

**Submission to Productivity Commission Review: ECONOMIC, SOCIAL AND ENVIRONMENTAL RETURNS ON PUBLIC SUPPORT FOR SCIENCE AND INNOVATION IN AUSTRALIA**

**By the**

**The Winemakers Federation of Australia**

## Introduction

The Winemakers Federation of Australia (WFA) is the national peak body, existing to advance and protect the interests of Australia's winemakers. Voluntary membership currently represents more than 90% of wine produced in Australia.

WFA is:

- **independent** - not aligned with any public or private organisation
- **accountable** - to its members
- **democratic** - each member has equal voting rights (whether large, medium or small operations)

WFA represents the industry's interests on national and international issues, on issues that may be local but have national implications, or on issues where a State Association has sought WFA's assistance.

## Background

Statistics about the Australian wine industry demonstrate what many already know: that the process of growth in vineyard and winery capacity has been rapid and continuous and that Australian wine is now significant in the world marketplace.

In 1966 Australian domestic wine consumption was around 20 million litres, mostly fortified ports and sherries with few premium varietal table wines. In that year less than 700 tonnes of Cabernet Sauvignon was processed and plantings of Chardonnay were too small to be recorded. Total production was 156 million litres.

By 2004-05, Australia shipped over 660 million litres of wine worth about \$2.75 billion. Domestic consumers had benefited from the diversity of wines now available to them and accounted for about 40% of total wine sales. Australia's total wine production still represents only about 4% of world volume, but our exports outperform many of our larger competitors (at 8% by value). However, this is still small by world standards, compared with the market leader France which has 38% of the world export market (by value). Our share of sales remains small in many markets, and the overall market continues to expand as more people have the interest and means to experience wine as part of their food choices, lifestyle, social expression and tourism. Hence, there is scope for the Australian industry to grow further, providing the challenges facing it can be overcome.

The Australian wine industry is a regionally based agricultural and manufacturing industry. With limited exception, much of the industry's investment and employment takes place in 61 regional economies that are integral to the Australian wine industry. The industry also shares domestic and export transport infrastructure and services through Australian ports.

Since 1993, the number of wineries in Australia has increased from 740 to more than 1800 operations, while over the same period domestic sales have increased by 30 per cent or about three per cent per annum. Exports have been the primary driver of growth.

### ***Regional and National Importance***

The billions of dollars invested by individuals, companies and other investors into the expansion of the Australian wine industry have a range of direct and indirect impacts on regional economies. Central to this benefit has been the dramatic increase in regional employment associated with the wine industry over the same period - doubling between 1991 and 1996, and again between 1996 and 2001.

Combined with employment growth has been the simultaneous rise in regional investment in infrastructure and a healthy growth in local tourism. The importance of the wine industry to regional economies now extends well beyond its direct employment and investment role.

Using the latest census data, in 2001 the Australian unemployment rate was 7.4 percent. More than 63 per cent of the wine producing regions had unemployment rates below the national average (Commonwealth of Australia 2004).

Recent analysis by EconSearch shows that on average for every 10 extra people employed in wine manufacturing in wine making regions, there is an increase in employment in grape growing of 9 people and an increase in employment in other industries of more than 17 people. That is, the overall impact of employing 10 extra people in wine manufacturing is the creation of 36 extra jobs. This extra employment occurs in both industries that supply the wine industry with inputs (upstream industries) and those that use wine as an input into their business (downstream industries).

These strong linkages to other sectors of the economy indicate that, with direct employment in grape growing and wine manufacturing now exceeding 30,000 people across Australia, there are approximately a further 27,000 people employed in industries that either supply the industry or rely on it. In total, the jobs of more than 57,000 Australians are now linked to the fortunes of the Australian wine industry.

The EconSearch study showed that in South Australia's Riverland, the production and processing of wine grapes directly and indirectly supported the employment of over 4,200 people (28 per cent of total regional employment). The production and processing of wine grapes directly contributed 2,380 jobs or 57 per cent of the total jobs supported by the wine industry in the region. Flow-ons from the production and processing of wine grapes supported 1,800 jobs and were greatest in the trade, services to agriculture and transport sectors.

These figures are likely to understate significantly the wine industry's current contribution to the regional economy as the volume of production has effectively doubled since then. Similar flow-on effects to regional economies exist in the other major wine producing regions of Australia. The wine industry has also played a critical role in bringing people back into the regions and reversing the trend of migration from rural to urban Australia.

A case in point is the Margaret River region of WA. According to ACIL Consulting (2003), 'when vines were first planted in Margaret river 30 years ago, the local shire recorded a population of only 3000, had one of the highest unemployment levels in Australia, was home to a range of alternative lifestyles and had a declining population due to a marked lack of employment opportunities in the region. Today, the Shire boasts a population of over 10,000, enjoys one of Australia's lowest unemployment levels and is a prosperous and thriving tourist destination.'

### **The Wine Industry and Tourism**

Many of Australia's small wineries rely heavily on cellar door visitations to remain viable. For them, the route to market is primarily through mail order and cellar door sales and increasingly, profitability is underpinned by sales of merchandise and provision of meals as well as wine sales.

In 2004 there were over 4.6 million people who visited a winery while traveling in Australia. Most of these were domestic visitors. In 2004, 12 per cent of international visitors, 3 per cent of domestic overnight visitors and 1 per cent of domestic day visitors were wine visitors. As of April 2005, there were 1 490 wineries with cellar door facilities, six per cent more than in March 2004. The state with the largest number of wineries with cellar door facilities was Victoria. Of those wineries with cellar door facilities, 39 per cent of them had an on-site restaurant/served light meals, 74 more compared to March 2004. This indicates the increasing role of wineries in integrating tourism with the food and wine experience (Tourism Research Australia, 2005).

The contribution of wine tourism to regional economies is also increasingly being recognized. In 2001, ACIL Consulting estimated that expenditure on wine tourism in Australia in 1999-2000 was \$965 million. Of this, it was estimated that \$411 million was spent at wineries on food, merchandise and accommodation and a further \$554 million in the regional communities on food, accommodation and transport.

Another indication of wine tourism's importance is provided by the Hunter Valley Research Foundation, which estimated that wine-related tourism directly and indirectly supported 4,900 jobs in the Hunter Region.

WFA and the Australian Government Department of Industry, Tourism and Resources have released the Wine Tourism Uncorked publication, based on case studies of 24 Australian wineries. This publication includes examples of successful wine tourism ventures around regional Australia, as well as tips on branding, market development, events, food, accommodation and customer service.

The crucial features of the Australian success with wine as a beverage of choice have been:

- Australian grapegrowers and Australian wine makers have been highly innovative;
- the Australian wine offering has tapped into changing lifestyles; and bought new consumers into the market;
- the Australian wine diversity and quality has changed consumers' views about wine;
- the Australian wine portfolio has driven consumers upmarket;
- Australian wine businesses have generated profits.

All of these features are important and highlight the direct linkage between research, innovation, an innovative learning culture, and business success. It is this success that drives investment that has seen grape-growers, winemakers and many supply businesses contribute to the ability of Australia to now grow, process and market wine from an annual grape crop of around 2 million tonnes.

Australia now faces a highly competitive international trading environment, with greater concentration of competitors in the main markets for our wine. Sustaining the growth of the grape and wine industry and its further development will depend on maintaining and improving its competitiveness at all stages of the supply chain.

We are facing increased competition for both volume and price as others seek to emulate our success, greater regulation that may slow adoption and stifle innovation, growth in pseudo-technical barriers to trade and market access, and increased environmental restrictions.

The industry accepts the reality of these challenges, and recognises that it must achieve continual improvements in quality, efficiency, ability to meet consumer demands, and customer service.

Crucial goals are:

- understanding and meeting consumer preferences;
- ensuring consumer understanding that Australian wines are excellent at every price point
- clearly defining and communicating the Australian unique sales proposition
- improving profitability throughout the supply chain;
- ensuring capacity to meet grape and wine specifications to provide consumer surety and achieve higher prices;
- using accurate forecasts of market requirements to manage production (quantity and styles)
- preserving and enhancing quality at all stages of the supply chain;
- improving and demonstrating environmental sustainability.

The Australian wine industry offers a very attractive opportunity to investors in R&D, as it has a well-developed and effective research and adoption infrastructure that is a proven model for success.

## **The R&D Environment**

Effective research and development (R&D) has been a critical element in the successful growth of Australia's wine industry over the last decade, especially in the viticulture area, but also in oenology and market development.

Much of this R&D has been funded through industry levies, supported by matching Government contributions and private sector partnerships, which either directly or indirectly have supported

work of bodies such as the Grape and Wine Research and Development Corporation (GWRDC), Australian Wine Research Institute (AWRI) and Cooperative Research Centre for Viticulture (CRCV). However, there is also a large amount of private investment by wine companies and suppliers of inputs.

Wine industry research is in general characterised by a large number of small improvements aimed at reducing cost through either improved management practices in the vineyard and / or winery, minimising problems in viticulture and oenology and / or improving the cost per quality unit ratio.

In addition to these R&D benefits, there have been the large ticket items which have to date been mostly in the form of engineering solutions, particularly mechanical harvesting and pruning and in irrigation techniques.

Clearly as the international and domestic market becomes more competitive, reducing cost through the ability to grow grapes and make wine to pre-determined specifications (through reducing intra-vineyard variability and understanding quality attributes in grapes and wine) will be critical in maintaining a competitive edge.

The contribution made by R&D to national wine industry success is not always obvious. Consider, for example, the role played by scientists decades ago in selection of better clones and rootstocks. And at the other end of the line consider the part wine research has played in maximising winemaking attributes, as well as the value of market R&D to the economic outlook.

Results of R&D can be seen in all regions and extend from the skills and knowledge winemakers bring when they enter the workforce to techniques applied in the vineyard and winery.

All our major regions have gained enormously from irrigation research and extension. Techniques like regulated deficit irrigation (RDI) and partial rootzone drying (PRD) were developed and refined with the R&D levy, while GWRDC investment in programs for grower groups has improved irrigation management generally. More recently there have been such activities as grape quality seminars to help producers correlate results with practices.

### **Grape and Wine Research and Development Corporation**

The GWRDC is funded through industry levies and matching Australian government funding and is the chief investor in grape and wine research and development on behalf of the Australian wine industry and the Australian community. The GWRDC's mission is 'to realise for Australia the excellent returns available from strategic investment in wine industry research and development'.

Its investment approach aims to address *industry-wide* priorities developed through the five-year plan and Annual Operational Plan, whilst ensuring that delivery and adoption occur at a more *regional* level.

The GWRDC is also required to meet community and consumer outcomes as outlined by the Australian Government in recognition of their contribution to the GWRDC by matching levy-payer funds. The GWRDC seeks coinvestors to support and undertake core R&D. In addition, the GWRDC acts as a facilitator of industry development by encouraging innovation through regional activities that are focused on regional adoption of new technologies and practices.

Currently there are more than 150 projects fully or partly funded by the GWRDC. They represent an investment of \$13 million and cover a broad range of topics, including:

- Salinity management (incorporating studies of effects on soil and wine, management of irrigation and evaluation of rootstocks for salinity tolerance);
- Investigation of the possible source, spread and control of Australian Grapevine Yellows;
- Grape crop forecasting (covering measurement techniques and controlling yield fluctuations);
- Winegrape quality assessment;
- Studies of canopy management techniques (including the relationship of exposure and quality);
- Continuing studies of powdery mildew, downy mildew, botrytis and other diseases;

- Vineyard mechanisation, including development of improved spraying technology;
- Impacts of chemicals on the vineyard and wider environment;
- Vineyard floor management; and
- Selection of clones and rootstocks.

The GWRDC maintains close relationship with key R&D providers, such as the AWRI, CSIRO, State Departments of Agriculture, and universities. In addition, the GWRDC is well informed on strategically important issues such as international and domestic trade, regulatory matters, and a variety of social, environmental and research issues impacting on the R&D agenda.

The GWRDC consults directly with industry service providers such as the Australian Wine and Brandy Corporation and the CRCV, of which it is a key funding partner.

Investment in R&D by the GWRDC includes money collected through levies representing about 0.8% of annual vineyard inputs, and an independent analysis of benefits shows there is a **return on investment of more than \$8 for every levy dollar spent on research** across the grapegrowing as well as winemaking sectors.

### **Australian Wine Research Institute (AWRI)**

One of the success stories has been the AWRI, funded by levy payers through the GWRDC. This national institution is owned by the industry and provides technical support across all levels of the industry. It has been able to undertake a complexity and volume of work that would not normally be undertaken by individual industry participants. In addition, its research findings have encouraged winemakers and suppliers to fund their own enquiries into aromas and flavours, yeast selection, fault-tracking and other aspects.

The AWRI research into closures has been instrumental in changing perceptions on closures, as well as influencing cork manufacturers to improve the quality of natural cork closures by clearly identifying the technical issues surrounding closures. The AWRI yeast research has also been instrumental in reducing *Brettanomyces* spoilage, but has also resulted in a greater understanding of yeasts and how they influence the final wine. This is critical research activity to improve industry capacity to deliver wine in styles our customers appreciate and that the winemaker desires.

The single biggest project investment by GWRDC with the AWRI is in their Program 3 (Quality and Differentiation). The project is simply titled “Grape Composition and Wine Flavour” and represents a \$541,000 investment, a significant slice of the total GWRDC Program 3 expenditure of \$5.95 million.

The AWRI, with its research into aromas and flavours, has allowed a far better understanding of the appropriate fermentation, oak treatment and viticulture techniques for different climatic regions. For example, Riverina Chardonnay and Semillon have significant market appeal on which winemakers can capitalise. Research has shown that Chardonnay, for example, has a warm flavour spectrum from rockmelon to peach which people like, while the weight of flavour lends itself to oak. By contrast thin Chardonnay cannot be over-oaky and will not handle the malolactic treatments which some Riverina winemakers are using to draw out butterscotch tones.

Both viticultural science and wine science have been critical in raising the quality parameters of warmer climate wines. Viticultural R&D has introduced integrated pest management (IPM), reduction of chemical inputs, and production of fruit which is sound, fresh and clean. Interest is now turning to aspects like matching clones, rootstocks and site characteristics for building styles of Chardonnay in particular.

There have been large advances in red winemaking, starting with the contribution of improved irrigation management techniques to vine balance, berry size and anthocyanin concentration. Greater flavour intensity has been another advancement, with extension from lighter berry fruits to blackberry and blood plum characters.

## **Cooperative Research Centre for Viticulture**

Like the GWRDC, the present CRCV attracts considerable funds from the Australian Government. Discussions have been held at the industry level for a number of years for the need to ensure that the research being undertaken through the CRC for Viticulture would be able to continue following the completion of its seven-year term this year.

The public face of these organisations may give the impression that they are the biggest investors in wine industry R&D. Actual dollar comparisons are not possible to make but millions of dollars are also spent each year by wine companies on product and market development and by service industries like irrigation companies searching for better ways of operating.

## **Research Uptake and Extension**

Research uptake is a priority area in the management and delivery of R&D to the wine industry. Currently, there is a wide variety of investment in programs designed to achieve research uptake, ranging from those undertaken by the AWRI involving direct transfer of knowledge to industry to those with an emphasis on education and training undertaken by the Wine Industry National Education and Training Advisory Council (WINETAC).

The Regional Innovation and Technology Adoption (RITA) program is one of the more obvious extension vehicles of levy-payer funds research.

RITA, which deals with locally-relevant matters, has allocated \$1.22 million in funds over the last three years, involving 111 projects. Project topics have included botrytis management in the Yarra Valley and Tumberumba, quality benchmarking and field walks at Gundagai, trunk disease management at Hilltops, development of regional bio-security protocols for Gippsland and Mornington Peninsula, quality measurement in Bendigo, and irrigation practice improvement in Mildura, Swan Hill and Robinvale.

## **Identifying Future R&D Priorities**

In December 2004, industry was successful in increasing the operational rate of the Wine Grapes (Wine) levy from \$3 per tonne to \$5 per tonne for 2005. This is in addition to the \$2 per tonne (Grape) levy paid on grapes entering the winery. The Australian Government matches the expenditure of those levy funds on eligible R&D projects up to 0.5 per cent of the determined Gross Value of Production of the industry concerned.

With the increased flexibility that has come with the extra research funds available for research, it is important that they be spent according to industry priorities. Accordingly, a new body responsible for setting priorities has been established, answerable to the Winemakers' Federation of Australia (WFA), Wine Grape Growers Australia (WGGA) and Grape and Wine Research and Development Corporation (GWRDC).

This body, known as the Research & Development Strategic Directions Group (SDG), has members from regions throughout Australia, and is multidisciplinary with expertise in viticulture, oenology, tourism, environment, trade, engineering and marketing. In addition, it will receive direct input from state and regional organisations for the identification of regional, state and national priorities.

The group is chaired by an independent facilitator and has objectives of:

1. Preparing an R&D prospectus, to be released every three years and an addendum of issues annually:
  - This will include priorities across wine, oenology and viticulture as in the past but also include social and market issues;
  - This prospectus will identify issues and research gaps to inform the priority setting process of all research funders (not just the GWRDC) and providers;
  - The SDG will prepare annual updates of the prospectus and assess how well the priorities are being met; and
  - The SDG will not be involved in assessing individual research projects, and will have a long term goal to attract additional investment from private companies.

2. In keeping with its defined role of setting priorities for validation by the CRCV, GWRDC and agencies, the SDG will meet outside of the triennial priority setting process to address the specific needs of the GWRDC and CRCV. This will give the SDG a direct role in assisting the GWRDC in the development of its 5 year plan and annual operational plan.
3. Determining relative priorities against currently identified priorities of any potential, new or emerging R&D issues.
4. Engaging the industry at regional, state and national levels to maximise the opportunity for industry input into the priority setting process and ensuring that priorities from the full diversity of the Australian wine and grape industry are represented in the process.

The first R&D prospectus was launched in March 2006 (summary attached).

It is critical that the additional research funding generated by the prospectus is used according to industry developed priorities. Consequently, the SDG will be pivotal to ensure that potential research opportunities are identified.

The clear identification of priorities could attract additional private sector investment on issues that lie outside that of the current funding base provided by the traditional investment providers. This will provide opportunities for new investors to fund and/or provide research with a commercial advantage for both the investor and the industry as key research priorities are met.

The attraction of new investment into grape and wine R&D, growth in international collaboration, and better targeted research to meet industry priorities through this will be key outcomes of the Australian wine industry R&D prospectus.

## **Conclusion**

There are clear national benefits from government funding of R&D. Industries such as the wine industry are key employers in rural and regional Australia and are key elements in maintaining rural communities.

R&D will be the key reason that Australia's wine industry continues to grow, but it will require more investment, more targeted priority setting and increased emphasis on intentional collaboration and cross-cutting research between industries and disciplines to maximise opportunities.

Government investment in R&D will continue to provide strong national returns.

Extension will be the key to maximising opportunities as it is speed of adoption that is critical in the wine industry, as it is naïve to believe that locking up intellectual property is possible in such a global industry