



ADELAIDE 26-29 JUNE 2022

**18th AUSTRALIAN
WINE INDUSTRY**

Technical Conference
& Trade Exhibition



Workshop Program Booklet

Technical Workshops

Sunday, 26 June 2022

All Technical Program workshops will be held across three sessions on Sunday, 26 June 2022 and will run for a duration of 120 minutes each.

Sunday, 26 June 2022 | Session 1: 08:30 - 11:00

Code	Workshop Title	Theme	Type	Price	Page
W01	Developing new beverage products for a rapidly evolving market	Winemaking	Seminar	\$150	1
W02	Techniques for developing no and low alcohol wines	Sensory/Consumer	Tasting	\$190	2
W03	Conversion to organic viticulture - is it for me?	Viticulture	Seminar	\$150	3
W04	Managing non-vine vegetation in and around the vineyard to grow resilience and deliver production benefits	Viticulture	Seminar	\$150	4
W05	Autonomous tractors and non-chemical weed control	Viticulture	Seminar	\$150	5
W06	Emerging technologies to improve vineyard efficiencies	Viticulture	Seminar	\$150	6
W07	Building a climate-resilient vineyard	Viticulture	Seminar	\$150	7
W08	Next generation wineries	Winemaking	Seminar	\$150	8
W09	A palette of yeast for your wine palate	Winemaking	Tasting	\$190	9
W10	Predict and prevent - improving wine cold stabilisation across the value chain	Winemaking	Tasting	\$190	10

Sunday, 26 June 2022 | Session 2: 12:30 - 15:00

Code	Workshop Title	Theme	Type	Price	Page
W11	Optimising and understanding filtration	Engineering/Packaging	Tasting	\$190	11
W12	So hot right now! Adapting to climate change with sustainable, emerging grape varieties and wine styles	Viticulture	Tasting	\$190	13
W14	Improving vineyard water use efficiency	Viticulture	Seminar	\$150	16
W15	Under-vine floor management: methods and the latest findings	Viticulture	Seminar	\$150	17
W16	Fungicide resistance in Australian viticulture	Viticulture	Seminar	\$150	18
W17	Modulating 'flint' and 'tropical' aromas and controlling 'reductive' aromas in premium Australian wines	Winemaking	Tasting	\$190	19
W18	Moving analysis from the lab to the tank	Winemaking	Seminar	\$150	20
W19	Fermentation 101: getting back to basics on fermentation management	Winemaking	Tasting	\$190	21
W20	Achieving success with canned wine products	Winemaking	Tasting	\$190	23

Sunday, 26 June 2022 | Session 3: 16:30 - 19:00

Code	Workshop Title	Theme	Type	Price	Page
W21	Understanding Australian terroir; Shiraz expression across a range of scales	Sensory/Consumer	Tasting	\$190	24
W22	Studying Cabernet Sauvignon: from rootstock to region	Viticulture	Tasting	\$190	25
W23	Lifting the veil on soil carbon	Viticulture	Seminar	\$150	27
W24	Trialling rootstocks for MV6 Pinot Noir from vine to wine while considering phylloxera resistance, tolerance and susceptibility	Viticulture	Tasting	\$190	28
W25	Collabriculture - the Australian wine industry's journey to developing a world-first Logical Data Model	Viticulture	Seminar	\$150	30
W26	Demonstrating practical AgTech that is vineyard ready	Viticulture	Seminar	\$150	31
W27	Update on breeding and evaluation of new mildew-resistant wine grape varieties for Australian conditions	Viticulture	Tasting	\$190	32
W28	Bioprotection and lower SO ₂ winemaking - current science and best practice	Winemaking	Tasting	\$190	33
W29	Smoke taint: the latest research	Winemaking	Tasting	\$190	34
W30	Aeration of red wine fermentations	Winemaking	Tasting	\$190	36

W01

Developing new beverage products for a rapidly evolving market

Date: Sunday, 26 June 2022

Time: Session 1: 08:30 - 11:00

Theme: Winemaking

Type: Seminar

Ticket Price: \$150

The wine sector is rapidly evolving. With increasing competition from other wine-producing countries, a growing need for product uniqueness and changing trends in alcohol consumption, there has never been a better (or more challenging) time to be developing new products and diversifying the product portfolio.

However, successful delivery of a new product to market cannot be achieved solely by relying on insights into potential consumer purchase behaviours. It is imperative that new products can achieve their target shelf-life and maintain the intended quality attributes at all points through the supply chain.

This workshop will highlight the key considerations for developing new wine-based products, including the use of additives and flavourings, lower alcohol content and innovative packaging. Presentations will focus on the use of accelerated testing programs, functional performance and sensory profiling methods to understand product characteristics and shelf-life potential.

This workshop will support wine producers and suppliers in developing unique and reliable new products for the market and better understand the key considerations in optimising product shelf-life.

Primary convenor:

Neil Scrimgeour, The Australian Wine Research Institute

Neil Scrimgeour is Business Development Manager with AWRI Commercial Services. He has extensive experience in the design and management of technical performance trials for new product and packaging types and leads a team who specialise in tailored consulting and technical support services for a range of foods and beverages. Neil provides scientific insight, technical guidance and management of practical outcomes for new product development, both in the wine industry and in his previous roles in the pharmaceutical industry. Neil has spent the last 10 years working closely with packaging suppliers and wine producers on a broad range of process, product and packaging technology projects. This has included facilitating large-scale consortium trials to assess the performance of different wine closures, developing and testing innovative packaging solutions and management of shelf-life performance trials for new products.

Secondary convenor:

Kieran Hirlam, The Australian Wine Research Institute

Kieran Hirlam is Project Team Manager for AWRI Commercial Services. Kieran has worked on numerous projects looking at best-practice wine packaging and product development. He is also heavily involved in evaluating the carbon emissions associated with wine products and packaging and has conducted extensive application-based research on winery waste optimisation and opportunities to transform waste into higher valued products.

W02

Date: Sunday, 26 June 2022

Time: Session 1: 08:30 - 11:00

Theme: Sensory/Consumer

Type: Tasting

Ticket Price: \$190

Techniques for developing no and low alcohol wines

More people than ever are turning to no- and low-alcohol beverages; however, this segment is currently dominated by beer and spirits. There is huge potential for growth in the wine sector, although only a few Australian brands are in this space, and while quality is improving, none are matching full-strength wine in mouthfeel, flavour and taste. This workshop will cover viticultural and winemaking techniques to minimise alcohol produced through fermentation; various technologies available to reduce and remove alcohol; some of the operational risks associated with no and low alcohol wines; and a discussion on flavours and additives that can be used to fill the alcohol gap.

There is a gap in the market for no- and low-alcohol wines that taste as good as full-strength wines, and this workshop can guide producers learn new ways to improve or create new products in these categories.

Primary convenor:

Jean Macintyre, Pernod Ricard
Winemakers

Dr Jean Macintyre is Project Manager - Wine Innovation for Pernod Ricard Winemakers, where she leads new product development of wine products and the company's R&D program. Within her current role she has also worked on developing ready to drink (RTD) products for a range of spirit brands. Prior to joining PRW, Jean worked as a Project Officer the Australian Wine Research Institute on commercial projects with a focus on oxygen in wine. Jean holds a PhD from the University of Adelaide, where her research focused on an innovative method for heat stabilisation of white wine.

W03

Date: Sunday, 26 June 2022

Time: Session 1: 08:30 - 11:00

Theme: Viticulture

Type: Seminar

Ticket Price: \$150

Conversion to organic viticulture - is it for me?

There is increasingly stringent regulatory pressure from overseas markets on the types of agrochemicals and inputs used in farming. There is also more forthright consumer pressure on companies to adopt environmentally friendly practices and be able to prove that they are doing so. The organics movement has an ethos built on reducing reliance on inputs in farming through enhancing ecological processes and biodiversity. The constraints on synthetic inputs aside, organic agriculture aims to use innovation and science to benefit the shared environment and has established accreditation systems to prove membership. In light of external pressure on the use of agrochemicals, some growers are asking themselves if they could go organic.

In this workshop participants will be exposed to:

- the logistics and requirements of getting organic certification and selling organic wines overseas
- practitioners who have gone through the process of converting to organic and are willing to share their experiences and detail how challenges including diseases, weeds and the nutritional requirements of the vineyard are managed.

Conversion to organic production is a complex process and growers considering this path will benefit from a frank explanation of what is involved and some of the challenges to be overcome. This workshop will also expose attendees to an in-depth explanation of how the challenges all growers face (disease, weeds, vine nutrition) are managed by organic growers.

Primary convenor:

Marcel Essling, The Australian Wine Research Institute

Marcel Essling is a Senior Viticulturist at The Australian Wine Research Institute. He provides viticulture and technical advice to the Australian wine sector as well as coordinating activities associated with the provision of information related to agrochemicals. He holds a BAgSc in Viticulture from The University of Adelaide and a BBus from Victoria University of Technology. Marcel is chair of the Agrochemical Reference Group, represents the AWRI on AgChem Access Priorities Forum, advises the Wine Industry Technical Advisory Committee and is a member of the Adelaide Hills Wine Technical Subcommittee.

Secondary convenor:

Liz Pitcher, The Australian Wine Research Institute

Liz Pitcher has qualifications in both Agricultural Science and Applied Science (Viticulture) and twenty years of wine industry experience. Her work experience includes various roles within small, medium and corporate wine industry businesses, incorporating grapegrowing, winemaking and research. Liz worked for five years in SA's Langhorne Creek and Adelaide Hills regions as a Grower Liaison Officer for Treasury Wine Estates and, for seven years prior to joining the AWRI, she held the role of Technical and Organic Manager at Chalk Hill Viticulture in McLaren Vale. Liz has had extensive experience implementing sustainability and organic certification systems. She has a key role in administering Sustainable Winegrowing Australia and is a director of NASAA Organic.

W04

Managing non-vine vegetation in and around the vineyard to grow resilience and deliver production benefits

Date: Sunday, 26 June 2022

Time: Session 1: 08:30 - 11:00

Theme: Viticulture

Type: Seminar

Ticket Price: \$150

There is mounting industry interest in sustainability, biodiversity and future-proofing against threats such as biosecurity incursions. This workshop will provide a series of presentations and a discussion panel to bring participants up-to-date with the latest research and industry innovations to provide some practical strategies that vineyard managers can implement. The coverage will range from cover crops (mid row and under-vine), vineyard-edge biodiversity plantings, and the effects of vegetation patterns in the wider landscape.

Attendees will leave with an understanding of recent and current research in vineyard functional diversity and with ideas on practical strategies they can begin to implement. This will include the important EcoVineyards program in South Australia. Benefits of optimally managing vegetation in and around vineyards include: chemical-free suppression of pests, weeds and diseases, reduced frost risk, reduced water use, soil biological activity enhancement, carbon sequestration, aesthetics and marketing advantages.

Primary convenor:

Geoff Gurr, Charles Sturt
University

Prof. Geoff Gurr is a member of the National Wine and Grape Industry Centre at Charles Sturt University. He trained in ecology in the UK and, since migrating to Australia 30 years ago, has been applying his ecological expertise to sustainability issues in horticulture and agriculture. Based on the Orange campus, he has been well positioned to conduct vineyard research in this booming cool climate production zone. His work in the early 2000s showed the potential for promoting beneficial insects using flowering groundcover vegetation and this has now developed into a wider research program delivering multiple ecosystem services.

Secondary convenor:

Mary Retallack, Retallack
Viticulture

Dr Mary Retallack is a third-generation viticulturist, agricultural scientist and agroecologist who brings a wide range of skills and experience from practical, research, teaching, extension and consultancy roles in the wine sector over the past 25 years. Mary holds a PhD in viticulture and plant protection and associated tertiary qualifications in Conservation and Park Management, Natural Resource Management, Education, Viticulture, Arbitration. She is recognised internationally as a Certified Practising Agriculturist. As the Managing Director of Retallack Viticulture Pty Ltd, Mary offers a broad range of agribusiness consulting services throughout Australia and is currently managing the National Landcare funded EcoVineyards project across South Australia. She is also a member of the International Organisation of Vine and Wine (OIV) Viticulture Commission, ENVIRO and PROTEC groups, AgriFutures™ Australia Rural Women's Award Alumni Advisory Panel and the Australian and New Zealand Grapegrower and Winemaker editorial panel.

W05

Date: Sunday, 26 June 2022

Time: Session 1: 08:30 - 11:00

Theme: Viticulture

Type: Seminar

Ticket Price: \$150

Autonomous tractors and non-chemical weed control

Autonomous vineyard vehicles have the potential to reduce production costs, agrochemical use, and greenhouse gas emissions (through facilitating electrification). In this workshop participants will hear from early adopters about their experiences with different styles of autonomous equipment performing vineyard tasks like slashing, canopy spraying and under-vine weed management. Both autonomy-kits for existing tractors and autonomous vehicles designed from the ground up will be discussed. Non-chemical under-vine weed control has been a focus of many early autonomous vineyard vehicles since under-vine cultivation or mowing tends to require more and slower tractor passes than using herbicide. In addition to considering autonomous vehicles, this workshop will look at non-chemical under-vine weed control more broadly and some of the options available.

This workshop will help producers in the adoption of autonomous vehicles and non-chemical options for weed control.

Primary convenor:

Simon Nordestgaard, The Australian Wine Research Institute

Simon Nordestgaard has worked in wine industry research and development for around 15 years. This has included an engineering PhD relating to grape pressing and projects on heat stabilisation, refrigeration efficiency, lees management, wine transport, ferment and level sensors, autonomous tractors, and surveying industry practices and technology adoption. He enjoys both implementing new technologies and understanding how technologies and practices have evolved.

Secondary convenor:

Robyn Dixon, The Australian Wine Research Institute

Robyn Dixon is a Senior Viticulturist at the AWRI, with more than 20 years of national and international experience in vineyard management, technical viticulture, research and extension. Since moving back to Australia from New Zealand, Robyn has been adapting her cool climate viticulture knowledge to Australian conditions, through the management of technical and extension programs across Australia.

W06

Emerging technologies to improve vineyard efficiencies

Date: Sunday, 26 June 2022

Time: Session 1: 08:30 - 11:00

Theme: Viticulture

Type: Seminar

Ticket Price: \$150

New agricultural technology offers significant opportunities to improve productivity, resilience, efficiency and grape/wine quality in Australian vineyards. This workshop will showcase research into a diverse range of technologies and innovations, some of which are ready to be applied, and others that are emerging. These include advanced sensing technologies for canopy microclimate and vine water use estimation, fruit/canopy detection for yield estimation, automated pruning, and grapevine disease surveillance using machine vision in combination with artificial intelligence. The application of geomatics will also be demonstrated in conjunction with mechanisation for implementation of precision viticulture. Finally, novel sensor technologies to enhance efficiencies in the winemaking process will be presented. The technologies presented in this workshop will enable improvements in vineyard and winery production efficiencies.

This workshop will increase industry awareness of the commercial opportunities available in AgTech/VitiTech to enhance vineyard production efficiencies and profitability.

The workshop will feature a diverse range of domestic and international speakers presenting on a diversity of AgTech topics relating to viticulture relevant to Australia.

Primary convenor:

Vinay Pagay, The University of Adelaide

Dr Vinay Pagay is a Senior Lecturer in Viticulture at The University of Adelaide. Vinay received his doctorate at Cornell University (USA) in 2014 where he worked on the development of novel tools for plant water sensing. Vinay also holds a degree in computer engineering from McGill University (Canada). His basic and applied research lie at the intersection of grapevine ecophysiology and vineyard technology. His current applied research is looking into the use of proximal and remote sensing tools to obtain high spatial and temporal resolution data of both biotic and abiotic stresses in vineyards, as well as for precision irrigation scheduling in vineyards. His basic research is focusing on elucidating the mechanisms involved in improved grapevine water use efficiency under reduced irrigation.

W07

Building a climate-resilient vineyard

Date: Sunday, 26 June 2022

Time: Session 1: 08:30 - 11:00

Theme: Viticulture

Type: Seminar

Ticket Price: \$150

Climate extremes continue to threaten Australia's vineyards, especially through warmer temperatures and less rainfall. In response, SARDI collaborates with a range of partners to develop and adapt innovative solutions to help manage these extremes. The Bureau of Meteorology has recently released a series of medium-term (from fortnight to seasonal) forecasting products that will allow grapegrowers to better manage weather and climate risk throughout the season. Earlier and more compressed harvests remain a challenge to the wine industry and we have recently completed an extensive analysis to better understand the drivers of these observations. This has supported the tailoring of phenology models to Australian conditions to allow us to more confidently predict early and late seasons well in advance. There are a range of management practices available to delay and spread harvest and we are currently evaluating some of these in inland irrigated vineyards. As low winter rainfall remains a threat to many production regions, we can provide strong advice on the most effective irrigation practices to manage poor rainfall during winter.

This workshop will support grapegrowers and winemakers to make their vineyard more resilient to climate change.

Primary convenor:

Paul Petrie, South Australian
Research and Development
Institute

Dr Paul Petrie is the Principal Scientist – Viticulture and Program Manager of the Irrigated Crops group at the South Australian Research and Development Institute. He also holds the roles of Affiliate Associate Professor at the University of Adelaide and Adjunct Associate Professor at the UNSW. Paul has extensive experience in the Australian wine industry which includes working in research and extension at The Australian Wine Research Institute and as the National Viticulturist at Treasury Wine Estates. Paul grew up helping his parents establish a vineyard in New Zealand and before moving to Australia for a role at CSIRO he completed a PhD on canopy management at Lincoln University

W08

Next generation wineries

Date: Sunday, 26 June 2022

Time: Session 1: 08:30 - 11:00

Theme: Winemaking

Type: Seminar

Ticket Price: \$150

The world is changing, and the next generation of wineries should be built for the future, not the past. This workshop brings together expert speakers on the key considerations that should drive the scope, design, construction and management of tomorrow's wineries. Efficiency of energy, water and greenhouse gas emissions are obvious priorities, but there is much more to consider. New building materials and end-of-life options are exciting, as is the technology around sensors and automation which assists with efficiency, quality and labour shortages. Similarly, thoughtful building design can improve health and safety outcomes, resilience against natural disasters and support brands through an enhanced visitor experience. The regulatory and trading environments are also changing and this has implications for winery operations, recording and reporting which should be incorporated into new builds and upgrades of existing sites. If form follows function, then it is critical to understand and define exactly what the many functions of a modern winery really are and the new ways to tackle them.

This workshop presents a high-level overview of the considerations that business managers, winemakers and engineers should be incorporating into their planning for new winery builds and upgrades of existing sites. Major works like this should ensure that wineries are fit-for-purpose for the future and do not simply replicate or replace the systems and practices of 20 years ago.

Primary convenor:

Mark O'Callaghan, Wine Network Consulting

Mark O'Callaghan is the Managing Director of Wine Network Consulting and works with many different clients across Australia and internationally. The advisory work covers a diverse range of topics from winemaking and vineyard advice to winery design and upgrades, due diligence assessments, recruitment and general business improvement. Before joining Wine Network Consulting, Mark spent many years as a winemaker with Accolade Wines at various locations around Australia, plus time in Austria and Sicily. He is on the management committee for the Royal Melbourne Wine Awards and Victorian Pinot Noir Workshop, a regular wine show judge, occasional author and lecturer and former president of Wine Yarra Valley. He is also the former committee chair for the Yarra Valley Wine Show, James Halliday Chardonnay Challenge and was a scholar at the 2007 Len Evans Tutorial.

Secondary convenor:

Ian Jeffery, Ian Jefferey Consulting

Ian Jeffery is a 76 year-old consulting engineer with 12 years' wine industry experience (nine years as Engineering Manager Orlando Wines/Pernod Ricard and three years as Principal Wine Industry Engineer, Worley consulting engineers). He has 25 years' experience in Mineral Processing/Mining/Mining Equipment Technical Services maintenance and project management and nine years' experience in sugar refinery engineering. He has been involved in four computerised maintenance management system installations, plus condition monitoring and continuous improvement projects. Ian has presented workshops on winery maintenance and winery environmental sustainability and has written 26 articles (2014-2021) for Australian & New Zealand Grapegrower and Winemaker on winery sustainability and maintenance best practices.

W09

A palette of yeast for your wine palate

Date: Sunday, 26 June 2022

Time: Session 1: 08:30 - 11:00

Theme: Winemaking

Type: Tasting

Ticket Price: \$190

The palette of yeast that winemakers can now use to create their wines has increased in diversity and depth in recent years. Researchers have taken different paths to put this extended palette in the hands of winemakers. These paths include isolation and domestication of environmental yeast isolates; yeast breeding; and working directly with the environmental yeasts in the form of spontaneous fermentations. This workshop will showcase the role of non-conventional yeasts in their many different forms and their contributions to winemaking.

We will provide a brief history of contemporary winemaking yeasts, describing their origins and why they have made it into the winemaker toolbox. Workshop participants will have the opportunity to experience wines made with *Hanseniaspora*, *Torulaspora* and *Lachancea* species. *Hanseniaspora* and *Torulaspora* have the potential to alter wine aroma profiles. The key area of oenological interest for *Lachancea thermotolerans* is its ability to produce L-lactic acid from grape sugars; thereby bringing a natural acidification. This acidification has relevance to the wider wine industry in terms of reducing reliance on added tartaric acid, thereby helping to balance wines from warmer climates. Hybrids of *Saccharomyces cerevisiae* with other *Saccharomyces* yeast will also be presented and their technical features discussed. Finally, we will explore how SO₂ addition can shape the microbial ecology of spontaneous ferments, with implications for the finished wine demonstrated through tastings. Tasting notes will be recorded digitally and discussions about the wines will be facilitated through real-time summaries of participant responses.

This workshop will give winemakers a nuanced understanding of how different yeasts can be used in their winemaking, how they differ in their technical properties, and their geographical and oenological origins. Participants will gain insight into how yeast can be used to reduce tartaric acid dependence while decreasing the usage of sulfites and how SO₂ management can shape the microbial ecology of their ferments. They will get to taste and smell wines made with these different approaches. Participants will also gain exposure to rapid sensory methods that they might use when they are assessing their wines.

Primary convenor:

Simon Schmidt, The Australian
Wine Research Institute

Dr Simon Schmidt is a Research Manager at the Australian Wine Research Institute (AWRI). His research interests include understanding the relationship between nutrient availability and yeast fermentation performance, yeast and bacterial stress tolerance and the role of oxygen in shaping fermentation outcomes.

Secondary convenor:

Amanda Tanga, Chr. Hansen

With more than 15 years working in the world of sales for yeasts and cultures for winemaking, Amanda Tanga has a wealth of knowledge of the industry and is highly regarded amongst her peers.

W10

Date: Sunday, 26 June 2022

Time: Session 1: 08:30 - 11:00

Theme: Winemaking

Type: Tasting

Ticket Price: \$190

Predict and prevent – improving wine cold stabilisation across the value chain

Cold stabilisation is a critical step in wine processing, as the formation of tartrate crystals in packaged wine can be perceived by consumers as a wine fault. Traditional cold stabilisation represents one of the most expensive components of the winemaking process, due to the energy use and time required for cooling, as well as potential wine volume loss. There are various ways that producers can improve the management of cold instability, to better predict if it will arise, and to better prevent it from happening. This workshop will draw together researchers and industry specialists working to improve the understanding and management of cold stability across the value chain. We will start with the vineyard, looking at the drivers of grape composition that can lead to problematic wines. From there, we will look at the tools at the winemaker's disposal to better predict if a wine will become cold unstable. This will be followed by updates on existing and novel technologies to better prevent cold instability.

Traditional cold stabilisation is a very energy-inefficient and costly process which requires cooling large volumes of wine to low temperature for a substantial period of time. This workshop will support wine producers to reassess how to achieve cold stabilisation within the production chain, highlighting that certain viticultural practices or cultivars may lead to grape compositional changes that can exacerbate cold instability downstream in processing. New knowledge on the compositional drivers of cold instability in wine will be presented, with insights given on the points in production where stability testing is critical. Pitfalls of cold stability testing methodology will also be discussed, showing how their application and implementation can be improved. Attendees will also be provided with the opportunity to assess the potential benefits or risks of adopting alternative technologies to traditional cold stabilisation. Lastly, the audience will hear of some exciting new innovations in the pipeline.

Primary convenor:

Keren Bindon, The Australian Wine Research Institute

Dr Keren Bindon is a Research Manager at the Australian Wine Research Institute (AWRI). She has been involved in research across a range of topics over the course of her career, to understand the value chain from the vineyard all the way through to the consumer. In her role at the AWRI, she leads a research team with a focus on wine macromolecules, and how these affect cold, heat and colour instabilities. The long-term aim of this research is to develop new approaches to better manage wine instabilities, and improve the efficiency of production.

Secondary convenor:

Christopher Ford, The University of Adelaide

Chris has a DPhil. in microbial biochemistry from the University of Sussex (UK). He has worked in the University of Adelaide for over 30 years, and is currently an Associate Professor within the School of Agriculture, Food and Wine. He has been conducting research into grapes and wine since 1995, and has had a strong focus on improving the understanding of organic acid metabolism in plants. His work has aimed to unravel the mechanisms by which developing grape berries metabolise ascorbic, tartaric and malic acids. His presentation will focus on the viticultural factors that influence grape organic acid composition, and how this can lead to problematic wines

W11

Optimising and understanding filtration

Date: Sunday, 26 June 2022

Time: Session 2: 12:30 - 15:00

Theme: Engineering/Packaging

Type: Tasting

Ticket Price: \$190

Winemakers often use a combination of experience and guesswork when approaching wine filtration. Cross-flow systems have largely simplified this, as they only offer single pass filtration. Use of sterile (membrane) filtration continues to increase. Changes in membrane composition and the use of wine additives warrant an examination of how best to improve filtration outcomes in terms of cost effectiveness, process efficiency and wine quality.

This workshop will commence with a brief overview of filtration techniques, including cross-flow, depth and membrane filtration, and their relative impacts on wine physical and sensory characteristics. The latest in automated filtration system design will be presented, in addition to some case studies to demonstrate the extreme utility of this approach to packaging. A series of tasting samples will be provided to illustrate the sensory and physical impacts of filtration. A discussion platform will be used to assess the differences (if observable) between different filtration treatments.

Wine filterability has been widely discussed over the last decade, yet there is no current Australian standard for measuring the filterability index (FI) of wine. Australian and New Zealand FI methods will be presented and critiqued. Measurement equipment will also be discussed and a demonstration of wine FI measurement provided. The correct interpretation of analyses will be discussed and caveats indicated. The use of FI analyses to monitor cross-flow filtration equipment performance will be presented, with case studies discussed.

Wine filtration is an ever-changing process since both the methods and substrates vary and industry understanding is, in general, less than optimal. This workshop will help winemakers and beverage packaging facilities make informed process decisions to improve cost effectiveness, efficiency and product quality.

Filterability analysis has gained broad acceptance now, yet the interpretation and best use of the technique is often poor. Different filterability analysis methods are used between Australia and New Zealand, and understanding of the pros and cons of both is needed.

Filterability analysis can also be used to monitor cross-flow equipment performance, and this will be presented and discussed. Experiences from both medium and large packaging facilities will be presented.

Attendees will also gain some insight into the latest in automation of packaging filtration.

Primary convenor:

Paul Bowyer, Blue H2O
Filtration

Dr Paul Bowyer completed a double major in chemistry (Hons 1) and PhD at UNSW, having spent time at the University of Cambridge after obtaining one of five Australian Young Endeavour Science Awards in 1992. Three years of research followed at ANU and the Universität Basel (Switzerland). On returning to Australia in 1999, Dr Bowyer commenced teaching wine chemistry and sensory analysis at Charles Sturt University, and received a teaching excellence award. A move to the University of Adelaide in 2003 saw the expansion of the sensory analysis role to cover oenology, viticulture and wine marketing degree programs. In 2006 Dr Bowyer joined the commercial sector with Laffort as the Australasian Technical Manager. In 2011 Dr Bowyer joined Blue H2O Filtration (BHF) as the Group Oenologist, extending his knowledge base to encompass water and wine filtration. He has

been very active in the promotion of wine filterability analysis to the Australian and New Zealand wine industries.

Secondary convenor:

Greg Edwards, Vinpac
International

*In 1989 after a stint in the bottling laboratory at the Penfolds/Kaiser Stuhl facility in Nuriootpa, Greg completed a Bachelor of Applied Science in Chemical Technology (Hons) in 1993, commencing with Yalumba as their Technical Support Chemist. Later in his career at Yalumba Greg added the responsibility of leading the laboratory team to his role. Greg was a co-author with Patrick Iland, of the book *Chemical analysis of grapes and wine: techniques and concepts*. After 17 years at Yalumba, in 2011 Greg moved to Vinpac International as their Laboratory Manager. In 2014 he was promoted to Group Technical Manager, with responsibility for laboratory activities across the company's sites and the wine services team based at Vinpac, Angaston. Greg is a current member of Australian Grape & Wine's Wine Industry Technical Advisory Committee, a Chartered Member of the Royal Australian Chemical Institute (MRACI CChem) and a member of the ASVO.*

W12

Date: Sunday, 26 June 2022

Time: Session 2: 12:30 - 15:00

Theme: Viticulture

Type: Tasting

Ticket Price: \$190

So hot right now! Adapting to climate change with sustainable, emerging grape varieties and wine styles

This workshop will provide the wine industry with knowledge about the chemical composition and sensory profiles of Australian wines produced from emerging varieties. It will also serve as an education tool for grapegrowers, winemakers and wine brands that are open to engage with these varieties by facilitating interaction with grapegrowers, winemakers and viticulture and wine researchers who have many vintages of experience with these varieties and selling the wines. It will also showcase current Australian viticulture, wine and wine consumer research which reveal the drivers of consumer liking of emerging varieties. These findings indicate the strong potential of these new wines in the current Australian market, the likelihood that they may act as suitable substitutes or alternatives for mainstream wines, and the possibility that increasing future cultivation of these varieties as a response to climate change might lead to a more sustainable wine industry in the future. This information may be exploited by industry to undertake vineyard and winemaking management techniques in order to create uniquely Australian wine styles, differentiating them in an already crowded wine market, while still being suitable for specific wine consumer target market taste and ethical requirements.

Australia's wine regions are experiencing hotter, drier conditions and more extreme weather incidents due to global warming. Temperature increases negatively impact grapevine growth, development and fruit quality. Many Australian mainstream wine-grape varieties do not suit cultivation in this climate, demanding greater inputs, threatening the industry's sustainability. Adoption of emerging varieties which display greater adaptivity towards warmer climates, could help the Australian wine industry endure the climate change challenge. Additionally, consumers are more informed and believe they have the right to high-quality wines grown within safe and sustainable environments. However, will consumers like and purchase wines made from non-traditional varieties? If not, this could present an obstacle to the implementation of this strategy. This workshop will present current findings regarding the vine performance of non-mainstream varieties and the chemical composition and sensory profiles of Australian wines made from selected white and red wine grape varieties not traditionally grown in Australia, but anecdotally better suited for a changing Australian climate. Furthermore, it will disclose the characteristics of the Australian wine consumers who like these wines and the drivers of their liking. Attendees will participate in comparative discussions and tastings of wine examples made from these emerging Australian white and red grape varieties with researchers and producers.

The combined breadth and depth of experience and knowledge of the workshop presenters, along with their passion and enthusiasm for embracing exciting new grape varieties in Australia, will make this a wine tasting workshop to remember.

Primary convenor:

Sue Bastian, The University of
Adelaide

Dr Sue Bastian is Associate Professor in the Department of Wine Science, University of Adelaide and an internationally recognised wine, sensory and consumer scientist. She leads a group undertaking innovative research along the grape-wine value chain, recently examining: terroir of Australian Shiraz; vegetable-protein fining agents; novel polyphenol-extraction; hybrid/non-Saccharomyces yeast; emerging grape varieties; wine-food interactions and mouthfeel for no/low alcohol beer and wine. She has 114 peer-reviewed publications and 20 years' oenology tertiary teaching experience in Australia, France, China and New Zealand. She has supervised 64 PhD, Masters and Honours students, is an editorial board member for the OenoOne journal; Associate Editor for International Viticulture and Enology Society Technical Reviews; 2019 Keynote, 70th American Society for Enology and Viticulture National Conference (California) and Australian Institute of Food Science and Technology Convention (Sydney); organising committee member and Chair 13th International Terroir Congress 2020 and a mentor for the national Wine Industry Mentor Program, 2021.

Secondary convenor:

Steve Flamsteed, Wine Network
Consulting

Steve completed a chef's apprenticeship in the 1980s and developed numerous culinary passions, including cheese making, which took him to France. But it was after working at Château du Bluizard that he was inspired to become a qualified winemaker.

Steve graduated with a Bachelor of Science (Wine Science) from Roseworthy Agricultural College, won a Queen's Trust Scholarship to study farmhouse cheese making in France and then worked as cheesemaker at Milawa, Victoria.

As a winemaker, Steve worked for Leeuwin Estate (Margaret River) and Yarra Burn Winery (Yarra Valley) before joining Giant Steps in 2003. Steve is a Len Evans Scholar, has completed several vintages overseas, in Alsace, Provence and Brouilly, and is an experienced wine show judge. Steve joined the Wine Network Consulting team in 2021.

In 2016, Steve was awarded the Australian Gourmet Traveller Magazine Winemaker of the Year and in 2019 he was announced as Wine Communicators' Victorian Legend of the Vine.

W14

Improving vineyard water use efficiency

Date: Sunday, 26 June 2022

Time: Session 2: 12:30 - 15:00

Theme: Viticulture

Type: Seminar

Ticket Price: \$150

Irrigation is an increasing cost for wine-grape growers, and in conjunction with poor irrigation practices, can threaten the financial viability of the Australian wine industry. Wine-grape growers continue to make significant productivity improvements, although there is constant pressure to identify further improvements in water use efficiency.

Many vineyard irrigation systems perform at a sub-optimal level, with a critical problem being the wide variability in flow rate from individual drippers within an irrigation valve unit. This reduces the efficiency of irrigation systems and results in more water being required to maintain productivity than would be the case if the irrigation system performance were in line with accepted standards.

The research presented in this workshop will provide participants with a good understanding of the impacts of poor irrigation system distribution uniformity on vine growth and productivity and practical and innovative solutions to monitoring irrigation performance. In addition, practitioners will provide examples of how new technology is being used in Australian vineyards to monitor irrigation performance and schedule irrigation. New online tools to assist growers with developing a water budget and assessing drip irrigation performance will also be presented.

Addressing variability in irrigation distribution uniformity by adopting best-practice irrigation system monitoring, maintenance and replacing old, inefficient and/or poorly functioning irrigation systems represents a significant opportunity for growers to improve irrigation water use efficiency.

Using new technology to schedule irrigation applications to suit the vineyard targets, the conditions of the season and vine water requirements will also help growers increase water use efficiency.

Developing an accurate water budget and reviewing the water budget annually will help growers to plan their water use for the season. Regularly comparing the budgeted water use with the actual water use throughout the season will help growers make decisions about whether their current water management plan is appropriate or whether more or less water is required.

Primary convenor:

Robyn Dixon, The Australian
Wine Research Institute

Robyn Dixon is a Senior Viticulturist at the AWRI, with more than 20 years of national and international experience in vineyard management, technical viticulture, research and extension. Since moving back to Australia from New Zealand, Robyn has been adapting her cool climate viticulture knowledge to Australian conditions, through the management of technical and extension programs across Australia.

W15

Date: Sunday, 26 June 2022

Time: Session 2: 12:30 - 15:00

Theme: Viticulture

Type: Seminar

Ticket Price: \$150

Under-vine floor management: methods and the latest findings

Minimal inputs, high yield and excellent fruit quality can all be achieved in vineyards if you let the soil do the work for you. Under-vine floor management is of increasing interest in Australia, especially with the reality of stricter herbicide regulation and increasing fuel and labour costs.

Under-vine cover crops offer an effective and sustainable solution to these modern problems. The panel assembled brings together researchers and experts from around Australia to provide practical information on establishing ground covers and species selection, as well as the latest in vineyard floor research.

Interest in under-vine weed management, and more specifically cover cropping, is increasing rapidly in the grapegrowing community. The latest research needs to get into the hands of practitioners to inform decision-making. By inviting the most experienced growers, and bundling research with practical methods for implementation, this workshop will get key information to those that need it.

Growing soil carbon in the vineyard has been a hot topic in recent months. This workshop will provide growers with the latest information on how to improve soil carbon, while maintaining production.

Primary convenor:

Thomas Lines, The University of Adelaide

Dr Thomas Lines has worked in the combined fields of viticulture and soil science for the past three years, exploring the influences of under-vine cover cropping on soils and grapevine physiology in the Barossa Valley, Langhorne Creek, Padthaway and Riverland regions.

Tom works closely with Prof. Tim Cavagnaro who has decades of experience in soil ecology and heads a research group at The University of Adelaide.

This workshop will be all about how to best manage ground covers in the vineyard, and what to expect when you take the leap.

W16

Date: Sunday, 26 June 2022

Time: Session 2: 12:30 - 15:00

Theme: Viticulture

Type: Seminar

Ticket Price: \$150

Fungicide resistance in Australian viticulture

Botrytis bunch rot (*Botrytis cinerea*), powdery mildew (*Erysiphe necator*) and downy mildew (*Plasmopara viticola*) cause significant economic impact in vineyards and management of these diseases can be compromised by resistance to fungicides. Laboratory and field resistance to key fungicides has been detected in all three pathogens in many Australian viticultural regions. Early detection of resistance is critical for effective management of this problem. Laboratory-based phenotype and genotype diagnostic techniques have been developed to determine resistance. The results are being used to progress to real-time, in-field detection of resistance for several fungicide groups with known resistance mechanisms. This workshop will provide an update on the sensitivity status of existing and new fungicides across viticultural regions, the optimisation of in-field sampling methods and the genomics of fungicide resistance. The newly developed in-field testing method for fungicide resistance will be demonstrated. In addition, there will be viticultural and agrochemical industry perspectives and an update on the status of fungicide resistance in table grapes.

The workshop will provide industry with the latest knowledge from research on fungicide resistance in Australian viticulture. Participants will gain an improved understanding of the current status of resistance, with some insight into the threat to production posed by different diseases in different regions. There will also be a demonstration of new in-field technology being developed to rapidly test for fungicide resistance.

Primary convenor:

Mark Sosnowski, South Australian
Research and Development
Institute

Dr Mark Sosnowski leads the Horticulture Pathology sub-program at the South Australian Research and Development Institute and is an Affiliate Senior Lecturer at the University of Adelaide (UA). He graduated with a Bachelor's degree in Agricultural Science from UA and went on to complete a PhD in 2002, studying the epidemiology and management of blackleg disease of canola. Over the past 20 years, Dr Sosnowski has been responsible for research managing grapevine trunk diseases in both Australia and New Zealand, with collaboration in North America and Europe. He has also managed biosecurity research focusing on impact management of exotic grapevine pathogens in collaboration with Cornell University, USA. More recently, he has taken over leadership of fungicide resistance management research in Australia. Dr Sosnowski draws from his extensive research experience and industry collaboration to deliver practical strategies for effective management of grapevine diseases.

W17

Date: Sunday, 26 June 2022

Time: Session 2: 12:30 - 15:00

Theme: Winemaking

Type: Tasting

Ticket Price: \$190

Modulating 'flint' and 'tropical' aromas and controlling 'reductive' aromas in premium Australian wines

There is an increasing demand for premium wines with distinctive styles and varietal aromas. At the same time it is important for winemakers to eliminate sulfur-related off-aromas. The aroma compounds that are important for Sauvignon Blanc and Chardonnay contribute to the wines' overall freshness and fruit characters, as well as the 'flint' notes characteristic of some premium wine styles. This workshop will explore viticultural practices that can be used to increase 'tropical' aromas in wine and the latest understanding on modulating 'flint' aroma and how it relates to consumer response in white wines. Considering that certain viticultural and winemaking practices aimed at enhancing so-called premium characters in wine may result in the accumulation of unwanted 'reductive' aromas, the workshop will also explore best practices for using copper to protect against 'reductive' off-odour formation and methods that can be used for the targeted removal of copper after copper fining. Case studies will be accompanied by interactive tastings demonstrating the effects of viticultural processes on 'tropical' aromas, Chardonnay wines displaying 'struck match'/'flinty' aroma, as well as samples showing the influence of copper fractions on unwanted 'reductive' odours.

This workshop will provide winemakers with the latest understanding on modulating aroma compounds associated with certain characters sought-after in premium wine styles, as well as improved knowledge for using copper fining in wine.

Primary convenor:

Marlize Bekker, The Australian
Wine Research Institute

Dr Marlize Bekker is a Senior Research Scientist at the Australian Wine Research Institute. She completed her PhD at Stellenbosch University (South Africa) focused on natural product chemistry. She joined the AWRI in 2011 and now leads a team of scientists whose research is focused on unravelling the factors that negatively affect wine aroma and flavour. Her group aims to provide tangible advice to industry on how to prevent the formation of undesirable 'reductive' aromas and to develop novel remediation tools that can be commercialised and made available to industry.

Secondary convenor:

Andrew Clark, School of
Agricultural, Environmental and
Veterinary Sciences Charles Sturt
University

Dr Andrew Clark is a Senior Lecturer at Charles Sturt University (Wagga Wagga). He completed his undergraduate and PhD studies at The University of Melbourne, with the latter focusing on analytical chemistry applied to oxidation-induced wine spoilage processes. He commenced his position at Charles Sturt University in 2001. His research interests include general wine oxidation/reduction chemistry, compositional measures of wine, metal speciation/fractionation techniques and their application to predict the metal-induced spoilage of wine, the impact of light on wine and the use of ascorbic acid in wine.

W18

Moving analysis from the lab to the tank

Date: Sunday, 26 June 2022

Time: Session 2: 12:30 - 15:00

Theme: Winemaking

Type: Seminar

Ticket Price: \$150

The instrumentation on most winery tanks is still quite basic - typically just a temperature probe, even in large wineries. Level is measured manually with a dip tape, and ferment density is measured in the lab using a tank sample. Better tank instrumentation could reduce labour requirements, improve product quality and consistency, and enhance real-time oversight and control of operations. Adoption of tank instrumentation in wineries has historically been low because of the cost of fitting out large numbers of tanks and uncertainties about what technologies should be used. However, there has been renewed interest in recent years from some wineries and suppliers because of the potential benefits, decreasing cost of sensors, and labour shortages. This workshop will present results from large-scale trials and installations of a range of tank sensors by researchers and wineries. It will discuss practicalities including installation of sensors in red fermenters with skins, and how data can be used to optimise process performance. The workshop will also feature a presentation on optimising the number of lab analyses conducted through process-driven analysis.

This workshop will help wineries make the right tank technology choices, ultimately allowing them to make better wine at a lower cost.

Primary convenor:

Simon Nordestgaard, The
Australian Wine Research
Institute

Dr Simon Nordestgaard has worked in wine industry research and development for around 15 years. This has included an engineering PhD relating to grape pressing and projects on heat stabilisation, refrigeration efficiency, lees management, wine transport, ferment and level sensors, autonomous tractors, and surveying industry practices and technology adoption. He enjoys both implementing new technologies and understanding how technologies and practices have evolved

W19

Date: Sunday, 26 June 2022

Time: Session 2: 12:30 - 15:00

Theme: Winemaking

Type: Tasting

Ticket Price: \$190

Fermentation 101: getting back to basics on fermentation management

How do I crush my grapes to get accurate Baume data? When should I add my nutrients? My sugar is high, should I add water? Can I directly inoculate my yeast? Wine yeast makes how much SO₂? What options do I have for the inoculation of MLF? We will examine all these topics and more in this back-to-basics workshop covering technical aspects of fermentation management. This interactive workshop will draw on the latest data from laboratory work, published studies, industry trials and commercial experience to refresh our understanding of options for fermentation management.

There will be a detailed comparison of inoculation techniques of yeast to wine musts, the yeast viability achieved and the savings that some new approaches present for wineries. We will review the theoretical concepts around yeast nutrition and how these can be used to manage fermentation. Technical properties of yeast will be discussed with a particular focus on SO₂ management. Finally, we will investigate different options for malolactic fermentation.

Workshop attendees will have the opportunity to taste wines that exemplify the outcomes of various management practices. While the workshop cannot be hands-on, we intend to get into the weeds. Our aim with these presentations and wine tastings is to stimulate an open discussion among participants so that we can all learn from each other. As a result of attending this workshop, participants will have more confidence in their winemaking decisions and be aware of the range of fermentation management options that can help them meet their objectives.

This dedicated workshop on fermentation management will be a comprehensive starting point for those newer to winemaking and will provide updates on the latest technologies for those with experience. We aim to have plenty of space for discussion to enable those with more experience to share their strategies with other participants. We hope that this workshop will serve as a template for future dedicated seminars or short courses on fermentation management. Our aim is that winemakers will have more confidence in their winemaking decisions and that those decisions will be based on a solid grounding in the extensive amount of information available on this topic.

Primary convenor:

Simon Schmidt, The Australian
Wine Research Institute

Dr Simon Schmidt is a Research Manager at the Australian Wine Research Institute (AWRI). His research interests include understanding the relationship between nutrient availability and yeast fermentation performance, yeast and bacterial stress tolerance and the role of oxygen in shaping fermentation outcomes.

Secondary convenor:

Joseph Pitt, Fermentis

Joseph Pitt leads the Technical Sales Support team for Fermentis in Asia Pacific, a team of eight fermentation experts in the region. Joseph has worked in the last 16 years for Lesaffre Group in functions of product manager and team leader of technical sales to support beverage producers using Fermentis yeast. Previously he also worked as project manager for five years at Givaudan and Nestle's flavour division on savoury flavour application development at their headquarters in Switzerland. Joseph holds a diploma in Fruit Production from Ecole d'Ingénieurs en Arboriculture Viticulture et Œnologie Changins, Switzerland and

a degree in Horticultural Science from Massey University, New Zealand, where he earned the Almer Baker Scholarship to Wye College, University of London, UK.

W20

Date: Sunday, 26 June 2022

Time: Session 2: 12:30 - 15:00

Theme: Winemaking

Type: Tasting

Ticket Price: \$190

Primary convenor:

Neil Scrimgeour, The Australian
Wine Research Institute

Secondary convenor:

Kieran Hirlam, The Australian
Wine Research Institute

Achieving success with canned wine products

Canned wine is the fastest growing segment in global wine consumption, due to perceived value for money, attractiveness of packaging, convenience, sustainability and millennial appeal. Unfortunately, many wines packaged in cans are susceptible to the formation of 'reductive' characters after packaging, leading to increased risk of damaging consumer expectations and brand integrity.

This workshop will provide practical information on how to best prepare and package wine products in this format and how to maximise the shelf-life of canned wine products. This will include detailed information on the factors affecting the internal corrosion in canned wines and viable wine mitigation strategies that can be employed to combat these challenges. The workshop will also include detailed performance data from various international benchmarking studies.

This workshop will support wine producers and suppliers in developing commercial canned wine products and address some of the key considerations for optimal product shelf-life.

Neil Scrimgeour is Business Development Manager with AWRI Commercial Services. He has extensive experience in the design and management of technical performance trials for new product and packaging types and leads a team who specialise in tailored consulting and technical support services for a range of foods and beverages. Neil provides scientific insight, technical guidance and management of practical outcomes for new product development, both in the wine industry and in his previous roles in the pharmaceutical industry. Neil has spent the last 10 years working closely with packaging suppliers and wine producers on a broad range of process, product and packaging technology projects. This has included facilitating large-scale consortium trials to assess the performance of different wine closures, developing and testing innovative packaging solutions and management of shelf-life performance trials for new products.

Kieran Hirlam is Project Team Manager for AWRI Commercial Services. Kieran has worked on numerous projects looking at best-practice wine packaging and product development. He is also heavily involved in evaluating the carbon emissions associated with wine products and packaging and has conducted extensive application-based research on winery waste optimisation and opportunities to transform waste into higher valued products.

W21

Date: Sunday, 26 June 2022

Time: Session 3: 16:30 - 19:00

Theme: Sensory/Consumer

Type: Tasting

Ticket Price: \$190

Understanding Australian terroir: Shiraz expression across a range of scales

Terroir, 'a sense of place', is said to be captured in each bottle of the world's finest wine. Despite being instrumental in selling a wine's story and commanding a price premium; terroir remains an enigmatic concept. In Australia, Shiraz predominates, comprising nearly 30 per cent of Australia's planted vineyard area, 40 per cent of Australia's wine exports and some of the oldest Shiraz vines in the world. While management techniques influence its vineyard performance, there is distinct variation in Shiraz wine style between and within Australian wine regions. Australia has unique combinations of climate, topography and soil properties, important factors that contribute to wine differences from different areas. This workshop will present findings from Wine Australia-funded projects that aimed to understand how these environmental influences translate into physiological changes in grapevines that result in altered berry composition and in turn, transform the expression of terroir in wines. Speakers will describe how Shiraz terroir has been classified across a number of wine regions in Australia and at a range of scales in the Barossa using key indices of climate, soils, vine performance, grape and wine chemistry, and sensory description, all integrated using chemometric data analysis. Participants will have the opportunity to taste a selection of wines that highlight findings and the expression of Shiraz terroir from different regions and at different scales. Grapegrowers, winemakers and wine brands can use this information to maximise the expression of terroir in wine to help secure a sustainable future for the Australian wine industry.

Participants will gain a better understanding of wine provenance, and novel approaches to measures of quality that can be applied to other wine-growing regions. The findings presented provide a platform for a re-assessment of the international perception of Australian wines. They will also contribute to increased competitiveness of the Australian wine industry by assisting in the consistent production of a high quality product, minimising costs and raising awareness of the importance of terroir for vineyard and wine brand profitability. Grapegrowers, winemakers and wine brands can use this information to maximise the expression of terroir in wine to help secure a sustainable future for the Australian wine sector.

Primary convenor:

Cassandra Collins, The University
Of Adelaide

Associate Professor Cassandra Collins is a lecturer in Viticulture and Program Co-ordinator for the Bachelor of Viticulture and Oenology at the University of Adelaide. After completing a Bachelor of Agriculture Science and a PhD in Horticulture Cassandra left the University of Adelaide to gain experience in the wine industry as a cellar hand, assistant winemaker and viticulturist in both small and large enterprises. However, a love of plants and a passion for research and teaching led her back to the Waite Campus to undertake postdoctoral research fellow positions at the South Australian Research and Development Institute and the University of Adelaide before her appointment as a lecturer in 2007. Cassandra's research to date has focused on assessing different management systems, early yield prediction and developing innovative techniques for vineyard management and adoption by the wine industry. She was the Convenor and Chair of the 13th International Terroir Congress in 2020.

W22

Date: Sunday, 26 June 2022

Time: Session 3: 16:30 - 19:00

Theme: Viticulture

Type: Tasting

Ticket Price: \$190

Studying Cabernet Sauvignon: from rootstock to region

Originating in Bordeaux, Cabernet Sauvignon is a globally important variety and Australia's third most crushed wine grape. Different Cabernet Sauvignon wine styles exist as a result of viticulture, winemaking and regional diversity, although not all aspects are thoroughly understood. Acknowledging the important status of Cabernet Sauvignon within the Australian industry, various research studies have been conducted in recent years, spanning aspects from vineyard to consumer. This workshop will cover a broad range of investigations, with presentations considering the relationship between wine composition and sensory profiles that differentiate Cabernet Sauvignon wines from diverse regions, the influence of grape heterogeneity and how this can be defined and managed, effects of the sugar:flavour nexus throughout berry maturation, the relevance of rootstocks, ripening effects, and irrigation strategies aimed at maximising water use efficiency. Wines arising from a number of these studies will be tasted as part of this research showcase.

This workshop will provide the wine industry with updated knowledge on Cabernet Sauvignon arising from a broad range of research projects, with a focus on agronomic and compositional factors of relevance to Cabernet Sauvignon grape and wine production.

This workshop involves cross-institutional, multidisciplinary research funded by Wine Australia and the Australian Research Council.

Primary convenor:

Dimitra Capone, ARC Training Centre for Innovative Wine Production, The University of Adelaide

Dr Dimitra Capone is an ARC Research Associate with The University of Adelaide's ARC Training Centre for Innovative Wine Production. She has more than 26 years of experience in the area of aroma and flavour chemistry and has co-authored more than 80 peer-reviewed publications as well as a variety of technical articles and book chapters. Dimitra has extensive experience in both targeted and untargeted methods for the analysis of volatile compounds and their precursors in grape and wine samples. Her research involves some of the most analytically challenging compounds, such as potent thiols associated with 'citrus', 'grapefruit', 'smoke' and 'roasted coffee' aromas in certain wine styles, along with identification of compounds responsible for 'plastic-like' taints and others important to 'green' aroma in red wine. Continuing with her passion for wine chemistry, Dimitra is characterising the distinctive flavours of Cabernet Sauvignon wine in order to enhance the expression of desirable wine aroma and flavour in Australia's unique wine regions.

Secondary convenor:

David Jeffery, The University of Adelaide

Dr David Jeffery is an Associate Professor in Wine Science at the University of Adelaide. David is involved in the isolation, identification, synthesis and analysis of molecules from nature and is particularly keen to develop fundamental chemical knowledge and techniques that can be directed toward understanding intricate natural phenomena. This primarily relates to the analysis of grape and wine components and investigation of factors affecting aroma, flavour and phenolic compounds that are important to grape and wine quality. Ongoing work revolves around varietal thiols and precursors, and recent projects have included pre-fermentation water addition, authentication, and characterising regional sensory characters of wine. David is an author of the book Understanding Wine Chemistry, which acts as an accessible reference text for university students and industry practitioners alike. He teaches

topics related to wine stabilisation and clarification, distillation and spirit production, red wine polyphenols and wine analysis.

W23

Lifting the veil on soil carbon

Date: Sunday, 26 June 2022

Time: Session 3: 16:30 - 19:00

Theme: Viticulture

Type: Seminar

Ticket Price: \$150

Carbon sequestration in soil has been widely promoted as a means of offsetting a substantial fraction of the world's greenhouse gas emissions. This workshop will provide participants with information about the Emissions Reduction Fund (ERF) in Australia, the soil carbon sequestration potential of vineyards and opportunities for grapegrowers to participate in the carbon market. Other benefits of improving soil health, other than increasing soil carbon, will also be discussed (e.g. improvements to soil structure, water infiltration and water holding capacity, microbial activity, nutrient cycling, etc.).

This workshop will highlight opportunities and limitations to grape growers participating in carbon markets, and provide compelling reasons and practical solutions for improving soil health other than carbon sequestration.

Primary convenor:

Robyn Dixon, The Australian
Wine Research Institute

Robyn Dixon is a Senior Viticulturist at the AWRI, with more than 20 years of national and international experience in vineyard management, technical viticulture, research and extension. Since moving back to Australia from New Zealand, Robyn has been adapting her cool climate viticulture knowledge to Australian conditions, through the management of technical and extension programs across Australia.

W24

Date: Sunday, 26 June 2022

Time: Session 3: 16:30 - 19:00

Theme: Viticulture

Type: Tasting

Ticket Price: \$190

Trialling rootstocks for MV6 Pinot Noir from vine to wine while considering phylloxera resistance, tolerance and susceptibility

Phylloxera infestation is a critical risk faced by the Australian wine industry, and phylloxera-resistant and tolerant rootstocks provide a viable solution. With grafted rootstock generally recommended for all new plantings, it is imperative that rootstocks are continually evaluated for varietal, site and wine suitability. A trial in the Mornington Peninsula is comparing the influence of 14 different types of rootstocks on the physiological performance of MV6 clone Pinot Noir scion. Rootstocks traditionally used in the industry have been chosen along with newly permitted Merbein rootstocks as well as yet to be released CSIRO trial rootstocks. Field research data from the 2018-19, 2019-20 and 2020-21 vintages showed clear differences in the timing of flowering, canopy size and plant nutrients among studied rootstocks. As the trial has progressed, wines have been made and evaluations are continuing on the correlation between vine and wine expression. The project is ongoing with the intention of benefiting the Australian wine industry in its informed choice of rootstock, most particularly for cool climate Pinot Noir. This workshop will explain the research, show data, discuss rootstock resultant physiological and phylloxera resistance differences and compare the wines from vintage 2021 with an informed tasting.

Participants will gain an understanding of differences in new and established rootstocks for Pinot Noir, their impact on viticulture and the resultant characteristics in wine. General traits in relation to environment and phylloxera resistance will be explored, along with vine expression and management.

Primary convenor:

Tyson Lewis, Peninsula Vinecare and Mornington Peninsula Wine Technical Chair

Tyson Lewis began his career in vineyards in 1989 whilst travelling through Western Australia and working a season at Mosswood in Margret River. Coming home he worked in several vineyards and wineries on the Mornington Peninsula throughout the 1990's. From there Tyson worked at home on the Mornington Peninsula and as far away as McLaren Vale, The Hunter Valley, Margaret River and two vintages in France. In this time he completed an Applied Science degree in Viticulture at Charles Sturt University Wagga Wagga. After 14 years working for Red Hill Estate and then Cheviot Bridge as National Viticulturist and Red Hill Estate GM and bringing up a family in Red Hill, Tyson branched out into his own vineyard management business before joining forces with another management group as Peninsula

Vinecare in 2014. Tyson currently chairs the Mornington Peninsula wine technical committee and is a viticulture committee member for Australian Grape & Wine.

Secondary convenor:

Nick Dry, Foundation Viticulture

Nick Dry graduated with a Bachelor of Agricultural Science (Viticultural Science) from the University of Adelaide in December 2000. He was first employed by the Orlando Wyndham Group as a viticulturist and in 2004 he was appointed to the newly created position of Rootstock Project Manager with the Phylloxera Board of South Australia. While with the Phylloxera Board he wrote Grapevine Rootstocks: selection and management for South Australian vineyards. Nick then worked for 11 years managing Yalumba Nursery during which time developed an extensive knowledge of variety, clone and rootstock performance, along with an intimate understanding of grapevine trunk disease, grapevine virus and nursery practices. In September 2019 he was awarded the Gourmet Traveller WINE Viticulturist of the year and at the start of November 2019 he parted ways with Yalumba to start his own consulting business Foundation Viticulture.

W25

Date: Sunday, 26 June 2022

Time: Session 3: 16:30 - 19:00

Theme: Viticulture

Type: Seminar

Ticket Price: \$150

Collabriculture – the Australian wine industry’s journey to developing a world-first Logical Data Model

Collabriculture Group has been working with industry to develop a standard approach to creating digital twins of vineyards to be mapped, stored and shared. Accurately mapped vineyards will provide several benefits, particularly in the areas of data management, reporting and seamless technology integrations. By building a robust and supportive community, using open source and open standard principles, along with facilitating relationships between experts and growers, Collabriculture has favourably positioned the wine industry for a digital future.

This workshop will challenge attendees to think differently about their vineyards, understand what an open approach means and why a Logical Data Model has relevance.

By using open source and open standard principles, building a robust and supportive community, and creating relationships between experts and growers, the workshop aims to build skills and capacity in individuals. It will compile the series of Collabriculture Workshops into a single session, raising awareness of the outcomes of the initiative to a broad group of wine industry professionals who were likely not involved in the original program.

The workshop aims to involve attendees in practical, hands-on aspects of using the Logical Data Model, to understand its direct relevance and benefit to them and their business, along with the broader wine tech industry.

Missed one or more Collabriculture Sessions? Never heard of the wine industry's Collabriculture initiative? Want to know more about the Logical Data Model and what it means for vineyard management? This session is your opportunity to catch up on the last

Primary convenor:

Hans Loder, Collabriculture Group, Penley Estate Viticulturist

Hans Loder is a geologist and viticulturist with 20+ years’ field experience in collecting, managing and using data to extract insights. He was a 2021 recipient of a Wine Australia-funded Nuffield scholarship entitled “Here come the robots, but what do we do with the data?” Hans is researching practical data management solutions for viticulturists. He is also viticulturist for Penley Estate Coonawarra, where he’s continually pushing convention and leveraging technology, in order to ensure viticultural integrity and sustainability.

Secondary convenor:

Oli Madgett

Oli Madgett has a family vineyard in the McLaren Vale wine region and is the co-founder of AgTech start-up Platfarm. Additionally, Oli runs Adelaide AgTech meet-ups, and is a member of the AgTech advisory board for PIRSA. He is also an AgTech mentor and has used his vineyard for tech trials, including with the University of Adelaide and CSIRO.

W26

Date: Sunday, 26 June 2022

Time: Session 3: 16:30 - 19:00

Theme: Viticulture

Type: Seminar

Ticket Price: \$150

Demonstrating practical AgTech that is vineyard ready

Technology offers the opportunity to optimise inputs, improve yields and increase vineyard profitability; however, it can be difficult to match vineyard needs to technology solutions. State governments are investing in demonstrating AgTech across a range of production systems including viticulture. This includes the integration of AgTech into the operations of their research stations and the development of demonstration sites where growers can visit to see AgTech displayed. This workshop aims to showcase a range of AgTech solutions that have been successfully demonstrated at these sites. AgTech companies will work with growers and research station managers to present case studies demonstrating the value of their products. Areas to be covered will include canopy assessment using remote and proximal sensors; operations optimisation to track staff and equipment movement, materials use and better understand production costs; and irrigation management to better manage water and optimise yield and quality outcomes.

The workshop will provide a showcase of AgTech solutions that are 'shovel ready' to be applied in the vineyard. The presentations will be curated to ensure that case studies are presented rather than advertorials.

Primary convenor:

Paul Petrie, South Australian
Research and Development
Institute

Dr Paul Petrie is the Principal Scientist – Viticulture and Program Manager of the Irrigated Crops group at the South Australian Research and Development Institute. He also holds the roles of Affiliate Associate Professor at the University of Adelaide and Adjunct Associate Professor at the UNSW. Paul has extensive experience in the Australian wine industry which includes working in research and extension at The Australian Wine Research Institute and as the National Viticulturist at Treasury Wine Estates. Paul grew up helping his parents establish a vineyard in New Zealand and before moving to Australia for a role at CSIRO he completed a PhD on canopy management at Lincoln University.

W27

Date: Sunday, 26 June 2022

Time: Session 3: 16:30 - 19:00

Theme: Viticulture

Type: Tasting

Ticket Price: \$190

Update on breeding and evaluation of new mildew-resistant wine grape varieties for Australian conditions

Disease-resistant grapevine varieties will play an important role in sustainable viticulture in the future. Social and economic pressures, including increasing human health awareness and the need for environmental preservation, contribute to the necessity for breeding new disease-resistant wine-grapes. New first-generation mildew-resistant red, red-flesh and white varieties (containing a single genetic locus conferring resistance to powdery and downy mildew), bred by CSIRO, are under evaluation by CSIRO and NSW-DPI in various regions across Australia with contrasting climates. These varieties give rise to different wine styles, which could be used for the production of new varietal wines or for blending. An update will be provided on the evaluation of the viticultural and wine sensory characteristics of the first-generation varieties, as well as progress with the breeding and selection of the second-generation mildew-resistant varieties which contain two different genetic loci conferring resistance to powdery and downy mildew for more durable resistance in the field. Presentations will also be given by wine-grape breeders from France and the USA on breeding and evaluation programs for the development of new disease-resistant wine-grape varieties in those countries. An industry perspective will also be provided by a major Australian wine company which is trialling some on these new first-generation mildew-resistant varieties. There will also be an opportunity to taste wines made from selected first-generation varieties.

The workshop will provide background information of the breeding of disease-resistant varieties and future developments from an Australian and global perspective. The industry will be informed of the current evaluation of this new selections and how these perform under different climatic conditions. This will raise the awareness of the new disease-resistant selections, which were developed in Australia, for Australian conditions. It will also provide an insight into current initiatives in France to breed and evaluate new mildew-resistant varieties. Furthermore, the workshop will present a chance for winemakers to taste wines made from the disease-resistant grapevines, including red skin, red flesh and white selections. Viticulturists and vineyard managers will be able to learn more about the diverse viticultural characteristics of the new selections and their potential use in the future.

Primary convenor:

Ian Dry, CSIRO Agriculture & Food

Dr Ian Dry has been actively involved in plant research for over 35 years in Australia and the UK in areas covering plant biochemistry, molecular plant pathology and plant breeding. His currently leads a research team focused on the development of new wine-grape varieties with resistance to fungal pathogens.

Secondary convenor:

Bruno Holzapfel, NSW DPI

Dr Bruno Holzapfel was appointed to NSW Agriculture in 1996 as Research Viticulturist after working as a Post-Doctoral Fellow with CSIRO for three years following the completion of his PhD in 1993. He is currently Senior Research Scientist with NSW Department of Primary Industries and has more than 30 years of practical and research experience in deciduous perennial horticulture, with the majority on grapevines.

W28

Date: Sunday, 26 June 2022

Time: Session 3: 16:30 - 19:00

Theme: Winemaking

Type: Tasting

Ticket Price: \$190

Bioprotection and lower SO₂ winemaking – current science and best practice

There has been recent interest in lowering the levels of sulfur dioxide (SO₂) and other chemicals used in winemaking. The desire from consumers for low or no sulfur in their purchased wines is driving a sector of wine production that is at high risk for microbiological spoilage. SO₂ has an important role in winemaking, particularly for its antimicrobial/antioxidant properties; it is also produced naturally through yeast metabolism during fermentation. One of the key drivers in the reduction of sulfites, not only for preservative-free and organic wines, is also in production of conventional wines to improve the sensory experience. Through poor SO₂ management there is a high risk of microbiological wine spoilage, including production of various taints, off-flavours and biogenic amines. The winemaking approach advocated is not to replace SO₂ but to complement its use with biological solutions. It is well known that non-Saccharomyces yeast have much to offer to wine particularly from a sensory point of view, but lesser known are their bio-protection properties. Metschnikowia species have many properties that include competition with yeast and bacteria and oxygen consumption. While initially the majority of genera used for biological protection have been yeast, a strain of Lactobacillus plantarum has shown very promising results when applied in the period between immediately after harvest to just after crushing of red must. International and national speakers will present on how non-Saccharomyces yeast and bacteria can be used in conjunction with lower SO₂ and chemical additions to manage SO₂ early in fermentation, prevent spoilage during maceration. Winemakers will also provide their experience and perspective.

This workshop will demonstrate to winemakers that lower SO₂ doses can work in combination with biological solutions to make great wines that both taste delicious and have less additives.

Primary convenor:

Eveline Bartowsky, Lallemand

Dr Eveline Bartowsky is R&D Manager at Lallemand Oenology (Australia) and Adjunct Associate Professor in the School of Agriculture, Food and Wine at the University of Adelaide. Eveline has a PhD in microbiology from the University of Adelaide and over 30 years' research experience. Currently she oversees all winemaking trials and R&D research projects with Universities and Research Institutes in Australia and New Zealand and works with the wine industry providing microbiological and fermentation technical support for the application of yeast and bacteria. Previously, Eveline was at the AWRI as a Senior Research Microbiologist leading the wine bacterial research team and Manager of the AWRI Wine Microorganism Culture Collection. She has more than 25 years' experience in wine microbiology.

Secondary convenor:

Amanda Tanga, CHR Hansen

With more than 15 years working in the world of sales for yeasts and cultures for winemaking, Amanda Tanga has a wealth of knowledge of the industry and is highly regarded amongst her peers.

W29

Smoke taint: the latest research

Date: Sunday, 26 June 2022

Time: Session 3: 16:30 - 19:00

Theme: Winemaking

Type: Tasting

Ticket Price: \$190

Smoke taint remains a threat to the long-term economic viability of the wine industry. The occurrence of bushfires in or near wine regions is increasing. So too are the revenue losses incurred by grape and wine producers where vineyard exposure to smoke renders wine unsaleable due to unpalatable smoky and ashy characters. During the 2019-2020 bushfire season, thousands of samples of grapes across Australia were tested for smoke exposure. While some were clear of smoke damage, many producers were faced with the proposition of producing wine from smoke-affected fruit.

Research has addressed key questions from producers: What level of smoke exposure produces 'smoke taint' in wines? Can pre-veraison smoke exposure produce tainted wines? Are all varieties the same, or can some varieties tolerate more smoke exposure? Which strategies for predicting, mitigating and responding to risk associated with vineyard smoke exposure (air quality sensors, protective coverings, ozonation, spinning cone column distillation) actually work and are scientifically proven? Can grapes in the 'grey zone' produce acceptable wines for commercial styles? Can judicious pressing and limited skin contact recover value? And how do consumers respond to smoke-affected wines?

Researchers from The Australian Wine Research Institute, The University of Adelaide and Charles Sturt University present answers to these questions, based on carefully designed studies. Smoke-affected wines will be presented for tasting. Learn from the latest research so you are better prepared for the next prescribed burn or bushfire event.

Grapegrowers and winemakers will hear about the latest research to prepare them for future smoke events. Attendees will learn about the risk of early-season smoke exposure, with examples of smoke-affected wines to taste alongside detailed chemical composition. Grapegrowers and winemakers will find out about the latest strategies for monitoring, mitigating and managing risk associated with vineyard exposure to smoke. Winemakers will learn about how to choose processing conditions to produce acceptable wines in commercial styles from grapes in the 'grey zone' with trial wines to taste. Attendees will be able to taste smoke-affected wines and relate their impressions to those of consumers. This will enable practitioners to plan their strategy for responding and adapting to the impacts of bushfires.

Primary convenor:

Mango Parker, The Australian
Wine Research Institute

Dr Mango Parker has been involved with smoke taint research since 2009, contributing to the establishment of glycosides of volatile phenols as smoke markers, and understanding their impact on smoke flavour through in-mouth hydrolysis. She currently leads the AWRI's research into the sensory and chemical impact of smoke, including the impact of early-season smoke exposure and the links between grape composition, wine composition and sensory effects. She assisted with the AWRI's smoke response during the 2019-2020 vintage, which saw thousands of samples submitted for smoke analysis. Mango has won awards for posters and presentations at several previous AWITCs. She has presented her PhD work at international conferences and was awarded the inaugural Manfred Rothe Gold Award for Excellence in Flavour Science for early career researchers. She enjoys the challenge of bringing together fascinating science and practical outcomes.

Secondary convener:

Kerry Wilkinson, The University of
Adelaide

Professor Kerry Wilkinson is an engaging wine educator and world-renowned wine scientist in the School of Agriculture, Food and Wine at the University of Adelaide. She teaches into the Bachelor of Viticulture and Oenology and Master of Wine Business, and led the development of the award-winning, online Wine101x course. She also leads a productive wine science research group. Her primary research interests concern the flavour chemistry of grapes and wine: from management of 'green' characters in the vineyard and improved methods of oak maturation in the winery, to consumer preferences for different styles of sparkling wine and the evaluation of novel technologies for efficient winemaking. However, she is best known for her research into the impact of bushfire smoke on grapes and wine.

W30

Aeration of red wine fermentations

Date: Sunday, 26 June 2022

Time: Session 3: 16:30 - 19:00

Theme: Winemaking

Type: Tasting

Ticket Price: \$190

The benefits and limitations associated with the aeration of ferments are now well described and understood. However, the diversity of approaches to wine production make it challenging to generalise about best-practice methods for implementing aeration. This workshop will briefly summarise current understanding about the effects of aeration. However, the major focus of this workshop will be on the technical aspects of aeration for different modes of production. We will discuss air sources and compressor set-up, methods of delivery, how pumps work with aeration, aeration timing and duration and measurement technologies. We will consider the different approaches to aeration of white and red wines and provide some data on the effects of aeration on spontaneous ferments. Examples of white and red wines produced with the help of aeration will be presented during the workshop to help guide our conversations on the topic.

This presentation will be a practical winemaking workshop that will help winemakers understand how aeration can help with their wine production, providing examples of wines that showcase the method. The workshop will also engage in a practical dialogue that will help interested winemakers implement aeration in their winery effectively.

Primary convenor:

Simon Schmidt, The Australian
Wine Research Institute

Dr Simon Schmidt is a Research Manager at the Australian Wine Research Institute (AWRI). His research interests include understanding the relationship between nutrient availability and yeast fermentation performance, yeast and bacterial stress tolerance and the role of oxygen in shaping fermentation outcomes.

Secondary convenor:

Matthew Holdstock, The
Australian Wine Research
Institute

Matt Holdstock is a Senior Oenologist at the AWRI. Matt graduated from the Flinders University of South Australia in 1996 with a BSc, majoring in chemistry, and commenced at the AWRI in the same year. Matt completed a postgraduate degree in Oenology in 2003 at the University of Adelaide. He worked as a cellar hand in Sonoma Valley in 2003 and again in Bordeaux in 2006. Matt works closely with the Australian wine industry providing technical advice and education to winemakers on a daily basis to solve production issues and support them in implementing best practice wine production. Matt is a former member of the Australian Society of Oenology and Viticulture (ASVO) Executive Board of Directors