

Investigating the Relationship between Wine Tourism and Proactive Environmental Management at Wineries

by

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Abstract

The importance of environmental attractiveness to wine tourism coupled with evidence of consumer demand for sustainably produced wines suggest that tourism may be influencing proactive environmental management practices at wineries. This exploratory study investigated the relationship between environmental sustainability and wine tourism using semi-structured in-depth interviews with decision makers at wineries in the State of California. This study discovered that while tourism was not a stated driver in the decision to engage in proactive environmental management, respondents indicated that communicating their environmental sustainability to visitors enhanced the visitor experience and helped to build brand equity. Respondents felt that tourism is useful in advancing proactive environmental management within the wine industry and is an effective method of increasing consumer awareness of environmental issues related to wine production. A coordinated effort between wineries, certifications bodies, and regional tourism organizations to provide visitors with information on sustainable wineries would address the information gap that hinders visitation based on environmental values.

Keywords: Proactive Environmental Management; Wine Tourism; Environmental Sustainability; Brand Equity; Visitor Experience

This work is dedicated to my father who instilled in me, through humble example, a
lifelong commitment to education and self-improvement
and to my daughter that I may do the same for her

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1. Introduction

1.1. Corporate Proactive Environmental Management

Environmental degradation is one of the main concerns of modern society. In a world constrained by declining natural resources, competitive advantage emanates from the capabilities of a firm to generate environmentally sustainable economic activity (Bansal & Roth, 2000; Berry & Rondinelli, 1998; Hart, 1995; Lynes & Andrachuk, 2008). In response, organizations across all sectors of the economy have begun to incorporate environmental sustainability, the need to protect the environment and conserve natural resources, into their business practices. Progressive businesses are moving from a strategy of regulatory compliance to one of proactive environmental management (Bansal & Roth, 2000; Berry & Rondinelli, 1998; Cordano, Marshall, & Silverman, 2010; Hart, 1995; Lynes & Andrachuk, 2008; Marshall, Cordano, & Silverman, 2005; Silverman, Marshall, & Cordano, 2005).

Businesses have benefited from integrating environmental values into corporate strategy through cost savings (from raw material conservation, productivity improvements, energy conservation, and waste reduction), increased product quality, increased market share and access to new markets, and improved image with consumers and regulators (Alvarez Gil, Burgos Jimenez, & Cespedes Lorente, 2001; Bansal & Roth, 2000; Berry & Rondinelli, 1998; Cordano et al., 2010; Gabzdylova, Raffensperger, & Castka, 2009; Hu & Wall, 2005; Lynes & Andrachuk, 2008; Mair & Jago, 2010). Environmental benefits include significant decreases in hazardous waste discharge into air, soil, and water, decreased solid waste generation, reduction in greenhouse gas emissions, and reduced dependence on non-renewable resources (Berry & Rondinelli, 1998; Gabzdylova et al., 2009; Silverman et al., 2005). As the value created by proactive environmental management increases more firms will adopt these practices. The extent to which firms participate determines the level of environmental benefits to society (Moulton & Zwane, 2005).

Corporate environmental management embraces both the technical and organizational activities aimed at reducing the negative impact on the environment resulting from business operations (Alvarez Gil et al., 2001; Berry & Rondinelli, 1998). The environmental strategy of a firm differs depending upon the characteristics of the organization, the environmental impacts associated with their product, and the industry context (Alvarez Gil et al., 2001) but generally includes changes to products, processes, and policies such as reducing energy consumption and waste generation, using ecologically sustainable resources, and implementing an environmental management system (Bansal & Roth, 2000).

Heavily polluting industries, such as chemical manufacturing and mineral extraction, have historically been subject to intense scrutiny of their environmental impacts. As environmental awareness grows, greater attention is being paid to the environmental effects of seemingly more benign sectors. As the wine industry continues to grow and rural lands are increasingly converted to wine production purposes, far greater attention is being paid to the wine industry's environmental performance (Gabzdylova et al., 2009; Marshall et al., 2005; Warner, 2007; Zucca, Smith, & Mitry, 2009). The industry has responded by developing voluntary proactive environmental initiatives that advance the sustainability of wine production (Berghoef & Dodds, 2011; Moulton & Zwane, 2005; Silverman et al., 2005; Warner, 2007; Zucca et al., 2009).

1.2. Wine Industry Context

The wine industry deals with environmental issues such as the use of toxic pesticides, herbicides and fertilizers, wastewater treatment, greenhouse gas emissions, impacts on water resources, solid waste generation and disposal, and landscape transformation (Delmas, Doctori-Blass, & Shuster, 2008; Gabzdylova et al., 2009; Notarnicola, Tassielli, & Nicoletti, 2003; Silverman et al., 2005). Wine industry leaders and trade associations are taking increasingly active roles in moving beyond the environmental requirements of local, regional, and national regulations (Berghoef & Dodds, 2011; Silverman et al., 2005; Warner, 2007; Zucca et al., 2009). Proactive environmental management initiatives have been created in numerous wine producing countries including France, Italy, South Africa, New Zealand, Australia, Argentina, and

the United States (Berghoef & Dodds, 2011; Cordano et al., 2010; Moulton & Zwane, 2005). As an example, two large wine industry trade associations in the United States, The Wine Institute and the California Association of Winegrape Growers, formed a partnership to promote voluntary high standards of sustainability through the California Sustainable Winegrowing Alliance. This group developed a sustainable winegrowing program that provides tools to growers and vintners to aid them in assessing their practices and improving their environmental and social performance (Cordano et al., 2010; Silverman et al., 2005; Moulton & Zwane, 2005; Zucca et al., 2009). This program is one example of the multitude of programs available to wine growers and producers in the United States. California wineries have had considerable success in implementing proactive environmental initiatives in both the vineyard and winery (Silverman et al., 2005). While a number of individual wineries have undertaken major environmental initiatives, there remains a lack of motivation in the industry to push certain proactive environmental practices that require dramatic alterations in current practices, such as organic grape growing (Marshall et al., 2005).

Numerous studies have examined the relevance and relative importance of the drivers of sustainability for the wine industry. Recent studies have determined that improved product quality, increased competitiveness, managerial environmental values, reduced costs, and improved image are the key drivers influencing the adoption of sustainability at wineries (Gabzdylova et al., 2009; Marshall et al., 2005). This study attempts to determine if wine tourism has influenced the implementation of proactive environmental management practices designed to make vineyards and wineries more sustainable. Wine tourism is seen as an increasingly important way for wineries to improve their financial performance. However, tourism adds development pressures and increases the visibility of the environmental issues faced by the wine industry (Grimstad, 2011; Alvarez Gil et al., 2001). The role of winery visitors in driving proactive environmental management at wineries is understudied at the present time. The importance of environmental attractiveness to the wine tourism product coupled with evidence of consumer demand for sustainably produced wines suggest that tourism may be influential in the decision to adopt proactive environmental management practices.

1.3. Purpose and Goals

This study explored the relationship between wine tourism and proactive environmental management at wineries through semi-structured interviews with key informants from tourism destination wineries. The key informants for this research study were decision makers at wineries in the State of California that have adopted sustainability and have a tourism aspect to their operations. This exploratory study involved qualitative analysis of their responses to identify important ideas, concepts, and hypotheses for more thorough examination by future research into the relationship between wine tourism and environmental sustainability at wineries.

This study furthers the discussion on the motivations to adopt a proactive approach to managing environmental impacts at the winery level. The wine industry is a recognized leader in incorporating sustainability into their agricultural and production processes (Warner, 2007). A number of studies have investigated the conditions and motivations surrounding this transformation from regulatory compliance to proactive environmental management for addressing environmental impacts. Examining these factors helps to improve practices within the industry and increase the knowledge of what influences organizational decision making in relation to environmental issues.

This research also examines the role of winery visitors in advancing environmental sustainability for the wine industry. A broader understanding of these topics can influence the success of developing and promoting sustainability programs, help wine producers and regions to fully benefit from wine tourism, and foster superior environmental performance in the wine industry. This information can be useful to managers, industry associations, and regional organizations to help them direct their policy and planning efforts towards areas that will provide the greatest benefit to wine producers, growers, and regions. This information could also prove useful in aiding proactive environmental management decision making by agri-tourism operators outside the wine industry.

2. Proactive Environmental Management in the Wine Industry

Environmental values are becoming an integral part of corporate cultures and management processes (Bansal & Roth, 2000; Berry & Rondinelli, 1998). These environmental values are manifest in the approach a firm takes towards the environmental impacts of their operations. Sustainability involves implementing business practices that are sensitive to the environment, responsive to the needs of society, and economically feasible to implement and maintain (Zucca et al., 2009). This study focuses on the environmental component of sustainability, which has commonalities with proactive environmental management. Proactive environmental management involves evaluating the environmental impacts of an operation, taking measures to reduce waste and pollution in advance of regulation, and developing new business opportunities around more sustainable forms of production (Berry & Rondinelli, 1998). The terms environmental sustainability and proactive environmental management are used interchangeably throughout this document to convey the idea of managing environmental impacts beyond regulatory requirements as an integral part of business operations.

Many industrial sectors have embraced proactive environmental management as the preferred method for addressing the environmental challenges and constraints of conducting business (Bansal & Roth, 2000; Lynes & Andrachuk, 2008; Marshall et al., 2005). In the agricultural industries, increased stakeholder pressure for improved environmental performance coupled with increasing regulation has fostered a movement towards sustainable agricultural practices (Cordano et al., 2010; Gabzdylova et al., 2009; Warner, 2007; Zucca et al., 2009). In the United States, as in many wine producing countries, the wine industry has been advancing proactive environmental management through the use of voluntary self-assessment instruments (Berghoef & Dodds, 2011; Silverman et al., 2005; Warner, 2007; Zucca et al., 2009). In the California experience, these voluntary programs were initially developed at the local level and then

expanded to the regional and national levels and serve to disseminate best practices in sustainability for growers and winemakers (Marshall et al., 2005).

2.1. Environmental Impacts

There is growing awareness of the negative environmental impacts of the wine industry and the need for sustainable vineyard and winery practices (Cordano et al., 2010; Fountain & Tompkins, 2011; Zucca et al., 2009). Environmental impacts associated with growing wine grapes are agricultural in nature, while those in the winery are related to food processing. There are also environmental impacts associated with the packaging and global distribution of the finished product. The container chosen for packaging of the final product is an especially problematic area for sustainable wine production. This is due to the fact that container selection has a significant impact on energy use and environmental burden (Ardente, Beccali, Cellura, & Marvuglia, 2006; Notarnicola et al., 2003) as well as on perceived product quality (Fearne, Soosay, Stringer, Umberger, & Dent, 2009). The environmental component of sustainability programs for the wine industry is designed to manage the environmental impacts of wine production beyond the requirements of government regulations through voluntary codes of conduct.

2.1.1. Viticulture

Viticulture, or the cultivation of grapes, deals with the series of events that occur in the vineyard, from site selection to harvest of the crop. The main environmental concerns in this stage are: soil erosion, toxic levels of inorganic compounds (as a result of pesticide and fertilizer use), excessive water use, and biodiversity loss (Delmas et al., 2008). Soil erosion occurs when vineyards are irresponsibly planted on steep slopes, all ground cover is removed, and heavy machinery is used in the vineyard. This results in increased sediment loads in waterways with detrimental effects on aquatic ecosystems and reduced soil fertility, which leads to increased use of synthetic fertilizers. Toxic pesticides, insecticides, and fungicides applied to grapevines can seep into groundwater, taint surface water, and drift in the air. Beyond the adverse environmental and human health effects of exposure to these substances, volatile compounds in these

chemicals react with sunlight to create ozone, a major air pollutant (Nigro, 2007). Also, upstream production of synthetic pesticides and fertilizers has detrimental effects on ecosystems and human health. In terms of water usage, it has been estimated that current production methods use 8 gallons of water to make 1 gallon of wine, which creates pressure on local water resources (Nigro, 2007). New technologies have increased winegrape yield per acre, but the increase in agricultural productivity has depended upon the increased use of non-renewable energetic inputs, which carry a high environmental burden (Notarnicola et al., 2003). Increasing environmental sustainability in the vineyard involves such actions as reducing synthetic pesticide and fertilizer use, using natural methods to control pests, engaging in habitat restoration projects, utilizing slope stabilization techniques, and implementing water efficiency measures (Silverman et al., 2005).

2.1.2. *Vinification*

Vinification, or winemaking, is the production of wine, starting with selection of the grapes and ending with bottling the finished wine. The main issues in the vinification stage are: the use of energy in operating processing equipment (especially bottling and refrigeration), the disposal of waste by-products of production, wastewater generated from cleaning operations and spillage, and emissions to the atmosphere of carbon dioxide and volatile organic compounds during the fermentation process (Notarnicola et al., 2003). Fermentation is an exothermic process, but the temperature must be controlled because certain yeasts used in the fermentation process cannot tolerate high temperatures. Therefore, in warm countries, fermentation is conducted together with refrigeration, which creates one of the highest energy consumption phases (Notarnicola et al., 2003). Inefficient energy use leads to excessive carbon dioxide emissions and other air quality impacts from upstream energy generation. Typical management of winery waste is disposal at landfills. This creates land use issues as landfills reach capacity and need to expand as well as the contamination of groundwater from landfill leachate and surface water from landfill runoff. Untreated industrial wastewater generated by wineries also contributes to water pollution. Environmental sustainability initiatives in the winery include energy conservation, wastewater reduction and treatment

programs, recycling and/or re-use alternatives for waste products, emissions control systems, and reducing the use of process chemicals (Silverman et al., 2005).

2.2. Voluntary Compliance Programs

The wine industry is questioning existing vineyard and production practices and has begun to experiment with new processes to address increased environmental concern by wine consumers and other important stakeholders (Cordano et al., 2010; Warner, 2007; Zucca et al., 2009). These changes have been implemented through voluntary initiatives created by wineries, local communities, and national trade associations (Moulton & Zwane, 2005; Warner, 2007). Voluntary initiatives are a method of managing environmental risks that tend to exceed regulatory requirements. In addition, voluntary programs can foster innovations at individual firms that can serve to achieve environmental performance goals for the entire industry (Cordano et al., 2010). This shift to voluntary compliance represents a major transformation in how the wine industry addresses environmental issues (Marshall et al., 2005).

The development of voluntary codes of conduct stems from the recognition that if formal regulation is enforced upon an industry, then outside interests could set the criteria and the agenda for environmental performance (Baker, 2000; Moulton & Zwane, 2005). Ideally, developing a set of standards within an industry should result in the optimal approach to environmental management since these standards should satisfy stakeholder concerns, maximize benefits, and minimize costs (Baker, 2000). Warner (2007) discovered that professional organizations within the wine industry tend to prefer self-regulation and hold their members voluntarily to higher standards than other agricultural sectors in the hopes that their industry will be more likely to avoid regulatory action.

These organizations have developed voluntary codes of conduct for members. These codes allow a winery to identify its priority areas for improvement from a catalogue of environmental aspects associated with growing wine grapes and operating a winery (Moulton & Zwane, 2005; Warner, 2007; Zucca et al., 2009). They provide a basis for auditing environmental performance and setting improvement targets, and a

template for assessing progress (Moulton & Zwane, 2005; Warner, 2007). In order to better understand the dynamics of voluntary agreements, Moulton and Zwane (2005) conducted a case study on a voluntary code of conduct used by the wine industry in California, the Code of Sustainable Winegrowing Practices. The Code of Sustainable Winegrowing Practices is the most sophisticated and specific analytical tool and outreach document about sustainable agriculture in the United States (Warner, 2007). The authors discovered some key lessons in using voluntary programs to manage environmental risk. These lessons are:

- Regulators working in the context of limited budgets and/or an anti-regulation political environment may be able to use the adoption of voluntary agreements to generate environmental benefits.
- Voluntary agreements are most effective when more firms participate and improve environmental performance.
- Early involvement of interest groups may increase the chances of successfully agreeing to a credible code of conduct.
- Credible standards may make the environmental benefits of voluntary agreements larger.
- Voluntary systems may reduce the risk of trade barriers.

(Moulton & Zwane, 2005)

The code is intended to distinguish California wines on environmental grounds. In 2010 the California Sustainable Winegrowing Alliance developed a third-party verified certification program related to the California Sustainable Winegrowing Program that allows participants to credibly communicate their commitment to sustainability to concerned stakeholders through the use of an eco-label.

Firms that are able to gain a competitive advantage for environmental performance or conversely be hurt by negative publicity are more motivated to engage in voluntary initiatives (Moulton & Zwane, 2005). There is evidence that firms with higher levels of customer contact and intra-industry involvement (e.g. membership in trade associations), such as the wine industry, are more likely to voluntarily improve their environmental performance (Bansal & Roth, 2000; Moulton & Zwane, 2005). Typically, the marketing of wine emphasizes the quality of the natural conditions under which grapes and wine are produced (Bruwer & Alant, 2009; Cordano et al., 2010; Dawson,

Fountain, & Cohen, 2011; Moulton & Zwane, 2005). These images may be enhanced by the positive social and environmental activities of producers. Such actions help position operators as environmentally friendly, which may increase their brand equity and create the potential to gain price premiums and/or other market advantages (Moulton & Zwane, 2005; Nowak & Washburn, 2002).

3. Drivers of Proactive Environmental Management by Firms

A number of studies have attempted to understand the drivers of, or motivations for, improved environmental performance by firms. Most studies examining the drivers of proactive environmental management generate lists of motivations for adopting environmentally sustainable practices. A review of the relevant literature on the drivers of adopting proactive environmental management practices by firms uncovered three main models that illustrate the process of improving environmental performance by firms. Two are sector-specific and one is more general. For the sector-specific models, one model was developed in the context of the United States wine industry (Marshall et al., 2005), and the other in the context of the Scandinavian airline industry (Lynes & Andrachuk, 2008). The third model was proposed as a result of research across various industrial sectors, including food retailers, auto manufacturers, and oil companies (Bansal & Roth, 2000). All three models include reference to the motivations or drivers of adopting proactive environmental management practices. The Bansal and Roth (2000) and Lynes and Andrachuk (2008) models also consider the influence of context on environmental decision making by firms.

3.1. General Conceptual Model of the Drivers of Improved Environmental Performance

In order to understand the drivers that play a role in a specific context, Mair and Jago (2010) developed a general conceptual model from these three models. This synthesized model was then enhanced by additional drivers from other studies of the corporate greening process. In this study, the term “green” refers to operating in a manner that prevents or mitigates deleterious environmental or human health effects. The resultant general conceptual model is intended to be adapted to the specifics of a single industrial sector since not all drivers are expected to be influential in all sectors

(Mair & Jago, 2010). The Mair and Jago (2010) model proposes that not only is an organization is faced with a number of drivers that exert pressure towards improved environmental performance but the organization also operates within a wider context that influences the environmental decisions of managers. The organization is also faced with a number of barriers that may impede the adoption of environmental initiatives. Once all the relevant drivers and barriers have been considered, a number of catalysts may exert a positive or negative effect on the degree to which the organization engages in sustainable practices. This model is presented in Figure 1.

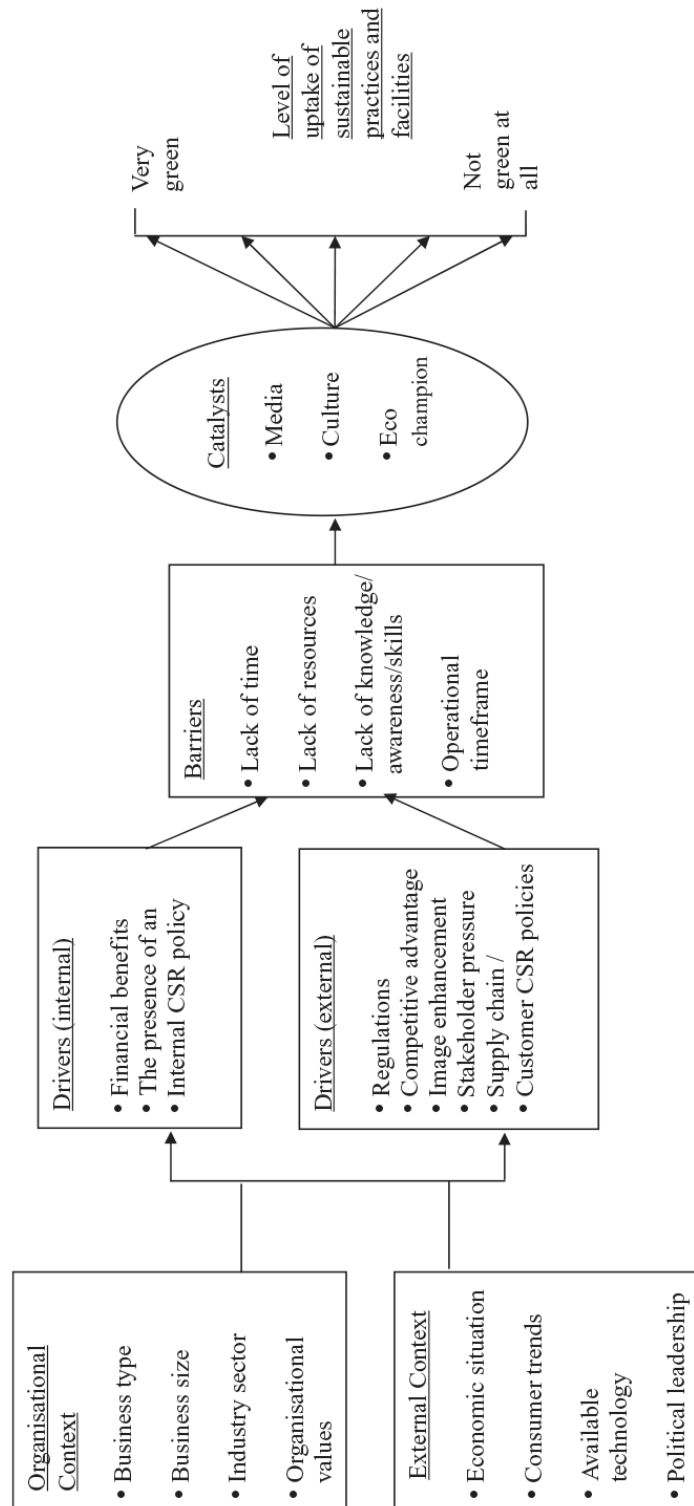


Figure 1. General Conceptual Model of the Drivers and Barriers of Corporate Greening

(Source: Mair & Jago, 2010 used with permission)

3.1.1. Organizational and External Contexts

This model examines not only the drivers of adopting proactive environmental management practices, but also the context in which these drivers exert influence on an organization. It is useful to consider that environmental decision making is not performed in isolation and is dependent upon the context of the individual firm. The concepts included in the Organizational Context component of the model represent sector-specific factors that influence firm behaviour. Firms are also influenced by general contextual factors such as available technology, political leadership, the state of the economy, and consumer trends (Lynes & Andrachuk, 2008). These concepts are included in the External Context component of the model.

3.1.2. Internal and External Drivers

Drivers of adopting proactive environmental management practices are examined from the individual and institutional perspectives. Individual drivers emanate from, or are within the control of, the individual organization – for example, cost savings and improved product quality (Marshall et al., 2005). Institutional drivers are those that are imposed on the organization, such as compliance with current regulations and stakeholder pressure (Marshall et al., 2005). Mair and Jago (2010) created a comprehensive list of drivers from an extensive literature review of studies on the corporate greening process. This list of drivers includes: personal values, financial benefits, competitive advantage, image enhancement, stakeholder pressures, and the desire to delay or avoid regulatory action. Mair and Jago (2010) argue that the ‘personal values of managers’ driver would be better described by the existence of a corporate social responsibility (CSR) policy. These drivers are categorized according to the Marshall et al. (2005) framework. Individual drivers are described under the Drivers (internal) component and Institutional drivers are described under the Drivers (external) component of the model.

3.1.3. Barriers

The Mair and Jago (2010) General Conceptual Model of the Drivers and Barriers of Corporate Greening includes the dimension of barriers to engaging in sustainable

practices, a dimension that is lacking in the other three models. Barriers are circumstances that may prevent a firm from investing in proactive environmental management practices (Mair & Jago, 2010). The literature review undertaken by Mair and Jago (2010) not only summarized the drivers of proactive environmental management but also the barriers to adopting environmental initiatives. These barriers include conditions such as high costs, lack of knowledge, and time constraints.

3.1.4. Catalysts

Lynes and Andrachuk (2008) describe conditions called catalysts that help shape the drivers and contexts by acting as a medium for encouraging/discouraging corporate environmental responsibility. They consider internal leadership in the form of an environmental champion, corporate culture, and national culture to be important catalysts. The media is also considered a catalyst, due to its ability to influence the salience of particular environmental issues, which may have an influence on the environmental initiatives adopted by an organization (Mair & Jago, 2010).

3.2. Application of the Model in this Research

The synthesized and refined model created by Mair and Jago (2010) provides a more comprehensive view of the complex interactions that determine the level of uptake of sustainable practices within individual firms and industrial sectors. This general conceptual model is intended to be adapted to specific industries in order to ascertain the contexts and drivers that are influential to that particular sector. This research used this framework to investigate if and how wine tourism is influencing proactive environmental management at wineries. Since there is so little research on the relationship between wine tourism and proactive environmental management at wineries, it was not obvious where wine tourism would fit in this model. It could appear through consumers under external drivers, yet wine tourists are a unique type of consumer in that they are consuming both the product, the wine, and the location, the wine region. This wine consumer-tourist could also operate in the external context of consumer trends, where their main motivations for visiting a winery could stem from trends in tourism offerings or trends in wine products. Additionally, it is possible that wine

tourism could function as a catalyst in encouraging or discouraging the adoption of proactive environmental management practices designed to enhance sustainability at wineries.

3.3. Wine Tourism as a Potential Driver

Researchers in many fields have attempted to understand what motivates or drives firms to engage in proactive environmental management. Recent studies have identified environmental values and the personal preferences of managers as the primary drivers of engaging in sustainability for wineries (Gabzdylova et al., 2009; Marshall et al., 2005). Additional drivers such as, improved product quality, increased competitiveness, opening of new markets, reduced costs, and improved image were also influential in the wine industry (Gabzdylova et al., 2009; Marshall et al., 2005). Few studies have considered the relationship between wine tourism and environmental sustainability practices at wineries. Wine tourism is a growing consumer market that can have positive effects on the financial performance of wineries. For many small and medium sized wineries the retail sales generated from wine tourism are essential to their financial success (Dawson et al., 2011; Fountain, Fish, & Charters, 2008; Grimstad; 2011). The importance of environmental attractiveness to the wine tourism product coupled with evidence of increasing consumer demand for sustainably produced wine are reasons to believe that tourism may be influencing proactive environmental management practices in the wine industry.

3.3.1. Consumer Demand for Sustainable Products

Consumer concern over conventional production practices has led to an increased demand for products that have been made by processes that consider environmental issues, such as organic or sustainable practices (D'Souza, Taghian, & Lamb, 2006; Forbes, Cohen, Cullen, Wratten, & Fountain, 2009; Forbes, Cullen, Cohen, Wratten, & Fountain, 2011; Stisser, 1994; Vermeir & Verbeke, 2006). The increase in environmental consciousness has had a profound effect on consumer behaviour, with the green product market expanding at a remarkable rate (Barber, Taylor, & Strick, 2009; Gleim, Smith, Andrews, & Cronin Jr., 2013). Many companies are "going green" in

order to differentiate their products and to gain a competitive advantage in aggressive markets (Peattie, 2001; Warner, 2007). A study based in the United States suggested that around half of adult consumers look for environmental labelling on products (Phillips, 1999), and another study reported that 70 percent of consumer purchase decisions were influenced by environmental messages on product labels (Chase & Smith, 1992). Another report noted that 54 percent of consumers believe company claims about their environmental initiatives (Stisser, 1994). This rating is twice as high as consumer belief in advertising claims in general (Stisser, 1994).

An increasing number of consumers are demonstrating interest in purchasing foods that reflect their environmental values (Forbes et al., 2011; Warner, 2007). There is also a growing body of evidence demonstrating demand for sustainably produced wine (Barber et al., 2009; Berghoef & Dodds, 2011; Forbes et al., 2009; Mueller & Remaud, 2010; Zucca et al., 2009). Wine producers are interested in using sustainable production as a source of competitive advantage (Fearne et al., 2009). Wine consumers are known to place value on the intangible dimensions of wine production, such as environmental and social responsibility (Dawson et al., 2011; Fountain & Tompkins, 2011). As consumers become more interested, concerned, and enthusiastic about environmental issues, their increased environmental involvement results in stronger environmental attitudes which can positively influence environmentally-motivated purchase decisions (Barber et al., 2009; Vermeir & Verbeke, 2006). These attitudes extend to influence consumers choices when selecting tourism destinations (Barber, Taylor, & Deale, 2010; Mair & Jago, 2010; Taylor, Barber, & Deale, 2010).

3.3.2. *Wine Tourism*

Wine tourism has been defined as visitation to vineyards, wineries, wine festivals, and wine shows where wine tasting and experiencing the attributes of a wine region are motivating factors for visitors (Hall, Sharples, Cambourne, & Macionis, 2000). Wine tourism is also a strategy by which destinations develop and market wine-related attractions and an opportunity for wineries to sell their products directly to consumers (Getz & Brown, 2006). The wine and tourism industries have different orientations with the wine industry involved in primary and secondary production and the tourism industry being part of the service sector (Carlsen, 2004). Wine tourism is a significant component

of both the wine and tourism industries. Wine provides a set of aesthetic and regional attributes that are attractive to visitors and tourism is an important way for wine brands to build relationships with consumers (Hall et al., 2000).

Wine tourism has substantial implications for regional economies. Direct sales to winery visitors combined with merchandising and culinary offerings provide a significant source of revenue to wineries (ACIL Consulting, 2002; Fountain et al., 2008). The benefits of wine tourism extend beyond wineries by diversifying the regional economy. The tourism enterprises that cater to wine tourists provide employment and entrepreneurship opportunities for the local population. Wineries are the core attraction but few visitors are motivated to visit wine regions solely to purchase wine (Bruwer & Alant, 2009; Charters & Ali-Knight, 2000; Getz & Brown, 2006). In order to successfully attract wine tourists, a region needs to provide a wide range of activities, attractions, services, hospitality, and infrastructure (Bruwer & Alant, 2009; Getz & Brown, 2006; Williams & Dossa, 2003; Williams & Kelly, 2001). Developing these amenities provides an avenue for rural economic development. Wine tourism is rapidly growing in popularity. An increase in the volume and value of wine tourism has been documented in many countries, including Australia, Canada, Chile, France, Hungary, Italy, New Zealand, Spain, South Africa, the United States, and the United Kingdom (Getz & Brown, 2006). The expansion of wine tourism offers a chance for growth in economically depressed rural areas but the long-term economic sustainability of wine tourism must consider competition from other destinations and market shifts that could affect demand for these products (Poitras & Getz, 2006).

3.3.3. *Wine Tourism and Environmental Programs*

Wine tourism regions are areas that attract tourists who are interested in an idyllic rural landscape where they can consume and purchase the regional agricultural produce (Grimstad, 2011). The direct-to-consumer sales generated from wine tourism are important to wineries because of the high profit margin and the potential for repeat business (Fountain et al., 2008). The experience of winery visitation also provides an opportunity to create an advocate for the brand. These advocates are satisfied guests who subsequently influence, directly or indirectly, potential new customers (Dawson et al., 2011; Fountain & Tompkins, 2011). Winery visitation plays an important role in

positive brand development and visitors have reported that enjoying the natural landscape and learning about environmentally friendly vineyard practices impacted positively on their overall winery experience (Bruwer & Alant, 2009; Fountain & Tompkins, 2011). Additionally, the adoption of environmentally friendly business practices by a winery increases consumer trust in that wine brand and builds brand equity (Nowak & Washburn, 2002).

Environmental attractiveness is regarded as an important component of the business of wine tourism, perhaps equally as important as the experience inside the winery (Bruwer & Alant, 2009). Studies of wine tourism motivations show that enjoyment of the landscape and natural scenery are of significant importance to both first-time and repeat visitors (Bruwer & Alant, 2009; Charters & Ali-Knight, 2000; Dawson et al., 2011; Fountain & Tompkins, 2011; Getz & Brown, 2006; Williams & Dossa, 2003; Williams & Kelly, 2001). An aesthetically pleasing environment to a wine tourist is comprised of a landscape of neatly cultivated vineyards set within wine regions with unspoiled natural scenery (Bruwer & Alant, 2009; Dawson et al., 2011). Tourists are drawn to a particular region because of superior environmental attributes compared to other destinations. Polluted natural settings, ugly buildings, overcrowding, eroded landscapes, and intrusive noise detract from the quality of visitor experiences (Hu & Wall, 2005). Some wine tourists have been identified as being willing to pay an environmental fee to taste wine or tour a wine region for the purpose of ensuring the protection of the natural and cultural environment (Barber et al., 2010; Taylor et al., 2010). Environmental management programs preserve and enhance these important environmental assets and consequently increase the tourism competitiveness of the destination (Williams & Kelly, 2001).

Therefore, it can be argued that proactive approaches to environmental issues would be especially important in areas where the natural environment and landscape comprise the basis for tourism as an income earning strategy for agriculture based businesses (Grimstad, 2011).

4. Methods

The role that an aesthetically pleasing natural environment plays in the success of attracting visitors to a region combined with the economic importance of attracting visitors to a winery makes wine tourism a potential motivator for wineries to improve their environmental performance. Using the General Conceptual Model presented in Figure 1 to evaluate the role of wine tourism on proactive environmental management, it appears that tourism could be functioning as external context, an external driver, or a catalyst. In order to determine which of these components of the greening process most accurately describes the influence of wine tourism on proactive environmental management in the wine industry this research was structured around the following two questions:

1. Is wine tourism a factor in the decision to engage in proactive environmental management by wineries?

This question examined the motivations behind the initial decision to engage in proactive environmental management, focusing on the presence or absence of wine tourism in the decision-making process. Prior research investigating the reasons behind the decision to pursue environmental sustainability for the wine industry has examined consumer-based motivations in general, but not wine tourism specifically. This question will test the external drivers component of the General Conceptual Model by determining if stakeholder pressure from winery visitors is influential in the decision to engage in proactive environmental management. This question will also investigate if wine tourism is acting as a barrier or catalyst in the decision making process.

2. Does wine tourism play a role in the evolution of proactive environmental management practices at wineries?

This question examined the influence wine tourism may have as proactive environmental management at a winery changes over time. As we learn about new environmental issues and technological solutions, proactive environmental management practices may have to adapt to these new conditions. If a winery has altered their practices or changed

the focus of their program there may have been new influences on the decision to make these changes. This question examines the external context component of the General Conceptual Model, determining if environmental sustainability is a consumer trend in wine tourism that is influencing proactive environmental management. This question also investigates if the growing demand for sustainably produced wine demonstrated in the literature acts is being exhibited by wine tourists. Wine tourist demand for sustainably produced wine could serve as an external driver influencing proactive environmental management practices at these wineries. This question also examines the potential for wine tourism to act as a catalyst, encouraging or discouraging the adoption of proactive environmental management practices.

Since there were few earlier studies to draw upon when developing these lines of enquiry, an exploratory approach was used to test the appropriateness of these research questions and to uncover additional information on the relationship between wine tourism and proactive environmental management at wineries. The research questions were intentionally broad in scope to facilitate the gathering of a wide range of ideas and concepts related to these topics. This research was structured around gaining insight on the subject matter so that more rigorous investigations could be conducted based upon its findings. The time and financial constraints of this project did not allow for the redefining of the research questions, amending of methods, and additional data collection required by an analytical approach when there is a lack of empirical evidence on the subject (Collis & Hussey, 2009). Therefore the findings from this study can provide guidance on areas for future research but cannot give conclusive or generalizable answers.

4.1. Study Area

Napa and Sonoma are adjacent counties that make up the heart of the Northern California wine country. Napa County has approximately 450 wineries and 45,000 acres of vineyards planted; Sonoma County has approximately 400 wineries and 60,000 vineyard acres (wineinstitute.org). This represents 25 percent of all bonded California wineries and 19 percent of all vineyard acreage in California. California is home to 44 percent of all bonded wineries in the United States and produces an average of 90

percent of its total annual wine production (wineinstitute.org). Napa and Sonoma Counties account for approximately 13 percent of California wine production. These regions focus on quality over volume.

Napa and Sonoma Counties are located approximately 60 miles north of the city of San Francisco. The proximity to this travel hub and their reputations for producing award-winning wines draws many visitors to these wine regions. While 44 of the 50 states in the United States has at least one winery, California attracts over 75 percent of annual winery-related visits from the domestic travel market (Dodd, 1995; Stonebridge Research, 2009; US Travel Association, 2007). Of the twelve wine regions in California, these two receive more than a quarter of California's annual winery visitors with Napa reporting 3.8 million winery visitors (Stonebridge Research, 2012) and Sonoma approximately 1.6 million winery visitors (Sonoma County Economic Development Board, 2012). The two regions collaborate on destination marketing efforts, encouraging visitors on multi-day trips to experience both regions (Russell, 2011).

California is a leader in sustainable winegrowing practices (Marshall et al., 2005; Silverman et al., 2005; Warner, 2007; Zucca et al., 2009). Over 1,800 Californian wineries and vineyards have used the California Sustainable Winegrowing Program to evaluate the sustainability of their operations. This represents 72 percent of California's winegrape acreage and 74 percent of wine shipments (wineinstitute.org). In 2012, the California Legislature proclaimed April "California Wines: Down to Earth" month in an effort to recognize and celebrate California's leadership in sustainable winegrowing and winemaking. Napa and Sonoma Counties were early leaders in integrating sustainability into wine production. The Napa Sustainable Winegrowing Group was founded in 1995 and the Sonoma County Grape Growers Association launched a sustainable practice committee in 2000 (Warner, 2007). Over time many other groups that promote environmentally and socially responsible practices, such as Napa Green, Fish Friendly Farming, and Sustainability in Practice, have been established in these two counties. Napa Valley Vintners reports 227 operators farming sustainably in Napa County and the Sonoma County Winegrape Commission reports over 390 grape growers, representing over 57 percent of the vineyard acres in the county, have submitted sustainability assessments of their operations. It is difficult to determine the full number of vineyards and wineries operating in a sustainable fashion in Napa and Sonoma Counties,

California, or the United States because there are so many different programs promoting sustainable winegrowing, participants are not required to be listed publicly, and there is no central resource at this time on sustainable operators. Informal assessments conclude that there is a high concentration of sustainable operators receiving visitors in these two counties.

4.2. Key Informant Interviews

These research questions were examined by conducting key informant interviews with decision makers at tourism destination wineries in the State of California that have implemented sustainability measures and choose to market their operations and product as sustainable. While the key informants in this study adhere to the principles of sustainability, this study focused solely on the environmental management aspect of sustainability. Study participants were purposively selected on the basis that their background with both proactive environmental management and tourism provided the level of expertise necessary to evaluate the existence of a relationship between these two components. This method was chosen because this was an exploratory study and the main goal was to conduct a preliminary examination of the relationship between wine tourism and proactive environmental management at wineries. Open-ended questions allowed themes that are of importance and have relevance to the respondents to emerge during the interview. Since so little is known on this topic, these themes can provide the basis for further investigation, if warranted.

Key informant interviews target well-connected and informed industry experts to understand the motivations and beliefs of industry insiders on a particular issue (Sommers & Sommers, 1997). These industry experts, with their particular knowledge and understanding, can provide insight on the motivations behind actions and give explanations based upon their experiences. A semi-structured interview format was selected as the data collection method. This method maintains a consistent set of questions for all respondents without a prescribed question order. This allows the interviewer to obtain in-depth information through a more natural and casual course of conversation (Sommers & Sommers, 1997). It also ensures that the interviewer can address the key subjects while retaining the flexibility to explore a variety of responses.

4.2.1. Interview Design

The interviews lasted between 60 to 90 minutes and followed a three-part structure. In the first part of the interview, the interviewer introduced herself and provided the respondent with an overview of the topics to be discussed during the interview. This was followed by the main part of the interview wherein questions were posed to probe and inform the lines of inquiry associated with the research questions. In addition to the main questions posed, three clarifying questions were asked when the interviewer wanted the respondent to explain certain things in more detail. The third part concluded the interview by providing two general questions towards this purpose. The goal was to enable the interviewer to ensure that the main research questions had been thoroughly and completely explored with the respondent. The Interview Plan for this research project is presented in Appendix A.

4.2.2. Key Informant Selection

The sampling frame for key informant selection was internet searches of publicly available information on wine businesses in the State of California. Therefore, the target population for this study was limited to wineries with a presence on the internet that included a reference to their sustainability practices. A list of data sources used to create the potential key informant list is available in Appendix B. Purposive sampling, a non-probabilistic sampling method, was used to draw the sample for this study. This sampling method does not generate a representative sample and was chosen because of the exploratory nature of this study. Key informants were selected based upon a perceived level of expertise resulting from their experiences with proactive environmental management and wine tourism. While this sample cannot claim to be representative of California wineries, the respondents in this study provided a useful basis for suggesting the direction of future research on the role of wine tourism in proactive environmental management at wineries.

The interviews were conducted with persons involved in the decision-making process for implementing sustainability measures at their vineyard and/or winery. In order to ensure that the decision-making process was comparable across all participants, only locally-owned operations were included in this study. In addition, in

order to ensure that the business focus and context were comparable across all participants this research study excluded large producers, defined as wineries with average annual production above 250,000 cases. Additional selection criteria included engagement in sustainability practices and the presence of tourism facilities. Key informants were selected from Napa and Sonoma Counties because these areas experience high levels wine tourism traffic relative to the total wine tourism traffic for the State of California.

4.3. Data Management

The interviews were audio recorded with the permission of the participant and then transcribed verbatim as soon as possible following the interview. Recording and transcribing were performed solely by the principal investigator. Informant names and other identifiable material were removed from the transcripts and replaced by pseudonyms and numerical coding. The only link between these pseudonyms and code numbers to the original informants was an encrypted decoder file. Results from the analysis of the interview data were organized in tabular format and entered into Microsoft Excel for basic descriptive statistical analysis. This tabular data was complemented by contextual explanations from the interview transcripts when necessary to elucidate the meaning of a concept derived from the interview data.

4.4. Data Analysis

The processing and analysis of the interview data was accomplished using a three step process: 1) describe the context surrounding the data, 2) classify the data into relevant categories, and 3) analyze the connections between these concepts (Dey, 1993). This process is circular in that the description contributes to classification and the concepts used to classify the data and the connections made between these concepts provide the basis for a revised description. This framework is graphically described in Figure 2. Organizing and analyzing the data in this manner allowed the researcher to make comparisons and draw conclusions in order to meet the objectives of this research.

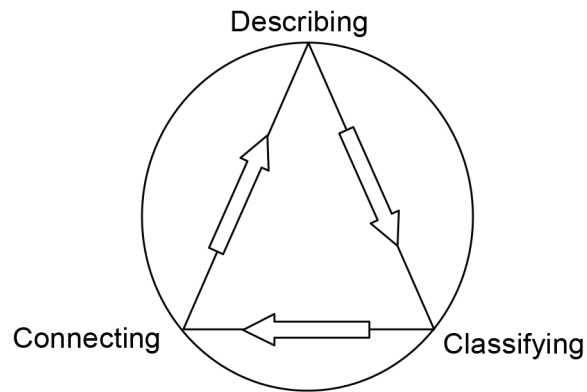


Figure 2. Qualitative Analysis as a Circular Process

(adapted from Dey, 1993)

The first step in this analytical process was to describe the context for this research and details related to the data sources. This provided background for the analyses and created an understanding of what might be influencing the data. The next step was classification, an iterative process of organizing the data into relevant categories for analysis. As the data were compiled into their respective categories, the criteria for allocating data to one category or another were further refined, which resulted in a reorganization of the data. This process continued until the data were structured as simply and completely as possible (Bazeley, 2009). Once the data were classified, the regularities, variations, and singularities in the data were examined in order to explore the connections between the categories (Dey, 1993). Examining these connections provided the basis for revealing the unifying concepts within the data. This process repeatedly transformed the data until an integrating thesis emerged from the analyses.

This research project utilized the methods described in Dey (1993) to develop categories for classification of the raw data. Broad categories were distilled from a general overview of the data, followed by a more detailed analysis to refine these through a process of sub-categorization. Initially categories were structured around the lines of inquiry and interview questions presented in Appendix A. This initial set of categories was grounded conceptually from the literature and was related to the conceptual model used to develop the interview questions (Figure 1). These categories were refined and amended through the process of reading and annotating the interview transcripts. The revised set of categories was empirically grounded from evidence found

in the data collected for this study. This approach to identifying analytical categories used a combination of deductive and inductive processes in order to provide a fuller and more descriptive set of categories. The set of analytical categories was subject to continual refinement and revision throughout the process of analysis.

Once the set of analytical categories had been developed, content was assigned to these categories in the form of target keywords or phrases from the data. Assigning content served to organize the data for analysis as well as to determine if the category was supported by the data. The keywords and phrases were developed through an iterative process of reading and annotating the interview transcripts. The underlying consideration for selection of keywords and phrases was the relevant 'unit of meaning' conveyed by content rather than a strictly defined set of words (Dey, 1993). Assigning content to categories was subject to continual modification and revision through interaction with the data.

The categories and content developed in the earlier stages of analysis were used to determine the presence of relationships within the data. This was accomplished by comparing the content assigned to the categories and looking for evidence of possible connections between categories. Connections were revealed from consistencies or contradictions within the data (Dey, 1993). Connections between concepts were inferred by examining how categories were related across the different cases in the study. These connections were then tested using analytic induction by asking the following questions:

- Under what contexts does the connection arise?
- Under what contexts do contradictions to the connection arise?
- What is the significance of this connection/contradiction?

Intensive examination of these connections revealed patterns in the data which were used to identify the key findings of this study with arguments to support them drawn from the analytical process (Bazeley, 2009).

4.5. Limitations

This study intended to evaluate the influence that tourism has on proactive environmental management at wine tourism destinations and to determine if this information can be useful to policy and planning decisions. While the research protocol had been designed to successfully capture this information, limitations on the ability of this research project to achieve this goal exist.

Data collected through the interview method is limited to the content provided by respondents and to inferences made by the interviewer. Respondents cannot be relied upon to give a rational account of their intentions and the interviewer cannot make a definitive interpretation of intention (Dey, 1993). The subjective nature of this research method increases the level of uncertainty in the data.

The information obtained in interviews is subject to bias introduced by the human interaction of the interview process. Interviewers may unintentionally encourage or discourage the expression of particular facts and opinions. In a semi-structured interview, the consistency provided by following the same procedure for all respondents is sacrificed for the advantage of investigating topics uncovered during the interview process. The further one moves from a structured procedure, the greater the risk of interviewer bias (Sommers & Sommers, 1997). This limitation was addressed by using structured but open-ended questions, which allowed the respondent to add new concepts and ideas without the interviewer introducing bias. Additionally, the interviewer was educated in the ways in which bias could be introduced and made a conscientious effort to avoid biasing responses.

Although the research protocol was designed in collaboration with experienced researchers, a relatively inexperienced researcher conducted the data collection and analysis. This lack of experience may have been a hindrance to obtaining adequate responses from interview subjects who were reluctant to disclose information or had a tendency to stray from the subject matter. Also the inexperience of the researcher could have exacerbated the problem of human bias inherent in the interview method of data collection. This limitation was addressed through careful planning, mentorship, and coordination across the research team.

Due the constraints of time and resources, the sample size for this project may not be sufficiently large to represent an entire population. Additionally, the sampling method used for this research precludes a representative sample. Since participation was voluntary, those who chose to participate in this study may represent a subset of the population with a similar set of views that are not representative of the industry as a whole. Also, it is possible that conclusions drawn from this research project may be applicable only to wine producers from the specific geographic location used as the study area. Any generalizations resulting from this research project are limited.

5. Results

In the summer of 2012, an invitation to participate in this study was emailed to 187 wineries in Napa and Sonoma Counties in California. Some of these invitees had to be eliminated because they did not meet the selection criteria and others were redundant invitations. From the qualifying invitations, 12 agreed to participate, resulting in a small but informed sample. Subsequently 1 participant withdrew from the study, resulting in 11 usable interviews for a response rate of 6 percent. While this response rate is low, it is not atypical of studies on environmental programs by small and medium enterprises in the food and wine sectors (Atkin, Gilinsky Jr. & Newton, 2012). Additionally, study participants were not offered compensation for their participation. This may have contributed to the low response rate. While this sample is small, it is sufficient to satisfy the research goals because this research study has an exploratory objective and is not examining critical issues (Daniel, 2012).

Respondents were asked a series of questions regarding their motivations for engaging in proactive environmental management as well as their opinions and observations on the role of visitor markets in influencing environmental sustainability at wineries. This study investigated two key questions regarding the relationship between wine tourism and proactive environmental management at wineries:

1. Is wine tourism a factor in the decision to engage in proactive environmental management by wineries?
2. Does wine tourism play a role in the evolution of proactive environmental management practices at wineries?

The semi-structured interview format allowed respondents to build upon their responses at any point during the interview. Although the interview questions were asked in sequential order, comments relevant to a question would surface throughout the interview. Analysis of the interview data revealed a set of major concepts pertinent to each question that were populated with target keywords and phrases from the

interviews. The concepts and content derived from the data analysis will be examined for each question separately.

5.1. Is wine tourism a factor in the decision to engage in proactive environmental management by wineries?

In order to answer this question respondents were asked about the reasons and motivations for adopting proactive environmental management practices at the time they initially designed and implemented their sustainability programs. Also, respondents were asked about their motivations for pursuing an environmental certification, if applicable. It was hoped that investigating the reasons for engaging in proactive environmental management as well as the reasons for pursuing a certification would provide a more comprehensive set of motivators. In order to discern the relative strength of tourism as a factor in the decision to engage in environmental sustainability, this study also investigated tourist demand for sustainably produced wine from the operator perspective.

5.1.1. *Drivers for Engaging in Proactive Environmental Management*

Respondents were asked about the history of their sustainability efforts in order to bring them back to the mindset that was present when the programs were conceived. Then respondents were asked to express their motivations for engaging in proactive environmental management at that time. The most commonly stated reasons for pursuing environmental sustainability by wineries relate to the notion of a conservation-based land ethic. This is defined as conscientious management of the environmental concerns related to the utilization of the land. This sense of responsibility to care for the land under your control was expressed by ten of eleven respondents. The concept of a conservation-based land ethic was created by combining several related motivations for engaging in environmental sustainability mentioned by respondents during the interviews. For example, respondents discussed their watershed protection efforts (7 of 11), avoidance of pesticides, herbicides, and synthetic fertilizers (7 of 11), and/or issues relating to soil quality (3 of 11). Each of these separate motivations are part of the unified

concept of a conservation-based land ethic. The full list of components and their distribution among respondents is shown in Table 1.

Table 1. Components of the Conservation-based Land Ethic

Motivation	Respondent Stating											Total	
Be a good steward		X	X	X	X	X	X	X			X	X	8
Improve soil quality	X				X						X		3
Protect watershed	X	X			X	X	X			X	X		7
Reduce chemical inputs (agricultural)	X				X	X	X	X		X		X	7
Restore damaged land	X											X	2
Reverse/avoid environmental degradation					X	X	X	X					4

Note: n=11

Respondents gave many and varied answers to the questions regarding their motivations for engaging in proactive environmental management and repeatedly returned to this topic throughout the interview. The main motivations for engaging in proactive environmental management cited by respondents in this study are shown in Figure 3. Consistent with findings in the literature, the most common motivators to engage in proactive environmental management reflect a personal commitment to environmental values by the decision maker. This personal commitment to environmental values is present in the motivations “Conservation Land Ethic” (10 of 11 respondents), “Part of my Business Philosophy” (8 of 11 respondents), and “Right Thing to Do” (6 of 11 respondents). None of the respondents discussed wine tourism as a driver for engaging in proactive environmental management. In fact, consumer-based motivations for engaging in environmental sustainability were the most infrequently stated. The ability to gain “Marketing Benefits” was important to two respondents and consumer demand, indirectly expressed through “Pressure from Distributors”, influenced only one respondent.

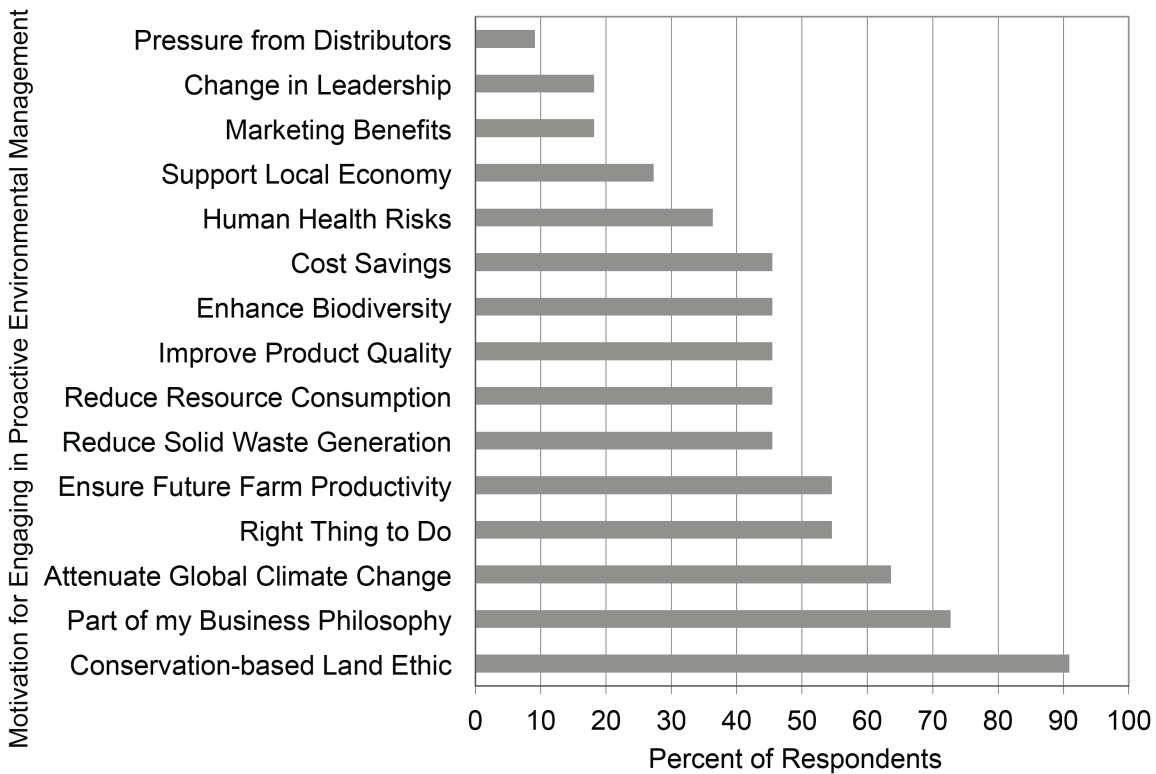


Figure 3. Motivations for Engaging in Proactive Environmental Management

Note: n=11

Analysis of the interview data led to the determination that, in terms of the overall motivation for engaging environmental sustainability, each respondent fell into one of two categories. Respondents either believed that environmental sustainability is necessary because conventional agriculture is harmful to humans and ecosystems (7 of 11) or that environmental sustainability is the industry and consumer trend of the future and they want to be part of the movement (4 of 11).

5.1.2. Drivers for Pursuing an Environmental Certification

Another way to examine the motivators for engaging in proactive environmental management is to query into the motivations for pursuing a sustainability or environmental certification. Asking the reasons for certifying may reveal a different set of motivations that better define the complex decision-making process involved in adopting proactive environmental management practices. In this study, nine of eleven

respondents had one or more certifications for the environmental aspects of their product and/or operations. In addition to this, eight of eleven respondents, which includes the two respondents that did not pursue certification, believed that they were operating in a fashion that is above and beyond the requirements for a certification. Of the nine respondents that did choose to certify, six were operating in a sustainable manner prior to certification. Therefore, only three respondents undertook a sustainability program and certification concurrently.

Results from this study show that the motivations for pursuing a certification are different than the motivations for engaging in proactive environmental management. The main motivations for pursuing an environmental certification cited by respondents in this study are shown in Figure 4. In contrast to the motivations given for engaging in proactive environmental management, seven of eleven respondents gave a consumer driven motivation such as “Marketing Benefits” (6 of 11 respondents), “Legitimacy” (4 of 11 respondents), “Recognition” (4 of 11 respondents), and/or “Important to Consumers” (1 of 11 respondents) for pursuing certification. Even though consumer driven motivations appeared more frequently none of the respondents discussed wine tourism as a reason for pursuing certification. A personal commitment to environmental values was also a common motivator for pursuing certification. Motivations such as “Learn to Improve” (6 of 11 respondents), “Right Thing to Do” (3 of 11 respondents), and “Gives us Pride” (2 of 11 respondents) reflect a personal commitment to environmental values. One or more of these motivators were stated by eight of eleven respondents. Another frequently cited motivator for pursuing certification was to “Be an Industry Leader” (5 of 11 respondents). Some respondents felt that, at this time, wineries would be more motivated to certify because of pressure from within the industry rather than pressure from external stakeholders. For these respondents, part of the decision to certify was to advance sustainability in the wine industry by setting an example for other wineries to follow.

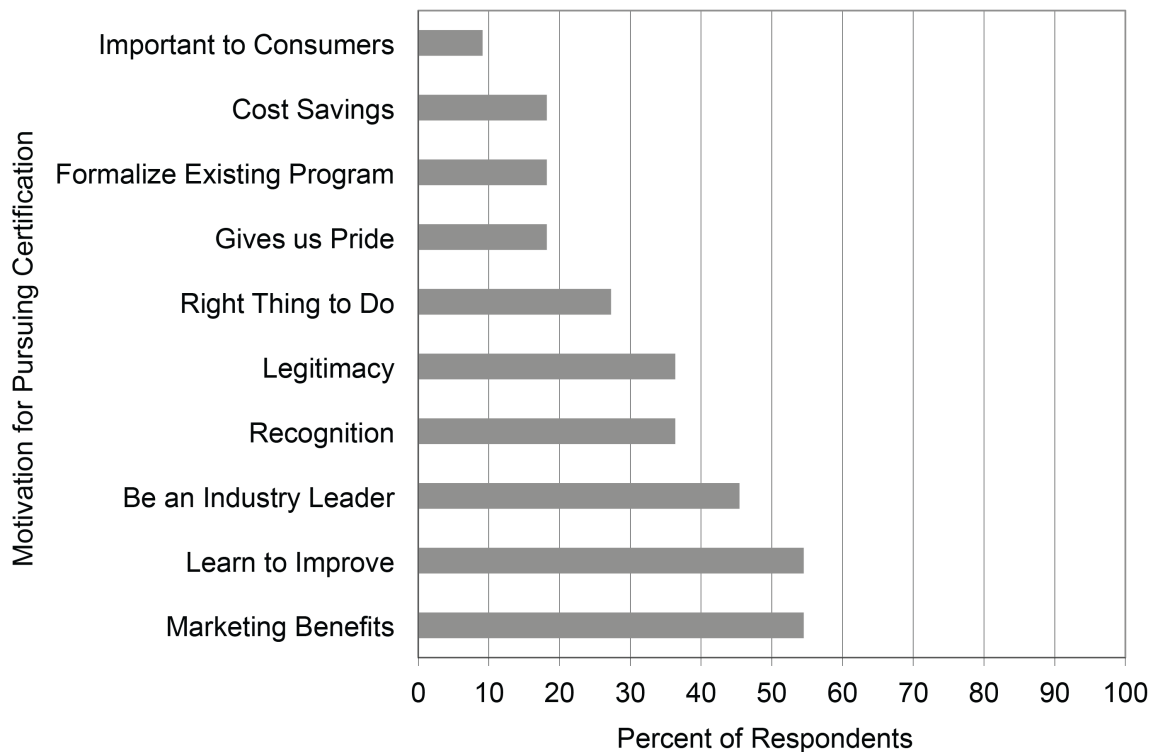


Figure 4. Motivations for Pursuing an Environmental Certification

Note: n=11

5.1.3. Perception of Tourist Demand for Sustainably Produced Wine

When respondents were asked for their main motivations for engaging in proactive environmental management and pursuing an environmental certification open-ended questions were used to avoid introducing bias into the responses. In order to determine if wine tourism was a factor, even of minor significance, in the decision-making process later in the interview respondents were asked directly if demand from visitors was a factor in their initial decision to engage in environmental sustainability. Further along those lines, respondents were also asked if they believed wine tourists were visiting their operation and/or wine region in search of sustainably produced wines. These questions attempt to gauge the perceived level of demand for sustainably produced wines by tourists in their region from the operator perspective.

Again, none of the respondents cited tourism as a factor in the decision to engage in proactive environmental management and only two respondents believed that

visitors had sought out their operations because of their commitment to sustainability. Although the majority of respondents (9 of 11) did not believe that visitors were seeking out sustainably produced wines, six respondents qualified this negative response by stating that a small percentage of visitors do select their operations based upon their sustainability efforts. As stated by one respondent, “there is a consumer that [sustainability] is very important to ... I would say less than probably a tenth, a very small amount of our business is coming from that segment”. In addition, when discussing tourist demand for sustainably produced wine, four respondents stated that their operations had been selected by tour operators organizing specialized tours targeting wineries with a sustainability focus. Combining these three responses we find that nine of eleven respondents believed that tourist demand for sustainably produced wine exists to some degree. The distribution of these responses is displayed in Table 2.

Table 2. Responses Indicating a Demand for Sustainably Produced Wine

Response Indicating Demand	Respondent Stating										Total	
A small percentage of visitors are selecting sustainable wineries		X	X			X	X		X	X		6
My winery was selected by a tour operator organizing tours of sustainable wineries	X	X				X	X					4
Visitors are selecting sustainable wineries								X			X	2

Note: n=11

Some respondents spontaneously contributed their opinions about the relatively low demand from tourists for sustainably produced wine. A majority (7 of 11) of respondents felt that consumers and tourists have limited knowledge of sustainability in wine production, which results in an undervaluation of these product attributes. In a statement representative of this idea, one respondent said that the “average consumer probably doesn’t understand what an organic wine is or why they would choose one over another because with so many wineries, you know, it’s that confusion”. Others believed that visitors do not have easy access to information on sustainably produced wines when planning their visit (3 of 11 respondents). One respondent remarked that “people don’t come to visit us personally because of that [sustainability], it’s not as easy for them to find it out beforehand”. One respondent felt that consumers and tourists assume wine production carries no environmental impact. This respondent, from a small facility, noted

that when visitors see the scale of their operations “the assumption is that it is pretty natural”.

5.2. Does wine tourism play a role in the evolution of proactive environmental management practices at wineries?

In order to answer this question respondents were asked questions relating to the relationship between their proactive environmental management practices and the visitor operations at their winery. Respondents discussed methods for communicating their environmental sustainability message to visitors and provided the operator perspective on the level of interest visitors have in their proactive environmental management practices. Respondents were also asked questions regarding the role that visitors play at the winery to evaluate the relative importance of tourism to their business. The effects of tourism on proactive environmental management practices at wineries was examined by asking questions relating to respondents experiences with unanticipated benefits or detriments to their visitor operations related to their proactive environmental management practices and their opinions on the ability of tourism to influence environmental sustainability in the wine industry.

5.2.1. *Communication of Environmental Sustainability to Visitors*

In order to assess the role tourism might play in the evolution of proactive environmental management practices at wineries it was necessary to establish the level of knowledge a visitor would have of environmental sustainability at these wineries. We asked participants if they actively communicate their environmental sustainability to visitors, and if yes, in what ways do they communicate this message. Most respondents (7 of 11) stated that they actively communicate their environmental sustainability to visitors. Some respondents (3 of 11) stated that although they do not actively communicate their environmental sustainability, if visitors ask they will discuss it. One respondent stated that they do not communicate their environmental sustainability and visitors have never asked them about it. It is important to note that one respondent, of the three that stated they do not actively communicate their environmental sustainability

but discuss it if asked, is presently incorporating a discussion of environmental sustainability into their tasting room presentation and therefore plans to begin active communication in the near future. Some respondents noted that prior visitor feedback regarding their environmental sustainability changed how they communicate their message today. More specifically, after visitors expressed an interest in the environmental sustainability aspect of their operations they began to discuss it more frequently and in greater depth.

For the respondents that actively communicate their environmental sustainability to visitors, the most common methods for communicating this message include “Personal Engagement”, “Part of a Structured Presentation”, and “Vineyard Experiences”. These respondents tend to use more than one method to communicate their message. The distribution of these methods among this subset of respondents is displayed in Table 3. When discussing their methods of communicating environmental sustainability to visitors three respondents spontaneously mentioned that they feel wine tourists are bored of the traditional tasting room experience, that the traditional tasting room experience is not memorable, and that operators must work hard to stand out in a market crowded with homogenous offerings. One respondent stated “tasting rooms very often are just a pretty face who pours wine and doesn't really know anything and people are pretty bored of that”. In reaction to this phenomenon, respondents have focused on creating a more personal connection with visitors. One respondent stated “what we are trying to do here is to really personalize the experience and I think people get into that” and another said “it's pretty easy to do, to be personal and be engaged with the guest, and they do just love that”. Table 3 shows that six respondents choose to communicate their environmental sustainability in a dynamic way (“Personal Engagement” and “Vineyard Experiences”). Perhaps this is a technique to counteract the monotony of the traditional tasting room experience.

Table 3. Methods Employed to Communicate Environmental Sustainability to Visitors

Method	Respondent Stating						Total
			X				
Educational self-guided tour			X				1
Part of a structured presentation	X	X	X		X		4
Personal engagement	X			X		X X	4
Vineyard experiences		X	X	X		X	4
Wine club communications		X					1

Note: n=7

5.2.2. Perception of Interest in Environmental Sustainability by Visitors

After establishing how visitors receive information on environmental sustainability from these wineries it was important to evaluate the level of interest visitors showed in this information. Respondents were asked if, in their opinion, visitors are interested in their environmental sustainability and ten of eleven respondents felt visitors are interested in the message. The remaining respondent could not comment on visitor interest in their environmental sustainability because they do not actively communicate their message and have never been asked about it by visitors. As stated by one respondent “we find that in the process of educating them [visitors] about the vineyard that they become fascinated by it and think it’s great but that isn’t why they come to see us”. Respondents frequently related observations of this nature with ten of eleven respondents believing that even the visitors who had no prior knowledge of their sustainability practices became very interested in the environmental sustainability aspects of their operation after learning about it during their visit.

Respondents were asked if there are certain aspects of environmental sustainability that have heightened appeal to visitors. As respondents began to talk about this question their responses started to encompass opinions on the general aspects of wine tourism that have great appeal to visitors and not strictly aspects of their proactive environmental management practices. The main aspects of environmental sustainability and/or wine tourism of interest to visitors as cited by respondents in this study are shown in Figure 5. The most common responses relate to the more general

aspects of wine tourism that are of interest visitors such as the “Romance of Wine Country” (5 of 11 respondents), “Wine Quality” (5 of 11 respondents), and a “Family Owned Winery” (4 of 11 respondents). In terms of environmental sustainability, respondents felt that visitors are most interested in “Sustainable Farming Practices” (4 of 11 respondents), “Land Stewardship” (3 of 11 respondents), and the “Connection to Nature” (3 of 11 respondents). While the category “Connection to Nature” could be interpreted to be an aspect of environmental sustainability as well as an aspect of wine tourism in general, respondents in this study correlated visitor interest in connecting with nature to their environmental practices that enhance biodiversity. One respondent noted that discussing sustainability demonstrates that “there is a real connection to nature, a connection to our little plot of land ... and I think people ... are attracted to that”.

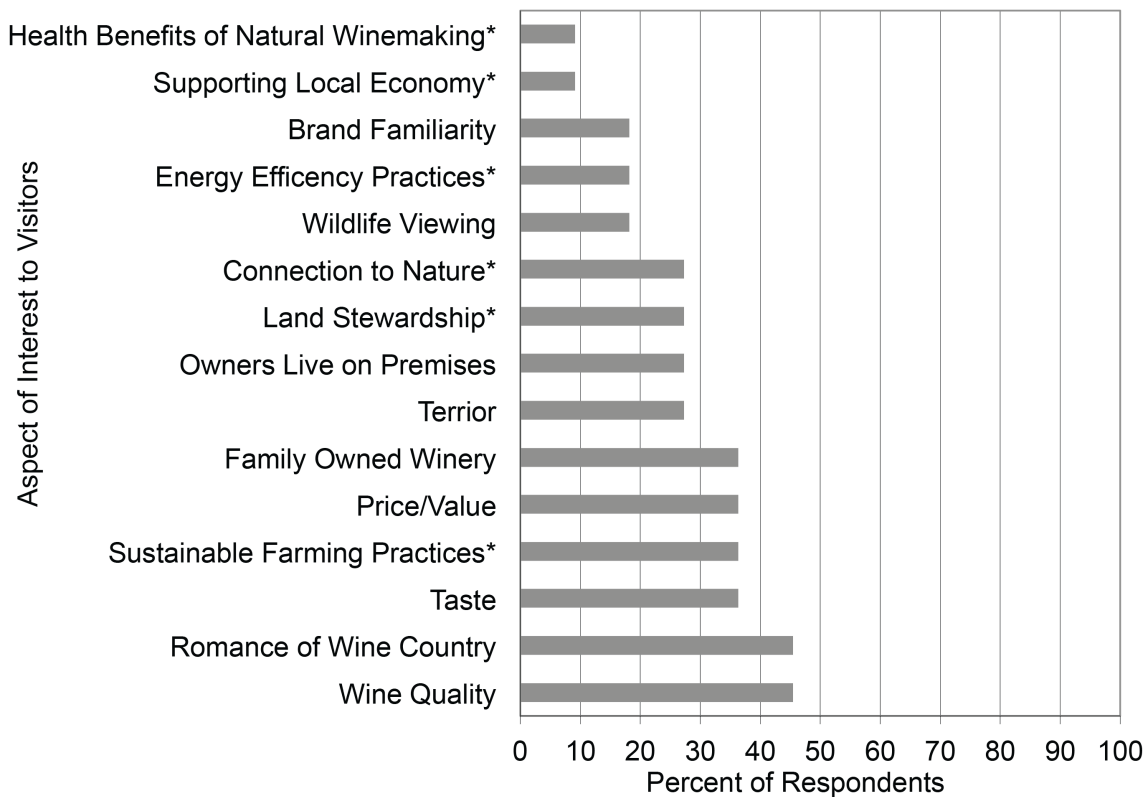


Figure 5. Aspects of Wine Tourism of Interest to Visitors

Notes: * = aspect related to environmental sustainability
n=11

5.2.3. Importance of Tourism to Wineries

In order to ascertain the influence that tourism might have on how proactive environmental management practices evolve at wineries it was important to establish the relevance of wine tourism to the successful operation of a winery. It stands to reason that the greater the importance that wine tourism plays, the more influence visitors can have on how operators choose to produce and market their wine and tourism products. Wineries in this sample were small and medium sized wineries that were open to the public for visitation. For these wineries, the direct and indirect retail sales generated from wine tourism are of paramount importance to the financial viability of their operations.

Of the wineries that participated in this study, ten of eleven stated that retail sales at the winery are an important source of revenue with the remaining respondent unsure. When asked if retail sales at the winery were the main source of revenue for their operations, six of eleven respondents answered in the affirmative, three stated that it is an important source but not their main source of revenue, and two did not know the answer to this question. Nine of the eleven respondents stated that attracting visitors is a priority for their business with the remaining two respondents unsure of the answer. The sentiment that wine tourism is an important source of revenue for wineries and attracting visitors is a priority in their business is reflected in the following participant response:

Everybody knows it, clear as can be, everybody is focusing their marketing efforts on getting people to the winery ... and making those connections to try to retain those retail sales.

Respondents were asked if they felt that visitor numbers have been changing over time and nine of eleven believed that visitor numbers were increasing. The remaining two respondents were unsure of how visitor numbers are changing at their winery. This response is consistent with the findings from periodic studies commissioned by the Wine Institute that show positive growth in the annual number of people visiting wineries in the State of California over the past decade (MKF Research, 2004; MKF Research 2006; Stonebridge Research, 2009). The growth in visitor numbers over time indicates that wine tourism will continue to be important to wineries and that wineries have a justification to focus on their tourism operations.

These responses show that retail sales at the winery are an important source of revenue and for most the main source of revenue, attracting visitors is a priority, and visitor numbers are growing. A summary of these responses is presented in Table 4. These responses indicate that the direct-to-consumer sales generated from wine tourism are very important to small and medium sized wineries.

Table 4. Summary of Responses on the Importance of Tourism to Wineries

Question	Respondents Stating		
	Yes	No	Unsure
Are Retail Sales at the Winery Important?	10	0	1
Are Retail Sales at the Winery the Main Source of Revenue?	6	3	1
Are Visitor Numbers Increasing?	9	0	2
Is Attracting Visitors a Priority?	9	0	2

Note: n=11

When discussing the importance of tourism to their winery, nine of eleven respondents felt that visitors to the winery can become loyal customers and continue to be a revenue stream post-visit. As stated by one respondent, when “someone comes to your tasting room they are much more likely to identify with your wines and talk about your wines, purchase your wines and tell people about your wines”. Respondents also discussed their methods for creating loyal customers from winery visitors. The most commonly stated strategies include connecting with visitors through their “Environmental Story” (8 of 11 respondents), “Creating a Unique Visitor Experience” (7 of 11 respondents) and “Personal Engagement” with visitors (6 of 11 respondents). Respondents felt that the customer connection to their brand attributable to their environmental sustainability was increasing post-visit direct wine purchases (6 of 11 respondents) and repeat visits to the winery (4 of 11 respondents).

Interestingly, eight respondents felt that communicating their environmental sustainability and environmental story to visitors was effective in creating loyal customers from visitors yet only seven respondents stated that they actively communicate their environmental sustainability to visitors. This can be explained by the fact that when asked if they actively communicate their environmental sustainability, one

respondent stated that they did not currently but had plans to add a discussion of environmental sustainability to their tasting room presentation in the near future. This respondent could be commencing active communication of their environmental sustainability because of the positive impact that casual discussion of their environmental sustainability had on creating loyal customers from winery visitors.

5.2.4. *Proactive Environmental Management and Brand Equity*

In order to understand how tourism might influence changes in proactive environmental management practices over time it was necessary to examine the effects these wineries felt as a result of sharing their environmental sustainability with visitors. Participants were asked to discuss any unanticipated benefits or detriments to the tourism aspect of their business resulting from engaging in proactive environmental management. Similar to the results for creating loyal customers, eight of eleven respondents felt that the environmental story behind their operations was effective in creating good relationships with their visitors and positive affiliations with their brand, otherwise known as brand equity. As stated by one respondent, engaging visitors with the environmental sustainability at her operation creates:

a positive perception towards sensitive practices and so you are creating a bond with the consumer one-on-one which is almost impossible to achieve on a website or through advertising

Brand equity is the value that a brand accrues over time as customers begin to associate the brand with attributes such as value, quality, status, and, in this case, environmental sustainability. Brand equity is a powerful method of gaining competitive advantage over firms with products of comparable price and quality (Nowak & Washburn, 2002).

Brand equity has tangible aspects, such as price premiums, yet none of the respondents felt that customers are willing to pay more for a sustainably produced wine and only three respondents felt that their proactive environmental management practices were influencing purchase decisions at the winery. Brand equity also has intangible aspects, such as customer affinity for a brand. Responses indicate that proactive environmental management practices are having a larger impact on these intangible

aspects of brand equity. As stated by one respondent: “I do believe it [sustainability] creates brand equity, you know, people feel good about the brand”. The different aspects of brand equity that respondents felt resulted from communicating environmental sustainability to visitors are shown in Table 5. Respondents felt that their proactive environmental management practices were creating or enhancing brand awareness (8 of 11 respondents), creating a preference for their brand (8 of 11 respondents), turning visitors into brand ambassadors who informally market the brand within their social networks (6 of 11 respondents), and driving business to their winery through personal recommendations from previous visitors (5 of 11 respondents). One respondent, in discussing how engaging visitors with her environmental sustainability efforts was increasing the number of visitors she receives through referrals, stated that “we do get high marks for that [sustainability], people do tend to follow us for that [sustainability], ... increasingly a lot of our people that come are referred here by their, its like a personal recommendation, and that’s how it grows”.

Table 5. Aspects of Brand Equity Resulting from Communicating Environmental Sustainability with Visitors

Aspect of Brand Equity	Respondent Stating										Total	
Creating/enhancing brand awareness	X	X		X	X		X	X	X		X	8
Creation of brand ambassador	X			X	X		X	X			X	6
Personal recommendations	X				X		X	X			X	5
Preference for the brand	X	X		X	X		X	X	X		X	8

Note: n=11

Some respondents stated that brand ambassadors were also effective in enhancing the image of the winery on social media platforms. These respondents had mixed opinions on the utility of social media in attracting visitors to their winery and/or generating wine sales. While they all agreed that their positive image on social media platforms resulted from making direct connections with visitors, some felt that social media has only served to maintain existing relationships, others that social media has slightly increased the number of personal referrals to the winery, and others that the overwhelming majority of their business results from information gleaned from social media outlets.

6. Discussion

6.1. Key Findings

Conducting semi-structured interviews with open-ended questions was successful in testing the General Conceptual Model presented in Figure 1 and identifying ideas and concepts for more thorough examination by future research. The insights and opinions of the well-informed sample accomplished the main objective of the study, which was to gain insight on the relationship between wine tourism and proactive environmental management at wineries. Interpretation of the results revealed several areas where tourism exhibits the potential to influence environmental sustainability at wineries.

In terms of the General Conceptual Model, the results indicate that tourism could be functioning as an external context and/or an external driver, but is most likely acting as a catalyst for encouraging the adoption of proactive environmental management practices. Although the majority of respondents were motivated from a personal commitment to environmental values, a few respondents were identified as adopting proactive environmental management because they feel it is the consumer trend of the future. While this consumer trend is not specific to wine tourism, it is influencing their decisions to engage winery visitors with their environmental sustainability. This provides evidence that the external context of consumer trends could be influential.

Respondents believed that communicating environmental sustainability to visitors was improving their image and had the potential to create a competitive advantage. Respondents also experienced financial benefits as a result of communicating their environmental sustainability to visitors through the creation of brand equity. These conditions were not reported as driving the decision to engage in proactive environmental management but as unanticipated benefits of adopting environmental sustainability. If these benefits can be definitively stated then they could potentially serve

as internal and external drivers for new entrants. Tourism benefits as a driver for engaging in proactive environmental management is discussed further in Section 6.2.2.

In relating the results to the General Conceptual Model, it appears that wine tourism exhibits the strongest potential to influence proactive environmental management at wineries as a catalyst. Respondents felt that wine tourism is creating pressure within the wine industry that is encouraging operators to adopt sustainable practices. The role of tourism as a catalyst is discussed in greater detail in Section 6.1.1.

Since this study was a preliminary examination of the relationship between wine tourism and proactive environmental management at wineries, these findings serve solely to identify linkages between wine tourism and proactive environmental management that warrant further investigation. These key findings are: 1) tourism did not have a direct effect on the decision to adopt proactive environmental management but serves more as a catalyst for encouraging the growth of environmental sustainability within the wine industry; 2) responses confirm the existence, however slight, of a consumer demand for sustainably produced wine; 3) there is a lack of consumer awareness on who is sustainable and why environmental sustainability is important; 4) visitation is an effective way to increase the awareness of environmental sustainability; and 5) engaging visitors with proactive environmental management practices enhances the visitor experience.

6.1.1. *Tourism as a Catalyst*

An examination of the motivations for engaging in proactive environmental management revealed that tourism had not directly influenced the decision to engage in proactive environmental management for these respondents. This study also did not find that tourism is having an effect on the evolution of established proactive environmental management practices at wineries, beyond visitor feedback influencing the way they communicate these practices. Respondents did feel that tourism is having positive effects on advancing the adoption of proactive environmental management within the wine industry. The ability of tourism to showcase the environmental sustainability of an operation increases consumer awareness and encourages other, less personally committed, operators to adopt proactive environmental management practices. As

stated by one respondent, “I feel like it [tourism] does have an impact on some other people who maybe don't have the interest or passion in the environment as part of their core business tenets”.

In relating these findings to the General Conceptual Model of the Drivers and Barriers to Corporate Greening (Mair & Jago, 2010) presented in Figure 1, we find that wine tourism appears to have the strongest influence as a catalyst for increasing the rate uptake of sustainable practices within the wine industry. In terms of this model, catalysts act as a medium for increasing or decreasing the degree to which an individual firm adopts sustainable practices. Lynes & Andrachuk (2008) further define a catalyst as something that can shape expectations regarding the adequacy of corporate acts. Public forums such as visitor operations provide an opportunity to present ideas and information for consideration by a large audience. The increased visibility and heightened awareness of environmental sustainability resulting from tourism alters the perception of normal business practices in the eyes of consumers and industry peers. In industries dominated by small and medium-sized enterprises, such as the wine industry, the perception of norms regarding environmental stewardship is influential in the decision to pursue sustainability (Cordano et al., 2010). In the view of some respondents, this is creating a sense of intra-industry peer pressure that is motivating wineries to adopt sustainable practices. This is best reflected in the words of one respondent who said that “wine tourism is just going to keep fuelling sustainability industry-wide faster and faster ... it's going to be an accelerant for sure”.

6.1.2. Evidence of Demand for Sustainably Produced Wine

Respondents in this study felt that although the majority of visitors were not selecting their winery based upon its sustainability record, there does exist a minority group that seeks out sustainably produced wines. Numerous respondents made statements to this effect. One respondent stated that “I know for sure there is a segment of people who seek out sustainable and/or organic and/or biodynamic wines” and another remarked “there is definitely a small percentage who would [seek out sustainable wines]”. These results combined with responses indicating that either visitors or tour organizers were selecting their operations based upon their sustainability focus

create a majority of respondents that perceive a level of demand, albeit small, for sustainably produced wines, which is consistent with the findings in the literature.

There are a limited number of studies conducted on the subject of consumer demand for sustainably produced wines. A number of these studies also found that only a small percentage of consumers are strongly motivated to purchase sustainably produced wines (Berghoef & Dodds, 2011; Mueller & Remaud, 2010; Zucca et al., 2009). Studies demonstrate that consumers who had previous experience with sustainably produced wines show a stronger preference for these products and believe them to be of equal or higher quality than conventionally produced wines (Berghoef & Dodds, 2011; Forbes et al., 2009). Studies on the willingness to pay a premium for sustainably produced wines found that, for wines of comparable quality, a large percentage of consumers are willing to pay more for a bottle of wine produced in an environmentally friendly manner (Barber et al., 2009; Barber et al., 2010; Berghoef & Dodds, 2011; Forbes et al., 2009; Zucca et al., 2009). In fact, research has shown that a majority of consumers will show a preference for environmentally friendly products when choosing between products that are otherwise identical (Forbes et al., 2009; Peattie, 2001; Zucca et al., 2009). Numerous respondents in this study made statements that reflect this sentiment. In the words of one respondent: "if you can offer the same product and in the same value but you have an environmentally sound philosophy people will always buy your product over the other ones". Purchase data do not always reflect these preferences because frequently consumers are not sufficiently informed in order to discern which product was produced in an environmentally superior manner (Barber et al., 2009; Berghoef & Dodds, 2011; Forbes et al., 2009; Zucca et al., 2009).

Studies have found that the present market for sustainably produced wines is small but shows potential for growth as environmental awareness continues to increase (Berghoef & Dodds, 2011; Forbes et al., 2009; Zucca et al., 2009). These studies also demonstrate that in order for these consumers to turn a willingness to pay into actual purchases a credible and clear method for communicating environmental product attributes must exist (Berghoef & Dodds, 2011; Forbes et al., 2009; Zucca et al., 2009).

6.1.3. *Limited Knowledge of Environmental Sustainability*

The majority of respondents in this study felt that consumers and tourists had limited knowledge of environmental sustainability in the wine industry. One respondent stated that “the average consumer walking through our doors ... they are not really tuned into any of that [sustainability]”. Another respondent noted “I think there’s still a good majority of the consumer out there that doesn’t even know that this [sustainability] exists”. This knowledge barrier has been documented in the literature as a lack of information or understanding about the processes involved in conventional or sustainable wine making and the difficulty in communicating these often complicated practices to individuals outside of the industry (Forbes et al., 2011, Fountain & Tompkins, 2011; Vermeir & Verbeke, 2006; Warner, 2007; Zucca et al., 2009). One respondent disagreed with this view and said “It’s not too confusing for anyone to understand. It’s just a bother.”. This respondent perfectly described the scenario where a consumer is increasingly inundated with promotional messages that stress the myriad benefits of products of all types and becomes overwhelmed by the complexity of the purchase decision, resulting in ambivalence and avoidance (Penz & Hogg, 2011). Indeed, the constant stream of environmental messaging is resulting in some consumers becoming disenchanted with environmentally friendly products and services (Greenberg, 2008; Mueller & Remaud, 2010; Peattie, 2001).

The knowledge barrier manifests itself in three ways, either the information is unavailable to the consumer, the information is not comprehensible to the consumer, or the information is ignored by the consumer. Prior research has found that consumers who are more knowledgeable about the environment possess stronger environmental attitudes and are more likely to be motivated towards environmentally sustainable purchase decisions (Barber et al., 2009; Barber et al., 2010; Frick, Kaiser, & Wilson, 2004; Gleim et al., 2013; Vermeir & Verbeke, 2006). Wine tourism provides a prime opportunity to increase environmental knowledge because a visitor can experience first-hand the environmental systems related to vineyard and winery operations (Fountain & Tompkins, 2011). This removes a degree of abstraction from the environmental issues related to wine production and aids the consumer in comprehending the benefits associated with environmental sustainability. Furthermore, when the environmental benefits of sustainable production are well communicated consumers are more likely to

base purchase decisions on environmental criteria (Gleim, et al., 2013; Peattie, 2001; Vermeir & Verbeke, 2006). Research also shows that communicating the environmental benefits of products verbally results in higher levels of comprehension and has a greater positive impact on purchase decisions (Gleim, et al., 2013). Wine tourism allows producers to verbally communicate information on the environmental aspects of wine production in a way that reduces its complexity and clearly demonstrates the environmental benefits that result from supporting sustainable viticulture.

6.1.4. *Visitation Increases Awareness of Environmental Sustainability*

Overall respondents in this study perceived tourism as having a positive effect on increasing awareness of environmental sustainability. A majority of respondents felt that most visitors were not actively seeking out sustainably produced wines but became interested in environmental sustainability after learning about it during their visit. As stated by one respondent, “the tasting room staff ... say a lot of times people [visitors] aren't aware of our sustainability programs just yet but when they hear about them they are very interested and excited to learn more”. In the experience of these respondents, most visitors enter the winery with limited knowledge of sustainability, readily engage with the opportunity to learn, and leave informed and interested in sustainability. Prior research has identified the desire to learn about wine and wine making as a motivator for winery visitation (Ali-Knight & Charters, 2001; Bruwer & Alant, 2009; Galloway, Mitchell, Getz, Crouch, & Ong, 2008) and there is evidence of visitor interest in learning about sustainable viticultural practices (Fountain & Tompkins, 2011). Since, according to these respondents, most visitors exhibit low levels of environmental knowledge, the environmental involvement, experience, and learning at the winery can create positive environmental attitudes in winery visitors (Barber et al., 2009; Vermeir & Verbeke, 2006). When describing her experiences introducing visitors to environmental sustainability, one respondent noted that “for so many people, especially urban dwellers who have no contact, who have never had any contact with family members or anything in ag[riculture], wine can be an entryway for their understanding [of sustainability]”.

Experiencing the operations and learning about proactive environmental management practices first-hand is not only a powerful educational force for tourists, it is

also effective in increasing awareness for distributors, restaurateurs, and sales representatives (Ali-Knight & Charters, 2001; Dawson et al., 2011). One respondent felt it was important to bring these people to the vineyard in order for them “to see and to experience and once they do that, then they get the faith”, which leads to them promoting environmental sustainability to consumers in distant markets who may not have the opportunity to visit the winery. While it is possible for tourists to promote environmental sustainability through their social networks, they are limited by their relative position of influence within their peer group. Individuals working in the wine business may possess a greater ability to increase awareness of environmental sustainability due to a perceived degree of expertise in wine related matters. Educating all winery visitors about the environmental impact of wineries and the benefits associated with sustainable production practices can serve to increase consumer demand for sustainably produced wines (Barber et al., 2009; Barber et al., 2010; Frick et al., 2004; Gleim, et al., 2013; Vermeir & Verbeke, 2006).

6.1.5. *Proactive Environmental Management Enhances the Visitor Experience*

This study discovered that while tourism was not a driver in the decision to engage in proactive environmental management practices for these respondents, operators that actively communicate their environmental sustainability to visitors believe it enhances the visitor experience and builds brand equity. In Napa and Sonoma Counties there are a large number of wineries open to visitors, which makes it difficult for individual wineries to make an impression. As stated by one respondent:

their [tourists] recollection if they go to 3-5 wineries in a day, they can't remember where they have been and it isn't just alcohol, it's that they [wineries] all start to blend together

Numerous respondents made reference to the homogeneity of the visitor experience in their region. A majority of respondents noted that engaging wine tourists with the environmental story behind their operations resulted in visitors making a memorable connection to their winery. Prior research has found that memorable connections to a winery are the direct result of the quality of the visitor experience (Bruwer & Alant, 2009; Dawson et al., 2011; Fountain, et al., 2008; Fountain & Tompkins, 2011). Respondents

also felt that communicating their environmental sustainability to visitors was creating positive affiliations with their brand. One respondent felt that when she discussed environmental sustainability with her visitors it changed their perception of her business in a positive way. In her words,

it [sustainability] shows that everyone who is growing grapes here isn't just trying to get rich ... and then people realize that there is this down-to-earth aspect to it. Sustainability does tie in to this down-to-earth aspect of it and people are attracted to that

Discussing environmental sustainability conveys to visitors that these operators are passionate about their winery and provides a story through which the visitor can make a personal connection with the place. Respondents believe that creating this connection can result in brand loyalty and the creation of brand ambassadors, both of which can serve to expand the market for sustainably produced wines. While the majority of visitors are not selecting these wineries based upon their proactive environmental management practices, these operators feel strongly that discussing environmental sustainability enhances the visitor experience and creates positive brand associations for visitors.

This study is one of a very limited number of studies that examined the influence of learning about environmental sustainability on the visitor experience at wineries. Engaging winery visitors with stories about the people, processes, and environment that cultivate the wines provides a high quality experience that produces an attachment to the brand (Bruwer & Alant, 2009; Dawson et al., 2011; Fountain et al., 2008; Fountain & Tompkins, 2011). Fountain and Tompkins (2011) found that visitors reported a better experience and a deeper connection to the wineries where they learned about environmentally friendly vineyard practices during their visit. Wineries that are effective in making these connections create brand loyal consumers from winery visitors (Dawson et al., 2011; Fountain et al., 2008). These brand loyal consumers not only continue to purchase wine after their visit, but tend to become brand ambassadors who share the images, stories, and experiences of the brand with other potential consumers (Bruwer & Alant, 2009; Dawson et al., 2011). It has been demonstrated that unbiased personal recommendations from friends and family are the most important source of information used by wine tourists when planning a winery visit (Bruwer & Alant, 2009). These studies show that enhancing the visitor experience can have tremendous value to wineries

through the creation of brand ambassadors and brand loyal consumers from winery visitors.

6.2. Recommendations

6.2.1. *Incorporate Environmental Sustainability into the Visitor Experience*

Small and medium-sized wineries rely heavily on the direct-to-consumer sales generated from wine tourism. Winery owners need to create memorable experiences for visitors in order to make the meaningful connections necessary to create loyal customers and brand ambassadors. The majority of respondents in this study believed that engaging visitors through their environmental sustainability message was effective in creating memorable experiences, strong connections to their brand, and brand equity. While all of the participants in this study were following sustainable practices, not all respondents were actively communicating their sustainability message to visitors. Winery owners can realize the benefits of creating memorable connections by emphasizing their proactive environmental management practices when designing visitor experiences. Some respondents in this study believed that the traditional tasting room experience was not effective in creating a bond with visitors. Winery owners are trying to counteract this by focusing on personal engagement and hands-on tours in the vineyard and winery that incorporate their proactive environmental management practices. While it is not feasible for all wineries to offer these in-depth tours and not all tourists are interested in committing to a lengthy visit at every winery, simply discussing environmental sustainability in the tasting room can serve to enhance the visitor experience. As stated by one respondent, “the tasting room staff love to hear about sustainability because they feel it really engages the consumers”.

Respondents in this study felt that the direct experience of visitation is the most effective way to create an enduring understanding of the benefits of sustainable production practices. The wine industry, through wine tourism, has a structure in place that gives visitors an opportunity to view the site and process of wine production. Adding an element of sustainability education to this existing structure places this information in

a context where it is most understandable as well as relevant to the experience. Prior research demonstrates that an adequate understanding of the benefits of sustainable production practices tends to increase purchase decisions based upon this criteria. The importance of environmental attractiveness to wine tourists provides an avenue for operators to connect their environmental sustainability practices to known visitor preferences. This is best expressed in the following participant quote:

the sustainability practices we do in the vineyards and that connection to the land really resonates with people ... the whole mystique of wine is built around this already so it's tying into an already powerful existing area

Therefore, it appears that incorporating aspects of existing proactive environmental management practices into the visitor experience can be accomplished with minimal effort and may produce substantial benefits. Findings from this study indicate that visitors are interested in environmental sustainability, learning about environmental sustainability creates a connection to the winery, and communicating environmental sustainability creates brand equity. These findings are consistent with the findings from the Fountain and Tompkins (2011) study on winery visitors in the Waipara Valley of New Zealand. If further research confirms these findings, sustainability programs and/or regional tourism boards could use this information to advise their members on the benefits of communicating environmental sustainability to winery visitors.

6.2.2. *Tourism Benefits as an Incentive to Engage in Proactive Environmental Management*

Consistent with the findings in the literature, this study found that the most common motivator for wineries to engage in proactive environmental management stems from a personal commitment to environmental values by managers. Organizations that lack an internal advocate to advance proactive environmental management require additional incentives to move beyond regulatory compliance (Silverman et al., 2005). Prior research has shown that the threat of costly government regulation and potential price premiums, or other market advantages, are effective at increasing the level of participation in proactive environmental management programs in the wine industry (Moulton & Zwane, 2005). Our findings indicate that engaging winery visitors with

proactive environmental management practices has the potential to enhance the visitor experience, create memorable connections, and build brand equity which can create brand loyal consumers and brand ambassadors. These brand ambassadors can increase brand awareness, direct-to-consumer sales, and/or levels of visitation. The potential for gaining these market advantages could be a way to convince winery managers that lack a personal commitment to environmental values to adopt environmental sustainability.

Voluntary environmental management programs and certification bodies could use these tourism-related benefits in their efforts to increase adoption rates in their regions. Cordano et al. (2010) discovered that the expectation of benefits correlated with winery managers' decision to implement sustainability practices. For operators that are not personally committed to environmental issues, the benefits from increased visitation could be an effective incentive to adopt environmental sustainability. As stated by one respondent:

We want to bring as many tourists here as possible and if we weren't sustainable and we thought that by becoming sustainable we would get, say 20 percent more tourists in here, we'd probably do it

While this research found evidence of previously identified benefits, more research needs to be done in order to definitively state the benefits from wine tourism related to proactive environmental management. These benefits, coupled with the general receptivity the wine industry exhibits towards new programs and practices, should assist these organizations in increasing the number of wineries adopting sustainable practices. As stated by one respondent, "I believe that ... the industry is broadly interested in learning any new methods that are cost competitive that will give them any sort of advantage". A higher number of beneficial attributes associated with proactive environmental management should result in a higher rate of adoption by firms, which would increase the environmental benefits and the overall value of proactive environmental management to society at large.

6.2.3. Generate Information Resources

Respondents in this study acknowledged the existence of a small percentage of visitors that are seeking out their operations because of their sustainability focus. They recognize that these individuals are deeply committed to sustainability and therefore are willing to commit the extra time and resources necessary to find environmentally and socially responsible businesses to patronize. The fact that respondents felt that the majority of visitors connect with their brand after learning about their proactive environmental management practices indicates that environmental sustainability is an area of interest for winery visitors. Many respondents cited a lack of knowledge as the main reason that tourists were not seeking out sustainable wineries when visiting their region. These findings are consistent with the findings in Fountain and Tompkins (2011) where sustainability practices were not a factor in the decision to visit a winery because visitors were not aware of these practices prior to visitation but after learning about sustainability visitors felt more connected to the winery and reported a better overall experience. Respondents in this study felt that the number of visitors using environmental sustainability as a selection criterion would increase if the visiting public could readily identify sustainable operators. According to one respondent:

If there was a place where tourists could find out who farms sustainably, which wineries are sustainable, I think it would be something that would impact tourism in a positive way. I think people would seek those out.

Trip planning resources that highlight sustainable wineries would help visitors identify who is operating in a sustainable fashion and make it easier for them to select wineries to visit based upon this attribute. Presently, a very small number of wine regions worldwide provide this information and respondents in this study felt that this information was lacking in their region. One respondent remarked “there’s no good central resource at this time ... you have to know what those certifications are in order to go looking for them”. A coordinated effort between wineries, environmental certification bodies, and regional tourism boards or appellation boards to generate maps, informational brochures, and/or online visitor guides on sustainable wineries would help to fill this information gap.

Bruwer and Alant (2009) found that 60 percent of visitors made the decision to tour the wine region in their study less than one week prior to the visit. This short time frame for decision making by winery visitors makes it critical that trip planning information is readily accessible and easy to use. Certification bodies and regional tourism boards could generate a webpage with wine tour itineraries featuring sustainable wineries. Another option would be to develop a visitor guide in the form of a mobile application for smartphones that gives prominence to information on sustainable wineries in the region. Alternatively, these organizations could work with the developers of existing mobile wine tour smartphone applications to have sustainability information added to winery profiles. Creating promotional materials that draw attention to the sustainable practices implemented by wineries supports the recommendation made by Taylor et al., (2010) in their study of environmental disposition in consumers and intention to visit wine tourism destinations. The easier these information resources are to find and use the more likely they are to be effective in driving visitors towards sustainable wineries (Getz & Brown, 2006). As stated by one respondent, “the easier we make it for people to understand, to identify, who’s certified and in what ways and what the certifications mean, the better”.

6.2.4. *Environmental Sustainability as a Regional Differentiator*

The wine industry and the tourism industry are both heavily reliant on a positive reputation based on place to market their products (Bruwer & Alant, 2009; Dawson et al., 2011). While each individual winery must develop its own brand, a strong regional reputation is even more important to successful marketing (Dawson et al., 2011; Gabzdylova et al., 2009; Warner, 2007). In the case of wine regions, attributes that differentiate one regional brand from another include the landscape, scenery, reputation for wine quality, history, and culture of the region (Dawson et al., 2011). If a wine region has well-coordinated proactive environmental management programs with high rates of participation it is possible that it can become renowned as a environmentally sustainable region (Fountain & Tompkins, 2011; Gabzdylova et al., 2009). Prior research has shown that promoting sustainable vineyard practices can provide a way to differentiate a brand and gain a competitive advantage (Forbes et al., 2009). Concentrating marketing efforts on the benefits resulting from the proactive environmental management practices in a

region may provide a competitive point of difference in the crowded global wine marketplace. As an example, when discussing the work of her local vintners association, one respondent stated:

it isn't just about 'how we are going to sell our wine?', they really do a big job of how to sell the Napa Valley and what do we need to do to make this thing a unique place ... [sustainability] is one more thing that will make this growing area kind of rise above

This could have especially high utility for newer wine regions that have yet to develop a distinctive image in the minds of wine consumers. Positioning a region in terms of environmental performance allows it to capitalize on the nascent demand for sustainably produced wine demonstrated in the literature. Additionally, marketing a wine region based upon its excellence in proactive environmental management could serve to generate brand equity for the regional brand. This designation could also be effective in marketing the region for tourism purposes (Taylor et al., 2010). Attracting visitors to a region is an important part of the process of capturing the direct-to-consumer sales which are essential to the financial viability of many wineries and there is evidence that environmental quality issues are influential in visitors' destination decision making (Hu & Wall, 2005; Taylor et al., 2010).

6.3. Areas for Future Research

The exploratory nature of this study, since so little is known on the relationship between wine tourism and proactive environmental management, limits the ability to generalize these findings. Additional studies, from the visitor and operator perspectives, would be required to accurately define the relationships revealed by this research. Therefore, results from this study are most useful in identifying potential areas for future research on the influence of tourism on proactive environmental management in the wine industry.

Respondents in this study tended to have long histories in the wine industry and with sustainability. Those with a longer history in the wine business (22 years or greater) tended to have a more pragmatic view of the industry and made comments such as "basically we are all competing against each other, we are all making pretty much the

same wines” whereas newer entrants (13 years or less) were more strongly focused on the unique and exceptional quality of their product. One of these newer entrants into the wine business even expressed displeasure with the amount of interest visitors have in their environmental practices as she felt it was drawing attention away from discussing the qualities of the wine. Respondents with a longer history in the wine industry also believed that sustainability would enhance the marketability of their product and their region. All of the respondents that have been engaged in sustainability for less than 5 years stated a consumer motivation for engaging in sustainability and/or pursuing certification and believed that tourist demand for sustainably produced wine exists. Perhaps a study undertaken with a greater proportion of newer entrants into the wine tourism market and/or newer entrants into sustainability would yield different motivators as well as a different relative importance of tourism for engaging in proactive environmental management.

Only one respondent referred to consumer pressure, in the form of pressure from distributors, as motivating the organization to pursue proactive environmental management. Pressure from distributors can be interpolated to mean consumer pressure since logically distributors would be motivated to meet consumer demands. Interestingly, this respondent was the largest producer in the sample. The majority of producers in this study operate on a scale at which using distributors to sell their product is not economically feasible and therefore would not have experienced this condition. A study focusing on larger producers may see a greater influence from consumer demand as driving proactive environmental management in the wine industry. Additionally, since larger producers are less financially dependant on the direct-to-consumer sales resulting from wine tourism, they may have a significantly different perspective on the influence of tourism on proactive environmental management in the wine industry.

This study found that a majority of respondents perceived some degree of tourist demand for sustainably produced wine, believed that visitors are interested in environmental sustainability, and that learning about environmental sustainability enhanced the visitor experience. It would be useful to test these responses against information gathered from the visitor perspective. Indeed, all of the respondents in this study expressed an interest in empirical evidence of visitor interest in sustainability at wineries and the level of importance that sustainability plays in the decision to visit a

winery. Some respondents stated that there is inadequate knowledge of visitor demand for sustainably produced wines and that if engaging in proactive environmental management had significant positive effects on visitation then more wineries would adopt proactive environmental management practices.

The respondents in this study all identified as operating based upon the principles of sustainability, which entails implementing economically feasible business practices that are environmentally responsible and socially equitable. Due to the constraints of time and resources, this study focused solely on the environmental management aspect of sustainability theory. While respondents in this study did discuss the social and economic aspects of their sustainability initiatives, the greatest emphasis was placed on environmental practices. Additional studies on the economic and social components of sustainability would be helpful in understanding the relationship between wine tourism and these aspects of sustainability.

Further examination of these questions will provide a more comprehensive understanding of the benefits that proactive environmental management can bring to wine tourism operations as well as the benefits that wine tourism can bring to proactive environmental management programs. Investigating the influence of tourism on environmental sustainability can serve to advance the growth of sustainability in the wine industry and potentially be relevant to sustainability in other agri-tourism sectors.

6.4. Conclusions

Sustainability is a value embraced by many of the most competitive and successful companies (Berry and Rondinelli, 1998). These companies are shifting from a strategy of regulatory compliance to one of proactive environmental management. This trend is particularly evident in the wine industry. There is a growing awareness of the negative environmental impacts of wine production and the need for sustainable vineyard and winery practices is acknowledged by the wine industry and many consumers. The investment of time and capital required to alter business practices can be prohibitive for an industry dominated by small and medium sized enterprises such as the wine industry (Cordano et al., 2010). The wine industry has addressed this challenge

through the development of voluntary compliance schemes that serve to advance sustainability by providing the tools a small winery needs to achieve improved environmental and social performance. Previous studies have determined that the transformation to proactive environmental management through voluntary programs in the wine industry has been driven by improved product quality, increased competitiveness, personal values of managers, reduced costs, and improved image. The purpose of this study was to determine if wine tourism is playing a part in this transformation.

Although this research did not find a direct link between tourism and the decision to engage in proactive environmental management or the evolution of established proactive environmental management practices, it did find that tourism does have a role in advancing environmental sustainability for the wine industry. Wineries are seeing positive effects from communicating environmental sustainability with visitors in terms of building brand equity and creating memorable visitor experiences. These positive effects may encourage other wineries to adopt sustainability, especially those that lack an environmentally committed management. Also, using wine tourism to educate visitors on the importance of environmental sustainability can help build demand for sustainably produced wines. Further research from the visitor and operator perspectives is needed so that wine producers and regions can fully realize the ways in which proactive environmental management and wine tourism can be mutually beneficial.

Some respondents believe that when selecting products of comparable quality consumers will choose the product produced in an environmentally friendly way. This is reflected in participant statements such as “there are a zillion wines out there and there are a lot of really great wines out there so if you can find the great one that is also using good sustainable practices then why not go that direction?”. Respondents also believe that the majority visitors, previously unaware of sustainability in the wine industry, exhibit a high level of interest in the proactive environmental management practices they learned about during their visit. These responses indicate a potential visitor preference for environmentally sustainable wineries. Prior to visitation it is not easy for tourists to identify producers that are using sustainable practices. The creation of regional maps and guides that locate and describe sustainable wineries could increase visitation levels at participating wineries. As stated by one respondent:

I think there's a great opportunity to increase consumers awareness using tourism by way of educating concierges or creating special wine tasting maps for people that are looking for this [sustainable wines].

Generation and promotion of these information resources would require a coordinated effort between wineries, certification bodies and regional tourism boards or appellation boards.

Results from this exploratory study indicate that wineries that communicate their environmental sustainability to visitors find that visitors are interested in learning about environmental sustainability, proactive environmental management builds brand equity, and learning about proactive environmental management practices enhances the visitor experience. The benefits of wine tourism related to proactive environmental management observed by respondents in this study include the creation of brand loyal consumers and brand ambassadors, which can result in increased direct-to-consumer sales and increased visitation levels. These preliminary results are encouraging and the potential benefits to producers and regions warrant further investigation. More detailed studies, for instance a survey conducted by a regional sustainability program on its members, are needed to test the strength of the relationships and the utility of the recommendations found in this study. It is possible that the results of these detailed studies could be useful in encouraging the adoption of sustainability practices by other agricultural sectors that have a tourism component. Since the wine industry is a recognized leader in incorporating sustainability into their agricultural and production processes, one respondent believes that:

collectively the wine industry could actually affect other larger agricultural industries by the findings that come out of here ... if the information that we know and have was disseminated out to other segments of the industry, I think it would have a larger impact ... that over time our practices will be appreciated more

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Appendices

Appendix A.

Interview Plan

1) Introduction

Hello, my name is Maureen Leddy and I am conducting a research project for a masters degree in Resource and Environmental Management from Simon Fraser University in Burnaby, BC. During this interview I would like to discuss issues relating to sustainability at your winery and your experiences as a wine tourism destination.

2) Interview Questions

Lines of Inquiry	Main Questions	Clarifying questions
Background Questions	<ul style="list-style-type: none"> • How long has this winery been in operation? • What is the average annual production of wine over the past five years? Is this large, small, or average for the region? • How long have you had a sustainability orientation to your operations? • What is the ownership structure of the winery? Do you feel that this type of ownership structure was influential in the decision to pursue sustainability? If yes, in what way? • In what ways do your job responsibilities relate to sustainability at the winery? (in general and more specifically) • How many years has your work involved sustainability issues and how has this work evolved in focus and intensity over the years? • How were the sustainability initiatives developed? What were the catalysts for their development, and what role did you play in the development these initiatives? 	<ul style="list-style-type: none"> • Can you expand a little on this? • Can you tell me anything else? • Can you give me some examples?

Lines of Inquiry	Main Questions	Clarifying questions
<p style="text-align: center;">Define Sustainability at this Winery</p>	<ul style="list-style-type: none"> • Do you have a formal sustainability plan? If so, what are the key components, goals and tactics of this plan? If not, how do the sustainability activities emerge and how are they managed? • When you began to implement sustainability practices, what was the main sustainability focus/goals? Has that focus/those goals changed over the years? In what ways? • What proportion of your finished products produced using the guidelines of the plan/practices? • Are your wines certified as being sustainably developed? If yes, please tell me what the certification is, and why it is important? If not, why not? 	
<p style="text-align: center;">Determine the Role of Visitors on the Sustainability Measures</p>	<ul style="list-style-type: none"> • Do consumer values (in general) affect how you develop and promote your wines? In what ways? • Was demand from visitors a factor in your initial decision to adopt sustainability measures? • Do you feel that wine tourists are seeking out sustainable wines when visiting your region? If yes, how do they find them? How do you communicate your sustainability efforts to potential visitors? • Do you find that visitors to your winery are interested in your sustainability message? If so, what aspects are they interested in? If so, how have their comments changed the nature of your operations in the past? If so, how might they alter your practices in the future? • Do you think that your sustainability message has attracted more visitors? Increased cellar door sales? Overall sales? 	<ul style="list-style-type: none"> • Can you expand a little on this? • Can you tell me anything else? • Can you give me some examples?

Lines of Inquiry	Main Questions	Clarifying questions
<p>Define the Role of Visitors at the Winery</p>	<ul style="list-style-type: none"> • How many visitors come to your winery annually? Is this trending upward or downward? • Is attracting wine tourists a priority for your operation? • Is your winery involved in any regional tourism organizations/events? • Can you approximate a percentage of total sales/revenue attributable to visitors? How important are cellar door sales to the financial sustainability of your operation? • Is there other (non-sales) value from visitation? 	<ul style="list-style-type: none"> • Can you expand a little on this? • Can you tell me anything else? • Can you give me some examples?
<p>Describe the Effects of Adopting Sustainability on Visitor Operations at the Winery</p>	<ul style="list-style-type: none"> • Where there any unanticipated benefits to the tourism operations at the winery attributable to adopting sustainability measures? Unforeseen detriments? • Would you have done things differently in order to further capitalize on these benefits/mitigate these detriments? • Is there any advice that you would give to a winery considering adopting sustainability measures? • Is there any advice you would give to a tourism operator considering adopting sustainability measures? 	

3) Concluding Questions

Have you found visitor markets influencing your sustainability measures in ways that we have not discussed?

Is there anything else you would like to add in regards to sustainability and wine tourism?

Appendix B.

Sampling Frame

The following Internet resources were used to generate a preliminary list of wineries for key informant selection. Each winery on this preliminary list was further investigated to ensure they met the criteria for inclusion in the study. The remaining wineries were further investigated to identify a qualified key informant. The individuals identified from this process comprised the potential key informants list for this study.

California Sustainable Winegrowing Alliance – Sustainable Winegrowing Program Participants

<http://www.sustainablewinegrowing.org/swpparticipants.php>

Family Winemakers of California

<http://www.familywinemakers.org/winelinks/winelinks.cfm>

Kennuncorked.com – American Producers using Sustainable, Organic, or Biodynamic

http://kennuncorked.com/producers_usa.html

Napa Links – Wineries Listings

<http://www.napalinks.com/index.html>

Napa Valley Vintners, Napa Green Program

<http://www.napagreen.org/wineries/>

Napa Valley Vintners, Sustainably Farmed

http://www.napavintners.com/wineries/sustainably_farmed.asp

Sonoma County Tourism – Winery Listings

<http://www.sonomacounty.com/sonoma-listings/wineries>

Sonoma County Vintners – Visit our Wineries

<http://www.sonomawine.com/visit-our-wineries>

Sonoma County Wine Country – Alphabetical Listing of Wineries in Sonoma County

<http://sonoma.com/wineries/alphalistings.html>

Sustainability in Practice – SIP Certification

<http://www.sipcertified.org/vineyards/>

Visit Napa Valley – Napa Valley Tourism

http://www.visitnapavalley.com/napa_valley_wineries.htm

Wine Country Getaways. Hobby site on California wineries

<http://www.winecountrygetaways.com/organic-wineries.html>

Wine Country Getaways – Wineries in California owned by large companies

<http://www.winecountrygetaways.com/big-winery-companies.html>

Westsong Napa Valley Online – Napa Valley Vineyard Owners

<http://napavalleyonline.com/vineyardlist.html>

Wine Questers. Hobby site on California Wine Travel

<http://winequesters.com/>