



The potential of wine tourism experiences to impart knowledge of sustainable practices: the case of the Greening Waipara biodiversity trails

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Abstract

◦Purpose:– *To explore the extent to which the biodiversity trails are imparting knowledge of sustainable viticultural practices, and adding to the winery experience and wine purchase behaviour of winery visitors.*

◦**Design/methodology/approach:**– *The methodology was interviewer-completed, face-to-face surveys with 220 visitors, including 66 biodiversity trail walkers, at two wineries in Waipara Valley, New Zealand. Results were analysed using SPSS.*

◦**Findings:**– *The results indicate that the biodiversity trails are providing information about sustainable practices to winery visitors, and are adding to the winery experience for most visitors. Almost half of visitors walking the trails felts more connected to the winery, however only one-fifth reported that they would be more likely to purchase wine from the winery as a result of their experience.*

◦**Practical implications:**– *Providing learning experiences in the form of walking trails at wineries appears to be a good means to share information about sustainable vineyard practices, however converting this increased knowledge into brand loyalty may not be straightforward.*

Key words: Sustainable vineyard practices, environmental knowledge, winery visitation

1. INTRODUCTION

Consumer concern over the effects of agricultural practices on environmental and personal health has led to an increase demand for products that have been produced using organic, biodynamic or other sustainable processes (Bhaskaran et al., 2006; Forbes et al., forthcoming; Vermeir and Verbeke, 2008). There is growing awareness of the potentially negative environmental impacts of the wine industry, including water usage, contamination of ground water, soil and air, the disposal of waste and the loss of biodiversity (Marshall et al., 2005), and the need for sustainable vineyard and winery practices is acknowledged by the wine industry and many consumers (Barber et al., 2009; Forbes et al., 2009; Marshall et al., 2005; Mueller and Remaud, 2010; Zucca et al., 2009).

In New Zealand there has been considerable publicity about the effects of environmental practices in many areas of agricultural production. The sustainability of New Zealand's agricultural practices, including viticulture, is taken seriously, not least because the reputation of its agricultural products and the destination as a whole as 'clean and green' can be easily undermined by inappropriate practices (Forbes et al, 2009; Gabzdylova et al., 2009; Hughey et al, 2005). The wine industry is a significant contributor to the New Zealand economy, both as an export market and as an element of the tourism industry (Alonso, 2005; Gabzdylova et al., 2009; Mitchell, 2004). A growing awareness of environmental issues in overseas markets, including New Zealand's primary wine export destinations, is leading to increased demand for verifiably 'green' products (Campbell, 1999). In light of these concerns, New Zealand Winegrowers, the national organisation for New Zealand's wine and grape sector, has adopted a sustainability policy that aims to have all of the country's grapes and wines produced under independently audited sustainability schemes by the 2012 vintage (Winegrowers, 2007).

This paper analyses the efforts of the small but rapidly expanding wine region of Waipara Valley to publicise their own sustainability scheme, Greening Waipara, through the establishment of biodiversity trails at some of the wineries of the region. In particular, the paper explores the extent of visitor awareness and interest in these trails, the knowledge acquired through walking the trails, and the effect of the trails on winery experiences and potential brand loyalty.

2. CONTEXT

Initiated in 2005, the Greening Waipara project (<http://bioprotection.org.nz/greening-waipara>) has sought to re-establish native New Zealand plants within the Waipara landscape and to increase grower adoption of sustainable agricultural practices. The establishment of native New Zealand plants within vineyard properties was proposed as a form of ecological engineering (Gurr et al., 2004) to enhance 'ecosystem services' (Costanza et al., 1997) which would have tangible values for growers and improve the sustainability of the area's wine production. Collaboration between numerous stakeholders, including growers, local authorities and academic institutions, meant that by 2009 over fifty properties of the Waipara valley had become involved in the project. The environmental strategies adopted as part of the scheme include the introduction of native plants to provide enhanced biological control of pests and diseases in the vineyard and to aid in erosion management. Ecological engineering initiatives have focused on improving pollination, soil fertility and filtration of winery and vineyard effluent through the use of native species. Native species have been planted around

vineyards and wineries also to restore biodiversity and to create a pleasant environment for visitors. The intentional use of native New Zealand plants to improve vineyard sustainability is a novel one, and the project has received substantial publicity through newsletters, websites, brochures and news reports. In this way, the uniqueness of the Greening Waipara project presents potential for point of difference marketing opportunities for a small region somewhat lacking in a clear identity or regional image (Bennet, 2005).

As part of the Greening Waipara project, and to help promote and educate visitors about the work of the programme and to communicate to winery visitors the point of difference which the region is attempting to capture, what are believed to be the world's first vineyard biodiversity trails have been established at four winery cellar. Information about these trails is available onsite (signage, brochures) and their establishment has been reported in news reports and on various websites. Each trail presents visitors with an introductory board at its start followed by 20 or more smaller signs containing information about the native plants or fauna which inhabit these plants. The aim of the trails, stated on the introductory boards is "to introduce you to the value of returning New Zealand's native biodiversity to working vineyards". The text goes on to inform readers of the benefits of the Greening Waipara programme, and that "biodiversity can enhance the winegrowing business by providing a range of "nature's services". Information on the smaller signs provides more details about the programme, the effects of biodiversity on the ecosystem, and the nature's services which the plant species may provide within the vineyard. For example, one sign states: "Nectar from the flowers is high in sugars which can enhance the effectiveness of biological control insects such as ladybirds and parasitic wasps. In Waipara it is beginning to replace the familiar but non-native rose bushes at the end of vine rows", while another sign states: "In Waipara vineyards it [*Leptinella minor*] provides nectar for beneficial insects and suppresses weeds, reducing weedkiller costs".

3. LITERATURE REVIEW

Utilising and promoting sustainable vineyard practices may provide a competitive point of difference in marketing the brand from conventionally produced wine (Bhaskaran et al., 2006; Forbes et al., 2009; Peattie, 2001). This brand differentiation may be particularly critical to small wineries or wine producing regions struggling to be noticed in a crowded market place (Ivankovic et al., 2005; Richardson and Dennis, 2003; Saes, 2006). Wine consumers are known to place value on intangible dimensions of wine production such as sustainable vineyard practices (Hall and Mitchell, 2008) and consumers' trust for a winery brand is reported to be positively affected by pro-environmental business practice (Nowak and Washburn, 2002). There is evidence of a demand for sustainably produced wine, and particularly organic wines (Forbes et al, 2009; Mueller and Remaud, 2010; Sharples, 2000; Zucca et al., 2009). However many commentators acknowledge that appreciation of sustainable environmental practices does not necessarily translate into environmental purchases and some producers have questioned current levels of demand for sustainably produced wine (Bhaskaran et al., 2006; Peattie, 2001; Scott, 2007).

Increased environmental knowledge has been shown to influence consumer's attitudes towards environmental issues and it is generally agreed that consumers who are more knowledgeable about the environment and hold stronger environmental attitudes are more likely to be motivated towards environmentally sustainable purchase decisions (Barber et al, 2009; Frick et al., 2004; Peattie, 2001; Vermeir and Verbeke 2008). However consumers are

often unable to make informed purchase decisions because the benefits associated with products which have been made in a sustainable manner are not well communicated to them (Bhaskaran et al., 2006; Frick et al., 2004; Peattie, 2001; Vermeir and Verbeke, 2006). Frick et al (2004) argue that environmental knowledge must be viewed as multi-dimensional, and that different types of knowledge is required before a person can act in a sustainable manner. First, there must be knowledge of environmental processes (referred to as systems knowledge). Secondly, there needs to be some understanding of what can be done about environmental problems (action-related knowledge). Finally, there must be knowledge about the benefit, or effectiveness, of various environmentally responsible actions (effectiveness knowledge) so that consumers are convinced that their behaviour will have a positive impact on the environment (Peattie, 2001; Vermeir and Verbeke, 2008).

One of the issues impeding growing demand for sustainably produced wine may be the reported lack of information or understanding about the processes involved in conventional or sustainable viticultural production, due in part to the difficulty in communicating these often complicated practices (Barber et al., 2009; Forbes et al, 2009, forthcoming; Marshall et al., 2005; Warner, 2007). For example, a Californian survey found that wine consumers did not really have a clear idea of what a 'sustainable vineyard' meant in practice, or what processes wineries follow to achieve it, with only seven percent able to identify specific aspects of sustainable processes (Zucca et al., 2009). In order for there to be positive environmental attitudes towards sustainable wine production methods, and by implication wine purchasing intentions, there needs to be some knowledge about conventional viticulture processes, how sustainable practices differ from this, and how the consumer can make a difference in their purchase choices (Barber et al., 2009; Frick et al., 2004; Peattie, 2001; Vermeir and Verbeke, 2006). There is evidence that wine consumers are interested in knowing more about sustainable wine production processes (Forbes et al, forthcoming; Zucca et al, 2009); the issue becomes how to share this information in a way that reduces the complexities of the processes, while clearly outlining how the sustainable practices implemented at wineries are addressing the environmental concerns facing the industry.

An opportunity to present this knowledge may come from wine tourism experiences at winery cellar doors, as experience with a product, including wine and its production environment, is an important source of learning (Charters and Ali-Knight, 2000; Kolb, 1984). Past studies have shown that winery visitation plays an important role for positive brand development for both the individual business and the region (Dodd, 2000; Mitchell, 2006; O'Mahony et al., 2006; Thach et al., 2007). The winery also provides significant scope for visitors to experience and appreciate the regional and vineyard environment and to engage in learning opportunities. Many studies of winery visitors have noted that enjoying the natural landscape and surrounds of the winery is a significant motivation in their visit while also impacting positively on their overall experience (Bruwer and Alant, 2009; Carmichael, 2005; Hall and Mitchell, 2008; Roberts and Sparks, 2006). Similarly the availability of learning opportunities at the winery cellar door may be a significant motivating factor for winery operators and visitors alike. For winery managers, the opportunity to provide visitors with knowledge about wines, the wine industry and viticultural and winemaking practices is perhaps somewhat overlooked in the drive to sell wine and foster brand loyalty (Dodd, 2000), however the opportunity to get 'behind the scenes' to learn more about wine and wine making is acknowledged as a significant motivation for many visitors (Charters and Ali-Knight, 2000; Getz and Brown, 2006; Roberts and Sparks, 2006; Williams and Kelly, 2001). For example, Charters and Ali-Knight (2000) report that half of their respondents were interested in receiving an explanation of how wine is produced during their winery visit with

a similar proportion (45%) interested in learning more about grape growing. There is some evidence that learning opportunities afforded at wineries might appeal particularly to the youngest cohort of wine consumers, Generation Y, who expressed more interest than their older counterparts in learning during winery visits, as long as this learning took place in a non-intimidating and relaxed environment (Fountain and Charters, 2010).

Enhancing visitors' knowledge of winery and vineyard practices, including sustainability initiatives, during a winery experience may increase brand loyalty and wine purchase intentions in two ways. First, the opportunity to engage in learning while exploring the natural landscape of the winery and region may add value to the overall winery visit, with a memorable experience recognised as playing an important role in the emotional attachments and loyalty a tourist develops for a brand (Bruwer and Alant, 2009; Fountain et al., 2008; Mitchell, 2006; Nowak and Newton, 2006; O'Mahony et al., 2006; Pikkemaat et al., 2009). At the same time, providing effective opportunities for the visitor to acquire greater knowledge about a winery's sustainable winemaking and vineyard practices through 'hands-on' and experiential learning may influence their attitudes towards sustainable vineyard practices in general and their trust and loyalty towards the winery brand (Nowak and Washburn, 2002).

4. METHODOLOGY

From October 2008 to April 2009, data were collected using an interviewer-administered questionnaire at two wineries which had recently installed biodiversity trails; one winery that offered tasting facilities only and a second, larger, winery which provided a well-known restaurant and cellar door tasting facility. While the biodiversity trails at these two locations differ— one is located alongside a vineyard while the other is located in a garden setting removed from the vineyards—the content is relatively consistent (see above).

Potential respondents were approached as they departed the winery property and asked if they would like to undertake the survey. All respondents were confirmed to be 18 years of age or over. During the first stages of the sampling process interviewers reported that very few of the respondents they interviewed had become aware of the biodiversity trail on the property during their visit, and therefore a very small proportion of those interviewed had experienced the trail. For this reason in the last stages of data collection it was decided that in order to increase the proportion of trail walkers in the study winery visitors would be given information (brochure) about the trail on entering the property and asked if they would like to participate in the survey when they had finished their visit. This intervention was carried out with the approval of the wineries in question. Of the 66 respondents who had walked the biodiversity trail, 39 (59%) had been approached in this manner in the last few weeks of interviewing.

Interviews were conducted at the exit/entrance to the winery building (outdoors) between 10am and 5pm on various days of the week. The survey itself consisted of 38 questions and took between five and fifteen minutes to complete with respondents answering a series of questions regarding their winery and vineyard experience with particular emphasis on the biodiversity trail. Due to low visitor numbers at the smaller winery, only eight percent (18) of the surveys were collected from this property, and all those walking a biodiversity trail were interviewed at the other, larger winery.

Responses to questions for each individual were entered into SPSS Statistical Software. Frequencies, proportions and cross-tabulation for variables were constructed using SPSS. Pearson Chi-squared tests were used to test for significant differences between those respondents which walked the biodiversity trail and those who did not with regards to demographic characteristics, motivations to visit the winery and their response to the concept of the biodiversity trail.

5. FINDINGS

5.1. Sample Characteristics

Overall, 220 respondents completed the survey; 114 males and 106 females with an age range from 20 to 70+ years. Of those surveyed, most were urban, resided in the local Canterbury region, had a degree or higher qualification, consumed and bought wine daily or weekly and judged they had an intermediate to advanced knowledge of wine (see Appendix 1). These demographics, including the high level of education and wine knowledge, are consistent with numerous other studies involving winery visitors (Hall et al., 2000; Mitchell, 2004). The proportion of international respondents was higher than in Mitchell's (2004) study but was similar to a national survey conducted in New Zealand by Alonso (2005).

Overall the respondents' main motivations for visiting the winery included eating at the winery restaurant (29.1%), having a day out with friends and family (26.4%) and tasting wine (25.9%). Viewing the regional landscape (7.3%) or purchasing wine (5.5%) was the main motivation for only a small proportion of visitors. In terms of overall importance of various factors for the motivation to visit, having a day out with friends and family (mean 1.81) was the most important factor overall, followed by viewing the regional landscape (2.32), tasting wine (2.39), eating at the winery restaurant (2.69; Table 1). Purchasing wine (3.18) and touring the vineyard (3.45) or winery building (3.51) were all relatively unimportant as motivating factors. Interestingly, in light of previous research, aspects of learning were also

Table 1: Importance of factors in deciding to visit the winery

Factors in deciding to visit winery	Mean*	Std. Dev.	Skew	Kurtosis	<i>n.</i>
Having a day out with friends/family	1.81	1.14	1.668	2.119	220
Viewing the regional landscape	2.32	1.03	1.011	0.848	220
Tasting wine	2.39	1.25	0.767	-0.338	220
Eating at the winery restaurant	2.69	1.59	0.444	-1.302	219
Purchasing wine	3.18	1.25	0.031	-1.061	220
Touring the vineyard	3.45	1.23	-0.171	-1.039	220
Touring the winery building	3.51	1.26	-0.229	-1.151	220
Learning about wine tasting	3.45	1.17	-0.278	-0.858	220
Learning about wine making	3.70	1.21	-0.498	-0.858	220
Learning about Greening Waipara	4.04	1.12	-0.718	-0.735	220
Learning how to cellar wines	4.31	0.92	-1.133	0.218	220

*Mean calculated using a 5-point interval scale, where 1= very important, 5= not important at all. (n = sample size).

unimportant for most winery visitors. Chi-squared tests revealed no significant differences between those walking the trail and those who were aware of the trail during their visit but did not walk it ('non walkers') with respect to their demographic characteristics or motivations for visiting the winery. This would indicate that biodiversity trails such as those studied here may be of interest to the general winery visitor demographic.

5.2. Knowledge of the Greening Waipara project and biodiversity trail

As Table 1 demonstrates, learning about the Greening Waipara project (4.04) was of very little importance to visitors surveyed at these wineries. This is not surprising in light of the fact that only 25 respondents (11.4%) had heard of the project prior to their winery visit that day. This low level of knowledge of the Greening Waipara project has been reported elsewhere (Fountain, 2008), but what is perhaps surprising is awareness amongst Waipara winery visitors was lower than amongst Christchurch wine purchasers. It might be expected that people visiting a wine region would be better informed about the region than those not planning to visit, having come across information in promotional brochures or on the websites of wineries or the region during planning of their trip. Of those who had heard about the Greening Waipara project, 28 percent had heard about it on a previous visit and 24 percent had heard about it from word of mouth. Prior to winery visitors being handed on entry information about the trail near the end of the interviewing period (see above), only 25 percent of respondents were aware of the trail after their visit. Generally those who had become aware of the trail had done so due to passive promotion at the winery, having seen signage (61%) or encountering the trail while walking around the grounds (23%). Very few had learnt of the trail from staff (7%) or from a brochure (2%) on the premises.

Of the 220 survey respondents, 66 had walked the biodiversity trail. Over two thirds of people spent between 5 and 15 minutes on the trail with 29 percent spending more than 15 minutes and only four percent spending less than five minutes on the trail. The relatively low level of participation on the trail is directly related to lack of knowledge about its existence. For example, of those who had become aware of the trail during their visit without the intervention of interviewers, over 75 percent had walked it. Similarly, once those who were unaware of the trail were told about it by interviewers over 70 percent of respondents said they would have been interested or very interested in walking it, with repeat visitors (80%) and those who had purchased wine (75%) most likely to express an interest. Interviewers reported that once they had begun their intervention with visitors, providing information about the trail on their arrival at the winery, a substantial majority of respondents intercepted to complete the survey on exiting the winery had walked the trail.

5.3. The experience of trail walkers

Trail walkers were asked why they had walked the biodiversity trail. Learning was not a central motivation; over a third (37.9%) of trail walkers indicated they did so to explore the garden, 25.8 percent said they wanted to explore the vineyard environment, while only 12 percent wanted to learn about the Greening Waipara project and/or biodiversity. However

when asked ‘What did you enjoy most about the trail?’ the greatest proportion of spontaneous responses related to the learning experience the trail had provided, and in particular the opportunity to learn about the use of native plants in sustainable viticulture and the Maori names and traditional usages for native plants. The second highest category of spontaneous responses related to the opportunity to experience the landscape, scenery and serenity of the environment.

The perception of trail walkers that they had learnt something on the trail is clear also from responses to specific questions about whether their knowledge regarding certain aspects of the vineyard environment had been enhanced. The majority of respondents agreed that the trail had enhanced their knowledge of the value that biodiversity (64%), insects (68%) and native plants (67%) have within the vineyard; fewer respondents (47%) believed they knew more of the value birds have within the vineyard environment, perhaps due to the fact that birds were infrequently mentioned on the trail (Figure 1).

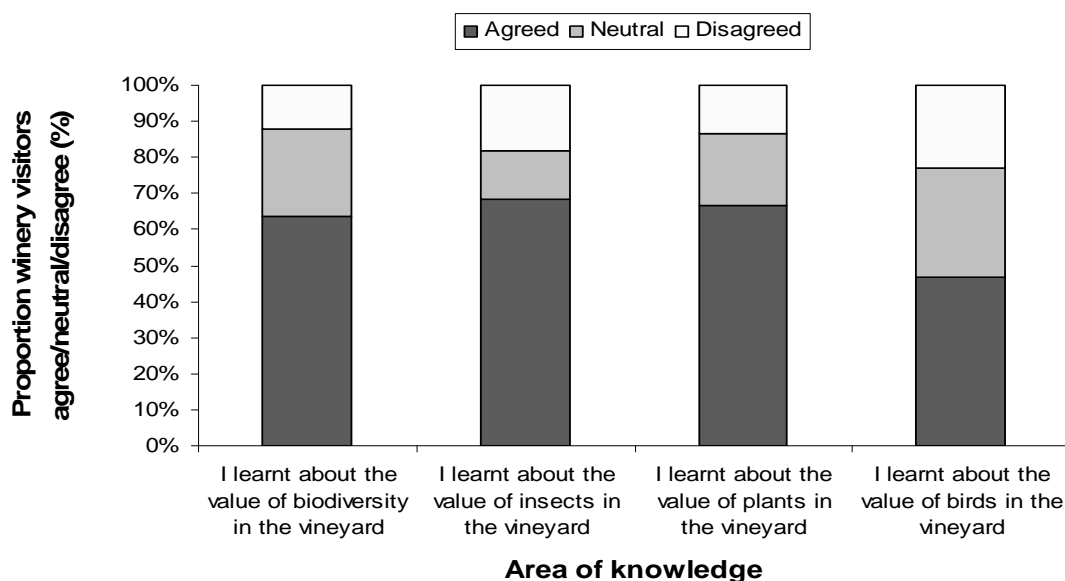


Figure 1 Agreement of respondents to statements concerning the trail’s educational content.

5.4. The effect of the biodiversity trail on visitors’ winery experience and purchase intentions

Trail walkers were asked to indicate the influence of the biodiversity trail on their winery experience and wine purchase behaviour (Figure 2). A large majority (86.4%) agreed that the trail had added to their experience at the winery and many (43.9%) felt more connected to the winery after completing the trail. This positive experience resulted in over 80 percent of those walking the biodiversity trail saying that they would recommend the experience to others visiting Waipara.

Despite the generally positive addition of the biodiversity trail to the winery experience and the fact that the majority felt they had learnt more about biodiversity, only 22.8 percent of respondents agreed that they were more likely to buy wine from the winery after walking the

trail, while 53 percent disagreed. An analysis of the sample as a whole found that there was no correlation between those walking the biodiversity trail and those buying wine and 60 percent of those agreeing with the statement ‘I am more likely to buy wine from this winery after taking the trail’ did not in fact buy wine on this occasion. In this way, although the trail did not appear to have greatly influenced wine purchasing at the cellar door, responses from winery visitors suggested it enhanced their visitor experience, and increased their knowledge of biodiversity.

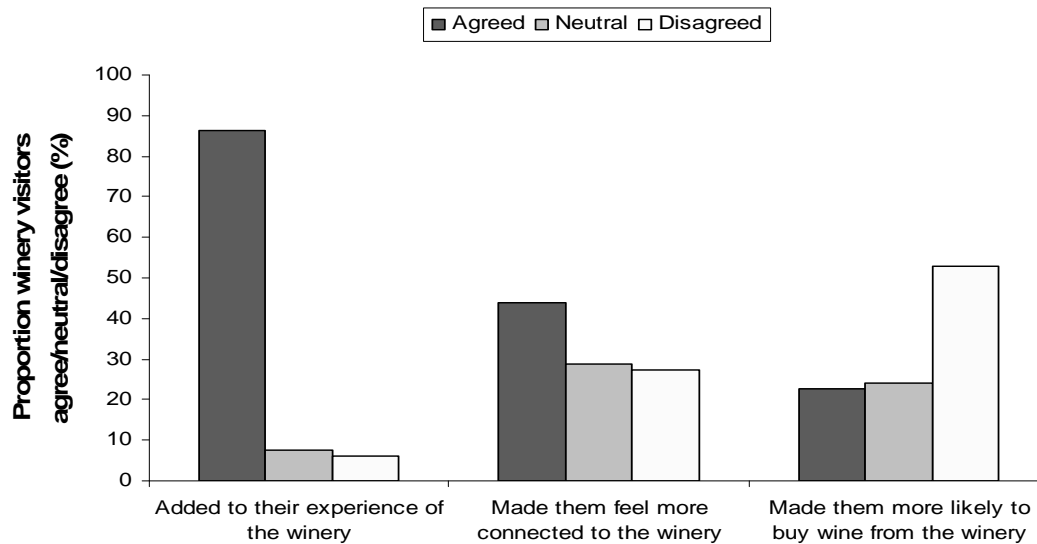


Figure 2 Effect of the biodiversity trail on winery visitor experiences

6. DISCUSSION AND IMPLICATIONS

Growing consumer awareness of green issues is accompanied by a desire to learn more about sustainable viticultural practices (Forbes et al, 2009; Peattie, 2001; Zucca et al., 2009). The implementation of a walking trail for winery visitors may be one way to impart greater knowledge of these practices as it provides opportunities for experiential learning (Kolb, 2004). While the findings here cannot purport to present the effects that a biodiversity trail would have at all winery cellar doors in New Zealand, the findings do present an indication of the value a biodiversity trail, or similar mechanism to communicate ‘sustainable’ practices to visitors, may have for winegrowers.

First, it is clear that if a winery is going to benefit from the installation of a trail like the Greening Waipara biodiversity trails it is crucial that visitors are informed about its existence. In this study the majority of respondents had not heard of the Greening Waipara project or the biodiversity trail at the winery they had just visited, however once told about the trail the majority of these people were interested or very interested in walking the trail. This finding suggests that there is demand for a product such as this and interest in learning about sustainable viticultural practices. Promotion of these trails does not need to be extensive, but it does need to be pro-active; while these wineries had signage and brochures available for visitors, there was little promotion of the trail by staff. As the period of intervention by interviewers revealed, the handing out of a brochure about the biodiversity trails at the beginning of a visitors’ trip to the winery resulted in a significant increase in the proportion

of trail walkers amongst potential respondents approached. This research has found that trail walkers did not differ in any significant way from non-trail walkers, which suggests that a product such as this one would appeal to the general demographic of winery visitors.

Evidence from this research suggests that the information provided on the biodiversity trail has had a significant impact on consumers' perceived knowledge about biodiversity issues and in particular about what sustainable vineyard practices involve and the outcomes they can achieve, thereby providing both systems and action-related knowledge (Frick et al, 2004). Previous research has suggested that learning is an important motivation for winery visitors (Charters and Ali-Knight, 2000; Roberts and Sparks, 2006); this proved not to be the case for these respondents. Despite this, approximately two-thirds of trails walkers agreed that they had learnt about the value of biodiversity in the vineyard, and about the role of insects and plants in this process. This finding suggests also that one third of respondents did not feel as if they learnt anything about these issues. It may be possible to investigate if there are particular market segments for who the biodiversity trails would particularly appeal. For example repeat visitors and those purchasing wine seemed more interested in the trails and these segments have been found to be more likely to make post-visit purchases (Mitchell, 2006). Similarly, previous research has found that young people might be particularly interested in opportunities to learn at the winery (Fountain and Charters, 2010) or it may be that those with higher levels of environmental involvement could be more interested in such a product (Barber et al., 2009).

This research has revealed that the trail added to the winery experience for the large majority of visitors, while almost half believed to feel more connected to the winery after taking the trail, both of which indicate there is potential for brand loyalty to develop between the visitors and the winery (Fountain et al., 2008; Nowak and Newton, 2006). Despite this positive experience, there was little impact of the trail experience on immediate purchase intentions at the winery, with only one-fifth of trail walkers agreeing that it had made them more likely to purchase the winery's wine, while over half of respondents *disagreed* when asked if they were more likely to buy wine after taking the trail. It should be acknowledged that wine purchasing was a relatively minor motivation for winery visitation for these respondents; the setting in which all surveys with trail walkers took place – a winery with a well known restaurant – may attract a broader range of visitors who want to spend time with friends or family over a meal accompanied by good wine rather than at a winery with tasting facilities only where tasting and purchasing wine might be more important motivating factors.

It may be the case also that the influence of the trail experience will have an effect upon post-visit purchases, rather than during the onsite visit (Mitchell, 2006; O'Mahony et al., 2006). Furthermore, a positive experience had by the winery visitor may lead to word of mouth promotion of the winery to other potential consumers, a critical source of influence over winery visitation choice (Alonso et al., 2008) widening the effect of a positive winery experience (Mitchell and Orwig, 2002). For small-scale wineries, post-visit purchasing may be tempered by having few distribution outlets, compared to larger winery operations which by nature offer greater numbers of post-visit purchasing opportunities (Mitchell, 2006). To enhance the transfer of a positive winery experience into post-visit sales, it is essential for small-scale producers to ensure that visitors have a means of post-visit purchase such as joining a mailing list or being made aware of online purchase sites (Fountain et al., 2008).

A further explanation for the failure of positive trail experiences to translate into wine buying behaviour may relate to the information on the trail focusing primarily on systems and action-

based knowledge about the effects of the winery practices on sustainability. Nowhere is there explicit dissemination of consumer-oriented knowledge about the actions trail walkers might take to support Greening Waipara vineyards (for example, purchasing Waipara wine), or the effect that these actions will have on the Greening Waipara project or the winery in question (Frick et al, 2004). This may suggest that these vineyards could shift further from a product-oriented to a market-oriented focus in the material presented in these trails (Lindgreen and Beverland, 2004)

7. CONCLUSIONS AND FUTURE RESEARCH

Sustainable vineyards need to find a way of ensuring that knowledge of viticultural practices and the impact of the measures taken are shared with potential consumers. This paper has explored the extent to which Waipara's biodiversity trails are imparting knowledge of sustainable viticultural practices, and what effect these biodiversity trails is having on winery experience and wine purchase behaviour. The findings suggest that being exposed to information about environmentally friendly vineyard processes via a walking trail had a positive impact on respondents' overall winery experience. When exposed to greater levels of knowledge about the Greening Waipara project the majority of respondents felt that they had learnt about the Greening Waipara project, the trail had added to their experience of the winery, and almost half felt that they felt more connected to the winery, however only one-fifth of respondents felt it would make them more likely to buy wine from this winery.

The research reported here has relied on a small sample of Greening Waipara trail walkers, but there is potential for further quantitative and qualitative research to be carried out to explore the potential of winery visitation to instil knowledge about sustainable environmental practices and, potentially, to increase purchasing of sustainably produced wines. As acknowledged above, while the survey was administered at two wineries, the only trail walkers interviewed were all at one winery, which boasts a well-known and very popular restaurant. This meant that the motivation of many of the visitors surveyed was to dine, rather than taste or purchase wine. Expanding the survey to additional wineries, or increasing the sample to capture more respondents whose primary purpose was to taste or buy wine, would allow a deeper analysis of the influence of these trails on different types of visitors. Furthermore, it would be beneficial to investigate in greater detail the characteristics of winery visitors and their motivations, in order to potentially identify the markets which would most benefit from trails such as these. Finally, there would be great benefit to undertake a longitudinal study which explores the long term effect of exposure to the biodiversity messages of the Greening Waipara biodiversity trails, both in terms of retention of knowledge, or post-visit purchasing and brand loyalty.

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APPENDIX 1: SUMMARY DEMOGRAPHICS FOR SURVEY RESPONDENTS

Respondent demographics	Trail walkers		Non-walkers*		Overall	
	f*	%	f	%	f	%
Gender						
Male	37	56.1	24	58.5	114	51.8
Female	29	43.9	17	41.5	106	48.2
Total	66	100	41	100	220	100
Age						
20-29	12	18.2	6	14.6	33	15
30-39	16	24.2	8	19.5	46	20.9
40-49	9	13.6	8	19.5	41	18.6
50-59	10	15.2	8	19.5	45	20.5
60-69	13	19.7	7	17.1	41	18.6
70+	6	9.1	4	9.8	14	6.4
Total	66	100	41	100	220	100
Dwelling						
Urban	56	84.8	39	95.1	187	85
Rural	10	15.2	2	4.9	33	15
Total	66	100	41	100	220	100
Place of residence						
Canterbury	31	47	17	41.5	100	45.5
Rest of South Island	0	0	4	9.7	5	2.3
North Island	8	12.1	5	12.2	31	14.1
International	27	40.9	15	36.6	84	38.2
Total	66	100	41	100	220	100
Education achieved						
Higher degree	23	34.8	12	29.3	65	29.5
Degree	21	31.8	17	41.5	74	33.6
Other tertiary qualification	1	1.5	0	0	1	0.5
Trade qualification	11	16.7	6	14.6	41	18.6
High school certificate	7	10.6	6	14.6	34	15.5
No formal qualification	3	4.5	0	0	5	2.3
Total	66	100	41	100	220	100
Level of wine knowledge						
Advanced	9	13.6	8	19.5	35	15.9
Intermediate	40	60.6	22	53.7	118	53.6
Basic	16	24.2	10	24.4	60	27.3
No prior knowledge	1	1.5	1	2.4	7	3.2
Total:	66	100	41	100	220	100

* 'Non-walkers' refers to those who knew about the trails during their visit but chose not to walk it.