



National Wine & Grape Industry Centre Strategic Plan & Mission Statement 2016

Mission Statement

The National Wine and Grape Industry Centre undertakes to advance Australia's wine and grape industries through high impact, multi-disciplinary science and marketing research, extension and education.

In pursuit of this mission, NWGIC aims to:

- be a world leader in research for the purposes of advancing viticultural production and winemaking practices by making important contributions to applications spanning science, social science, education and engineering.
- maintain ERA Ranking of 5 "well above world ranking" in the area of horticulture.
- engage high calibre staff with diverse research expertise in oenology, viticulture and related fields by promoting and developing multidisciplinary and integrated projects with industry relevance.
- publish innovative research results in both relevant peer reviewed and industry and journals that maximise impact and adoption.
- engage with national grape and wine industry bodies in setting research goals and aspirations.
- develop high value education, training and extension products for the NSW and Australian wine industry.
- develop partnerships with world-leading scholars, institutions, academics and industry professionals to form collaborative inter-disciplinary teams.
- attract high quality higher degree by research students and postdoctoral researchers.



The National Wine and Grape Industry Centre (NWGIC) conducts world-class research in grape and wine science, in the areas of plant pathology, vine physiology, fruit development, fruit and wine composition and sensory characteristics of consumer wine preferences. The talented and multidisciplinary team of the NWGIC use its excellent facilities to generate meaningful research outcomes. The Centre is a partnership between Charles Sturt University, the NSW Department of Primary Industry (DPI) and the New South Wales Wine Industry Association (NSWWIA). Together we collaborate with commercial vineyard and winery enterprises, ensuring that the research carried out by NWGIC is highly relevant to the Australian wine industry and that the outcomes are communicated to the industry to improve profitability and sustainability.

NWGIC has 30 staff members, including 7 Post-doctoral fellows recruited in 2013 and 2014. The Centre has 13 associated PhD students.

Strategic Priorities

Goal 1. RESEARCH		MEASURE OF SUCCESS
1.1 Funding	1.1.1. Sustainable annual income from fully funded projects from predominantly Category 1 funding 1.1.2. Diversified revenue streams to secure funding alternatives 1.1.3. Leverage available resources to maximise possible returns	To obtain a minimum of \$1.5 million grant funding per annum.
1.2 Performance	1.2.1. Timely completion of projects to a high standard	Maintain ERA ranking of 5
1.3 Reputation & Impact	1.3.1. Maintain in the area of Horticultural Production – Oenology & Viticulture (FoR 0706) the “well above world standard” ERA ranking of 5	
Goal 2. MEMBERS		
2.1 Capacity	2.1.1 Provide long-term career development opportunities for post-doctoral researchers 2.1.2 Attract and sustain a critical mass of research only staff, including a core of postdoctoral researchers and supporting technical staff	To maintain the number of PostDoctoral positions at 5 to 7
2.2 Development	2.2.1. Invest and promote the continuing skill development of staff at all levels 2.2.2 Encourage and facilitate mentoring opportunities 2.2.3 Promote gender equity and career advancement	
Goal 3. PUBLICATIONS & COMMUNICATION		
3.1 Peer Reviewed Journals	3.1.1. Continue world class outputs in leading journals in support of ERA rankings	To increase publications to 1.5 per member of staff annually (inclusive of non-research staff)
3.2 Industry Journals	3.2.1. Disseminate new knowledge to industry to inform and encourage adoption	
3.3 Communication	3.3.1. Utilise available media resources to communicate with stakeholders	
3.4 Teaching	3.4.1. Promote research informed teaching	
Goal 4. PARTNERSHIPS		
4.1 Collaborations	4.1.1. Strengthen relationships with Wine Australia and the wine industry cluster including AWRI, SARDI, CSIRO, University of Adelaide.	To obtain a funding agreement with Wine Australia guaranteeing a minimum of \$1.5 million annually via funded projects.
4.2 International Consortia	4.2.1. Continue our partnerships with our current International partners, Oenoviti, Vinifera, Fondazione Edmund Mach (Italy) and AgroParisTech (France). 4.2.2. Explore new national and international partnership opportunities	To be acknowledged by Wine Australia as the preferred partner for NSW for existing, developing and aspirational strengths.
4.3 Industry Partnerships	4.2.3. Consolidate and develop partnerships with Industry associations and wine related companies	
Goal 5. STUDENTS		
5.1 HDR Students	5.1.1. Promote NWGIC to be the preferred choice for HDR students 5.1.2 Attract industry funding to support HDR students 5.1.3. Mentor completed HDR students into wine industry related workplace opportunities 5.1.4. Achieve timely completion of HDR students	Fill 2 PhD scholarships per annum Each centre researcher to host 1 International Masters student each year
5.2 Intern Students	5.2.1. Provide opportunities to host International Masters students	
Goal 6. COMMUNITY ENGAGEMENT & BENEFIT		
6.1 Extension and Adoption	6.1.1. Support Wine Australia in its extension and adoption activities 6.1.2. Undertake selected extension and adoption activities	Develop matrix by which public benefit is determined.
6.2 Research on Extension & Adoption	6.2.1. Undertake research to create new knowledge and expertise in the field of adoption and extension	
6.3 Professional Development	6.3.1. Develop professional short-course training opportunities for the sector	

Strengths & Aspirations

- Grapevine physiology
- Grapevine pathology
- Wine chemistry
- Wine sensory

Existing *currently funded by WA*

- Robotics & Machine Learning
- Vine & Wine metabolomics

Developing *newly funded by WA*

- Robotics
- Marketing & Consumer preferences
- Omics based investigations

Aspirations

Rapid advances in machine learning and processing power coupled with innovative engineering, sensor technology and mechatronics offer new and exciting opportunities for research in horticulture and viticulture. Present methods for vineyard monitoring are dependent upon manual assessment of limited samples for analysis and can be improved by larger sample sizes coupled with automated technologies.

“The future of winemaking is in high tech robotics, the future is now”- Global Economic Analysis, October 2013.

Image capture systems based upon hyperspectral cameras, LIDAR and the visible spectrum can be rapidly collected using unmanned intelligent robotic devices linked to GIS systems. Rapid image analysis using novel supervised and unsupervised neural networks, data compression and classification algorithms can be deployed to identify and assess vine shoot growth, shoot health and foliar architecture.

Yield estimation including bunch weights, grape berry colour and composition that determine optimum harvest times may be determined using a combination of sensors working within the near infrared and visible spectrums. Applied to disease identification similar classification algorithms can be used with phone based platforms and image databases for vineyard managers to rapidly identify pests and diseases in the field, determine appropriate treatments and expedite vineyard management decisions.

NWGIC will attract high quality researchers with skills in robotics and mechatronics to compliment existing experts in machine learning, vineyard management and grape berry chemistry. These combined talents will coordinate novel approaches in the development of vineyard decision tools.

NWGIC has a newly funded Wine Australia project to develop a “Digital imaging berry tool to inform on fruit volume and potential harvest time”.

Through collaborations with CSU Faculty of Business, Justice and Behavioural Sciences, and with particular involvement with the School of Mathematics in the area of machine learning, NWGIC is positioning itself as a forerunner in this exciting development in winemaking in Australia.

