



Australian Government
Grape and Wine Research and
Development Corporation



Grape and Wine Research and Development Corporation Response to the Agricultural Competitive White Paper

17th April 2014

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1. Introduction

The Grape and Wine Research and Development Corporation (GWRDC) welcomes the opportunity to provide this submission in response to the Agriculture Competitiveness White Paper. The breadth of topics raised reflects the complex and ever changing nature of the challenges facing Australian agriculture. Innovation will ensure agriculture within Australia remains profitable, sustainable and relevant to Australia's regional and general economic growth. This submission will therefore focus on aspects of research, development and extension (RD&E) in the grape and wine sector that have the capacity to support a number of key objectives outlined in the White Paper.

We note that the performance and application of RD&E has relevance to a number of issues raised in the White Paper and the focus of our response will be to address factors in a number of areas, the major ones being;

- Issue 1: Food security;
- Issue 2: Farmer decisions for improving farm gate / cellar door returns;
- Issue 5: Regional communities;
- Issue 6 : Improving the competitiveness of input to the supply chain;
- Issue 8: Enhancing agricultural exports.

In the recent past, much of the focus of the grape and wine sector's RD&E has been on developing enabling technologies and methodologies that aim to improve the competitiveness of inputs to the supply chain. The sector's focus on traditional areas of research, namely viticulture, oenology and supply chain economics have contributed to Australia becoming an established international supplier of wine. However, in the last decade the scope of the sector's R&D activities has expanded to include areas such as consumer insights, economic modelling, and issues pertaining to sustainability and social license to operate.

These new and emerging areas represent a marked shift towards a value chain approach to RD&E: from *the grapevine to the wine glass*. This paradigm is particularly important for the sector, because it will enable industry, research providers, and government to better understand the key drivers of both *demand* and *supply* in the sector.

While the future for the Australian agriculture sector is extremely positive, it is not something we can be complacent about. The ever changing nature of the grape and wine sector requires highly-skilled people capable of being adaptive and resilient to short term variability (i.e. climate, economic factors, market forces etc) and being able to also work towards addressing the long term needs of the sector through the development of long term strategy. The capacity to implement RD&E programs that seek to inform and provide innovative solutions to key sector issues, is vital for the long term future of the grape and wine sector.

GWRDC has a valuable and continuing role to play in supporting such objectives and past successes demonstrate the value of the RDC model.

As a member of the Council of Rural Research and Development Corporations (CRRDC), GWRDC is also a party to a second submission being developed for the Research and Development Corporations (RDC) community. That submission focuses on the broader agricultural challenges and the benefit the current RDC model provides for its stakeholders. Therefore, the content provided within the CRRDC submission will not be repeated in detail. The reader is invited to consult the CRRDC submission to gain a broader view of the RDC model and its strategic role in agriculture.

On 1 July 2014 GWRDC will merge with the statutory wine marketing authority Wine Australia Corporation (WAC) to form a new entity called the Australian Grape and Wine Authority (AGWA). Stakeholders will derive significant benefit from the merger as AGWA will be a single entity for both RD&E and market related activities, and this will result in greater efficiencies and integrated approaches for the grape and wine sector. The current staff and resources of GWRDC will remain with AGWA, and AGWA will continue to deliver the RD&E services of the former GWRDC. Therefore the references to GWRDC in this document will equally apply to AGWA.

1.1 GWRDC: An overview

GWRDC is an Australian Government statutory authority that was established in 1991 under the *Primary Industries and Energy Research and Development Act 1989* (PIERD Act). Our objective is to invest in RD&E that supports a competitive Australian wine sector. We support the sector by investing in, and directing, RD&E programs along the value chain ‘from vine to glass’. We focus on extracting the full value of our investments in RD&E for the benefit of our levy payers, the Australian Government and the wider community.

As a joint lead-agency for the implementation of the Primary Industries Standing Committee (PISC) National Primary Industries Research, Development and Extension Framework – Wine Sector Strategy, GWRDC has embedded the framework into the sector’s RD&E processes. GWRDC uses evidence-based decision-making to guide investments based on the key priority RD&E areas established in the five year Strategic Research, Development and Extension Plan. This includes conducting reviews of existing research to identify opportunities for future research, independently assessing proposals through external review panels, and commissioning research to address specific knowledge gaps or requirements.

GWRDC undertakes a number RD&E activities which represent the priorities of the grape and wine sector, identified through a rigorous consultation processes with the sector, resulting in the development of our five year Strategic Research, Development and Extension Plan. In developing our Strategic Plan for 2012-2017, our stakeholders’ requirements were significantly broader than in previous years.

In the recent past the bulk of GWRDC’s focus and funding was directed to traditional research areas in the viticulture (grapevine) and oenology (winemaking) fields. While these areas continue to be important to our stakeholders, there has also been a

broadening of the scope of GWRDC's funding activities to include RD&E activities in the fields of;

- consumer insights;
- transport and packaging;
- market access issues (primarily technical);
- cross-sector RD&E with other RDCs;
- sustainable practices and variable climate; and
- extension activities including;
 - in-region R&D adaption and adoption activities;
 - regional people development;
 - collaborative activities with the states and regions.

This expanded scope of activities has meant GWRDC's RD&E program has moved from being one that is primarily *supply chain* focused to being one that has a broader emphasis on the value chain. This has resulted in the redirecting of a component of our funds to new activity areas, which has also been accompanied by greater extension activities in regional areas.

This expansion of activities, based on a static funding model, creates some additional challenges for the grape and wine sector. The major challenge is to ensure that appropriate resources can be allocated to both new and traditional RD&E areas to ensure that capacity is developed and maintained, respectively, thus ensuring an appropriate return on investment.

Such processes ensure that we are constantly evaluating our business and looking to continually improve our RD&E services to provide enduring value to our government and industry stakeholders. This ensures GWRDC is both maintaining and maintaining access to, Australia's world class RD&E skill base. This enables GWRDC to be both flexible and responsive to current and emerging sector needs.

Recommendation: the GWRDC invests in RD&E activities based on industry priorities that are developed in close consultation with our industry stakeholders and government. We have a broad and deep understanding of the sector and have the networks and the capacity to leverage resources from government, state, regional and private institutions, our RDC colleagues, and our sector partners. We recommend the government use this proven RDC model to assist in the continued delivery of its agricultural plan.

1.2 Current Status of the Australian Wine Industry

The emerging vision of the Australian agricultural sector in the next decade is one of continued growth. The value of Australian farm exports is projected to rise to \$39.3

billion in 2018-19 (in 2012-13 dollars). This would represent an 11% increase on the five-year average to 2012-13 of \$35.3 billion.¹

However, this general trend is not consistent with that of the grape and wine sector, which is currently experiencing significant economic pressures. In the five years 2009-14, wine production's annual growth has declined at a rate of 1.9%.² This is the result of a number of factors including;

- the high Australian dollar;
- an oversupply of wine grapes;
- the downturn in sales in key international markets due to world economic conditions;
- increased competition from international markets;
- barriers to international market access;
- a consumer shift to cheaper wine;
- increased competition from other beverages like ciders and boutique beverages; and
- high production costs in comparison to international competitors.

The projected annual growth for the wine sector in the next five years 2014-19 is forecast at a rate of 2.0%.² This predicted increase in growth is encouraging given recent historical trends.

The economic conditions facing wine-grape growers are similar to those facing the wine industry. In a recent report commissioned by ABARES³, Australian wine-grape growers had a positive farm cash income of \$80,950 a farm in 2011–12. The average farm income was low when compared to other commodities such as broad acre farms, which recorded incomes at \$116,000 per farm in 2011-12⁴.

IBISWorld noted that the annual growth in the grape growing industry (all grape commodities i.e. wine, table, and dried) has declined by 3.2% per annum from 2009-14.⁵ Approximately 90% of grapes grown in Australia are used for the purposes of wine making, so much of this decline has been associated to the economic factors facing the Australian wine industry. The IBISWorld forecast for the grape growing industry for 2014-19 is an annual growth rate of 0.9%, indicating that industry revenues will remain static over the medium term.

¹ *Agricultural commodities*, March Quarter 2014, Australian Bureau of Agricultural and Resource Economics and Sciences, 2014

² *IBISWorld Industry Report C1214, Wine Production in Australia*, November 2013, IBISWorld

³ Tim Caboche, Walter Shafron, Caroline Gunning-Trant, Milly Lubulwa and Peter Martin, *Australian wine grapes, Financial and business performance of wine grape growers 2011–12*, ABARES, Research report13.14, December 2013

⁴ *Australian farm survey results 2010–11 to 2012–13*, Australian Bureau of Agricultural and Resource Economics and Sciences, 2013

⁵ *IBISWorld Industry Report A0131, Grape growing in Australia*, January 2014, IBISWorld

While international demand for Australian wine represents one element that has affected grape growers' profitability over the past five years, there have also been other factors such as;

- grape loss through variable climatic conditions, such as frosts, floods and extreme heat events;
- pest and disease issues;
- increasing restrictions and costs associated with access to water;
- increasing energy prices (i.e. electricity); and
- comparative labour costs with international competitors.

Aside from pure economic issues, the grape and wine sector must continue to address other substantive issues, which include but are not limited to;

- environmental issues;
 - environmental footprint;
 - energy consumption;
 - water consumption;
 - chemical use and chemical drift;
- biosecurity;
- future use of genetically modified grapevines and yeasts;
- the provision of training courses for up skilling the grape and wine sector; and
- ensuring regions are integrated into national and international strategies.

Although the current situation facing the grape and wine sector is challenging, it also presents a great deal of opportunity. While the sector is somewhat beholden to factors such as exchange rates and international economic conditions, there is the ability to reinvigorate efforts to address a number of the issues. These include but are not limited to;

- reducing the costs associated with domestic production through innovation and know-how;
- continuing to address issues of technical barriers to markets through technical diplomacy with our international markets;
- utilising innovation to ensure our production techniques are environmentally sustainable thereby enabling the sector to market its clean green image;
- continuing to investigate pest and disease, both endemic and exotic, to ensure the ongoing health and viability of our sector;
- understanding consumers within domestic and international markets;
- understanding the current consumer trends that will dictate varietal and consumption trends;
- continuing to use Australia's world-class oenology and viticulture research capacity and/or capability, to ensure Australian producers can continually produce the highest quality wine-grapes and wines in their category, be it for the commercial or premium wine markets; and
- continuing to leverage RD&E funding through collaborative activities between research providers, cross-sector activities sponsored by the RDCs, and through co-investment and collaboration with industry.

Recommendation: the current status of the Australian grape and wine sector is static after five years of decline. However, the future is somewhat more optimistic and opportunity exists to build greater demand, increase productivity, and ultimately increase profitability. The ability for innovation to play a role in providing information and tools to assist the sector in meeting these goals is both challenging and exciting. GWRDC's role in providing, through investment, innovation solutions and services across the value chain will be critical and we recommend that it should continue to be utilised in achieving such outcomes.

2. RD&E across the value chain

2.1 Introduction

As noted previously, GWRDC's five year Strategic Plan demonstrates that the grape and wine sector's RD&E focus has broadened in recent years from funding primarily traditional winemaking and vineyard RD&E focussed on supply chain activities, to a broader scope of activities addressing both supply and demand issues.

The sector's move to fund these new and emerging areas represent a marked shift towards a value chain approach to RD&E which encompasses the concept of delivering RD&E that focuses on key issues from *the grapevine to the wine glass*.

The concepts pertaining to the need for a whole of value chain approach to the wine sector were analysed in detail by Andrew Fearne.⁶ In this dissertation it is argued that an integrated approach to the collection, integration and dissemination of information, could form the basis of a future paradigm and value proposition for the grape and wine sector. Fearne's analysis of the wine industry noted two key factors; 1) that the Australian wine industry is primarily focussed on a *supply chain push* archetype, where individual suppliers compete primarily on price, to sell their goods to retailers and 2) that this model gives very little thought to consumer perceptions, attitudes, or preferences and hence foregoes the opportunity to value add, target consumers, and ultimately have the capacity to negotiate with retailers on price.

Whether or not the grape and wine sector will eventually move to subscribe to the recommendations provided by Fearne, there are key themes within the recommendations that have appeal. They are as follows 1) The need for the collection and dissemination of integrated consumer and market intelligence that are readily accessible to the grape and wine sector to enable businesses to make informed decisions; 2) the need to have regional co-innovation clusters that develop and inspire effective collaboration and innovation at a regional level; and 3) the need for investment in thought-leadership which will up-skill existing and developing leaders who will drive change within their respective organisations, seek to network with their peers, and work towards more integrated and networked thinking.

⁶ Fearne, Andrew, *Sustainable Food and Wine Value Chains*, Adelaide thinkers in residence, Department of the Premier and Cabinet, 2009

While there is a clear motivation for the grape and wine sector to invest funding for RD&E activities related to the value chain, the continued investment in traditional RD&E areas (i.e. supply chain) needs to be maintained, if not increased, to ensure capacity and delivery are maintained and achieved in a continually changing global environment.

2.2 The implementation of RD&E : wine demand

Two key areas in which GWRDC is investing on behalf of the sector are consumer insights and market access activities. The capacity to undertake R&D in areas such as consumer insights has enabled information to be analysed to determine wine consumers' predilections in international markets. Projects undertaken to better understand and predict demand cycles in the international wine markets are also being explored. A consumer insights program complements the market intelligence program currently collated by Wine Australia. In combination, both provide integrated market and consumer information to the sector.

The grape and wine sector, through activities sponsored by Commonwealth Government departments, the Winemakers' Federation of Australia, Wine Australia, and GWRDC, meets regularly with these parties to discuss matters pertaining to free trade agreements, technical barriers to market access, appellation issues, international conventions and so on. GWRDC additionally funds activities associated with the provision of technical expertise required to address technical trade barriers.

The sector's investment in R&D activities pertaining to consumer insights and market access will continue to focus on developing industry-relevant data in relation to emerging markets. It is surprising that a great deal of this data has not been collected previously both within the grape and wine sector and more broadly across all the agricultural commodities.

As stated, funding for these activities has primarily come from existing RDC and other statutory corporation funds and there is limited capacity to further increase activity in this area. There would be significant benefit if broader resources and funding could be utilised to assist RDCs in collecting and disseminating this information. Data being obtained and collated by the statutory corporations would have relevance to a number of government and industry organisations associated with trade, tourism, hospitality, primary industries and retail. The capacity to not only leverage greater funding, but also build networks between such agencies through co-funded activities, would ensure that timely and up to date data are obtained, disseminated and more widely used.

Recommendation: there is inherent value for the Australian grape and wine sector from an RD&E strategy that incorporates activities which focus on demand and market access. This will provide the sector with critical information to assist them in making business decisions related to both domestic and international market strategies. While the grape and wine sector is in the process of building capacity

and undertaking projects in key markets, there is a dearth of information. We recommend that; 1) additional funding; and 2) strategies for leveraging existing funds, through inter-governmental and public-private funding mechanisms; should both be explored. This will increase the rate at which market access activities are implemented and market demand (consumer insights) information is obtained and disseminated. We note that it would be detrimental to the grape and wine sector to consider redirecting further funds from viticulture and oenology R&D to demand and market access activities, as this would result in a loss of key R&D effort in those areas which have for many years been the 'engine room' for technical innovation in the Australian wine industry.

2.3 The implementation of RD&E in the supply chain

The inherent role that innovation has played in Australia becoming a key producer of wine cannot be understated. To date, the grape and wine sector through the auspices of the National Wine Research Network (NWRN)⁷, with assistance from State and Commonwealth Governments, has utilised and maintained key R&D capabilities. These are capabilities that have and will continue to serve industry, ensuring it remains internationally competitive and sustainable. Further evidence demonstrates that those companies that have chosen to innovate have, in many cases, been able to better adapt to the fallout from the current economic malaise the sector is experiencing.

GWRDC believes that the focus of core viticulture and oenology research will continue to evolve. While no-one can accurately predict the future, there are some key R&D areas that are likely to provide the sector with considerable benefits.

Current research investigating “objective measures of quality” should provide both grapegrowers and winemakers with better quantitative measure to assess grape and wine quality and fitness for purpose. This will provide measures of quality that can be correlated against consumer preferences and used to enhance and promote inherent characteristics in wine products. To achieve this outcome, key capabilities in analytical grape and wine science need to be maintained.

The advances in geographic information systems (GIS) have enabled aerial imagery to assist grapegrowers in the implementation of precision viticulture techniques. This will be strengthened by the future development of in-field measurement systems, predictive software systems, vision systems, laser systems, and precision harvesting techniques (robotics), thus enabling many more producers to selectively monitor and harvest. These technologies, coupled with new innovations to measure vine water status and general vine health, will enable grapegrowers to accurately assess irrigation and agrochemical requirements, thereby reducing labour and input costs. Access to real time information related to ongoing climatic conditions and in-

⁷ NWRN is a key R&D forum for the grape and wine sector as designated under the Primary Industries Standing Committee (PISC) National Primary Industries Research, Development and Extension Framework – Wine Sector Strategy.

field sensors will add real capability for grapegrowers to adequately deal with increasingly variable (and extreme) weather events. This theme will draw upon expertise and skills-sets that have complementarity across numerous commodities. Hence there is considerable benefit in ensuring that core capabilities in GIS, robotics and agricultural sensor technologies are promoted and expanded.

Current plant breeding research being undertaken within Australia will result in the scientific community gaining a better understanding of vine genetics, allowing researchers to identify specific varieties of *Vitis vinifera* that are best suited to Australia's regional conditions. The benefits of this work will undoubtedly flow to grapegrowers in future years, providing vines that have better tolerance to pest, disease and Australia's increasing variable climatic conditions. In addition to the use of these traditional plant breeding techniques, there is a need for the Australian community to have a broader informed debate on the use of genetically modified commodities. The key location of both traditional and GM expertise in the grape and wine sector primarily exists within the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

No doubt the development and adoption of the abovementioned innovation and information will ultimately assist growers to produce higher quality grapes, to reproducible and quantifiable quality standards.

The explosion in the development of analytical chemical and biological equipment over the last 15 years has provided the research community with tools that enable new measurements to be developed at greater speed and with greater accuracy. The development of handheld and in-field equipment is also providing new opportunity for data to be collected in real time. This is likely to have significant consequences for winemakers and grapegrowers alike, as it will provide greater opportunities for processes to be measured, monitored and controlled. Ultimately the holy grail of the sector lies in the capacity to implement cutting-edge technologies to monitor and control quality characteristics from the vine to the glass, and the capability to provide cost-effective technologies and procedures to achieve this aim. Maintaining R&D capacity throughout Australia's institutions will be vital. The RDCs and other funders are already investigating co-operative programs with entities like Sense-T (see <http://www.sense-t.org.au>) which are currently implementing highly collaborative sector programs to provide access to new sensor technologies and agriculturally relevant data.

The ongoing development of new yeast and malolactic bacteria strains, the development of new lower cost clarification techniques, the implementation of lean manufacturing paradigms, and the replacement of energy-intensive processes, represent incremental steps wineries will continue to make in the future. Furthermore, there will be benefits derived from future R&D seeking to reduce the environmental footprint of wineries. To ensure that these key technologies continue to be developed, it is imperative that the Commonwealth and state governments to ensure funding for key research groups with expertise in many of the emerging research themes.

Recommendation: We recommend continued and increased investment in key R&D areas to ensure Australia; 1) maintains its current R&D capacity and capability; and 2) ensures newly evolving areas of innovation are adequately funded. Key areas that will continue to increase farm gate profits and ensure our food (wine) security, include continued funding of biosecurity research and more traditional viticulture research (as outlined in section 1.2) while the new and emerging areas, in fields such as robotics and vision systems, precision viticulture, novel in-field sensor development, and information networks, will require additional sources of funding to ensure critical capacity can be developed and maintained for the agricultural sector.

2.4 Innovation and Adoption activities

Within Australia our RD&E providers play a key role, not just in the development of new innovations, but in their adoption and adaption within the grape and wine sector. In many cases home grown innovation has been successfully implemented within the vineyard or winery, so too has innovation from other agricultural sectors and other grape and wine producing nations. The key to success has been the flexibility and capacity of the grape and wine sector to implement technology or to use technology to respond to events such as emerging pest and disease outbreaks or variable and intense climatic conditions, in a timely manner. In many cases the identification and dissemination of new innovation has primarily been achieved through activities funded through GWRDC, state, Commonwealth, and industry collaborators. These activities include the key grape and wine extension body the National Wine Extension and Innovation Network (NWEIN)⁸, technical workshops and roadshows, in-field adoption and adaption trials, the dissemination of information factsheets and internet based content, and the provision of the John Fornachon Memorial Library based at the Australian Wine Research Institute (AWRI).

However, of all the activities in which GWRDC participates, the *innovation and adoption*, and *extension* space is subject to the most change. As acknowledged in the White Paper, the landscape associated with traditional extension activities is changing. States and territories are playing a smaller role and while the private sector is being urged to participate, there is still only limited engagement by private providers. Ultimately this has led to a gap in the provision of traditional extension services.

This is not a gap that can continue to be addressed by the RDCs as traditional extension services are not RDC core business. Furthermore, GWRDC would not be financially capable of meeting the growing extension demand, at least not without ramifications to R&D funding and the long term consequences these actions would have for both innovation and maintaining capacity within key grape and wine

⁸ NWEIN is a key Extension forum for the grape and wine sector as designated under the Primary Industries Standing Committee (PISC) National Primary Industries Research, Development and Extension Framework – Wine Sector Strategy.

research providers. GWRDC urges that this gap in extension be a priority issue that is reviewed as part of the current consultative process.

Within the traditional extension matrix, GWRDC's participation primarily involves funding activities that promote the adoption and adaption of new innovations, and to provide funds that will facilitate the transfer of information through the development of regional networks. The two exceptions to this are 1) the ongoing support for the AWRI Help Desk, a service to assist growers and winemakers with emergency issues, and 2) in times of sector crises, GWRDC maintains resources to assist industry in its response to issues such as disease outbreaks, extreme climatic events and so on.

This investment strategy ensures that there exists capacity to assist growers and winemakers when needed, while also providing them with a capacity to adopt and adapt new and innovative technology and methods.

Three examples of key extension programs that GWRDC funds as part of its obligations to providing extension activities as part of the National Primary Industries Research, Development and Extension Framework – Wine Sector Strategy, are provided below.

2.4.1 Regional Program

The GWRDC Regional Program aims to encourage regional adoption and adaption of the findings from research and development. The 72 distinct Geographical Indications in Australia are grouped into 11 regional clusters, and each cluster prepares a four-year strategic plan, identifying their own strategic priorities. An annual operating plan is also submitted, which is assessed to determine whether the activities are eligible for funding. Eligible activities include, but are not limited to, in-field trials, workshops, demonstrations, and the development of extension materials such as factsheets, DVDs, flyers and electronic materials.

The Regional Program allows regions to determine key adoption and adaption projects that are of interest to their stakeholders. The projects require either co-commitment or co-investment by regions, which ensures all parties have vested interests.

An example of a current activity within the Regional Program is the SA Central Regions Malbec trial. The region have expressed interest in growing the Malbec variety but have realised they need assistance to successfully select the right clones. Key growers in the region have offered land and wish to take part in the trial. The project will involve performing a stocktake of Australia's Malbec clonal history, determine which types of clones are available, and finally selecting the clones for trial and developing the trial plan.

2.4.2 Consumer Insights Workshops

These workshops disseminate the latest research to the industry and demonstrate how it can be applied in a business context. The first series of workshops was entitled “China Insights” and extended R&D findings about the Chinese wine market and consumer preferences. This series was held in five wine regions. The regions were determined based on the number of businesses exporting to China. Of the 60 per cent of participants who completed the survey, 97 per cent of respondents said they would use the information provided in their own businesses as well as sharing it with their industry colleagues.

2.4.3 People Development

GWRDC in collaboration with the states and wine regions will in the coming months, implement a Developing People initiative. The objectives of this program are:

- to develop the capacity of the next generation of researchers, and
- to train the next generation of wine sector leaders in leadership skills.

The people development initiative does this through several programs.

Firstly the grape and wine sector, through GWRDC, has regularly sponsored a number of scholarships including the Nuffield Scholarships and the Australian Rural Leadership Foundation (ARLF) scholarships. Furthermore, contributions are made to the co-funding of PhD, Masters and Honours student scholarships.

The sector has also funded, for a number of years, a Future Leadership initiative. The Future Leaders initiative is a course provided by ARLF that provides young developing leaders in the grape and wine sector with a structured leadership program.

In the future, GWRDC will continue to support the above initiatives but will also consider developing two new people development projects. The first is entitled “*Thought Leaders, Innovators and Game Changers*” and this activity will be a state-based program that encourages thought-leadership, innovation and game-changing behaviour, in addition to collaboration and knowledge-sharing. It complements GWRDC’s investment in regional development programs but, being done on a state level, offers cross-regional collaboration.

The second project will focus on undertaking a *mentoring trial* to determine if there is the capacity to develop mentoring relationship between industry notables and young future leaders.

GWRDC recognises that the future of the Australian grape and wine sector depends on the next generation of practitioners. The urgency of this cannot be understated, particularly in viticulture where the average age of a grapegrower is consistently

reported to be around 60 years. Providing opportunities for the next generation to learn about leadership and innovation, while providing a stimulating environment in which to develop new networks and alliances, will undoubtedly serve the industry well for the coming decades. It will also ensure that the grape and wine sector has well rounded and sector knowledgeable people.

Recommendation: *We recommend the ongoing provision of extension activities throughout Australia be reviewed. The current funding arrangements have resulted in a decline in extension services, the current level of which would not appear to adequately service grape and wine stakeholders. A review conducted by the Commonwealth and supported by the states and industry stakeholders would clearly go some way to ameliorating the current situation. Subsequent change is needed to ensure grapegrowers and winemakers can quickly adopt new and innovative practices.*

Recommendation: *The investment in people development is a key area that grape and wine sector will continue to support and promote, ensuring that the sector continues to build on its significant intellectual capital. While the wine sector has funds devoted to a number of core programs, a broader “whole-of-agriculture” approach to these issues would be useful.*

3. Cross sector RD&E

In the past four years there has been a particular focus within the RDC community to leverage joint funding to investigate and collaborate on research themes that are of mutual value. In the last two to three years a number of forums have been initiated and RDCs, research providers, industry bodies, government departments, and state and regional bodies meet on a regular basis to discuss key issues, exchange information relating to projects, and to develop joint collaborations. The intrinsic value of this exercise is the close cooperation that has emerged between the RD&E community and the increased impact these forums are having upon project outcomes.

4. Evaluation of RD&E spend

In 2010 the Council of Rural Research and Development Corporations (CRRDC) undertook an analysis to determine the return on investment that the Australian community derives from its investment in RDCs. The results show a strong return on investment, with a benefit cost ratio of 2.36 after five years and 5.56 after 10 years. The return rises to 10.51 after 25 years. That is, for every \$1.00 invested, \$10.51 is returned after 25 years.⁹ The figures clearly show the value and impact the RDC

⁹ *Impact of Investment in Research and Development by the Rural Research and Development Corporations*, Council of Rural Research and Development Corporations Chairs, January 2010 see <http://www.ruralrdc.com.au/WMS/Upload/Resources/CRRDCC%20evaluation%20report%202009%20final%20.pdf>

model continues to bring to Australian agriculture and the broader Australian community.

5. Allocation of additional funding

GWRDC is pleased to see the Commonwealth Government's acknowledgement of the need for increased investment in rural RD&E, backed by its allocation of an additional \$100M over four years to the rural RDCs.

GWRDC and its RDC colleagues have taken a uniform position on suggesting activities for the proposed increased funding. Full details of the CRRDC's proposition have been provided within the CRRDC submission. A brief synopsis is provided as follows;

- The RDCs believe that applying larger amounts to specific challenges and activities, rather than spreading the funding broadly throughout the RD&E system, has a better chance of successfully delivering a productivity step change;
- The RDCs are of the opinion that the Government's additional funds could be allocated, at least partly, to a review examining how extension services can be structured and applied most effectively in a range of different industry and geographic contexts;
- We also suggest a funding allocation to a cross-sectoral "public good" project that has producer profitability as a secondary outcome. Developing a significant project that improves international market access for producers could also deliver strong and measurable profitability outcomes; and
- Additionally, we strongly recommend that the Government considers the leveraging possibilities for this funding which could substantially increase the overall investment. We suggest that the RDCs would provide a useful vehicle to achieve this aim.

6. Agricultural Competitiveness White Paper Issues

The preceding information in this submission has provided a backdrop to the overall RD&E activities undertaken by the grape and wine sector and some of the inherent issues confronting it. In this section we aim to correlate the information provided in response to the individual issues (of relevance) detailed in the White paper.

6.1 Issue 1: Ensuring food security in Australia and globally

As outlined in 1.2 the grape and wine sector is currently recovering from a number of years of steady decline in demand and over-supply, so in the short to medium term there is unlikely to be a need to look to grow the production capabilities.

In terms of benefits that can be derived from innovation, the key inputs we view as being relevant to ongoing food security are;

- Biosecurity: ongoing RD&E into both exotic and endemic pest and disease;
 - Providing R&D capacity to mitigate pest and disease threats;
 - Providing information to assist in the dissemination of relevant information to grapegrowers in cooperation with the National Viticulture Biosecurity Committee, Wine Grape Growers Australia (WGGA) and Plant Health Australia (PHA);
- Pest and disease management:
 - providing continued R&D efforts to better understand, control, and mitigate commonly occurring pest and disease issues; and
 - providing information content to inform the sector of outcomes from this work.

6.2 Issue 2: Farmer decisions for improving farm gate / cellar door returns

In providing RD&E solutions to industry there are a number that support the short, medium and long term objectives of improving farm gate / cellar door return. The key RD&E inputs we see as beneficial in this space are;

- People development activities that will (refer to 2.4.3);
 - develop the next generation of grape and wine sector leaders through;
 - mentoring from top performers; and
 - leadership programs;
 - develop the capacity of the next generation of researchers;
- Pest and disease management activities that will;
 - provide continued R&D efforts to better understand, control, and mitigate commonly occurring pest and disease issues;
 - provide information content to inform the sector of outcomes from this work;
- Research in relation to increasing intense and variable climatic conditions that will provide ongoing RD&E activities to ensure the effects of climactic conditions are minimised;
- Consistency of product: providing RD&E solutions that ensure wines are produced at a consistent level of quality regardless of external factors such as climatic conditions, pest and disease threats etc.;

- Development of Regional Programs and Adaption and Adoption Activities (Extension);
 - Set up/maintain regional networks which are co-ordinated by the regions to identify and participate in key adoption and adaption activities (refer to 2.4) ;
 - Provide opportunities for researchers and industry to meet in the regions to discuss relevant industry needs, RD&E solutions, and to disseminate the latest RD&E findings;
 - Encourage and coordinate jointly funded state extension programs overseen and directed by state and Commonwealth funding bodies and state/regional industry participants;
 - Look at how to reverse the trends of diminishing funding in the areas of extension through new funding initiatives;

- RD&E in relation to wine demand with mechanisms to help pool existing information and the provision to fund activities, which will provide complementary data on wine demand thereby ensuring the sector can make informed choices with regard to domestic and international markets;
 - Increased funding for consumer insight activities across all agricultural commodities to understand consumer needs and drivers;
 - Associated R&D activities to determine specific consumer trends; and
 - Centralisation of this data to ensure it can be utilised for further R&D and by marketers (i.e. for developing a “Brand Australia” agricultural branding campaign).

6.3 Issue 5: Enhancing regional communities

The capacity for innovation to contribute to regional communities is mostly through indirect mechanisms associated with building regional capacity and expertise and through increasing returns to the farm gate. The following are representative of the contribution innovation can make;

- Regional Programs:
 - Set up/maintain regional networks which are co-ordinated by the regions to identify and participate in key adoption and adaption activities (refer to 2.4) ;

- People development activities that will (refer to 2.4.3);
 - develop the next generation of grape and wine sector leaders through;
 - mentoring from top performers; and
 - leadership programs;
 - develop the capacity of the next generation of researchers;

6.4 Issue 6: Improving the competitiveness of input to the supply chain

The largest contribution that RD&E makes to the grape and wine sector is through improvements in the competitiveness of the supply chain. The key areas we view as being relevant include;

- Maintaining existing R&D capacity in viticulture and oenology to address issues such as;
 - grape loss through variable climatic conditions, such as frosts, floods and extreme heat events;
 - pest and disease issues;
 - objectives measures of quality, identifying more quantitative measures of grape and wine quality;
 - increasing restrictions and costs associated with to access to water;
 - increasing energy prices (i.e. electricity);
 - comparative labour costs with international competitors;
 - environmental issues;
 - environmental footprint;
 - energy consumption;
 - water consumption;
 - chemical use and chemical spray drift;
 - genetic modification of grapevines and yeasts; and
 - the provision of training courses for up skilling the grape and wine sector;

- Developing capabilities and expertise through cross sectoral efforts (i.e. relevant to multiple agriculture commodities) in the following areas;
 - geographic information systems for mapping vineyards and determining differential vine vigour and grape ripening;
 - developing and extending precision viticulture to ensure grapes are harvested at the optimum time;
 - robotics for precision harvesting and pruning;
 - predictive software and vision/laser systems;
 - increased process engineering capability;
 - in-field, real time sensors for soil water content, vine health, pest and disease, and other measurements;
 - new spray technologies and methods for reducing inputs and spray drift; and
 - looking at further mechanisms by which these areas can receive additional funding.

6.5 Issue 8: Enhancing agricultural exports

In the area of agricultural exports, the major effort of innovation-focused entities within the grape and wine sector has been on providing skills and expertise in relation to international diplomacy on technical trade barriers which include issues such as maximum residue limits (MRL) and other quality issues. The second area of investment pertains to better understanding consumer preferences. Both areas are covered in 2.2.

7. Conclusions and Recommendations

The GWRDC is grateful for the opportunity to respond to the Agricultural Competitiveness White Paper. As the grape and wine sector's major RD&E funding body we are keen to work with Government to deliver ongoing benefits to both our sector and the broader agriculture community.

Australia's RD&E community has and will, continue to serve Australia's agricultural sectors. However, the measure of value derived from these outputs will be dependent on both the strategy and levels of funding ascribed to innovation activities. The following sections highlight key conclusions and recommendations outlined in this submission.

7.1 Maintaining the current role of RDCs and the GWRDC

The following recommendations regarding the RDC model are proposed.

Recommendation: the GWRDC invests in RD&E activities based on industry priorities that are developed in close consultation with our industry stakeholders and government. We have a broad and deep understanding of the sector and have the networks and the capacity to leverage resources from government, state, regional and private institutions, our RDC colleagues, and our sector partners. We recommend the government use this proven RDC model to assist in the continued delivery of its agricultural plan.

Recommendation: there is inherent value for the Australian grape and wine sector from a RD&E strategy that incorporates activities which focus on demand and market access. This will provide the sector with critical information to assist them in making business decisions related to both domestic and international market strategies. While the grape and wine sector is in the process of building capacity and undertaking projects in key markets, there is a dearth of information. We recommend that; 1) additional funding; and 2) strategies for leveraging existing funds, through inter-governmental and public-private funding mechanisms; should both be explored. This will increase the rate at which market access activities are implemented and demand information is obtained and disseminated. We note that it would be detrimental to the grape and wine sector to consider redirecting

further funds from viticulture and oenology R&D to demand and market access activities, as this would result in a loss of key R&D effort in those areas which have for many years been the 'engine room' for technical innovation in the Australian wine industry.

7.2 Maintaining Capacity

Maintaining current capacity in traditional fields such as viticulture and oenology, while building new capacity in emerging technology fields is critical. This can be achieved through the combination of two pathways; 1) increased core funding to RD&E activities, and 2) rationalisation of the current defined activities to which RDC money is allocated.

Recommendation: *We recommend continued and increased investment in key R&D areas to ensure Australia; 1) maintains its current R&D capacity and capability; and 2) ensures newly evolving areas of innovation are adequately funded. Key areas that will continue to increase farm gate profits and ensure our food (wine) security, include continued funding of biosecurity research and more traditional viticulture research (as outlined in section 1.2) while the new and emerging areas, in fields such as robotics and vision systems, precision viticulture, novel in-field sensor development, and information networks, will require additional sources of funding to ensure critical capacity can be developed and maintained for the agricultural sector.*

7.3 Succession and People Development

The age demographics within the grape and wine sector are concerning and ensuring key strategies are in place to promote agricultural careers will be critical. From GWRDC's perspective, providing the opportunity for talented researchers, industry future leaders, and the next generation of industry practitioners to develop their careers is important.

Recommendation: *The investment in people development is a key area that grape and wine sector will continue to support and promote, ensuring that the sector continues to build on its significant intellectual capital. While the wine sector has funds devoted to a number of core programs, a broader "whole-of-agriculture" approach to these issues would be useful.*

7.4 Extension

One issue that needs urgent review is the level of funding provided to traditional extension activities. The ongoing decline of funds attributed to this area has resulted in a slow drain of RDC funds to help *fill the gap*. If not checked, this ongoing trend will result in increased resources being removed from R&D activities, which will

inherently have a long term impact on innovation within the Australian agricultural sector. As discussed in the CRRDC submission, it would be useful if some of the additional \$100M in funding allocated to the RDC could be used on a process to review, and make recommendations, in regard to this issue.

Recommendation: *We recommend the ongoing provision of extension activities throughout Australia be reviewed. The current funding arrangements have resulted in a decline in extension services, the current level of which would not appear to adequately service grape and wine stakeholders. A review conducted by the Commonwealth and supported by the states and industry stakeholders would clearly go some way to ameliorating the current situation. Subsequent change is needed to ensure grapegrowers and winemakers can quickly adopt new and innovative practices.*

7.4 RD&E Focussed On Demand

Recommendation: *there is inherent value for the Australian grape and wine sector from an RD&E strategy that incorporates activities which focus on demand and market access. This will provide the sector with critical information to assist them in making business decisions related to both domestic and international market strategies. While the grape and wine sector is in the process of building capacity and undertaking projects in key markets, there is a dearth of information. We recommend that; 1) additional funding; and 2) strategies for leveraging existing funds, through inter-governmental and public-private funding mechanisms; should both be explored. This will increase the rate at which market access activities are implemented and market demand (consumer insights) information is obtained and disseminated. We note that it would be detrimental to the grape and wine sector to consider redirecting further funds from viticulture and oenology R&D to demand and market access activities, as this would result in a loss of key R&D effort in those areas which have for many years been the 'engine room' for technical innovation in the Australian wine industry.*