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## **EXPLORING CLIMATE CHANGE ADAPTATION WITH AUSTRALIAN WINE CONSUMERS**

Author(s) names and affiliation:

Gemma Lewis<sup>1</sup>, Anoma Ariyawardana<sup>2</sup>, Lilly Lim-Camacho<sup>3</sup>, Joseph Crawford<sup>1</sup>

<sup>1</sup>Tasmanian School of Business and Economics,  
Launceston, Tasmania, Australia

<sup>2</sup>School of Agriculture and Food Sciences, The University of Queensland,  
Gatton, Queensland, Australia

<sup>3</sup>Agriculture and Global Change, CSIRO Agriculture and Food,  
St Lucia, Australia

Corresponding author:

Dr Gemma Lewis

Tasmanian School of Business and Economics, University of Tasmania  
Locked Bag 1317, Room A-268, Launceston TAS 7250

Telephone: +61 3 6324 3932

Email: [gemma.lewis@utas.edu.au](mailto:gemma.lewis@utas.edu.au)

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## EXPLORING CLIMATE CHANGE ADAPTATION WITH AUSTRALIAN WINE CONSUMERS

### Abstract

*Climate change, and its associated climate variability, has significant impacts on the wine industry and these changes will increasingly be felt along the whole chain of companies that produce, handle, process and market wine. There has been very little work in understanding how wine consumers perceive both the climate change mitigation and adaptation efforts of these companies. This study was conducted to explore Australian wine consumer perceptions towards climate change adaptation and the impacts of climate change on the growing, making and marketing of wine. Data were collected through four focus groups discussions, with a total of 30 Australian wine consumers. This paper reports the preliminary results of data analysis. Findings revealed that participants are concerned for the production and quality of Australian wines, but their purchase decisions and drinking habits are still guided predominantly by non-environmental factors. They would, however, like to make informed decisions on wine purchase and consumption considering climate, which suggests wine businesses could benefit from educating consumers, and communicating specific climate adaptation information to consumers in a timely manner.*

**Keywords:** Climate adaptation, climate change, consumer perceptions, wine industry, value chain

### Introduction

The globalisation of the wine industry over the past twenty years, and the resultant increase in competition, has encouraged vast change and innovation for Australia's wine producers (Fearne et al., 2009; Fleming, Park, & Marshall 2015; Galbreath, Charles, & Oczkowski 2014). However, the sustainability and economic viability of wine production in Australia (and globally) is particularly sensitive to changes in climate, as effective grape-growing relies on a reasonably narrow range of climatic conditions in terms of air temperature,

rainfall levels, and soil moisture content (Dunn et al. 2015; Hannah et al. 2013; Holland & Smit 2010; Moriondo et al. 2013; Webb et al. 2012; Zhu et al. 2014). Moreover, Fleming et al. (2015) suggest that the character of the wine industry means that wine and grape producers need to engage in longer term planning owing to the nature of vine growth and development (Dunn et al. 2015).

The projected warmer and dryer climate conditions – and increased incidents and severity of extreme weather events – will also affect the productive life of grape vines; create greater water management issues, change the suitability of growing locations; reduce the total length of harvest periods; induce earlier and more rapid ripening of fruit; and lead to greater problems with vine pests and diseases (Hannah et al. 2013; Holland & Smit 2010; Jones et al. 2005; Mira 2010; Mozell & Thach 2014; Park et al. 2012; Webb et al. 2012; Zhu et al. 2014). While these negative outcomes of climate change are problematic, some positive outcomes may result, as new grape growing areas previously unsuitable for viticulture (particularly at higher altitudes or cooler latitudes) may become more viable (Hannah et al. 2013; Holland & Smit 2010; Jones et al. 2005; Moriondo et al. 2013; Zhu et al. 2014) and therefore grow in size and scale.

Research has been conducted into how industry are approaching adaptation to enable it to manage both the challenges and opportunities posed by climate change (e.g., Dunn et al. 2015; Fearne 2009; Fearne et al. 2009; Fleming et al. 2015; Fleming, Park & Marshall 2015; Fleming, Rickards & Dowd 2015; Galbreath 2014; Galbreath et al. 2014; Grimstad 2011; Park et al. 2012; Webb et al. 2012). Both incremental and transformational approaches to climate change adaptation are evident in the Australian wine industry (Park et al. 2012). Incremental options include: changing grape varieties to those more suitable for drier and warmer conditions (Webb et al. 2012); greater carbon emission management (Grimstad 2011); introducing sustainable packaging materials (Fearne, 2009); increasing irrigation of vines (Webb et al. 2012); and earlier harvesting, (Park et al. 2012). While a key transformational strategy is relocating operations to cooler climates and grape growing areas (Park et al. 2012). Interestingly, some wine producers have purchased land and assets *now* to enable their ability to move *later* – that is, once the effects of climate change start to take hold in their current locations (Park et al. 2012). Transformational adaptation is also occurring through the diversification of business operations into other areas, such as tourism; developing completely new grape varieties to adapt to climate change projections; or exiting the industry completely (Grimstad 2011; Fleming, Park & Marshall 2015; Park et al. 2012).

Both incremental and transformational adaptation will arguably lead to significant cost and strategic implications for Australian grape and wine producers. Hence, an important consideration becomes how the final product is offered to consumers, and to what extent, if any, is it affected by the adaptation. As part of a broader research project investigating climate change impacts on Australian food value chains, this study explored Australian wine consumers perceptions towards the impacts of climate change on the growing, processing and marketing of wine, and how they would respond to both incremental and transformational adaptation.

## **Methods**

Due to the complex nature inherent in understanding consumer purchase and consumption intentions and decisions, a qualitative research method was adopted. This involved 30 participants in four focus groups; similar to research conducted by Phelps et al. (2004). All participants were of legal drinking age and were current residents of Brisbane, Australia. A market research company was recruited participants from an existing database. To take part, consumers had to: be between 18 and 65 years and have purchased or consumed wine in the last three months. Potential participants were then grouped and recruited based on their wine consumption behaviour, namely, 'daily', 'almost every day', '2-3 times a week', and 'once a week'. The four focus groups comprised of 8, 8, 7, and 7 participants. Within each group, there were a mix of ages, gender, income levels and residential suburb.

The focus group schedule separated discussion questions into four sections pertaining to wine: 'product and brand attributes', 'product-related consumer views', 'climate-related adaption of purchasing', and 'climate change adaption scenarios'. The final section comprised of scenarios, relating to the impact climate change adaption strategies would have on purchase and consumption intentions, and included a description of what the wine producer and or chain members had changed.

Each focus group was presented with the same set of semi-structured, open-ended questions in the same order. Probing questions were used to elicit additional information and detail, or where participants required an example to understand what was being asked. A narrative analysis of data was conducted with the aid of computer-aided qualitative data analysis software (NVivo) and was guided by the research aims. This begun with developing three nodes, which would allow grouping of subsequent 'children' nodes, by their relationship to each of the predefined research questions. Transcripts were coded to

nodes individually, inductively adding new nodes as participant comments related to the theoretically driven research aims.

## **Results**

### **Climate change impacts on wine**

During each focus group participants were asked questions regarding their perceptions and knowledge of climate change and how it impacts on the growing, processing and marketing of Australian wine. One of the more significant comments surrounded the role that *extreme* weather played in wine production, such as smoke-tainted wine from bush fires, or higher alcohol percentage in wine caused by faster ripening of grapes and particularly warm weather. Interestingly some participants felt that smoke-tainted wine was a bit of a novelty, while others stated they “would just wait for them [the grapes/wine producer] to regroup, regrow, and then try again”. Excessive rain in Tasmania was also suggested by participants as an example of climate change effecting the wine industry. In this instance, the participant also commented but “it was one of their best seasons”. Whilst some consumers demonstrated concern for winegrowers in relation to extreme weather, most did not show considerable alarm. For example, one participant stated that it was not as noticeable as other agricultural industries, such as bananas, due to the time lag between grapes being grown and wine being available for purchase.

Additional commentary surrounding climate-impacted wines included the extent to which individuals would switch brands or switch to a substitute product; however, most individuals expressed that loyalty to particular brands would make them reluctant to switch simply because of a change in flavour or quality of wine. Others described Australians as “very charitable people would go and support buying that [climate-effected wine] to help them get back on their feet”. Further, one participant even suggested that those outside of Australia would consider environmental credentials more significantly than Australians. For example, the perceived cleanliness of the environment in many regions of Australia impacted consumer decision making, including the notion that “Adelaide is very good because it’s a bit cleaner”. On the whole, consumers agreed with those who stated that they avoided purchasing Spanish wines because vineyards were located beside six-lane freeways.

Participants also outlined that because climate change is forever growing in terms of significance and awareness, businesses could do more to enable consumers to make informed decisions for wine purchase and consumption considering climate, with the suggestion to “have something on the bottles”. Further, one participant stated that they

would “be inclined to pick [a wine which donates to environmental causes] over the one next to it, otherwise they’re on par in my mind”. From this, it is evident that some consumers were advocating for more marketing about the environmental impacts or credentials of a wine brand or vineyard, and hence they would purchase or consume on this basis. Others remained somewhat sceptical about whether it was necessary for wine producers to disclose their environmental credentials, as generally wine wasn’t perceived to be a damaging or toxic industry.

### **Consumer response to climate adaptation**

Many of the participants throughout this study outlined a form of disinterest in changing their purchase or consumption of wine based on climate change and subsequent adaptation. In going through each of the three climate adaptation scenarios, it was evident that the product attributes such as price, brand and region maintained a strong influence on consumer purchase decisions than adaptation strategies. In the first incremental adaptation scenario, most consumers stated that they would not change their purchasing or consumption behaviour on the basis of a climate impacted wine with higher alcohol content; with statements such as “I don’t think it’d be the end of the world”. When discussing the scenario further, the participants appeared to be more interested in the price, transparency of the process, and how this could alter the taste, rather than the specific adaptation strategies the producer could use to reduce the alcohol content to the standard level. Yet, it was also evident that many consumers didn’t typically look at the alcohol content of wines nor understand how this could vary depending on variety, unless they were specifically seeking low-alcohol content beverages.

In the second scenario an example of transformational adaptation was presented. Most participants were less concerned about moving their winery to a less susceptible location, unless it was out of a prestigious or picturesque location, “Is the original location very picturesque?”. However, the impact on purchase and consumption was mainly individual-oriented focusing on attributes such as taste preference, “[It] comes down to the taste again.” and price “If it’s \$10 more for the same product then it would be hard to justify it, I think”.

In the third scenario a second example of incremental adaptation was discussed. Participants were again less concerned with the production of a new varietal wine, which is more conducive to the changing growing conditions and temperatures. Some put a change down to business strategy, “I’m thinking that adaptation is part of success, isn’t it?”. Interestingly, consumers who drank wine daily tended to suggest supporting the

winemaker transition, as opposed to considering mitigation strategies to stop it occurring in the first place, “And we’ll go, “We’re going to give this bloke a go. He needs a hand”, “It’s the Australian spirit”. Again, these perceptions were impacted on other attributes such as price and taste. For example, although one participant indicated they would try the new wine they did comment “I agree. But I wasn’t buying \$16 bananas, \$16 a kilo bananas.”

## **Discussion**

Overall, the perspectives shared by participants confirm the range of different climate change adaptation perceptions among wine consumers, and comparison between focus groups reveals no real connection between high and low involvement consumers, and what they perceive. Many consumers were relatively naïve when asked about their understanding of the process of making wine, in fact some made comments like ‘I didn’t realise they did that’ and ‘I’m going to pay more attention in the future’ only as a result of discussions arising during the focus group on how climate change can impact the volume and quality of wine. Another theme to stem from analysis of the data was the extent to which discussion about wine, its complexities and unique characteristics, serves a useful education purpose for consumers. At the beginning of each focus group, the perceptions of climate change impacts and climate change adaptation was limited, thus demonstrating a low level of consumer knowledge and interest. Many associated climate change adaptation to other environmental themes such as environmentally friendly or organically certified wines, which typically were not liked by consumers. However, through the process of being presented with and discussing a set of climate change adaptation scenarios, many participants showed signs of a new concern for the production and quality of Australian wines. There was a sense that wine producers were not in the same category of ‘farmers’ and hence they were not affected in the same way by extreme weather events, changing climatic conditions and seasonal patterns. That said, the Australian spirit of supporting our agricultural industry does suggest that wine producers could benefit from sharing more with their consumers about what they are doing to adapt to climate change and protect our country’s natural resources.

## **Conclusion**

This paper offers a preliminary account of consumer perceptions of climate change adaptation and mitigation in the context of the Australian wine industry. Through a qualitative research methodology, researchers explored how consumers perceive (and might therefore respond to) both incremental and transformational adaptation strategies.

Given the small sample size, it would be useful to extend the results here to a larger, perhaps quantitative study of Australian consumers. In addition, studies of what factors contribute to wine consumer perceptions of climate change adaptation, and what specific strategies have the most impact on changing consumer purchase behavior, would add further insight into this growing and important area of research.

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