

Building resilience in the face of a changing climate

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A three-year extension project, funded by the Australian Government, delivered targeted technical information about greenhouse gas (GHG) emissions and climate change to the Australian grape and wine community. Positive messaging and some innovative extension mechanisms led to success in raising awareness and promoting practice change. New partnerships and the strengthening of Entwine, the Australian grape and wine industry's sustainability program, will ensure continuing efforts in this area.

INTRODUCTION

In 2013 the AWRI received a grant from the Australian Government to deliver information on greenhouse gas (GHG) emissions and climate change to the Australian wine industry and to support best practice in emissions management. This project formed part of a larger 'extension and outreach' program extending this type of information to other agricultural sectors. Many see the grape and wine sector as a 'canary in the coal mine' for agriculture, more generally when it comes to the effects of climate change. This is because producers are already experiencing earlier and more compressed harvests, which translate to higher sugar and alcohol levels and logistical challenges in the winery. As such, having access to up-to-date and accurate technical information is key to building resilience and encouraging adaptation in the face of changing climatic conditions.

FILLING A KNOWLEDGE GAP

While Australia's grapegrowers and winemakers are known for their technical excellence and willingness to innovate, at the commencement of this project they had limited specific information about the effects of climate change on grape and wine production. Within the industry there was also little understanding of the sources and magnitude of GHG emissions from which to develop GHG mitigation strategies. This project sought to fill that knowledge gap by providing technical expertise and innovative solutions across the grape and wine community. Specifically, the aims of the project were to:

- identify and communicate the sources of greenhouse gas (GHG) emissions in grape and wine production

AT A GLANCE

- Between 2013 and 2016 the AWRI provided information about climate change and greenhouse gas (GHG) emissions to the Australian grape and wine sector as part of an Australian Government program
 - The project raised awareness of climate change and its effects on the grape and wine industry and provided a range of practical GHG mitigation options for wineries and vineyards
 - Tools and resources developed during the project continue to be available to growers and winemakers via the AWRI website and the AWRI helpdesk team
 - The extension mechanisms chosen were successful as evidenced through strong adoption rates of emissions management strategies
 - Following the conclusion of the project, Entwine (the Australian grape and wine industry's sustainability program) continues to support best practice in GHG emissions management.
- establish a benchmarking tool to enable Australian grape and wine producers to evaluate their GHG emissions and identify opportunities for improvement
 - increase the level of knowledge about climate science and the effects of a changing climate on grape and wine production
 - consolidate relevant information in a single repository accessible by grape and wine producers and the broader agricultural sector
 - establish knowledgeable 'go to' people on the ground
 - promote practice change to reduce GHG emissions and ensure Australia's grape and wine sector is sustainable, globally competitive and resilient.

TAKING A POSITIVE APPROACH

To encourage maximum industry engagement and adoption, extension materials developed in the project focussed on presenting positive messages. The project also drew on research showing that land managers vary in their preferred learning styles. Some favour face-to-face delivery or on-farm demonstrations, while others prefer to learn from electronic

resources that can be accessed at convenient times. As such, a range of different communication tools were used in the project to maximise knowledge transfer and promote broader uptake.

An initial series of three training workshops were conducted to inform the key influencers in the grape and wine community about climate science and emissions management practices. These workshops were aimed at wine industry peak bodies, viticultural consultants, vineyard managers, grower liaison officers and regional representatives. These were followed by 21 regional workshops for growers and winemakers. All events were supported by hard copy and electronic resources (available online at: http://www.awri.com.au/industry_support/new_climate/). The project team also engaged with regional technical groups, with wine industry professionals at a 16th AWITC workshop and with undergraduate and postgraduate students entering the grape and wine industry by presenting an annual lecture at the University of Adelaide. The extension events were complemented by one-on-one support from the project team via the AWRI helpdesk.



PROJECT EVALUATION – DID IT ACHIEVE ITS AIMS?

It was important to quantify the uptake of the information delivered at workshops. This was achieved by analysing the responses of attendees at the workshops, including their satisfaction with the events and information provided and any changes they had made to their business practices. A combination of quantitative and qualitative data was collected using:

- workshop feedback surveys which captured participant satisfaction with the appropriateness and relevance of information presented (154 complete surveys)
- follow-up surveys with workshop participants conducted by an independent consultant (37 phone interviews and 67 online surveys) to capture information on how the workshops influenced practice change.

Workshop participants reported that they were positively influenced by the AWRI workshops. Specifically,

- attendees increased their knowledge of the effects of climate change on the grape and wine industry (86%); the industry's contribution to climate change (64%); the range of mitigation options available (68%)
- attendees reported that they were more confident to make decisions about, or provide advice on, climate change mitigation within the wine industry (70%)
- attendees reported that they were more interested in learning about climate change effects (80%)
- sixty per cent of attendees had either reviewed their current practices, intended to adopt or had already adopted practices to reduce their emissions.

Having identified there was little understanding of the sources and magnitude of greenhouse gas emissions within the wine industry, a three-year project sought to fill that knowledge gap by providing technical expertise and innovative solutions across the grape and wine community.

WHAT TYPE OF INFORMATION WAS DELIVERED?

The information presented during the project covered climate science and policy (with a focus on the Emissions Reduction Fund), the effects of climate change in the vineyard and winery, identification of emissions sources in grapegrowing and winemaking, tips for reducing emissions and results from relevant research projects (e.g. grape marc reuse, N₂O emissions from vineyards).

The team also worked closely with a range of individual businesses that had been taking steps to reduce emissions to develop a series of case studies. By evaluating the effects of different types of practice change and demonstrating the resulting economic and environmental benefits, some compelling stories were developed. These formed a key communication tool - examples of actions being taken by similar businesses provide concrete examples to follow and inspiration to take action.

Case studies included:

- grazing sheep in vineyards to reduce tractor passes
- improvements to heating, cooling and lighting practices in the winery to save energy
- making changes to winery refrigeration settings to reduce electricity use
- vineyard mulching trials.

These are available as fact sheets via the AWRI website, and were also presented at workshops, sometimes by the practitioners who had driven the process change.

Resources generated during the project continue to be available, including

six webinar recordings, 10 fact sheets, presentation slides from four workshops and a collection of relevant links.

BRINGING THE AUSTRALIAN WINE CARBON CALCULATOR ONLINE

A further goal of this project was to develop an online tool to assist with decision-making on GHG emissions. The existing spreadsheet-based Australian Wine Carbon Calculator was upgraded with additional features including national, state and regional benchmarking and brought online for easier access. It was then incorporated into the Australian wine industry's sustainability program Entwine Australia (www.entwineaustralia.com.au). All Entwine members are now able to evaluate the effects of their current practices, compare themselves to other producers and assess the effects of alternative mitigation strategies.



The project team worked closely with a range of individual businesses that had taken steps to reduce emissions to develop a series of case studies, one of which focused on grazing sheep in vineyards to reduce tractor passes.

- forty per cent of attendees were making changes to improve environmental credentials; the main drivers for this were caring for the environment (80%) and improving business performance (60%).

Workshop participants took a range of actions after attending the workshops to follow up on the information they were provided. The most commonly cited action was discussing the workshop presentation content with other attendees or presenters (80%). Following the workshops, the participants frequently reported that they had accessed the other extension resources provided by the AWRI. More than half (65%) of the follow-up survey respondents had read the AWRI factsheets and 47% had viewed the AWRI Sustainability, Entwine or Environment webpages.

Participants were also asked whether they had used the information presented at the workshops in other ways. Responses indicate that workshop participants used and shared the information more widely, in particular those workshop participants who were not directly involved in a grapegrowing

or winemaking enterprise. Survey respondents who shared the AWRI workshop information did so widely amongst peers and colleagues, including with regional industry groups, research groups and in other professional forums.

WHAT'S NEXT IN THIS AREA?

The conclusion of this Australian Government-funded project does not mean the end of the AWRI's involvement in disseminating information on emissions, climate change and sustainability. A new partnership between the AWRI and agribusiness lender, the National Australia Bank, will support a pilot study to improve understanding of the relationship between environmental performance and business resilience. Over the next 12 months, the AWRI will work closely with producers in the Langhorne Creek wine region to understand how their businesses can benefit from investment in natural resource capital. The AWRI will develop additional case studies to assist others to understand and adopt sustainable practices that also have business benefits.

The AWRI continues to manage Entwine Australia and further develop resources and services that provide value to members. In early 2016 Entwine received formal endorsement from the peak industry bodies to be the principal vehicle to convey the Australian wine industry's sustainability credentials. Opportunities to more closely integrate Entwine within Wine Australia's promotion of Australian wine are actively being explored.

This all represents a widening focus on contributing to the overall sustainability of the grape and wine community, which encompasses environmental, economic and social aspects.

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