SenseAsia 2014
The Asian Sensory and Consumer Research Symposium
11th - 13th May 2014, SingEx, Singapore



FINAL REPORT to
GRAPE AND WINE RESEARCH & DEVELOPMENT CORPORATION

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1 Abstract:

SenseAsia 2014: The Asian Sensory and Consumer Research Symposium, was held in SingEx, Singapore from 11th – 13th May, 2014 and attracted 268 delegates from 32 countries. It was the first sensory conference to be held in the Asian region focussing on the consumer.

The research symposium consisted of oral and poster presentations and the topics covered included:

- Basic processes: psychophysics and physiology
- Developments in measures of food choice/preference
- Developments in sensory measures
- Sensory science and health
- Food choice and consumer behavior
- Cross-cultural influences on food choice
- Sensometrics
- Sensory and consumer research into non-food products
- Applications of sensory methods

This travel grant enabled Dr. Julie Culbert to attend the symposium and participate via a poster presentation entitled “Consumer Preferences for French Champagne and Australian Sparkling Wine” as well as provide an opportunity to gain new knowledge and network with expert researchers in the field of sensory and consumer science.

2 Executive Summary:

The GWRDC travel grant financially supported Dr. Julie Culbert (Postdoctoral Fellow, The University of Adelaide) to attend SenseAsia 2014 which was held in SingEx, Singapore from 11th – 13th May, 2014. Dr. Culbert participated in the symposium by exhibiting a poster presentation entitled “Consumer Preferences for French Champagne and Australian Sparkling Wine”. This symposium was the first international sensory conference to be held in the Asian region focussing on the consumer. The strategy is to continue with this symposium every two years to compliment the European Conference on Sensory and Consumer Research (EuroSense) which is typically held in September of the same year. Over two and a half days the symposium comprised of 1 keynote presentation, 8 plenary lectures (invited speakers), 26 oral presentations and 94 posters. There were also 3 workshops that were run concurrently with the oral presentations and involved presentations from a further 15 speakers over 3 common themes, (i) cross-cultural sensory behaviour and perception; (ii) temporal dominance of sensations and emotions; and (iii) umami.

Other common themes throughout the conference included sensory science and health, applications of sensory methods, basic processes, influences on food choice, developments in sensory methods and consumer behaviour. During the session breaks there was an opportunity to network with fellow

delegates and to visit the exhibition stands. Attendance at the conference resulted in obtaining new knowledge and extending networks in the field of sensory and consumer science which may lead to collaborative projects in the future.

3 Background:

Understanding and predicting consumer behaviour is the key for companies to be able to sell their products, whether that is in relation to food or beverage or any other retail market. By understanding the human mind marketers can entice consumers to buy products and know what they want before they know themselves. Sensory perceptions, whether that be visual, taste, flavour, touch, texture or auditory, play an important role in selling products to consumers. These perceptions can be quantified through collecting sensory data by various methods. This allows for industry to evaluate and compare the sensory properties of products and determine consumer preferences. In more recent years, market research is looking to better understand emotions and what role they play in consumer choices. Consumer and sensory science is therefore important as selling is big business. As a result industries spend billions of dollars annually on market research to better understand and predict consumer behaviour.

As mentioned on the SenseAsia 2014 website (http://www.senseasia.elsevier.com/), “following on from the highly successful, long-running Pangborn Symposium and EuroSense conference, SenseAsia 2014 is the first sensory conference to be held in the Asian region with an emphasis on the consumer. The first in a series of biennial meetings, SenseAsia 2014 will focus on providing updates on key areas in sensory and consumer science by the world’s experts in these fields. In addition, the meeting will be a showcase for the region’s scientists and industrial practitioners to present their research in a prestigious, international context”.

SenseAsia provided a suitable forum to be able to disseminate information from our study on “Consumer Preferences for French Champagne and Australian Sparkling Wine”. Funding from the GWRDC travel grant therefore provided financial support for Dr. Julie Culbert to be able to attend SenseAsia 2014.

4 Project Aims and Performance Targets:

The aim of this project was to attend and participate in SenseAsia 2014 held in SingEx, Singapore from 11th – 13th May, 2014.

The specific aims were to:

- Circulate information from our study on “Consumer Preferences for French Champagne and Australian Sparkling Wine” via a poster presentation
- Acquire new knowledge on research methods for obtaining sensory and consumer data

- Establish networks with sensory and consumer scientists and industry personnel and explore avenues for collaboration in the future
- Remain at the forefront of developments in sensory and consumer science research

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5 Method:

The abstract presented in Appendix 5 on “Consumer Preferences for French Champagne and Australian Sparkling Wine” was submitted to the SenseAsia organising committee for consideration for inclusion in the symposium program. The abstract was subsequently accepted for a poster presentation.

SenseAsia 2014 took place over two and a half days in May 2014 and comprised of 1 keynote presentation, 8 plenary lectures (invited speakers), 26 oral presentations and 94 posters. There were also 3 workshops that were run concurrently with the oral presentations and involved presentations from a further 15 speakers on 3 common themes.

Information from our study on “Consumer Preferences for French Champagne and Australian Sparkling Wine” was disseminated via a poster presentation (Appendix 6). The poster presentations were exhibited over two sessions and split into the following themes:

- Sensory science and health
- Applications of sensory methods
- Basic processes: Psychophysics and physiology
- Cross-cultural influences on food choice
- Sensometrics
- Food choice and consumer behavior
- Developments in measures of food choice/preference
- Developments in sensory measures
- Sensory and consumer research into non-food products
- Other

6 Results/Discussion:

The conference was launched with an interesting keynote presentation by Professor Gemma Calvert (Neurosense Limited, UK) entitled “What can neuroscience tell us about consumer preferences?” This set the scene for the conference as it firstly highlighted the significance of global research into better understanding and predicting consumer behaviour since billions of dollars are spent annually in this field. The prediction is that the Asian market will represent one quarter of this global spend by 2015/2016. The ability to better understand and predict consumer behaviour is important to be able to develop products that consumers will buy especially since 80% of all new products fail in the first year of launch. This represents a large financial risk for companies wanting to develop and launch new products. The area of neuromarketing is a field of market research that is rapidly expanding. It looks at capturing consumers’

subconscious responses to products since people don't always tell the truth or think about how they feel when undertaking more traditional market research. Magnetic Resonance Imaging (MRI) is used to investigate areas of brain activity that are associated with certain emotions. Emotions are important as they drive our behaviour and ultimately what we purchase and when. By looking at the very fast and involuntary responses of consumers during MRI could provide industry with the answers to what they are looking for in relation to what consumers really think of their products. This presentation also highlighted the importance of multisensory science (sight, sound, taste, touch, smell) in influencing consumers' purchasing decisions. For instance, it has been shown that background music in bottle shops can influence the type of wine sold based on country of origin. When French music is played it increases the number of bottles of French wine sold and likewise for when German music is played.

The influence of aroma and colour on food and beverage flavour perception was also a common theme over several oral presentations. Charles Spence presented a captivating seminar entitled "Cross-cultural differences in the meaning of colour and their cross-modal consequences for multisensory flavour perception". This presentation highlighted the importance colour has on the taste experience and that colour does indeed matter to the consumer whether it is in the product or on the packaging. In regards to how aroma influences flavour perception, there was a video shown of how the placement of an aroma compound (i.e. vanilla) on absorbent material which is attached to the inside of a lid of a take away cup changes the perception of the flavour of the beverage (i.e. water) obtained in that cup.

There were many presentations (both oral and poster) that looked at various methods for collecting sensory data. Of particular interest were those that investigated more rapid methods other than more traditional methods such as descriptive analysis. Tracey Hollowood (Sensory Dimensions, UK) gave an oral presentation entitled "comparison of rapid profiling techniques with more traditional methods". This presentation discussed how the methods of (i) Napping; (ii) Flash profiling (FP); and (iii) Free Choice Profiling (FCP) compare to qualitative descriptive analysis (QDA). While Napping is a great screening tool and FP and FCP are suitable alternatives for trained panel, QDA is still the superior method providing more detail and product discrimination. However, the technique of Napping (or projective mapping), which involves consumers (or panellists) placing their perceived product similarities on a 2D consensus plane (or grid), was often the method of choice when collecting sensory data. Dr. Michelle Chen (Consumer and Sensory Research Scientist from Campden BRI, UK) discussed the use of this technique, in conjunction with hedonic liking scores, for assessing the perceived characteristics of the packaging of 14 different Marlborough Sauvignon Blancs. Using this process consumers were able to discriminate wine packaging designs based on perceived quality and cost of the wine, perceived clarity/quality of information and likes/dislikes.

Other sensory methods that were discussed during the conference included temporal dissemination of sensations (TDS), polarized sensory positioning (PSP), free sorting task, eye tracking, and check all that apply (CATA). For TDS, consumers can indicate when a particular emotion becomes dominant by

pressing a button for that emotion. Therefore, this method allows tracking of emotions over time, so it captures how consumers' emotions change as they consume a product. The importance of consumer emotions was discussed frequently throughout the conference. Herb Meiselman (Herb Meiselman Training and Consulting Services, USA) presented a plenary seminar entitled "Emotion measurement for consumer products: The current state of the art". Herb's presentation highlighted that when considering measuring emotions you need to consider when to measure them (before, during or after product consumption), the quantity to measure (i.e. small or large), the type (i.e. positive and negative) and whether the same types of feelings are expressed the same way globally (particularly important if undertaking cross-cultural studies). Measuring emotions is a unique field of sensory and consumer research so no standard methods currently exist. However, there are several methods that have been used based on questionnaires and/or facial, physiological or behavioural monitoring. In addition, internet studies have also been undertaken to capture consumer emotions. There are advantages and disadvantages of using each of these methods. For instance, a large number of emotions can be discriminated by questionnaire research which can lead to identification of relevant emotions. However, when consumers are asked to consider a large number of emotions it becomes a more difficult and time consuming task. Facial monitoring and physiological measurements have limitations as they are only really suitable for measuring a small number of primarily negative emotions and are unable to discriminate many different emotions, respectively.

Dr. Benoît Rousseau (The Institute for Perception, USA) gave an interesting oral presentation entitled "Sensory discrimination testing and consumer relevance". In many instances, companies need to test whether there are differences between products. It is critical that a suitable test is selected (such as the triangle test, the tetrad test, hedonic (which product is preferred) or the duo trio test) and that it is performed on a relevant number of individuals in order to obtain statistically relevant data. This presentation highlighted the importance of scientific and statistical rigour when designing discrimination tests.

The poster presentation by Mariana Borges and colleagues (Universidad de la República, Uruguay) entitled "Evaluation of palate cleansers for astringency evaluation" was highly relevant to the Wine industry. When highly astringent wines (i.e. red wines) are presented to sensory panels it is important to use suitable and effective palate cleansers between evaluations of different wines. The aim of the palate cleanser is to return the panellists palate to baseline oral conditions to avoid sample carryover effects. This study looked at water, pectin solution (2g/L), unsalted plain crackers, skimmed milk and plain yoghurt as palate cleansers. Discrimination between samples was influenced by the level of astringency between those samples which in turn influenced which was the most effective palate cleanser. When samples were less astringent, crackers followed by yoghurt were found to be the best palate cleansers. Along with pectin, crackers and yoghurt were also effective at providing better sample discrimination when samples contained higher levels of astringency. The use of yoghurt was also found to result in the lowest average astringency scores for the evaluated samples, along with milk and crackers. The

outcomes of this study suggest that crackers and yoghurt are the best palate cleansers to use for maximum sample discrimination during astringency evaluation. An electronic copy of this poster presentation was obtained and it was disseminated to work colleagues in Wine Science at the University of Adelaide.

During my poster presentation entitled “Consumer Preferences for French Champagne and Australian Sparkling Wine” I got the opportunity to meet and discuss my results with delegates from all over the world including the USA, UK, Netherlands, Singapore and Japan. Of particular significance, I had the opportunity to meet Jacqueline Beckley (President and Chief Innovator, The Understanding and Insight Group). Jacqueline is the Author of the book “Product Innovation Toolbox” and this book has subsequently been purchased to assist in the project design for a GWRDC funded Ph.D. project “Understanding Consumer Preferences for Australian Sparkling Wine and Champagne”. In addition, Jacqueline has since sent some information in regards to a mind mapping tool called Inspiration, which can be trialled for free for a period of 30 days. This tool helps create knowledge maps and is great for visualizing. This is something that may also be useful for the Ph.D. student who I co-supervise.

During the conference there was also the opportunity to visit exhibitor stands which included, MMR, Product Perceptions, Sensory Dimensions, Tragon, Campden BRI and FIZZ. Many of these companies are global consumer market research agencies that offer consumer and sensory services and some also provide data analysis software. While we already use FIZZ software to collect descriptive analysis data, I was able to hear about RedJade®, which is Tragon’s proprietary direct data entry system. There is a 3 month free trial available for this software and the full version of this software will be available in August 2014. It was good to know what other avenues are available for data entry and analysis.

I also had the opportunity to speak with Andrew Kuiler (Managing Director, MMR Consulting (Shanghai) Co. Ltd.). Andrew was interested in establishing links with the Australian Wine Industry for future growth in the Chinese market. I subsequently provided Andrew with the contact details for the GWRDC. Sensory Dimensions had a sensory exercise at their stand to match three chocolates to their sensory profiles. All participants went into a prize draw for a copy of the book “Sensory Evaluation: A Practical Handbook”. I was the lucky recipient of the book.

7 Outcome/Conclusion:

Prior to attending SenseAsia 2014 I had limited knowledge on the various methods available for collecting consumer and sensory data. Attendance at SenseAsia 2014 gave me the opportunity to learn about sensory methods such as Napping, flash profiling, free choice profiling, temporal dissemination of sensations (TDS), polarized sensory positioning (PSP), free sorting task, eye tracking, and check all that apply (CATA) and how these could be applied to various sensory profiling situations. I was able to meet an international array of researchers and industry personnel and discuss areas of common interest. The

knowledge gained will help with current and future studies and with the direction our Ph.D. students consumer focussed project.

In summary, the outcomes achieved with attending this conference included:

- Dissemination of information from our study on “Consumer Preferences for French Champagne and Australian Sparkling Wine”.
- Gaining new knowledge of consumer and sensory methods and keeping up to date with the latest research in the field of consumer and sensory science.
- Establishing networks with consumer and sensory researchers/scientists and industry personnel.
- The ability to disseminate relevant information presented at this symposium to work colleagues.

8 Recommendations:

Attendance at future SenseAsia symposiums is recommended to those in the field of sensory and consumer research as it provides an opportunity to obtain the latest information on sensory and consumer science by the world’s experts in these fields and provides an excellent forum to present research in a prestigious international context.

9 Appendix 1: Communication:

Information gained by attending this symposium and of relevance to the work undertaken in Wine Science at The University of Adelaide has been disseminated to work colleagues.

10 Appendix 2: Intellectual Property:

Not applicable - This project has no intellectual property attached to it.

11 Appendix 3: References:

Not applicable

12 Appendix 4: Staff:

Dr. Julie Culbert (Postdoctoral Research Fellow, The University of Adelaide) attended SenseAsia 2014.

13 Appendix 5: Abstract of Conference Presentation:

Consumer Preferences for French Champagne and Australian Sparkling Wine

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[1]School of Agriculture, Food and Wine, The University of Adelaide; [2]School of Pharmacy and Medical Sciences, The University of South Australia; [3]Ehrenberg-Bass Institute, The University of South Australia

Sparkling wine accounts for a significant proportion of global wine trade; approximately 700 million litres, worth US$5.5 billion, in 2011 (Wine Australia, 2012). The tradition, heritage and prestige associated with the Champagne brand infer superior product quality and reliability, whereas other sparkling wine brands are comparatively unknown and therefore represent a purchase risk; i.e. country of origin strongly influences consumer choice. This study sought to profile Australian sparkling wine consumers and their preferences for French Champagne and Australian sparkling wine.

An online survey was conducted to investigate the sparkling wine consumption of regular Australian wine consumers (*n*=3,018, 44% male and 56% female). Approximately one sixth of respondents (*n*=522, 17%) indicated they never consumed sparkling wine, whereas sparkling wine contributed up to 40% of most consumers' (*n*=2,284, 76%) wine consumption (Figure 1). Surprisingly, similar consumption trends were observed for males and females.

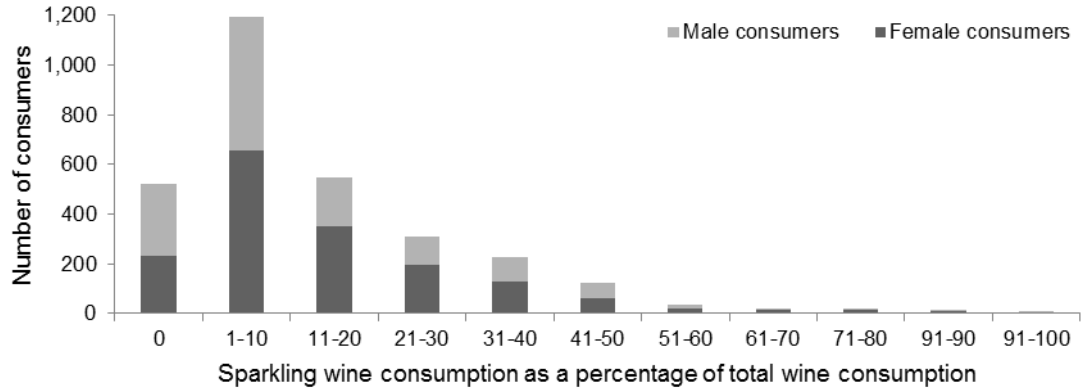


Figure 1. Sparkling wine consumption pattern.

Regular sparkling wine consumers (*n*=95, 36% male and 64% female) were then recruited for a consumer tasting, with six wines presented: two French Champagnes (A$70 and A$40 per bottle), a French sparkling wine (A$12 per bottle), and three Australian sparkling wines (A$70, A$40 and A$12 per bottle). Significant differences were observed between liking scores for the six wines ($P < 0.05$). Surprisingly, the A$70 French Champagne was preferred least (5.3), while the A$12 Australian sparkling wine was preferred most (6.3). Significant differences were not observed between male and female participants' responses. Interestingly, when consumers were shown the wine labels and asked to

estimate the price per bottle, the French wines were considered to be more expensive than all of the Australian wines.

These results suggest country of origin influences consumer purchasing decisions but not necessarily consumer acceptability.

References:

Wine Australia (2012) What's the fizz? - A sparkling wine market overview. http://www.wineaustralia.com/en/Winefacts%20search.aspx (Accessed 10/01/2014).

14 Appendix 6: Poster Presentation

Consumer preferences for French Champagne and Australian sparkling wine

J.A. Culbert[1], R. Ristic[1], N.R. Verdonk[1], M.J. Lane[2], K.L. Pearce[2], J.W. Wilkinson[3], K.L. Wilkinson[1]

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Introduction:

Sparkling wine accounts for a significant proportion of global wine trade; approximately 700 million litres, worth US$5.5 billion, in 2011 (Wine Australia, 2012). The tradition, heritage and prestige associated with the Champagne brand infer superior product quality and reliability, whereas other sparkling wine brands are comparatively unknown and therefore represent a purchase risk; i.e. country of origin strongly influences consumer choice. This study sought to profile Australian sparkling wine consumers and their preferences for French Champagne and Australian sparkling wine.

Materials and Methods:

The sparkling wine consumption of regular Australian wine consumers (*n*=3,018, 44% male and 56% female) was investigated via an online survey. Regular sparkling wine consumers (*n*=95, 36% male and 64% female) were then recruited for a consumer tasting, with six wines presented in random order: a French sparkling wine ($12 per bottle), two French Champagnes ($40 and $70 per bottle), and three Australian sparkling wines ($12, $40 and $70 per bottle). Consumers were asked to rate their liking of each wine and to estimate the price per bottle. Consumers were then shown the front label of each wine and again asked to estimate the price per bottle.

References:

Wine Australia (2012) What's the fizz? A sparkling wine market overview. http://www.wineaustralia.com/en/Winefacts%20search.aspx (Accessed 10/01/2014).

Veale, R. and P. Quester (2009) Do consumer expectations match experience? Predicting the influence of price and country of origin on perceptions of product quality. *International Business Review* 18 (2), 134-144.

Results and Discussion:

Approximately one sixth of respondents (*n*=522, 17%) indicated they never consume sparkling wine, whereas sparkling wine contributed up to 40% of most consumers' (*n*=2,284, 76%) wine consumption; very few consumers' (*n*=89, <3%) wine consumption comprised largely (i.e. ≥50%) sparkling wine (Figure 1). Surprisingly, consumption trends for males and females were quite similar.

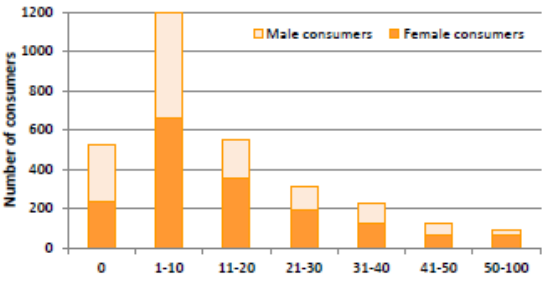


Figure 1. Sparkling wine consumption pattern.

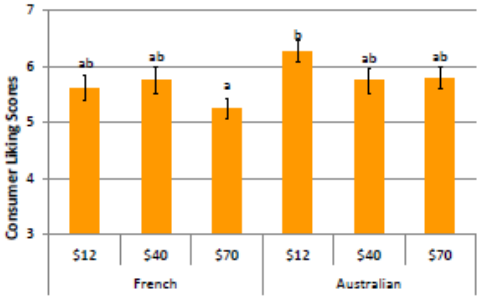


Figure 2. Consumer liking of French and Australian sparkling wines.

Table 1. Chemical composition (pH, titratable acidity, sugar, alcohol and phenolic content) of wines.

	Wine	pH	TA (g/L)	Sugar (g/L)	Alcohol (%)
French	$12	3.4	6.3	7.0	10.8
	$40	3.1	7.5	11.3	12.3
	$70	3.1	8.0	11.4	12.3
Australian	$12	3.3	6.1	11.6	11.4
	$40	3.3	8.6	6.8	12.5
	$70	3.2	7.7	11.3	12.7

Significant differences were observed between liking scores recorded for the six wines (P <0.05). Surprisingly, the $70 French Champagne was preferred least (5.3), while the $12 Australian sparkling wine was preferred most (6.3) (Figure 2). This likely reflects compositional differences and therefore sensory properties between wines. As shown in Table 1 the $12 Australian sparkling wine had a higher pH, lower TA and lower alcohol content than the $70 French Champagne; the $12 Australian wine was a more 'fruit'-driven wine with 'softer' acid, while the $70 Champagne was far more 'complex' and acidic. Differences were not observed between male and female participants' responses.

Consumers could not determine the price of wines based on tasting alone; with all wines estimated to be between $21 and $30 per bottle (Figure 3). However, when consumers were shown the wine labels and asked to estimate price, French wines were considered to be more expensive than Australian wines (Figure 3). These results reiterate the strong country of origin influence on consumers' perceptions of quality and therefore price (Veale and Quester, 2006). Brand recognition is also an important factor. The majority of consumers recognised the $70 French Champagne (n=48, 51%) and the $12 Australian sparkling wine (*n*=78, 82%) brands, which likely explains why price estimates for these wines more closely reflected retail prices. These results demonstrate the relative importance of extrinsic versus intrinsic cues in determining consumer preferences for French Champagne and Australian sparkling wine.



Figure 3. Consumer perceptions of wine price (median score) per bottle, based on tasting and on front label.

16 Appendix 6: Budget Reconciliation:

The Budget Reconciliation has been provided separately using the GWRDC “End of Project Financial Statement” form.