is priced at AUD210 per person for 9 beverages to accompany dishes on its tasting menu, and AUD120 per person for equivalent no-alcohol options.



"Our non-alcoholic pairing is a selection of botanical-based beverages, grown and made here at Brae. The beverages are designed to best accompany our tasting menu and are an expression of the season and our location. The offering can include carbonated sodas, juices, teas, and might use house-made olive oil or vinegars. Various fermentation techniques are also used to create lacto-fermented, kombucha and kefir-style beverages, all incorporating elements of fruits, leaves, herbs and aromatics grown organically at Brae Farm."

Lyndal Taylor
Head Sommelier, Brae

Beyond NoLo: creating a new category

Originally from the UK, Murray Paterson founded Muri after working as a distiller at the Empirical Spirits distillery in Denmark, started by one of the chefs from renowned restaurant Noma, and was joined by Ioakeim Goulidis after his time at the Noma Fermentation Laboratory.

Keen to tap into a growing market of consumers willing to pay more for a premium drink without alcohol, some beverage makers are turning to other natural ingredients like foraged plants, blossoms, and branches. Danish brand Muri uses foraged material from woodlands around Copenhagen, which undergoes a process of flavour creation by dry carbonic maceration, wood smoking, and lacto fermentation.

*"I see the normalization of people having delicious choices that allow them to go out and have a glass of wine, then a glass of Muri, a sake, then something else that's delicious with zero ABV."*³³

Murray Paterson
Muri founder

It recently collaborated with Michelin-starred chef Anne-Sophie Pic to create Uzume, a dry sparkling rosé featuring strawberries fermented in 3 different ways and joined by yoghurt whey, ice-clarified tomato wine, and beechwood-smoked vanilla.

The GBP32 bottle's tasting notes could be mistaken for full-strength wine: ideally served in a wineglass at 12°C to release its aromatic palette and best accompanying red meat, lobster with red berries, tomato dishes, cheese, or tangy desserts.



Image: Murray Paterson and Ioakeim Goulidis of Muri, a non-alcoholic premium beverage label that uses maceration, smoking and fermentation for flavour.



Image: Muri's Uzume dry sparkling rosé, created in collaboration with chef Anne-Sophie Pic.



Image: Athletic Brewing Company Co-founders John Walker and Bill Shufelt.

Lessons from beer: a global NoLo leader

Beer is the most advanced and fastest-growing category in the NoLo segment, across both emerging and established markets. Large brewers such as AB InBev and Heineken are growing their market share through investment and innovation.

Smaller craft breweries like Australia's non-alcoholic Heaps Normal are becoming more popular, alongside South Australia's Pirate Life, which offers low alcohol alternatives alongside its Pale Ale, Stout, XPA, and Alcoholic Lemonade.

With a more straightforward production process compared to wine, brewers can control the balance of their non-alcoholic beers by adding flavours like hops and malt, and distillers can use botanicals and other ingredients to control the end taste. Brewers and distillers also have fermentation techniques at their disposal, avoiding alcohol at the outset and allowing them to assemble a flavour profile.

In the US, non-alcoholic beer brand Athletic Brewing Company has invested more than USD100 million in manufacturing and development of its own, tailored production process. The founders, a hedge fund trader and a craft brewer, started the company in 2017 to transform the non-alcoholic beer category, which they say tasted 'like swamp water' at that time.

Its Connecticut facility has a production capacity of 450,000 barrels a year, and the company has invested in additional US facilities in locations that meet demand in

direct-to-consumer sales that will expand capacity to 1 million barrels a year. Being exempt from the regulatory requirements of alcohol marketing in the US market meant Athletic was able to establish a direct e-commerce connection with its consumers, with the richer data informing Athletic's marketing and distribution strategy. Its commercial distribution is equally strategic: at US health food retailer Whole Foods Market, Athletic has been the top-selling beer across the whole beer category for more than a year. The brewer says that more than half its customers are buying Athletic where they'd usually buy a water or soft drink, and it's also ranged in Michelin-starred restaurants. In 2023, its sales exceeded USD90 million.³⁴

Other brewers are investing significantly to continue improving their no-alcohol beer offerings. In 2024, Diageo announced a EUR30 million investment in its St James's Gate brewery in Dublin to boost production for Guinness 0.0. Despite the consumption of beer decreasing in Ireland, sales of the no-alcohol draught grew almost 50% between February 2023 and February 2024, and the additional investment in production will bring capacity up to 176 million pints a year.³⁵

Dealcoholisation: Where art meets science



Contribution by
Dr Wes Pearson,
The Australian Wine
Research Institute

Winemakers are the artists of the wine world, working with nature's variability and viticulture and production teams to produce wines that reflect the soil and environment they're grown in. For decades, they've faced the challenge of crafting non-alcoholic wines that taste as good.

AWRI Australian
Wine
Research
Institute



Removing alcohol from wine is possible but complicated, altering the wine's chemistry, and resulting richness, body and 'mouthfeel'. The flavour, body and mouthfeel of wine involves thousands of molecular compounds that interface with our sensory perception in different ways, depending on co-factors including the pH, sugar content and alcohol level of the wine.

While dealcoholisation techniques have been used since the early 1900s, modern winemakers have elevated the process by integrating advanced science with their craft. Producers use a range of techniques to deconstruct the wine, then reassemble it without the alcohol. Wine is primarily composed of water and ethanol, together making up roughly 98% of its volume. Ethanol content ranges from ~12-15%, with the remaining 2% consisting of a complex mix of acids, sugars, volatile flavour compounds, pigment compounds, and tannins. These components, while present in small amounts, are crucial for the wine's unique flavour, aroma, and overall character. Each process – vacuum distillation, reverse osmosis, and spinning cone columns – influences the wine's taste and aroma to varying degrees.

The science of maintaining flavour while removing alcohol

In general, most chemical compounds that create the aromas and flavours of a wine are compromised when alcohol is removed. Their volatility means they evaporate easily – one example is so-called fermentation products, made mostly of esters and acids.

For example, hexyl acetate and hexanoic acid are both formed as fermentation products. Hexyl acetate has a pleasant fruity smell similar to fresh apples, while hexanoic acid smells like dirty socks and ripe cheese. With some dealcoholisation processes, the volatile hexyl acetate (apples) evaporates from the wine along with the ethanol, while hexanoic acid (socks and cheese) remains.

Varietals that get their aroma and flavour from different compound classes generally produce a better-tasting product after going through the dealcoholisation process. For example, one of the main aroma compounds in Sauvignon Blanc, 3-mercaptohexan-1-ol (3MH) and its acetate equivalent 3-mercaptohexyl acetate (3MHA), are responsible for the passionfruit, grapefruit, gooseberry aromas generally associated with the variety. Similar to fermentation products, the acetate 3MHA is lost during the dealcoholisation process while 3MH is not. Consequently, dealcoholised Sauvignon Blanc smells much like its full-strength counterpart.

Dealcoholisation technology: a summary

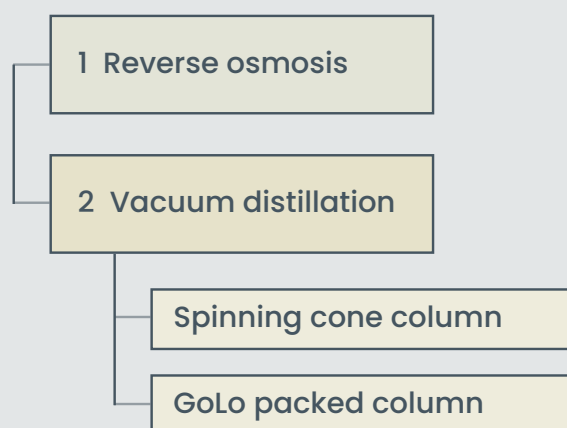
While advances in technology have improved the NoLo wine production process over time, conventional off-the-shelf equipment continues to present some challenges in flavour capture and overall quality.

Wine generally goes through the machinery multiple times to remove its essence and alcohol content:

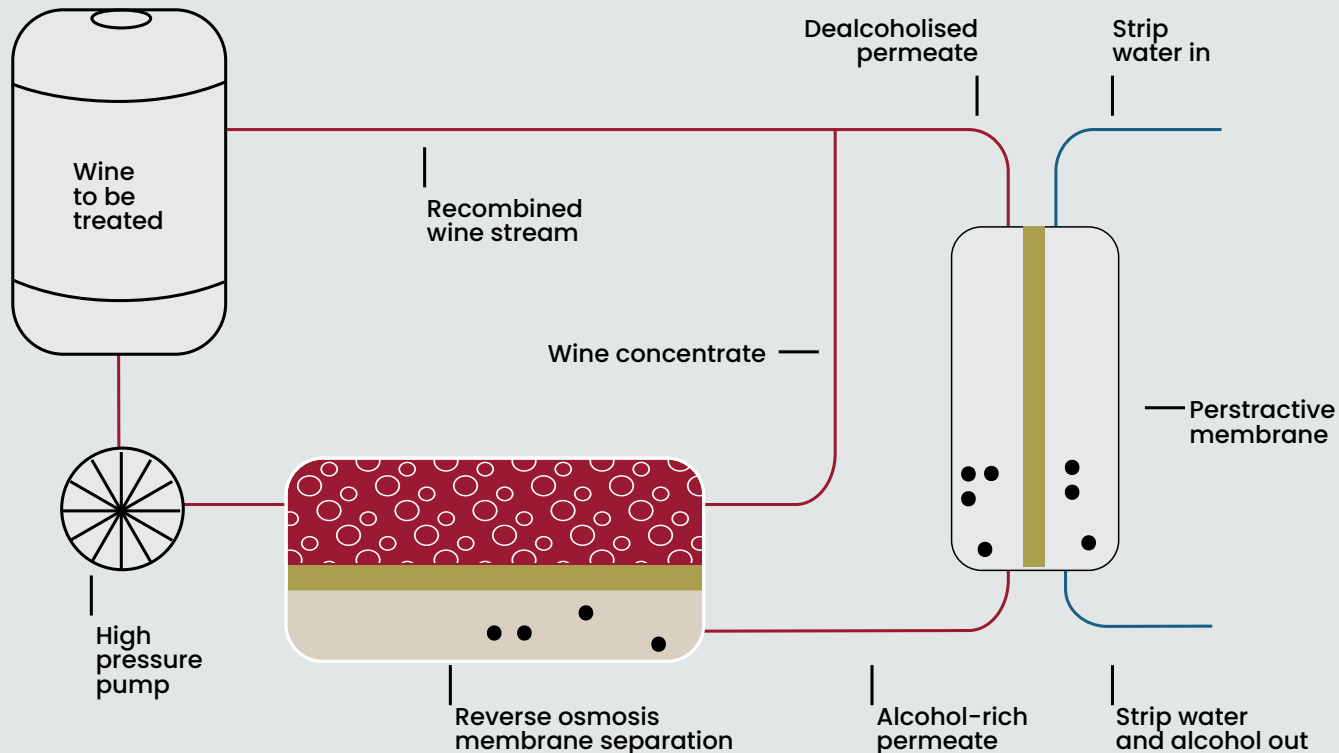
- first pass at a lower temperature to extract essence
- second pass at a higher temperature to remove the alcohol.

Introducing live heat can compromise the character of the wine, and the extracted alcohol is lower in strength and leads to higher levels of waste.

The technology can be categorised into two main processes:



1: Reverse osmosis³⁶



Principle

A membrane filtration process that separates alcohol and water from the rest of the wine's components.

Process

Wine is forced through a semi-permeable membrane under pressure, allowing water and alcohol to pass through, while other wine components are retained.

Advantages

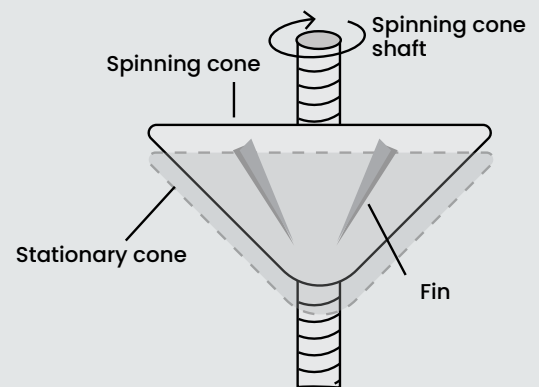
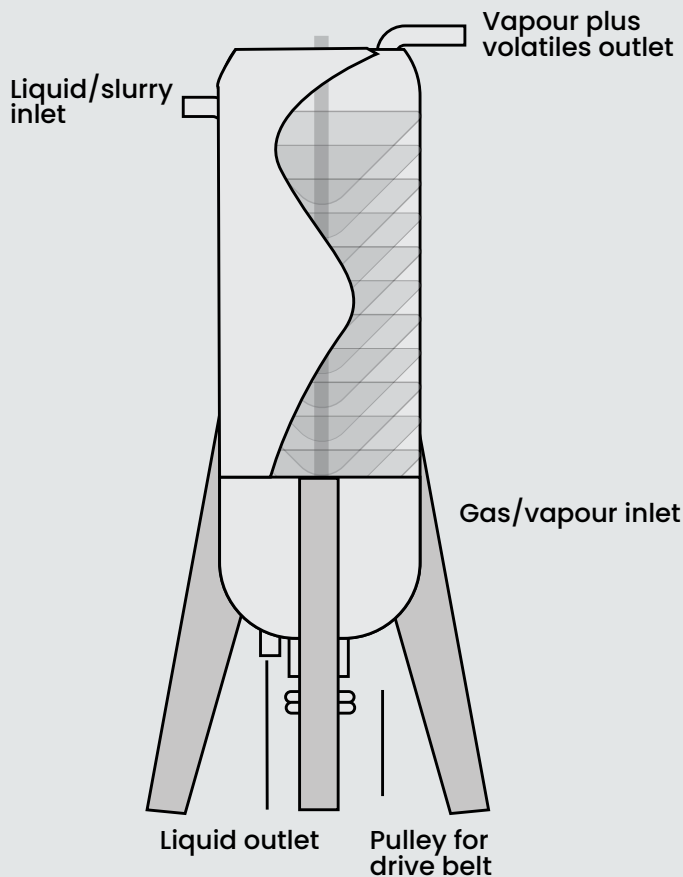
Operation at lower temperature means it's often considered a gentler method than distillation for some wine styles.

Disadvantages

Energy and water intensive; multiple passes, dilution and high pressure can impact quality.

2: Vacuum distillation

Spinning cone column³⁷



Principle

A type of distillation equipment based on technology developed in the 1970s by Australia's national science agency, the Commonwealth Scientific and Industrial Research Organisation, that uses steam to strip alcohol from wine. The unit is a vertical, stainless steel vessel with a central rotating shaft containing a series of alternate rotating and stationary cones.

Process

The wine is heated under vacuum conditions, and the alcohol is evaporated and condensed, while the remaining wine components are retained.

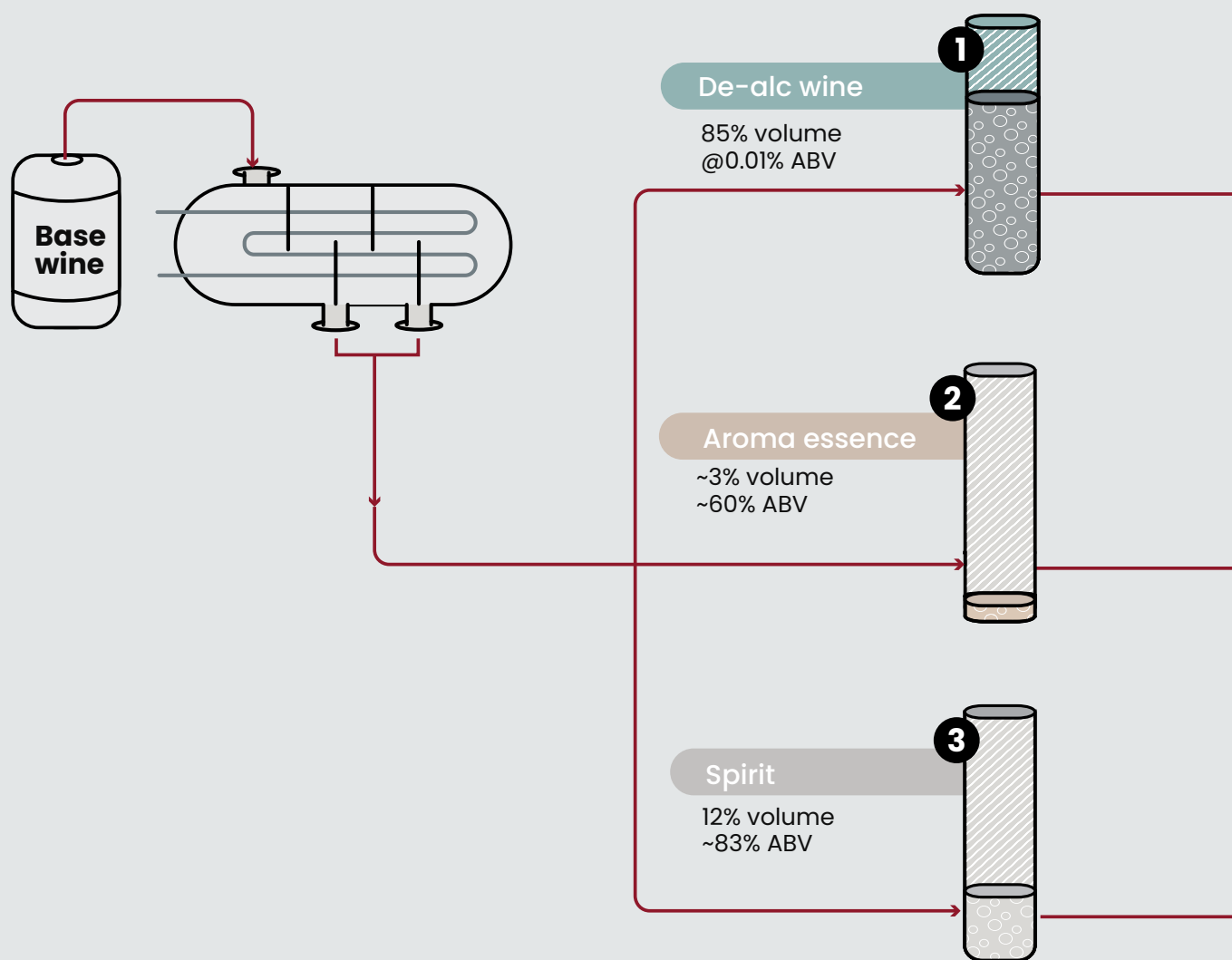
Advantages

Considered a gentle and efficient method for alcohol removal, preserving more of the wine's aromas than traditional distillation methods.

2: Vacuum distillation

GoLo packed column

Customised technology and a proprietary process developed by Treasury Wine Estates

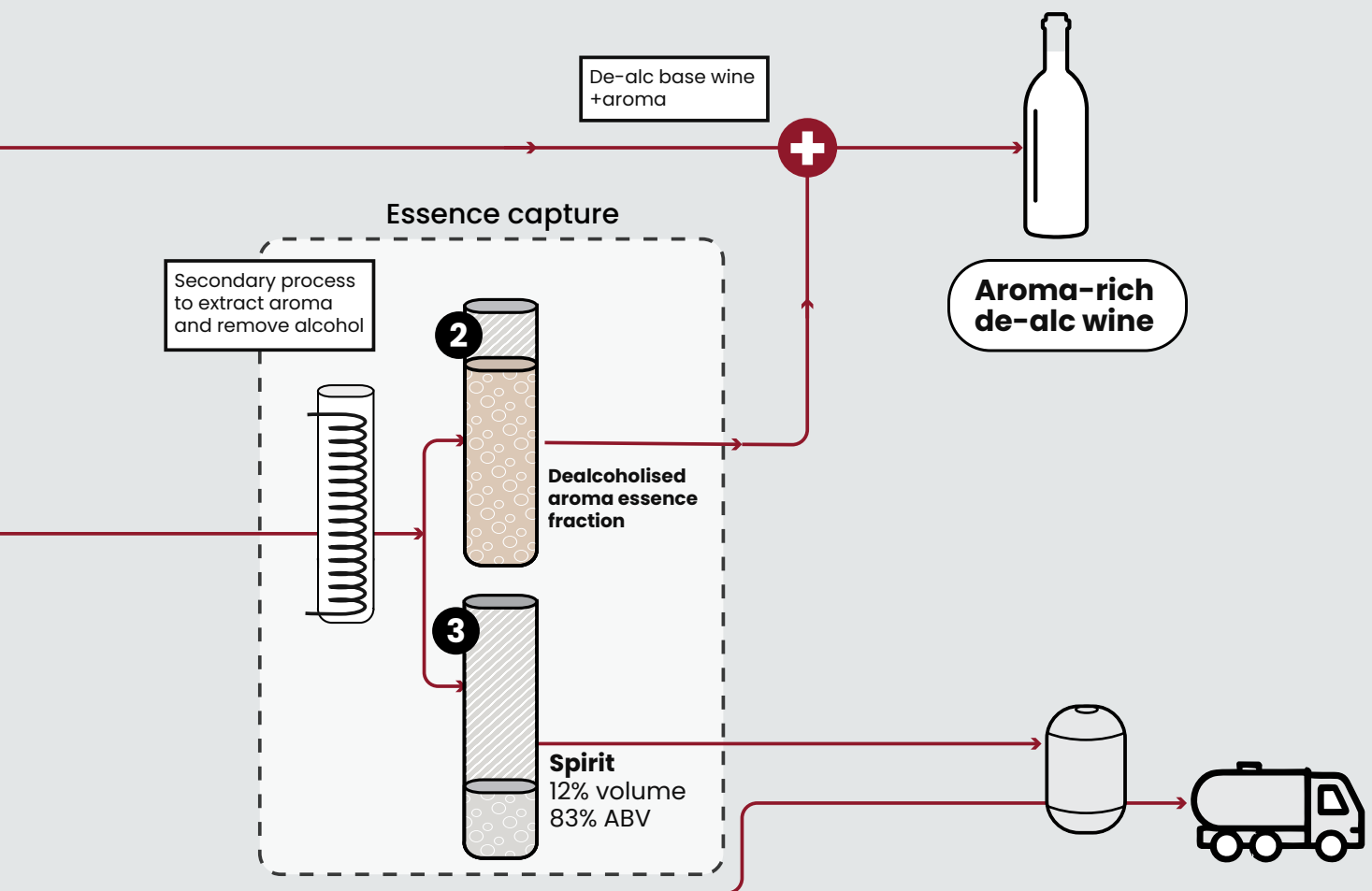


Principle

A type of vacuum distillation consisting of 3 vertical stainless steel columns filled with stainless steel clips as packing material, designed to create maximum surface area and dispersal for efficient distillation. The first column is for essence removal, the second for alcohol removal, and the third for rectification. Similar to the vacuum distillation principles of the spinning cone column, the ethanol from the wine changes from liquid phase to vapor phase at lower temperature, enabling it to be separated from the wine.

Process

The wine is heated under vacuum conditions, and the alcohol is evaporated and condensed while the remaining wine components are retained in a continuous process extracting the essence and the dealcoholised wine in a single run.



Advantages

- Highly efficient processing in a single pass for essence removal, alcohol removal, and rectification of alcohol
- The absence of live steam means lower temperature through the whole column
- Significantly less water-intensive to operate
- Higher efficiency and less waste from the large surface area of all the elements of the column
- Gentler process
- Fewer moving parts results in less maintenance

Flavour

A sensory experience



A glass of great wine is an experience for all the senses. A ‘balanced’ wine skilfully harmonises flavour notes, acidity, tannin and alcohol levels. Alcohol is an important part of the mix because it brings richness and body to a wine, and can carry flavours and aromas.

The challenge for winemakers producing NoLo wines is finding ways to create balanced, expressive and flavourful wines without the need for alcohol to carry a wine’s complex matrix of taste and mouthfeel.

The novel use of the equipment at the Treasury Wine Estates facility incorporates inventive techniques for processing the aromatic portion of wine and using a new diluent for wine fractions, applying the producer’s deep winemaking expertise in a different way to the growing NoLo category. Combined with the award-winning winemaking and viticultural expertise of the NoLo team, it addresses the challenge of creating NoLo wines with the ‘mouthfeel’ of a traditional wine.

When wine connoisseurs, winemakers, sommeliers and skilled oenophiles rank the quality of a wine, they assess a range of indicators.

After tasting wine, experienced tasters take a breath through their mouth and exhale it through their nose, a process called retronasal olfaction or ‘backward smelling’. It gives the perception of odours that originate from within the mouth and travel up to the nasal cavity through the back of the throat during eating and drinking, contributing to the overall flavour experience.

Appearance

The wine’s appearance, including its colour and shade.

Whites

Ranging from pale straw (Vinho Verde and Verdejo) to yellow (for Gruner Veltliner, Sauvignon Blanc, Sauternes, Riesling), gold (Pinot Gris, Viognier, Chardonnay).

Pinks

Ranging from pale copper (Pinot Gris, Provence Rose) to salmon (White Zinfandel, Syrah Rose) and pink (Grenache Rose).

Reds

Pale ruby (Pinot Noir) to purple (Merlot, Cabernet Sauvignon), garnet (Nebbiolo, Barolo), and tawny (aged reds).

Smell

A good nose can detect primary, tertiary and secondary smells like fruit, herbs, earth, spice and oak that hint at the types of grapes used, when and where the wine was made, and how it was aged. Experts can distinguish and isolate specific smells from hundreds of aroma compounds bursting from the glass, and these smells hint at potential flavours as well as where the wine was grown.

Taste and mouthfeel

Flavours and texture are revealed by swishing the wine around the mouth for a better understanding of how it ‘feels’ on the palate – the tactile sensations and textures that can impact the overall perception of flavours and aromas.

Common mouthfeel descriptors include body, viscosity, astringency, acidity and sweetness.

Heat

Where a lingering warmth in the finish of the wine may indicate a wine that is out of balance.

Collaborating for growth

Eleven major industry partners are collaborating to position the Australian wine sector as the largest global producer and exporter of NoLo wines.

Backed by an AUD3 million grant from the Australian Government's Cooperative Research Centre Projects program, the AUD7 million 'Advancement of Australian Lifestyle Wines' project aims to ensure the competitiveness, productivity and sustainability of the Australian wine industry while responding to global moderation trends that are shaping alcohol consumption.

Led by wine producer Australian Vintage, the Advancement of Australian Lifestyle Wine Project brings together Treasury Wine Estates, the University of Adelaide, The Australian Wine Research Institute, Flavourtech, DrinkWise, Tarac Technologies, S. Smith and Son, Danstar Ferment, Mauri Yeast and CHR Hansen.

The project will leverage its combined infrastructure, resources and research capabilities across a program of industry-directed research and product development. The group will focus on these sub-projects over three years:

Bioengineering

Improving microbial stability and shelf-life of NoLo wines.

Inherently lacking ethanol as a key preservative exploited in wine production, NoLo wines are more susceptible to spoilage and have a shorter shelf-life. The project will explore whether unique yeast/bacterial strains could overproduce desirable volatiles to improve aroma longevity or inhibit the growth of spoilage microorganisms to extend shelf-life.

Mouthfeel

Restoring 'body'.

In traditional wines, ethanol provides texture, viscosity and body. By applying novel additives and products already used across food and beverage industries to NoLo wines to restore 'body' and 'mouthfeel' may more closely replicate the wine-drinking experience.

Flavour

Replacing what is lost during alcohol removal.

Removing ethanol from wine takes away important aroma compounds, and unsettles the chemistry of the compounds that remain. Dealcoholisation trials will optimise ethanol extraction and flavour capture and re-use, and strategies from the food and beverage sectors to enhance flavour longevity and stability will be evaluated.

Marketing

Driving image, quality and market growth.

Assess the marketing challenges and opportunities that can enhance the image and sale of NoLo wines across domestic and export markets.

A history of award-winning wines

Treasury Wine Estates pioneered lower-alcohol winemaking decades before the category burst into the mainstream.

Since then, it has added the Lindeman's Early Harvest alongside NoLo offerings in the Wolf Blass, Pepperjack, Matua, 19 Crimes, and Squealing Pig ranges.

One of the early brands in the TWE NoLo portfolio to offer a full range of varietals was the Wolf Blass Zero collection featuring a Sparkling Cuvee, Shiraz, Rosé and Sauvignon Blanc. Wines in the range have won a selection of awards, including at the Royal Hobart Wine Show, the Wine Pilot Low/No Alc Awards, and the International Wine and Spirit Competition.



Wine crafted in the new Barossa Valley facility will initially build on the existing range of NoLo products, particularly in the popular Squealing Pig and Pepperjack brands, complemented by new products.

A new take on classic varietals with Sorbet

Sorbet is the fresh new brand in the Treasury Wine Estates portfolio, launched exclusively through Endeavour Group in October 2025.



Responding to a consumer interest in bold, evocative flavours, the concept blends traditional varietals like Prosecco, Rosé, Sauvignon Blanc, and Shiraz with fruit and berry flavours such as passionfruit, mango and lemon.

"The new Sorbet range is a high quality, diversified selection of lower-alcohol wine that responds to consumers wanting refreshment in their drink. For consumers, the artisanal nature of wine needs to be reflected in lower-alcohol alternatives as much as full-strength versions – and that comes through with a fresh take on classic varietals in Sorbet."

Leigh Firkin

Head of Commercial Wine, Endeavour Group

Conclusion

From tradition to transformation



The rise of the NoLo category and the trend in better-for-you products is an inflection point for the global alcohol industry. People are changing how and what they're drinking, and producers are blending the latest technology with the craft of winemaking to create drinks that are lower in alcohol, and in some cases have functional benefits through the addition of herbs and other ingredients.

In the world of wine, the alcohol removal process can disrupt wine's fundamental chemistry – impacting aromatic volatility, flavour compound stability, and mouthfeel. Creating wines that retain varietal character, structural integrity, and sensory appeal requires precision science, advanced equipment, and the deep sensory insight of specialist winemaking and engineering teams.

TWE's investment in an in-house dealcoholisation facility, world-first proprietary and patent pending flavour preservation methods, together with multi-disciplinary research collaborations and a focus on brand investment reflects a long-term commitment to industry leadership in the growing NoLo category.

With global demand in the category expected to remain strong in existing markets such as the US and Europe and gain traction in emerging markets including Asia, the opportunity lies in ongoing experimentation with new techniques and varietal selection, and expanded understanding of the science of flavour.

Treasury Wine Estates is proud to be at the forefront of the evolution – enabling more inclusive consumption occasions, advancing the technical frontier of winemaking, and providing wine lovers with more choice and better-tasting options to consume responsibly.

"We're proud of the progress we've made in the flavour credentials of our NoLo portfolio in a relatively short amount of time. Our new facility in the Barossa Valley combined with our generational winemaking expertise means a future where some of our most iconic Australian wines – an Adelaide Hills Chardonnay, Barossa Shiraz or Coonawarra Cabernet Sauvignon – are being produced in lower-alcohol versions that display the same hallmark expression of flavour, complexity, people and place that's put Australian wines on the map."

Toby Barlow
Group Winemaker, Treasury Wine Estates

Glossary

NoLo definitions	No alcohol		Low alcohol
	Alcohol free	No alcohol	
Beer/Cider	<0.05% ABV	0.05–0.5% ABV	>0.5–3.5% ABV
Wine	<0.05% ABV	0.05–0.5% ABV	>0.5–7.5% ABV
Spirits	<0.05% ABV	0.05–0.5% ABV	>0.5–30% ABV (non-liquers) >0.5–10% ABV (liquers)
RTDs	<0.05% ABV	0.05–0.5% ABV	>0.5–3% ABV

ABV	Alcohol by volume, a standard measure for the amount of alcohol in an alcoholic drink.
Alcohol free wine	Wine containing less than 0.05% ABV.
No-alcohol wine	Wine containing between 0.05% and 0.5% ABV.
Low-alcohol wine	Wine containing between 0.5% and 7.5% ABV.
Mid-strength wine	A wine generally containing between 6% and 10% ABV, offering moderate alcohol content and a balanced flavour profile that bridges full-strength and low-alcohol styles.
Aroma	Compounds that contribute to a wine's smell.
Essence	The aromatic portion of wine, which contributes to a wine's integrity and flavour profiles.
Spinning cone column	A type of vacuum distillation dealcoholisation equipment based on technology developed in the 1970s by Australia's national science agency, the Commonwealth Scientific and Industrial Research Organisation, that uses steam to strip alcohol from wine. The unit is a vertical, stainless-steel vessel with a central rotating shaft containing a series of alternate rotating and stationary cones.
Vacuum distillation	One of the main processes of dealcoholisation in contemporary technology.
Reverse osmosis	A membrane filtration process that separates alcohol and water from the rest of the wine's components.
Ethanol	Also known as alcohol; the active ingredient in alcoholic beverages.
GoLo	A type of vacuum distillation dealcoholisation consisting of three vertical stainless-steel columns filled with stainless steel clips as packing material, designed to create maximum surface area and dispersal for efficient distillation.
Substitution	A description of the consumer trend to abstain or switch between alcohol and NoLo options, sometimes on the same occasion.
Blending	A description of the consumer trend to abstain or switch between alcohol and NoLo options, sometimes on the same occasion.
Zebra striping	A description of the consumer trend to abstain or switch between alcohol and NoLo options, sometimes on the same occasion.

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"Among all strata of society, [fermented beverages] have marked major life events, from birth to death, as well as victories, auspicious events, and harvests...In their most developed form, such celebrations were formalised into secular or religious ceremonies for the society at large."

'Fermented beverages of pre- and proto-historic China'
The Proceedings of the National Academy of Sciences, 2004.³⁸



In this industry-first report, authors **Kerrin Petty** and **Angus Lilley** of Treasury Wine Estates, together with **Dr Wes Pearson** of The Australian Wine Research Institute, investigate the history and future growth prospects of the no-alcohol and low-alcohol wine category.

The report covers the history and economic contribution of alcohol production around the world, common de-alcoholisation techniques and the patent-pending process used at the new Treasury Wine Estates facility in South Australia's Barossa Valley, consumer trends influencing the increasing popularity of 'NoLo' beverages, and the growing mindful consumption movement.

Reviews of the report



Lee McLean

*CEO,
Australian Grape & Wine*

"This presents an important summary of how the Australian wine sector is evolving to adopt new technology and meet changes in consumer needs globally. NoLo products complement Australia's more traditional wine offering, providing options for consumers who may want to moderate their alcohol consumption or are looking for a lighter style of wine. In a period of contracting global consumption, this segment of the category may also provide greater opportunity for grape growers to sell grapes for a wider array of wines to be enjoyed around the world."



Yvette Van Der Merwe

*President,
International Organization
for Vine and Wine*

"This paper offers a comprehensive view of the NoLo wine sector, exploring emerging trends, innovations, and the factors shaping both industry developments and consumer engagement. The future of the category depends on staying aligned with consumer needs, and prioritising the consumer is critical to sustaining growth."