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ASSESSING THE FEASIBILITY OF A SUSTAINABLE WINEMAKING ECO-LABEL INITIATIVE IN ONTARIO

by

Naomi A. Berghoef, Honours Bachelor of Science in Environmental Chemistry, University of Toronto,
2005

A thesis

presented to Ryerson University

in partial fulfillment of the
requirements for the degree of
Master of Applied Science
in the Program of
Environmental Applied Science and Management

Toronto, Ontario, Canada, 2010

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Master of Applied Science

Environmental Applied Science and Management

Ryerson University

This study investigates the feasibility of a sustainable winemaking eco-labelling program for Ontario. Currently the wine industry in Ontario encourages sustainability in their industry through a voluntary initiative. Research indicates that eco-labelling can be an effective means of encouraging proactive environmental behaviour using market forces in some markets, by indicating to consumers those products that are environmentally superior. Through interviews with industry members and surveys with consumers this research determines the degree of interest in an eco-labelling program. Factors that could motivate or deter participation in the program by industry and use of the label by consumers were also identified. The findings reveal that there is interest among industry and consumers in an eco-labelling program. Furthermore, the eco-label should be certified by a credible agency, be simple in format, address the entire winemaking process and be accompanied by an educational promotional campaign.

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Dedication

I would like to dedicate this work to my parents for their unceasing encouragement in everything I do. Their support means the world to me and has motivated me throughout my entire education but especially throughout this degree.

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List of Abbreviations

CSWA – California Sustainable Winegrowing Alliance

EFP – Environmental Farm Plan

FIVS - Federation Internationale des Vins et Spiritueux

IPW – Integrated Production of Wine

LCBO – Liquor Control Board of Ontario

OCSW - Oregon Certified Sustainable Wine

SWNZ - Sustainable Winegrowing New Zealand

SWO – Sustainable Winemaking Ontario

WCO – Wine Council of Ontario

WTP – Willingness-to-Pay

VQA – Vintner’s Quality Alliance

1 Introduction

Beginning in the early 1990s, the Ontario wine industry started working to gain a reputation for quality wines initiated by a government sponsored replacement of domestic vines, *Vitis labrusca* and *Vitis riparia*, with vines of traditional European varieties, *Vitis vinifera*, that produced higher quality wines (VQA Ontario, 2008b). Since then the industry has seen continuous growth and as a result the wine industry in Ontario has become a significant economic contributor within the province (Grape Growers of Ontario, 2005). Despite the extensive growth that has occurred within the industry, the Ontario wine industry is still a very small player in the local and international wine market. As the industry seeks to maintain and improve its competitiveness here and abroad, it has begun to look into elements of its industry beyond wine quality. Initiatives aimed at improving the image of the Ontario wine industry and hence its competitiveness include developing the wine tourism industry, linking the wine movement to the culinary movement in the province and emphasizing the importance of supporting local producers (Wine Council of Ontario, 2008).

One other such area that the wine industry in Ontario has shifted focus to is environmental stewardship. In 2007, the Wine Council of Ontario (WCO) formalized its undertaking of an industry-wide voluntary environmental initiative. This initiative, entitled Sustainable Winemaking Ontario (SWO), began in response to increasingly stringent environmental regulations, such as changes to the Safe Drinking Water Act, the Sustainable Water and Sewage Systems Act, the Nutrient Management Act and the Drinking Water Systems Regulation, and the proliferation of similar initiatives in most of the major wine producing regions, as well as a desire to go “beyond the rules” when it comes to environmental performance (Martin, 2007b, p. 7; Ontario Ministry of the Environment).

Presently, SWO is in its infancy and little has been done to make consumers aware of the initiative. Consumer awareness of environmental impacts of this industry has been increasing as understanding of the natural environment and human influence on it becomes more complete. Likewise many consumers have come to expect industries to act in an environmentally responsible manner and are willing to support those that do, as indicated by the proliferation of 'green marketing' (McCluskey & Loureiro, 2003). The WCO has expressed interest in developing an eco-labelling program to help generate awareness of the SWO program and to provide a means to recognize and reward successful participation. The success of eco-labelling programs is still being debated in the literature (Banerjee & Solomon, 2003; D'Souza, Taghian, & Lamb, 2006; de Boer, 2003; Delmas & Grant, 2008); however, some eco-labelling programs have been shown to be a successful means of adding value to products by indicating to consumers participation and compliance with voluntary standards (Bjorner, Hansen, & Russell, 2004; Corsi & Strom, 2009; Loureiro, McCluskey, & Mittelhammer, 2002; Moulton & Zwane, 2005). In this way eco-labelling can be used as a tool to provide motivation for participation to reluctant participants and reward eager participants, thereby increasing the overall impact of the initiative. The ultimate goal of an eco-labelling program is to encourage industry to make changes to its practices that will result in a reduction in the detrimental impacts of the industry on the environment or even result in improvements in condition of the environment in which the industry functions. While some research indicates some markets have experienced great success with the use of eco-labels, little work has been done to examine the demand for or acceptance of eco-labels on wine and none have been conducted in the Canadian marketplace.

1.1 Research question, objectives and framework

The primary research question that this study aims to answer is:

To what extent would an eco-labelling program to accompany the Ontario wine industry's sustainability initiative, Sustainable Winemaking Ontario, be accepted by consumers and industry members and what conditions would affect its acceptance?

This question was approached using the framework illustrated in Figure 1.1. This framework outlines the relationship between sustainable winemaking and consumer purchasing of sustainable wines facilitated by the use of eco-labels. In theory, as this framework indicates, a winemaker would produce a sustainable product, have it certified and labelled as such and then consumers who share the values represented by the label would purchase the product. Increased demand for sustainably produced wine would then, in turn, encourage more wineries and grape growers to adopt sustainable

Figure 1.1. Framework depicting the role of eco-labelling and the relationship with factors which can influence its success.

practices. The focus of this study, therefore, was to assess the degree of interest in an eco-labeling program from both industry members and consumers and in the process identify some of the motivations and barriers (or deterrents) that could either facilitate or impede this cycle.

The research objectives of this study aim to develop further understanding of the underlying issues that may influence the efficacy of an eco-labelling program for use with SWO by identifying the potential motivations and barriers. The research objectives are:

1. To find out the degree of consumer's stated interest in eco-labelled wines produced in Ontario.
2. To determine elements affecting acceptance of eco-labelled wines by consumers including willingness-to-pay and label format.
3. To determine potential motivations and barriers to participation in an eco-labelling program for industry members currently participating in SWO.

1.2 Thesis outline

This thesis assesses whether an eco-labelling program for the Ontario wine industry is a feasible tool to increase consumer purchasing of environmentally friendly wines and industry's adoption of the SWO program. In order to achieve this, the first section provides a review of the current literature on the development of the wine industry, sustainability and initiatives aimed at improving sustainability in this industry, the environmental issues in the Ontario wine industry, and eco-labelling in general and specifically for wines. Next, the methodology outlines the specific objectives of this research and defines and justifies the mixed method approach and techniques that were used to meet them. Following the methodology, the findings of qualitative interviews with industry members and the quantitative surveys with consumers are presented. This is followed by a discussion of the findings in

the context of the existing literature. Finally, the conclusion provides a summary of how the objectives were met and the key findings of this research, as well as its limitations and directions for future work.

2 Literature Review

2.1 Introduction

This literature review first outlines the background for the sustainability initiative in the Canadian wine industry by revealing the historical challenges of creating a reputation for quality and the environmental challenges that it has faced and continue to face. The concept of sustainability is reviewed from the perspective of the Canadian wine industry. A review of their publications suggests that for this industry sustainability is primarily defined as an issue of environmental and economic sustainability, and does not include social justice issues. Similar initiatives have been developed in other wine producing countries using similar principles; however, as there is no consistent definition of the concept of sustainability, even within the wine industry there are some differences between the programs. This review will examine definitions of sustainability used within the wine industry in general and for the Ontario wine industry specifically, in order to provide insight into the differences between SWO and other similar initiatives. Finally, as the sustainability initiative in the Ontario wine industry is voluntary in nature, a discussion of the utility of eco-certification and eco-labelling for motivating participation through market incentives and for discouraging 'free-riders' will be presented.

2.2 Background on the wine industry

This section provides a brief history of wine in general and then in Canada. It will conclude by detailing the growth of the Ontario wine industry.

2.2.1 Brief history of wine

The earliest indication of wine production dates back to between 5400 and 5000 BC, indicated by the evidence of tartaric acid (a compound found in grapes and used in winemaking) in a clay jar in Iran (Soleas, Diamandis, & Goldberg, 1997). Wine was one of earliest recorded items used for bartering

in international trade (Bisson et al., 2002). From its origins near what is presently northern Iran, the practices of grape growing and winemaking moved south and spread throughout the Mediterranean (Soleas, et al., 1997). The introduction of the winemaking techniques that are used in the present day, including the use of barrel treatments, occurred in the 17th century. Wine was, and still is, believed by many to confer health benefits and has held socio-religious significance in many cultures throughout history. While at present, wine is produced on nearly every continent, the regions within each continent generally fall between the latitudes of 30° and 50°N and 30° and 40°S and are usually located in coastal regions or near rivers (Clarke, 2003; Soleas, et al., 1997). Figure 2.1 shows the main vineyard regions in the world (as of 2008).

Figure 2.1 Wine producing regions worldwide. Adapted from: Clarke, 2003, p. 8..

Quality wine has historically been a beverage of the privileged and the affluent. This is currently changing, due to a change in the way that quality is defined and the improvements in winemaking techniques allowing for the proliferation of inexpensive wines of high quality. In the past, quality was defined by the wine producer or the experts, but due to increased access to a wide array of wines and information, decisions about quality are now more greatly influenced by the consumer (Bisson, et al., 2002; D. I. Jackson & Lombard, 1993; R. S. Jackson, 2002).

2.2.2 Wine in Canada

The wine industry in Canada has existed since the early 1800s. Early settlers attempted to grow European grape varieties, *Vitis vinifera*, which are the species from which most present day wines varieties are made. The initial stocks of *vinifera* vines did not survive Ontario's humid summers and cold winters and as a result the settlers resorted to using native grape species, *Vitis labrusca* and *Vitis riparia*, for the production of wine for approximately the next hundred years (Canadian Vintners Association, 2005). These native grapes produced table wines that had a 'foxy' characteristic and hence were mostly used to make sherry and port style wines, which were primarily exported to Europe. As consumption preferences in wine domestically and abroad shifted from sweet dessert wine to drier (less sweet) table wines, for which the native grape species were not suitable, Canadian, and especially Ontario, wines developed a poor reputation (Canadian Vintners Association, 2005). Further enforcing this reputation for low quality wines was the mass production of wines made using domestic grapes for export to the U.S. during Prohibition (Telfer, 2001).

2.2.2.1 The growth of the Ontario wine industry

Following the repeal of Prohibition the government refused to grant any new licenses to produce wine in Ontario. This combined with the Great Depression and World War II, led to a reduction

in the number of wineries in Ontario from 61 to six in the 1970s (Grape Growers of Ontario, 2005). Starting in the 1960s, growers in Canada and the U.S. were experiencing success with growth of European grape varieties due to technological advances allowing for the use of native rootstock. In 1974, the Liquor Control Board of Ontario (LCBO) granted the first license to produce and sell wine in over 40 years to the founders of Inniskillin Wines. This ended the moratorium on new wine production licenses and a number of small wineries took root. These pioneering wineries were founded on the basis that *vinifera* grapes could indeed be successfully grown in Ontario and used to produce quality wines (Canadian Vintners Association, 2005; Grape Growers of Ontario, 2005; Telfer, 2001).

In 1988, the Vintners Quality Alliance (VQA) was established as a voluntary initiative by the members of the Ontario wine industry (Canadian Vintners Association, 2005). The VQA established a set of standards to ensure that the wines produced were of high quality. These standards include requirements that the wine be made entirely from fresh Ontario grapes, no water can be added during the winemaking process, the labelling must be truthful and each wine must pass a taste test by an expert panel and undergo laboratory analysis to ensure its safety and purity (VQA Ontario, 2008b). Ontario first demonstrated to the world their ability to produce quality wine with the receipt of the Prix d'Honneur award for an Inniskillin 1989 Icewine at the VinExpo in France in 1991 (Canadian Vintners Association, 2005). In 1999, the VQA Act became law, giving it greater power to ensure the quality of wine from the region. Since the early 1990s Ontario's reputation for producing quality wines has improved both locally and abroad, resulting in increased growth of the industry (Canadian Vintners Association, 2005; Grape Growers of Ontario, 2005; Telfer, 2001). In 2008, the wine industry of Ontario employed over 5000 people and the retail value of VQA wine sales reached nearly \$550 million. The

majority of VQA sales occurred within Ontario, with only \$16 million sold outside the province (VQA Ontario, 2008a, 2008b; Wine Council of Ontario, 2009b).

Despite recent increases in sales, Ontario wineries are still struggling to increase their share of the market both at home and abroad (Wine Council of Ontario, 2009a). Additionally, they face ever-changing regulatory requirements as a result of increased awareness and concern about environmental health and its potential impacts on human health and safety (Martin, 2007a). In response to these emerging issues, in 2007, the WCO, a not-profit trade organization which represented 81 of Ontario's 146 wineries in 2008, introduced a voluntary initiative entitled Sustainable Winemaking Ontario (SWO) (Wine Council of Ontario, 2009b). The goal of this initiative is to improve environmental stewardship within the wine industry (Martin, 2007a). It is the industry's hope that their development of such a program will help maintain or improve their performance in local and international markets, as well as helping them to address local environmental and legislative pressures. A brief discussion of the term 'sustainability' as it relates to the wine industry in general and how it is used in SWO is presented next, followed by a review of common environmental concerns facing the wine industry and an overview of SWO and how it proposes to address these concerns.

2.3 Sustainability

The concept of sustainability has taken on many different meanings. This section will describe how the term is used in the context of the Ontario wine industry's sustainability initiative and therefore throughout this study. It will then introduce some of the environmental issues facing the Ontario wine industry and outline the need for sustainability in this industry.

2.3.1 What is sustainability?

Sustainability and sustainable development are terms that are widely used in the environmental movement, industry and politics; however, no consistent definition exists for either and both can be easily adapted to suit the purposes of any of these groups (Giddings, Hopwood, & O'Brien, 2002). Therefore, it is necessary to define how these terms will be used. The terms sustainability and sustainable development were first introduced into mainstream vocabulary in 1987 with the United Nations' publication of *Our Common Future* in which sustainable development was defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987, p. 43). This has been alternatively interpreted as unbounded continuous economic growth, as a blend of traditional development and ecological sustainability, and more holistically as a balance of social, economic and environmental concerns, often referred to as the triple bottom line (Giddings, et al., 2002; Lele, 1991).

2.3.2 The need for sustainability

At the turn of the millennium the United Nations adopted a set of goals to be achieved through the further employment of sustainable development (note that in this case the use of the term sustainable development includes reference to social justice issues). The document included a list of 60 goals based on the following set of values: freedom, equality, solidarity, tolerance, respect for nature and shared responsibility (United Nations General Assembly, 2000). The fact that these values are not currently upheld demonstrates the need for sustainable development. It is commonly believed that issues surrounding sustainability are interconnected and should not be approached as independent concepts. Moreover, actions to address one set of issues are likely to impact another and therefore

sustainability should be envisioned as a whole instead of as its components (Giddings, et al., 2002; Kates, Parris, & Leiserowitz, 2005; Lele, 1991).

Kates et al. (2005), compiled a summary of environmental concerns addressed by a wide range of sustainability initiatives. These concerns include global warming and greenhouse gas emissions, maintaining ecosystem function and biodiversity, preserving resources, ensuring supplies of clean water and maintaining land productivity to name a few. Without the adoption of more sustainable environmental practices, some or all of these factors may be compromised.

2.3.3 Sustainability defined for the wine industry

Many of the sustainability initiatives within the wine industry, including those in Australia, California and New Zealand, have defined sustainability in terms of the triple bottom line (California Sustainable Winegrowing Alliance, 2009; South Australian Wine and Brandy Industry Association Incorporated, 2002; Sustainable Winegrowing New Zealand, 2008). In spite of the use of this definition, most of their objectives and programs within the sustainability initiatives focus on environmental sustainability with maintained economic success and only minimally address issues of social justice. The initiative in Ontario's wine industry, SWO, does not explicitly define sustainability, but rather lays out a set of goals for the initiative, specifically to:

- Improve the environmental performance of the wine industry in Ontario
- Continually improve the quality of wine growing and winemaking in an environmentally responsive manner
- Provide a way to address consumer and resident questions in relation to the environment and the wine industry
- Add value to the wine industry (Martin, 2007b, p. 8)

From these goals it is evident that SWO puts its emphasis on environmental stewardship and economic success, with social justice issues playing a smaller role. This difference in approaches to the issue of

sustainability may be derived from different socio-economic situations of the regions. For example, California faces greater shortages of resources like water and land coupled with a high population density, the effects of which are often felt most intensely by economically depressed communities (Marshall, Cordano, & Silverman, 2005). In contrast, Ontario's wine regions have relative low population densities and plentiful resources and hence social justice issues may be less prevalent. Since the focus of this research is on the Ontario wine industry and its sustainability initiative, the term sustainability will be used to refer to the goal of achieving economic success in an environmentally sound manner and not explicitly address social justice issues. Lele (1991, p. 610) describes this vision of sustainable development as "a form of societal change that, in addition to traditional developmental objectives, has the objective or constraint of ecological sustainability" and this is how the term will be used throughout further discussions of sustainability and sustainable development.

2.3.4 Environmental issues in the wine industry

Environmental conditions are outside the control of the winemaker, except at the stage of site selection. When choosing a site, a winemaker can take into consideration such environmental conditions as the typical climate of the region, the soil and hydrological characteristics of the region, and the previous uses of the land. Environmental conditions that are known to impact the quality of wine produced can be broadly divided into three categories: climate, soil quality and topography (D. I. Jackson & Lombard, 1993; R. S. Jackson, 2002). Climate consists of factors such as maximum and minimum temperatures, length of growing season, quantity and timing of rainfall, amount of sunlight and wind. Soil characteristics and their impact on wine quality are complex and not fully understood. Soil characteristics can impact the availability and retention of water and nutrients, the retention of heat, the reflection of sunlight and the depth of root growth (D. I. Jackson & Lombard, 1993; R. S.

Jackson, 2002). Topography influences how the vines experience the climactic features of the region. For example, slope and orientation affect how much sunlight the vines receive and therefore the ripeness of the grapes (R. S. Jackson, 2002). The combination of local environmental conditions provided the origin for the use of the term *terroir* (Bisson, et al., 2002; R. S. Jackson, 2002), which has historically been used by the wine industry “to describe flavors supposedly derived from particular vineyard sites” (R. S. Jackson, 2002, p. 194)

Vineyard management practices are the ways in which the winemaker tries to maximize exposure to the environmental conditions required for healthy vine and grape growth while supplying those elements not provided by the environment. Vineyard management practices range from inputs such as irrigation, fertilizers, pesticides and energy for equipment, to training and pruning of vines (D. I. Jackson & Lombard, 1993; R. S. Jackson, 2002; Silverman, Marshall, & Cordano, 2005). Implementation of each of these practices can allow the grower to optimize yield and quality of the grapes grown. Growers of grapes for quality wine, however, generally try to minimize inputs to the environment to allow for true expression of the *terroir* (Bisson, et al., 2002). Throughout the winemaking regions of the world, it is also becoming more common for growers to try and minimize inputs to vineyard systems in order to minimize the impact of the vineyards on their surrounding environments (California Sustainable Winegrowing Alliance, 2009; Integrated Production of Wines, 2008; Sustainable Winegrowing New Zealand, 2008; Winemakers' Federation of Australia, 2008).

2.3.4.1 Environmental impacts of winemaking

The environmental impacts of production fall into three broad categories: those associated with grape growing, those associated with winemaking and those associated with the distribution of the final product. The first two of these categories are those which will be addressed here as they are generally

the focus of sustainability initiatives in the wine industry and are most amenable to control by the winery.

The environmental impacts of grape growing are the same as those associated with most conventional agriculture. The first environmental impacts that a vineyard can have are those associated with the change in land use. Shifts in the use of land for agricultural purposes can lead to eco-system degradation by decreasing biodiversity, decreasing soil quality and shifting water and nutrient availability. Use of synthetic pesticides can lead to contamination of surrounding air, water and soil, causing disruption of ecosystem function for regions surrounding vineyards. Over-application of pesticides or fertilizers can lead to these compounds being leached into groundwater. This can potentially lead to contamination of drinking water sources or eutrophication, which is the increased occurrence of algal blooms due to nutrient loading into surface water and can have extremely detrimental effects on aquatic ecosystems (Broome & Warner, 2008; Knowles & Hill, 2001; Marshall, et al., 2005). Irrigation can be a major problem in areas where fresh water is in short supply, requiring the use of large amounts of water, much of which is released to the atmosphere (Marshall, et al., 2005). Conventional agricultural practices use equipment that runs on fossil fuels contributing to the atmospheric surplus of greenhouse gasses. Additionally, production of fertilizers and pesticides requires significant energy inputs (Silverman, et al., 2005).

Winemaking is, in its most basic form, a type of food processing. The primary environmental concerns that arise from wine production are the quantity of water used, the disposal of waste water, cleaning solvents and solid waste and energy use. Water is used throughout the winemaking process primarily for cleaning and sanitation purposes following which the water may contain organic matter, phosphorus, nitrates and cleaning solvents (Knowles & Hill, 2001; Martin, 2007b; Musee, Lorenzen, &

Aldrich, 2006; Silverman, et al., 2005). This waste water must then be treated either on premises or by a municipal treatment facility (Knowles & Hill, 2001; Marshall, et al., 2005; Martin, 2007a). Energy inputs are required for temperature control throughout the winemaking process as well as operation of equipment. Solid waste can include organic waste such as the parts of the grape not used in the wine (stems and skins) as well as packaging materials (glass, cardboard, corks, etc.) (Silverman, et al., 2005). Local laws and resources will generally determine how these materials are disposed of; for example, whether organic wastes can be composted or reapplied to fields, whether packaging materials can be recycled or reused and how and where hazardous materials are to be handled (Martin, 2007a).

2.3.5 The need for sustainability in the wine industry

The wine industry has traditionally been considered a fairly 'green' industry (Knowles & Hill, 2001; Marshall, et al., 2005; Moulton & Zwane, 2005). There are, however, a number of areas that have been identified in which the wine industry could improve the sustainability of their practices. As previously mentioned, the wine industry has both agricultural and production components. Targeted areas for improvement in sustainability initiatives for the wine industry include: reduction in water use and appropriate treatment of waste water, reduction of pesticide and fertilizer use, energy conservation and use of alternative energy sources, reduction of solid inorganic waste (packaging materials) generated, improvement in solid organic (grape skins, stems, etc.) and inorganic waste disposal methods and improvement of vineyard management techniques to reduce erosion and maximize yields. Potential benefits of adopting more sustainable practices include greater longevity of the industry, decreased impact on surrounding environments and communities, reduced risk of liability, increased food safety, possible cost savings and potentially improved public perception leading to increased sales

and access to new markets both locally and internationally (Broome & Warner, 2008; Knowles & Hill, 2001; Marshall, et al., 2005; Martin, 2007a, 2007b; McManus, 2008).

2.4 Current progress of sustainability in the wine industry

There are a number of initiatives within the wine industries around the world aimed at improving the sustainability or lessening the environmental impacts of this industry. This section will outline the existing initiatives in Old World wine regions, New World wine regions and in Ontario specifically. Within the context of the Ontario initiative, background information will be provided on voluntary environmental initiatives, the role eco-labels can play in these initiatives and common motivations and barriers affecting participation.

2.4.1 Old World initiatives

In the European (or Old World) wine producing regions, sustainability programs for grape growers have recently been aligned with those of other agricultural producers. In the European Union, a subsidy program for farmers called the Single Payment Plan has been introduced, which among other things requires environmentally responsible farming techniques. Additionally, due to the overproduction of grapes in the EU, member countries are subsidizing removal of unsuccessful vines, provided their removal will not cause further environmental damage (European Communities, 2007).

2.4.2 New World initiatives

Sustainability initiatives in the wine producing regions considered to be New World regions (including Australia, New Zealand, South Africa, the U.S. and Canada) have taken a formalized voluntary approach. Voluntary initiatives are those that are undertaken without being directly required by governments and regulations (Gibson, 1999). Detailed programs have been developed in these regions to guide winemakers in their endeavours to adopt more sustainable practices. All of these programs are

very similar in their formats and primary goals, specifically, they are based on a framework of self-assessment with the goal of continual improvement with regard to sustainability.

Sustainable Winegrowing New Zealand (SWNZ) was initiated in 1995 and is currently voluntary but will be mandatory by the year 2012 (SWNZ, 2008). In Australia, the Wine Industry National Environmental Committee was established in 2002 to oversee the development of their sustainability initiative program, Sustaining Success, which was implemented later that year (South Australian Wine and Brandy Industry Association Incorporated, 2002). The South African program Integrated Production of Wines (IPW) is voluntary in nature but incorporates a certification process. Starting with the 2010 vintage IPW will also have an eco-label available for display on certified wines. This label will be integrated with their existing Wines of Origin label so as not to require an additional label on the bottle and will be the first of its kind worldwide. These programs, IPW, Sustaining Success and SWNZ, are national in nature (IPW, 2008; Sustainable Winegrowing New Zealand, 2008; Winemakers' Federation of Australia, 2008). In the U.S. and Canada sustainability initiatives, such as the California Sustainable Winegrowing Alliance (CSWA) and SWO, have been approached from a regional level. The CSWA is similar in format and goals to the aforementioned national initiatives. Similar to the approach being taken in South Africa, California is in the process of piloting a certification scheme to accompany its voluntary program (CSWA, 2009). The regional approach taken in Canada and the U.S. is likely due to the size of the countries as well as the relative geographic separation of their winemaking regions, for example in Canada the two primary wine regions are in Ontario and British Columbia.

All of the large scale programs (CSWA, IPW, Sustaining Success, SWNZ, and SWO) share a common set of goals based on the Federation Internationale des Vins et Spiritueux (FIVS) (International

Federation of Wine and Spirits) international sustainability principles (California Sustainable Winegrowing Alliance, 2009). The seven principles on which these programs are based are:

- The selection of appropriate sustainability programs based on the program's ability to satisfy the triple bottom line of economic, environmental and social sustainability. It is acknowledged that the triple bottom line threshold will vary between individual enterprises, and that enterprises will require flexibility in establishing programs that enhance sustainability in their individual operating environments.
- The identification of environmental sustainability activities using an environmental risk assessment. Priority should be given to risks of significance in individual geographic regions where wineries and vineyards are located.
- Environmental risk assessment should consider but not be limited to: site selection (for new vineyards/wineries), variety selection (for new vineyards), soil condition, water use efficiency, wastewater, human resource management, biodiversity, solid waste, energy use, air quality, neighbouring land use, and agrochemical use.
- A process of planning for environmental sustainability activities, implementation of the activities, assessment of their effectiveness and modification of the activities for application into the future. This process will be ongoing as a means of continuous improvement.
- Wine sector environmental sustainability programs should incorporate 'self-assessment' and other forms of evaluation to gauge environmental performance.
- The improvement of extension and education opportunities about sustainability issues and to build awareness within the global wine sector
- The global wine sector should consider partnerships with both wine industry and natural resource management stakeholders to improve sector sustainability, including the adoption of preferential purchasing policies from suppliers able to demonstrate a similar stewardship ethic (Caplan, 2006, p. 1).

While the largest of the U.S. initiatives is the California Sustainable Winegrowing Alliance (CSWA), there are a number of smaller initiatives such as the Lodi Rules for Sustainable Winegrowing in California, a regional sustainability initiative with strict guidelines as to what winegrowing techniques are allowed, and the Oregon Certified Sustainable Wine (OCSW) program, which combines a number of still smaller more specific programs within Oregon (California Sustainable Winegrowing Alliance, 2009; Lodi-Woodbridge Winegrape Commission, 2002; Oregon Wine Board, 2009). Some of the smaller

programs, such as the Lodi Rules and OCSW, also allow products to be certified as sustainable, which will be discussed in depth in the review of certification. In Canada, Ontario is the only winegrowing region with a sustainability program currently in place with the 2007 implementation of Sustainable Winemaking Ontario (SWO) (Martin, 2007a).

2.4.3 Sustainable Winemaking Ontario

In 2007, the WCO formalized its undertaking of an industry wide voluntary environmental initiative aimed at improving environmental stewardship, with the creation of SWO. The primary function of SWO is to provide a support system for winemakers by outlining industry best practices through a series of published documents and seminars. It also provides a means for self-assessment to aid in identification of areas in need of improvement and to measure improvement from year to year (Martin, 2007a, 2007b). SWO, like many other sustainability initiatives in the wine industry is based on the FIVS sustainability principles (outlined above) and tailored to address the environmental concerns surrounding the Ontario wine industry. Input from grape growers, winemakers, and government organizations were incorporated before a final set of indicators of sustainability were chosen. The indicators are used in the 'self-evaluation' to allow participants to get instant feedback on the sustainability of their operation. Each indicator is characterized by sets of practices that range from industry best practices in the area to those which have significant negative environmental impacts. The major categories of indicators included in SWO are: water and wastewater, solid waste management, materials handling, energy efficiency, integrated pest management, relations with neighbours and the community, industry standards awareness, and expansion or renovation of an existing winery (Martin, 2007b). At present, the only requirements for a winery to participate in SWO are that they complete a self-evaluation of their winery's operations once per year. The WCO is considering the possibility of

requiring wineries to demonstrate improvement from year to year in order to be allowed as a participant on the WCO's website and in their other promotional materials (R. Foisey, personal communication, January 13, 2009).

One way in which SWO differs from the initiatives in other winemaking regions is that, at present, grape growing, or viticultural practices are addressed through another program. During the development phase of SWO, stakeholders identified significant overlap with an already existing program called the Canada – Ontario Environmental Farm Plan (EFP), which is an environmental voluntary initiative aimed at improving agricultural practices in the province (Government of Ontario, 2010). Rather than address this material in both programs, the questions that were included in the viticultural portion of SWO were removed and placed in an addendum to the EFP (Martin, 2007b). This means that the WCO, the organizing body behind SWO, does not have access to information on the performance of wineries and grape growers in this area. Another implication is that wineries (if they grow their own grapes) must participate in both programs, SWO and the EFP, if they wish to address the environmental impact of their entire operation.

2.4.3.1 A voluntary environmental initiative

Voluntary environmental initiatives can take the form of agreements within a company, between companies in an industry, between companies and the government or between companies and an external interest group (such as an NGO) aimed at influencing the behaviour of participants to be more environmentally sound (Gibson, 1999; Webb, 2004). In the case of SWO, it is an agreement between companies within an industry group.

Voluntary initiatives have often been met with scepticism because it can be difficult to ascertain a company's motives for participation and also because there are numerous drawbacks that have traditionally been associated with voluntary initiatives. The following sections will first define eco-certification and labelling, then discusses some common motivations and drawbacks for voluntary initiatives and relate them to the issue of eco-certification and labelling. This will be followed by a review of some of the applications of eco-labels and the characteristics that can lead to their success or failure.

2.4.3.1.1 Eco-certification and eco-labelling defined

Eco-certification and eco-labelling are techniques for legitimizing environmental claims.

Environment Canada (2002, p. 1) defines an eco-label as that which:

identifies products that have been measured and certified against established environmental leadership criteria. Eco-labelling helps individuals, corporations and governments make informed purchasing choices that reduce their ecological footprint.

Further, Environment Canada (2010, p. 1) defines the concept of an ecological footprint is a measure of “the area of land and water required to produce the natural resources consumed” in this case by the individual or entity making the purchasing decision. Eco-certification is the process whereby a company that has adopted environmentally friendly practices has its achievements verified by a third party. Depending on the format of the certification program, the company may then be eligible to place an eco-label on some or all of its products to indicate its eco-friendliness to consumers. While eco-labelling is used by many companies as marketing tool, the primary goal of eco-labelling programs is from the perspective of consumers is to encourage companies to adopt practices that do not degrade (or degrade to a lesser degree) the value of the natural environment.

2.4.3.1.2 Motivations for participation voluntary initiatives and how they relate to certification

Motivations for participation in voluntary initiatives range from true altruism to complete self-interest; however, generally they fall somewhere in between. Altruistic motivations for a voluntary environmental initiative would be centered on genuine concern for the environment. Interviews with winery managers in California revealed that in the wine industry this may be a significant motivator (Marshall, et al., 2005). SWO has expressed this sentiment in its statement that one of the goals of the initiative is to go “beyond the rules” (Martin, 2007b, p. 7) or in other words to do more than just what is required by law, indicating that there may indeed be an element of genuine concern for the environment motivating the program.

Response or reaction to government regulations or the threat of new regulations is a very common motivation for involvement in voluntary initiatives (Gibson, 1999; Moffet & Bregha, 1999) and is one of the stated reasons for the development of SWO (Martin, 2007a). Increased government regulations concerning water quality, led to concern and confusion about compliance among winemakers in Ontario. By implementing a voluntary initiative that aims to help participants surpass the environmental standards set by governments, participants are not only less likely to breach regulations but it can also help to provide a defence of due diligence in the case that a breach of regulations were to occur (Martin, 2007a; Moffet & Bregha, 1999; Webb & Morrison, 1999). Further, voluntary initiatives can be used as a means to influence future regulations. If participants can indicate to government that their practices are effective in achieving the desired environmental protection, the government may choose to use those practices to define new regulations. This can lead to a competitive advantage for those who have already adopted the practices (Moffet & Bregha, 1999; Webb & Morrison, 1999).

Consumer perception is also a significant motivator for participation in a voluntary environmental initiative (Gibson, 1999). There are two scenarios in which consumers' perceptions are likely to be influential for participation: the first is that of a heavily producing company or industry to which negative attention has been drawn and the second is that of an industry in which participants may be able to charge a premium for goods or capture an increased market share as a result of participation (Moffet & Breggha, 1999). SWO is an example of the latter scenario and it is here that eco-labelling, as discussed in detail in the following section, can play a significant role, by indicating participation and compliance to consumers (Andrews, 1998; Harrison, 2004).

2.4.3.1.3 Drawbacks of voluntary initiatives and how they relate to certification

Among the greatest drawbacks of voluntary initiatives is that some companies may choose to adopt only those practices which are quick easy fixes or provide cost savings leading to a dilution of the effectiveness of the initiative as a whole (Gibson, 1999). Along these same lines, some companies may chose not to participate at all. Limited participation can be influenced by a number of factors but among the most common are an opposition to the costs associated with improving practices, a lack of interest in the goals of the initiative and a belief that current practices are good enough (Robinson, 2006). Here is another area where certification and labelling can strengthen a voluntary environmental initiative. By providing consumers with a way to identify those who are achieving the standards laid out in the initiative, consumers are able to reward those who are participating through purchasing behaviour and likewise to 'punish' those who do not.

Finally, voluntary initiatives are difficult to enforce due to their nature and therefore run the risk of encouraging 'free-riders' – those who reap the benefits of participation in the initiative without adopting its practices (Moulton & Zwane, 2005; Webb, 2004). This is especially true of initiatives like

SWO, which use self-evaluation to measure success, carry no penalty for misinformation and have no external auditing system. Certification and labelling can provide a way to enforce compliance with the initiative without changing its voluntary nature.

2.5 Eco-certification and eco-labelling

This section will describe how eco-labels are used, some of their limitations and factors that have been shown to affect consumer acceptance. It will also provide a review of the literature investigating consumer interest in sustainable and eco-labelled wines.

2.5.1 Applications

While the definition of eco-labelling provided by Environment Canada indicates that eco-labels are used to represent only products that are certified, this is not always the case. There are many examples of eco-labels that do not require certification. Examples of certified eco-labels that relate to wine include the Lodi Rules Sustainable Winegrowing Certified Green label, the Oregon Certified Sustainable and the New Zealand Sustainable Winegrowing label shown in Figure 2.2

© 2009 Oregon Certified
Sustainable Wine

© Copyright 2002 Lodi-
Woodbridge Winegrape
Commission

Figure 2.2. Examples of certified wine eco-labels (California Sustainable Winegrowing Alliance, 2009; Oregon Wine Board, 2009; SWNZ, 2008).

Certified eco-labels have been praised as way to provide simple, easily understood information to consumers who are interested in purchasing products produced in an environmentally friendly manner in response to significant consumer concern about 'green washing', which is the use of green imagery or language on products that are not actually better for the environment (Cason & Gangadharan, 2002; Delmas & Grant, 2008; Harris, 2007a; McCluskey & Loureiro, 2003; Teisl et al., 2002; Teisl & Roe, 2000). Harrison (2004) asserts that consumers do not see it as worthwhile to research the claim of each manufacturer when making a purchasing decision for the majority of purchases, thus, unless they are provided with a reliable indication of eco-friendliness they will use other factors, such as quality or price, to make their purchasing decisions. In order for eco-labels to be successful in terms of encouraging consumer purchasing behaviour the label must represent something of value to the consumer. There is evidence in the literature that there is a growing portion of the population that is willing to purchase eco-labelled products, including wine. Two reasons consumers choose to purchase wines reoccur throughout the literature and these are: that traditional practices pose a threat to the health of the environment which is of value to them and that eco-labelled products are healthier, generally due to a reduced use of pesticides (Armah, 2001; Barber, Taylor, & Strick, 2009; Blend & van Ravenswaay, 1998).

The basis for the use of eco-certification and eco-labelling is to utilize market incentives to encourage the adoption of environmentally friendly practices with the goal of improving the quality of the environment. Additionally, it is thought of by many as a means to gain access to a new market share and to capture a premium. The use of eco-labels has been effective in indicating eco-friendliness of products ranging from food items to wood products to energy services, although to varying degrees (Aguilar & Vlosky, 2007; Delmas & Grant, 2008; Harris, 2007a; Loureiro, et al., 2002; McCluskey &

Loureiro, 2003; O'Brien & Teisl, 2004; Teisl, et al., 2002; Teisl & Roe, 2000; Teisl, Roe, & Levy, 1999).

Examples of eco-labels found in Canadian markets include organic labels used on food products, Energy Star labels for appliances, Forest Sustainable Stewardship for lumber and forest products, and shade-grown labels for coffee.

2.5.2 Limitations of eco-labels

While the use of eco-labels is generally viewed as a positive way to align consumer purchasing behaviour with their ideals, research indicates that the presence of an eco-label alone is not enough. Studies looking at food, wine and wood products found that in order for consumers to consider claims made by eco-labels the product of interest must first meet their quality expectations (Loureiro, 2003; McCluskey & Loureiro, 2003; Teisl, et al., 2002). Eco-labelling of wood and wood-derived products was found to influence purchasing of inexpensive frequently purchased products to a much greater extent than expensive infrequently purchased products (Teisl, et al., 2002). Finally, eco-labelled wine, in this case organic and biodynamic ('organic' refers to farming techniques that do not use of additives such as pesticides and 'biodynamic' refers to a type of farming in which the entire ecosystem's health is considered but which also does not allow for the use of additives), was found to garner lower price premiums than eco-certified wines that were not labelled, possibly due to a negative perception of wine quality (Delmas & Grant, 2008). Similarly, energy programs and wood products that displayed an eco-seal were rated poorly, perhaps due to a distrust of the label (O'Brien & Teisl, 2004; Teisl, 2003; Teisl, et al., 1999).

It is evident that while eco-certification and eco-labelling can add value to some products in some markets, it is not a universal solution to encouraging environmentally friendly purchasing decisions. There is, therefore, a need for an investigation of the utility of eco-certification and eco-

labelling in the Canadian marketplace. Also further research is required to explore their effects on purchasing behaviour for wine, specifically looking at sustainably produced wines, as opposed to organic or biodynamically produced wines, as they may not carry the same perception of low quality.

2.5.3 Eco-label certifying agency, format and content

The format and contents of eco-labels have been shown to greatly impact whether consumers will base their purchasing decisions on their presence. While none of the literature on label format relates directly to the wine industry, there may be significant overlap in how consumers perceive the information included in eco-labels. The most important conditions for an eco-label to be successful are that consumer trust, care about and understand what the label indicates (Harris, 2007a; O'Brien & Teisl, 2004; Teisl, 2003; Teisl, et al., 2002; Teisl & Roe, 2000). Additional factors that may affect the success of an eco-label for the wine industry is whether it can be integrated into the design of the existing label, as the appearance of the label is often of great importance, both to consumers and producers, and the amount of space it requires, because there is already a significant amount of information that must be presented on wine labels as outlined in the VQA Act (VQA Ontario, 2010).

2.5.3.1 *Eco-label certifying agency*

The trend of 'green-washing' has made consumers generally distrustful of environmental claims made on product packaging. A key component of consumer trust is the certifying agency behind the labels. There seems to be general agreement in the literature that the certifying agency must be independent of the company being certified (Cason & Gangadharan, 2002; Harris, 2007a; Ozanne & Vlosky, 1998; Teisl, et al., 2002; Teisl & Roe, 2000). The type of certifying agency most trusted by consumers is not well defined. Consumers state that they would be most willing to trust a label certified by a non-governmental organization (NGO) followed by one from an independent certifying agency

(Ozanne & Vlosky, 1998). When presented with an array of labels containing certification by NGOs, government agencies, and independent certifying agencies and industry groups, most consumers chose those certified by government agencies, followed by NGOs due to unfamiliarity with the independent certifying agencies and distrust of industry groups (Teisl, et al., 2002). Both of these studies evaluated U.S. consumers of wood products. Research by Banerjee and Solomon (2003) revealed that for energy efficiency certification, government support was a key component of successful programs. The Canadian government developed an eco-label called Ecologo™ in 1988, which has since developed into an internationally recognized third party certified label used to identify thousands of products in a wide variety of product categories (Environment Canada, 2002); it is, however, unclear whether the label is widely recognized by Canadians. There is, therefore, a need to explore what type of certifying body consumers would trust in order to provide eco-labels for wine in a Canadian context.

2.5.3.2 Content of eco-labels

In order for an eco-label to influence consumer purchasing behaviour it must represent issues that are important to the consumer (O'Brien & Teisl, 2004; Teisl, et al., 2002; Teisl & Roe, 2000). O'Brien and Teisl (2004) found that eco-labels on forest products were proving ineffective because the focus of labels did not match up with consumer priorities. For some attributes, such as workers rights (an issue not traditionally included in eco-labels, but that is being incorporated into sustainability focused labels), the relative importance to consumers was increased by the inclusion of educational or explanatory information. The amount space available for eco-labelling on wine bottles will limit the amount of information that can be included on wine eco-labels and therefore it may be worthwhile to assess the relative importance of the relevant environmental issues in winemaking to consumers, so that these are the ones addressed on the label.

2.5.3.3 *Label format*

There is agreement in the literature that label format plays a significant role in determining how much consumers trust a label and that it can influence their purchasing behaviour (Banerjee & Solomon, 2003; Harris, 2007a, 2007b; Teisl, et al., 2002; Teisl & Roe, 2000; Teisl, et al., 1999). Consumer feedback indicates that standardization of label format makes certified products easily recognizable and facilitates quick interpretation of the information provided (Harris, 2007a, 2007b; Teisl, 2003; Teisl, et al., 2002; Teisl & Roe, 2000; Teisl, et al., 1999). The provision of detailed information has also been identified as a factor that increases consumer trust of a label. Additionally, it allows the consumer to evaluate whether the eco-label represents an issue that is important to them. Standardization of label format aids in the assimilation of greater quantities of information (O'Brien & Teisl, 2004; Teisl, 2003; Teisl, et al., 2002; Teisl & Roe, 2000; Teisl, et al., 1999). Nutrition labels and Energy Guide labels are examples of labels that have successfully used a standardized format to allow for large amounts of information to be quickly understood. In these cases it is possible that this is in part because the label is regulated and there may be a high level of trust in the government. There was also a substantial educational campaign that accompanied the introduction of the labels which may have alleviated some of the mistrust commonly experienced in U.S. markets. Research indicates that eco-seals have been met with varying degrees of consumer acceptance and recognition depending on the nation in which they are used. For example, several U.S. based studies on eco-seal styles of labels, which are the simplest type of eco-labels and include minimal information about actual practices, have been shown to decrease consumer trust of eco-claims on forest products (Teisl, 2003; Teisl, et al., 2002; Teisl & Roe, 2000). In contrast, a U.S. study looking at the effectiveness of energy eco-labels found that simple seal of approval labels were more successful than detailed labels (Banerjee & Solomon, 2003). Similarly, studies conducted with

Nordic and New Zealand consumers indicate eco-seals have been effective at influencing purchasing behaviour (Bjorner, et al., 2004; Harris, 2007a, 2007b).

The availability of information beyond what is included on the eco-label has also been identified as an important component of achieving consumer trust (Harris, 2007b; O'Brien & Teisl, 2004; Teisl, 2003; Teisl, et al., 2002). Proposed methods include providing a toll-free phone number or a website on the label or conducting educational marketing at the time the label is first introduced. These options would allow the consumer to better determine the credibility of the certifying agency and also to understand the evaluation procedure used.

Wine bottles present a challenge when it comes to eco-labelling because they have a relatively small amount of space available for labels and there is already a significant amount of information that must be presented on them. For this reason, it is important to assess what components of an eco-label are most important to consumers and also what components will be viewed as acceptable by producers in order to both assess whether an eco-label is a feasible option for the wine industry and be able to tailor the label to the industry, should one be created.

2.5.4 Consumer demand for sustainable wine

2.5.4.1 *Consumer interest*

The demand for sustainably produced wine is still unclear. Very few studies have been conducted to assess the impact of environmentally friendly growing and production practices on purchasing behaviour. One such study which evaluated the influence of aspects of perceived wine region equity, including quality, price, social acceptance, and emotional and environmental value on wine region preference of U.S. consumers was conducted by Orth, Wolf and Dodd (2005). They found

that for consumers who claimed a preference for wines from Oregon, environmental value was a significant factor, but that for wines from other regions it played no role or a negative role such as in the case of Chile. No Canadian wine producing regions were included in the investigation, and hence it is not possible to ascertain if Canadian wines were perceived as environmentally friendly. Zucca, Smith and Mitry (2009) conducted a survey of consumers and wine industry members in California wineries to assess their degree of familiarity with the concept of sustainability viticulture as well as their level of interest in sustainable products. The major findings of this study were that the vast majority of respondents thought that sustainable practices were an important feature in wine production; however, only about half were familiar with the term “sustainability” prior to the survey and only 7% could identify specific practices that they considered to be “sustainable.” This reflects a trend that appears to be common in the broader marketplace, that is that there is a general lack of awareness regarding what aspects of a product or its production are harmful to the environment and what is meant by the terminology used to represent environmentally friendly products (D'Souza, et al., 2006). The study by Zucca et al. (2009) also makes brief reference to the fact that the majority of respondents were willing to pay a premium for sustainable wine; however, they do not make mention of how large of a majority or the size of the premium indicating that this was probably not a major focus of this particular study.

Baughman et al. (2000) conducted a survey of consumers at a variety of businesses including wine and groceries stores in Santa Barbara, California. The aim of the study was to assess whether organic or environmental considerations played a role in influencing consumer purchasing decisions and whether the label design had an impact. Responses indicated that while only a small portion of consumers (11%) purchased organic wine, they did so regularly and nearly all respondents who had tried organic wines rated their quality highly (only 2% rated them ‘not good’). The majority of respondents

also rated tasting before buying as an important factor influencing their purchasing decisions and environmental concerns and label design as fairly unimportant factors.

These three studies evaluate the degree of consumer interest in environmentally friendly wines and indicate that while the present market for these products may be small, there is room for growth (Baughman, et al., 2000; Orth, et al., 2005; Zucca, et al., 2009). There appears to be a general interest in sustainability and sustainably-produced products (or environmentally friendly products) but a lack of clarity on what exactly this means, especially for the wine industry. These studies seem to indicate that growth of this market would require education of consumers in order to increase awareness of the environmental impacts of traditional winemaking practices and the advantages of the environmentally friendly alternatives as well as how to differentiate the products in the marketplace. However, overall these results indicate that it may be possible to create a positive brand image around sustainably produced wines.

2.5.4.2 *Consumer willingness-to-pay*

Other studies have been conducted to investigate whether there is a willingness-to-pay (WTP) a premium for sustainably produced wine as opposed to just a willingness to purchase or interest in purchasing sustainably produced wine. This is because it is generally the case that greater costs are associated with the production of this wine (Baughman, et al., 2000), and hence the producers and advocates want to assess whether they will be able to garner reasonable returns on their investments. This means that while there may be interest in sustainably produced wines, it will not be measured by these types of studies unless there is a WTP. Since it is possible that some sustainably produced wines will be sold without introducing a premium, these types of studies may not capture information on

whether consumers would switch to a sustainable wine if offered at the same price as others, allowing the sustainable producer to gain a larger share of the market.

Literature on WTP for sustainably produced wine includes three studies from the U.S. and New Zealand that identify consumers' stated preferences (Barber, et al., 2009; Forbes et al., 2009; Loureiro, 2003) as well as a U.S. study that focuses on revealed preferences, or in other words an analysis of purchases of sustainably produced wines in a given marketplace (Delmas & Grant, 2008). Concerns often arise when stated preferences are used because there are no consequences for response, in other words, a consumer may indicate that they will pay a larger premium for an eco-labelled product than they would actually be willing to pay, because they know that they do not actually have to purchase the product. It is often unclear whether consumers will follow through on these preferences when it comes time to make purchasing decisions. On the other hand they do allow for an understanding of the motivations that inform purchasing behaviour. Loureiro, McClusky and Mittelhammer (2003) evaluated the relationship between stated WTP and observed behaviour in the marketplace using traditionally grown apples, eco-certified apples, and organic apples and found that stated WTP was a statistically significant predictor of purchasing behaviour. While there is no guarantee that this trend will translate to the wine market, it does offer hope by presenting evidence that people do follow through on their stated intentions to buy environmentally friendly products in some cases. In contrast, studies investigating revealed WTP cannot be conducted until after a product is present in the marketplace and reveal nothing about consumer motivations. They can also be biased by poor marketing which could incorrectly lead an investigator to the conclusion that consumers are not interested when in fact they may just not be aware of it.

Two of these studies also attempt to identify demographic factors which may play a role in determining whether a consumer is interested in purchasing eco-friendly wines and/or willing to pay a premium for them. Commonly investigated factors include income level, level of education, gender and degree of knowledge and concern about environmental issues (Barber, et al., 2009; Loureiro, 2003). The findings of these studies are outlined in the following sections.

2.5.4.2.1 Stated willingness-to-pay

Loureiro (2003) investigated WTP a premium for wines in Colorado labelled as either locally produced or locally and sustainably produced by surveying wine consumers in Colorado liquor stores. The findings of the study were that a reputation for low quality of Colorado wines generally drove down the WTP for locally produced wines. Since all of the sustainably produced wines were also local, the WTP was also decreased. WTP was determined by the survey to be only 4 and 17 cents over the price of a \$10 bottle for Colorado wine and sustainable Colorado wine, respectively. While the overall WTP was extremely low, it was shown that WTP was positively correlated with frequency of wine consumption, concern about local issues, and income for both variables and negatively associated with male gender for the environmental variable. Finally, education was found to have no effect on WTP for either variable. This study, conducted by Loureiro (2003), indicated a minimal WTP for sustainably produced wines; however, the format of the study does not allow for the variable of sustainable production to be assessed independently from the variable of local production. Due to the focus of this particular study, the consumers surveyed were asked to indicate the premium they would be willing to pay for Colorado wines and then for environmentally friendly Colorado wines, but not for environmentally friendly wines from regions other than Colorado. The poor reputation of Colorado wines overall may have led to an inaccurately low representation of WTP for sustainably produced wines.

Barber, Taylor and Strick (2009) investigated consumers' environmental and wine knowledge and attitudes and their relationship to purchasing of eco-friendly wines. The data were collected via surveys distributed to members of Society of Wine Educators the majority of whom were residents of the U.S. They found that attitudes toward the environment correlated positively with willingness to purchase eco-friendly wines. They also found that attitude towards eco-friendly wines was affected by objective knowledge of environmental issues which in turn was affected by environmental involvement. Their study revealed that respondents would be willing to pay a premium of \$4 - \$7 on a \$23 bottle of wine if it was produced in an eco-friendly manner. In this study by Barber et al. (2009), the WTP for eco-friendly wines is very high; an additional 17 to 30% of the original price. The survey participants in this study; however, were wine enthusiasts and hence not representative of typical wine consumers. The participants were reported to spend more on an average bottle of wine than reported in other studies (Loureiro, 2003; Orth, et al., 2005) which may in part explain the WTP a greater premium for sustainably produced wines.

Forbes, et al. (2009) surveyed consumers in New Zealand to assess their perceptions of sustainably-produced wine and their WTP for it. Their study revealed that consumers preferred sustainably-produced wine and believed it to be of equal or higher quality than traditional wine. Eighty percent of consumers indicated that they would be willing to pay a premium for sustainably-produced wines, with the majority (61%) stating that they would be willing to pay up to 10% more than what they would pay for a traditional wine. Also of note is that 95% of consumers surveyed in the study by Forbes, et al. (2009) wanted eco-labels on sustainably produced wines to identify them.

2.5.4.2.2 Revealed willingness-to-pay

Delmas and Grant (2008) investigated the revealed preferences for California wines produced using organic and biodynamic methods as compared with those produced using traditional methods by comparing retail prices. Additionally, this study examined the impact of certification with and without the use of labels on the price. It was found that while certification led to an increase in prices of wines, labelling of certification actually reduced prices. Delmas and Grant (2008) proposed that the impact of labelling may be in part due to the negative reputation of organic wines. In contrast, the higher prices garnered for certified wines may be due to improved quality or recognition through membership in wine clubs. It is unclear whether this correlation between certification and labelling would carry through for sustainably produced wines. As there are many similar characteristics between organic and sustainably produced wines it is possible that the positive aspects of improved quality and recognition would carry over to sustainably produced wines; however, there is a lack of information regarding the perception of quality for sustainably produced wines.

The literature reveals that while there is a market for sustainably produced wines in the U.S. and New Zealand, the amount that consumers will be willing to pay for these wines will depend on their perceived quality in addition to their environmentally friendly attributes. Further investigation will be required to determine if this opportunity also exists in the Canadian market.

2.6 Summary

It is evident that the members of the wine industry, in Canada and abroad, have embraced the concept of sustainability as indicated by the proliferation of sustainability initiatives throughout many of the world's wine regions. It is also clear that there is a market for sustainably produced goods. Several issues pertaining to the future directions of sustainable wine marketing in Ontario remain unclear. It is

not evident yet whether there is a significant market for sustainably produced wine in general and there is no research to suggest whether such a market exists in Canada or whether Canadian consumers would be willing to pay a premium for sustainable wine. This information will be vital to determining whether there is any use for an eco-labelling program for Ontario wine. The role of eco-labels on wine has been investigated in the previously described studies; however, format and information provided in the labels was not examined as a factor influencing purchasing decisions. Format and information provided on labels has been identified as a significant factor in how labels affect purchasing decisions for other products. Therefore, it will be important to assess whether the presence of a label alone will be enough to motivate wine purchasing behaviour of eco-minded consumers or whether the content will affect the label's efficacy. Finally, it will be important to assess whether Ontario winemakers are interested in participating as well as what factors might motivate or deter their participation as the purpose of an eco-labelling system is to encourage greater adoption of sustainable practices. Participation is, after all, what will define the success of the initiative and result in the greatest impact on the environment.

3 Methodology

3.1 Introduction

The purpose of this methodology is to outline how this investigation into the consumer and industry acceptance of an eco-labelling program to accompany the Ontario wine industry's sustainability initiative was undertaken. This methodology outlines the specific research question and sub-questions addressed, the general research design employed and the specific research design and process employed including the identification of participants, data collection and analysis for both the qualitative and quantitative research conducted.

3.2 General Research Design

3.2.1 Mixed Method Design

This research employed a mixed method design. Cresswell et al. (2003, p. 212) provide the following definition for this type of study design, "*A mixed methods study* involves the collection or analysis of both quantitative and/or qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority and involve the integration of the data at one or more stages in the process of research." Cresswell and Plano (2007, p. 5) assert that the "central premise [behind conducting mixed methods research] is that the use of quantitative and qualitative approaches in combination provides a better understanding of the research problem than either approach alone." Another of the major advantages of using a mixed method design, rather than a qualitative or quantitative design alone, is that the use of both methods can help to overcome the disadvantages of each. For example, qualitative methods can be used to develop greater insight into an issue than quantitative methods would allow, whereas the use of quantitative methods can permit findings to be generalized to the greater population (Cresswell, et al., 2003). Disadvantages of using a mixed method

approach include: the researcher must be familiar with both qualitative and quantitative methods, the data collection can be time consuming, and the analysis of both textual and numerical data can be both time consuming and complex (Cresswell, 2009). Additionally, because the widespread use of mixed methods research designs in social science is relatively recent, the literature on how to apply the approach is still being developed and for this reason there is no single agreed upon definition or procedure for how to design a mixed method study (Cresswell, 2009; Cresswell, et al., 2003).

A mixed method design was chosen for this study because of the multilevel nature of this research. This research strives to develop an understanding of the interests of two distinct groups at different levels in the decision making process regarding eco-labelling: Ontario wine consumers and wine industry members. The population size and the type of information desired from each of these groups necessitate the use of different research methods (Tashakkori & Teddlie, 1998). Both qualitative and quantitative research were conducted simultaneously and the resultant analyses from both data sets addressed the primary research question. Cresswell and Plano (2007) suggest that there are three ways in which the qualitative and quantitative data can be combined in a mixed methods approach: merging the two data sets, having one build on the other, or embedding one in the other. This study will use the two data sets to build upon one another to help develop a complete picture of the feasibility of an eco-label for Ontario's wine industry.

3.2.1.1 *Qualitative Research*

A qualitative research approach was chosen to investigate the attitudes of wine industry members toward an eco-labelling program for the Ontario wine industry. This approach was chosen in this case because the desired information relates to both the willingness of wine industry members to participate in an eco-labelling program and the motivations and barriers that play a role in determining

willingness to participate. Cresswell (2009, p. 4) describes qualitative research as a “means for exploring and understanding the meanings individuals or groups ascribe to a social or human problem.” A qualitative approach allowed for in-depth information to be collected, allowed respondents to elaborate, and allowed the investigator to seek clarification and use follow-up questions to draw out information that could otherwise be overlooked in a quantitative study (Cresswell, 2009; Sekaran, 2000). Knowledge and understanding of motivations and barriers are important in determining whether to implement eco-labelling and also encouraging greater participation if the choice is made to implement an eco-labelling program. Additionally, the subjects of interest are data rich sources of information the depth of which would not have been adequately captured using a quantitative method. Finally, the aim of this research was to explore the pragmatic reasons why adoption of eco-labelling may not occur and a qualitative approach allowed for some of the subtler issues to be explored. These subtler or more sensitive issues may not have been revealed in a quantitative approach due to factors such as desired social desirability of responses. In contrast, a qualitative approach, which requires justification or explanation of responses, was used to draw out these elements.

3.2.1.2 Quantitative Research

A quantitative research approach was chosen to investigate consumer interest in an eco-labelling program and the factors that would motivate purchasing behaviour. Cresswell (2009) explains how the use of a survey to gather quantitative data allows for the responses of a sample of a population to be generalized to the population as a whole using statistical procedures. The population investigated in this portion of the study consisted of all Ontario wine consumers, a population that numbers in the millions. This research approach allowed for only a subset of this population to be directly questioned, which was possible within the existing time and financial constraints of this study, while still yielding

results that could be generalized to the larger population. The sample of 401 participants was sufficient to address the issue of sampling error at the alpha level of 0.05 (in other words a 5% risk that the differences revealed by statistical tests do not exist) and claim statistical significance at this level (Bartlett, Kotrlik, & Higgins, 2001; Frey, Botan, & Kreps, 2000). Additionally, it was not feasible considering time and financial limitations to use a qualitative approach and still achieve the desired sample size. Finally, an in-depth understanding of the motivations of consumers, which it may have been possible to explore more thoroughly using a qualitative approach, was not essential to answer the primary research question. In other words, the goal of this research is to determine if there is an interest and intent to purchase sustainably produced wines and what general factors might encourage them.

3.3 Specific Research Process

The specific mixed method research process used in this research is outlined in the following sections. A flowchart of the design is shown in Figure 3.1. The steps in this process include a literature review, development of the research question and objectives, sample selection, development of data collection methods, piloting, data collection and data analysis.

Figure 3.1. The specific research process used in this study.

3.3.1 Literature Review

The first step taken in conducting this research was a literature review. Sekaran (2000) identifies three key reasons for conducting a literature review prior to conducting research. The first is to ensure that no key variables that have been previously identified are excluded from the analysis. The second is to ensure that the research is not a direct replication of work that has already been conducted in a thorough manner. The third is to facilitate integration of the primary research conducted with that which has been conducted by others. For these reasons a literature review was considered an essential component of this study. Academic journals, books, and industry publications were reviewed for information relating to the main themes of this research, including sustainability in the wine industry, environmental initiatives in the wine industry, the role of eco-labelling, factors that affect the success of eco-labelling programs and eco-labelling within the wine industry. The background provided through the literature review provided the foundation for the research design developed.

3.3.2 Research question, framework and objectives

The primary research question that this study aims to answer:

To what extent would an eco-labelling program to accompany the Ontario wine industry's sustainability initiative, Sustainable Winemaking Ontario (SWO), be accepted by consumers and industry members and what conditions would affect its acceptance?

The framework outlined in Figure 1.1 illustrates the role of eco-labelling in facilitating increased adoption of sustainable practices by the wine industry by signalling the use of these practices to consumers and allowing consumer demand to drive increased production. This research aims to identify the factors which can either drive this cycle or impede it and the degree to which they exist in the context of the Ontario wine industry and marketplace. The research objectives were:

1. To find out the degree of consumer interest in eco-labelled wines produced in Ontario.
2. To determine elements affecting acceptance of eco-labelled wines by consumers including willingness-to-pay and label format.
3. To determine potential motivations and barriers to participation in an eco-labelling program for industry members currently participating in SWO.

3.3.3 Sample Selection

3.3.3.1 *Identification of participants for industry research*

The sampling strategy employed for the collection of data from members of the Ontario wine industry was purposive sampling. In purposive sampling the “sample is confined to specific types of people who can provide the desired information, either because they are the only ones who possess it, or conform to some criteria set by the researcher” (Sekaran, 2000, p. 278). Due to scheduling challenges, time constraints and the potentially time consuming nature of qualitative research, a purposive strategy was chosen to ensure that those included in the sample were able to provide the most relevant information.

Initially, the individuals chosen for participation in the qualitative research were selected from wineries currently involved in their second year of participation in the SWO initiative, as indicated by the Wine Council of Ontario (WCO). These wineries were chosen because these are the wineries that would be most likely to participate in an eco-labelling program to accompany SWO, at least in its infancy. The individuals selected for participation were in all cases either winemakers or winery owners, who were selected because they were able to speak to the overall decisions made within the winery, and in many cases were directly involved in designing or managing the sustainability initiative within the winery. The

WCO provided a list of wineries currently participating in SWO and the names and contact information of the individuals who were in charge of each winery's participation. These were the individuals initially contacted for participation in interviews. In total, seventeen of the 84 wineries represented by the WCO, were in their second year of participation in the summer of 2009, the time at which the interviews were conducted. At the request of the WCO, representatives from an additional four wineries were included in order to ensure that all of Ontario's wine regions were represented. The small sample size chosen for this portion of the study is typical of qualitative studies which aim to provide in-depth exploration of an issues as opposed to providing results that are generalizable to an entire population (Sekaran, 2000).

Research on participation in voluntary initiatives in the California wine industry indicates that the scale of operations can have a substantial impact on the costs required to participate and the overall willingness to participate (Moulton & Zwane, 2005). For this reason it was deemed essential to make sure that a range of winery sizes are represented. Wineries were categorized as small, medium and large as determined by the number of cases of wine produced in 2008, using information provided by the marketing project manager at the WCO, Regina Foisey, and it was determined that there was sufficient representation from each size category (Table 3.1) (R. Foisey, personal communication, January 13, 2009). Since purposive sampling was used to ensure that all of the relevant regional and operational scales were represented, the data collected from the interviews are a non-probability sample and therefore the results cannot be generalized to the population as a whole (Sekaran, 2000).

Table 3.1. Size distribution of wineries included in sample.

Size	Sales (cases produced/year)	# of wineries
Small	Less than 15,000	6
Medium	15,000 – 60,000	7
Large	More than 60,000	3

3.3.3.2 Identification of participants for consumer research

The sample size for the collection of consumer data was determined using Cochran's sample size formula for categorical data as presented by Bartlett, Kotrlik & Higgins (2001).

$$n_0 = \frac{(t)^2 * (p)(q)}{(d)^2}$$

$$n_0 = \frac{(1.96)^2 * (.5)(.5)}{(.05)^2} = 384$$

Where t = the value for the selected alpha level of .025 in each tail = 1.96.

(the alpha level of 0.05 indicates the level of risk the researcher is willing to take that the true margin of error may exceed the acceptable margin of error).

Where $(p)(q)$ = the estimate of variance = .25.

(maximum possible proportion (.5) * 1 - maximum possible proportion (.5) produces maximum possible sample size).

Where d = acceptable margin of error for proportion being estimated = .05 (p. 47).

Bartlett et al. (2001), continue by providing a correction for the sample size if the sample is greater than 5% of the total population. While the precise size of the population of interest is not known, it is known that the population of Ontario wine consumers that visit Ontario wineries in recent years has been estimated at approximately 1 million (Wine Council of Ontario, 2008). Since the calculated sample size

is significantly less than 5% of the total population, there is no need to correct the sample calculation. A sample size of 400 was targeted (401 were collected), to ensure the collection of at least 384 usable surveys.

Cochran's formula was used in order to determine the sample size required to obtain results that have an alpha level of .05, which is the probability of rejecting the null hypothesis when it is in fact true, and a margin of error of 5%, which means that the results will fall within $\pm 5\%$ of the mean value calculated. Since a number of different formats of questions were included, the calculation was performed for the situation in which the largest sample size would be required (i.e. a question with only two possible answers with equal chance of being chosen or in other words $p = q = 0.5$ in the formula). Cochran's formula indicated that a sample size of 384 was required to meet these criteria. In anticipation that not all individuals would complete all questions in the survey or complete them correctly, 17 additional surveys were collected to ensure that the desired sample size was available for as many of the questions as possible, as respondents were permitted to leave questions blank if they did not wish to respond. A full demonstration of the sample size calculation is shown below.

In both 2007 and 2008, approximately 55% of Ontario wines were sold through the LCBO and approximately 37-40% were sold at winery retail locations (Wine Council of Ontario, 2008, 2009a). Additionally, these are the only types of retail locations at which the average consumer can purchase wine in Ontario. In these two years the remainder of domestic wine sales were through wine licencees such as restaurants.

The sampling strategy employed was proportionate stratified random sampling. In this type of sampling strategy the population of interest is divided into subgroups and the number of samples

collected from each subgroup is representative of the proportion of each group in the population. Random sampling is then performed within each (Trochim, 2006). Advantages of this sampling strategy include: that it is possible to ensure that key subgroup of the population are represented and that it can offer more statistical precision than simple random sampling, if the subpopulations have more in common than the overall population. The main disadvantage of this sample is that it can be challenging to determine appropriate strata and their proportions (Trochim, 2006). In this study the sample chosen to assess consumer interest in an eco-labelling program for the Ontario wine industry was a random subset of visitors to Ontario wineries and Liquor Control Board of Ontario (LCBO) retail locations during the summer of 2009. The goal was to collect a sample from each that was representative of percentage of sales of Ontario wines that occurs in each type of location. Due to limitations outside of the researchers control it was not possible to collect a proportional sample size from each location. The sample collected from winery retail locations was proportionally greater than the sales seen through this avenue and the sample collected from LCBOs was proportionally less than its sales of Ontario wines. Additionally, it is likely that there is overlap between the two groups and that some of those who purchase Ontario wines in one type of retail venue also purchase them the other. For these reasons the results obtained from the survey are not generalizable to the entire population of consumers of Ontario wines, such as those who purchase wines at or for restaurants, those who purchase them out of province, those who purchase them only infrequently (such as during holidays) and those who refused to take part in the survey (Sekaran, 2000).

LCBO and winery survey locations were suggested by the WCO. LCBO locations were chosen based on the volume of sales of Ontario wines and to represent multiple communities. Winery retail

locations were chosen to represent a variety of sizes and degrees of participation in SWO or other environmental initiatives.

3.3.4 Data collection methods and designs

3.3.4.1 *Qualitative data from industry members - interviews*

To obtain data structured face-to-face interviews with wine industry representatives were used. According to Sekaran (2000) a structured interview is used when the type of information desired is known. In this style of interview, the same questions are asked of each interviewee; however, the researcher can choose to include additional questions when they may lead to a deeper understanding. The collection of in depth information is the primary reason for the use of interviews over other forms of data collection. Face-to-face interviews have the advantage of providing both visual and verbal cues that aid in ensuring that the interviewee understands the questions, that the answer provided is clear and that additional information can be gathered where appropriate.

The background information used to generate the questions for the interviews was provided through a literature review and discussions with members of the WCO's Sustainability Committee. The aim of the interviews was to determine the degree of interest in participating in an eco-labelling program for the Ontario wine industry and to identify factors that would motivate or impede participation. Background information was also collected on the types and extent of environmental actions taken by the winery and their level of involvement and motivations for participation in SWO. The interviews consisted of 16 open-ended questions (the specific interview questions are found in Appendix A). The interviews were approximately a half an hour in length, with the length varying based on the amount of elaboration provided by the interviewee.

3.3.4.2 Quantitative data from consumers - surveys

Surveys were used to collect data from consumers. Surveys allow for a large amount of data to be collected in a relatively short amount of time, which is of importance due to the large sample size. The surveys were distributed and collected in person by the primary researcher for this study. This method has the advantage of immediate collection of data and provides an opportunity for the researcher to motivate participants and clarify questions where necessary (Cresswell, 2009; Sekaran, 2000).

The survey consisted of 12 questions, not including the section requesting socio-demographic information. All of the questions except for one were closed ended, in order to increase the overall response rate (the questions can be found in Appendix B). The survey took approximately 5 minutes for most respondents to complete. The following section outlines the three major themes explored through the survey and details how they were evaluated.

3.3.4.2.1 Survey content

3.3.4.2.1.1 Current purchasing behaviour

This portion of the survey: measured the frequency and origin of wine purchased; identified the importance of winemaking practices (not defined, and therefore was left to be interpreted by the respondent) and label design as compared to other factors which influence wine purchasing decisions, such as taste, varietal, price, brand, vintage, and recommendations; and determined the average price paid for a bottle of wine. Respondents were asked to indicate how often they purchased wine in general and how often they purchased Ontario wine. Respondents were then asked to rate a number of factors, from 'not important' to 'very important' using a Likert-type scale (Frey, et al., 2000). This method was informed by Loureiro (2003) and Carmichael (2005) who have used similar scales to

investigate motivation in related studies. Finally, respondents were asked to indicate how much they spent on a bottle of wine on average.

3.3.4.2.1.2 Willingness-to-pay (WTP) for eco-labelled wine

The format of this portion of the survey was informed by a survey developed by Loureiro (2003) to investigate the willingness of Colorado wine consumers to purchase locally and sustainably produced wines. The questions were adopted to suit the research question, “Are consumers willing to pay a premium for eco-labelled wine and if so how much?” This portion of the survey contained questions regarding awareness of eco-labelling, perceptions regarding the quality, price and availability of eco-friendly wines, and WTP for eco-labelled Ontario wines. This section also provided participants with a definition and examples of eco-labels after determining their current level of knowledge, to ensure that they could answer the remaining questions regarding eco-labelled wines. The model used to estimate WTP was a contingent valuation method, in which a proposed market scenario is presented to the respondent and they are asked to indicate their likely behaviour (Cameron & Huppert, 1989).

3.3.4.2.1.3 Preference for label format

A review of the literature on the format of eco-labels suggests that primary factors that influence the amount of trust that consumers place in eco-labels are the certifying body, the amount of information presented and the availability of additional information (Teisl, et al., 2002). Typically eco-labels are certified by an industry body, a non-governmental third party or a governmental organization. Of these options industry certification is generally the least preferred by consumers; however, there is not a clear consensus on consumer preference between third-party and government certifying bodies. The amount of information contained on eco-labels seems to be in part due to personal preference, although eco-labels with very minimal information are often considered suspect due to concerns about greenwashing. Finally, the inclusion of a toll free phone number or website on eco-labels, from which

the consumer can obtain more information about the certification, has been suggested to improve trust in the validity of the label (Aguilar & Vlosky, 2007; Teisl, et al., 2002; Teisl & Roe, 2000). The preference for one or the other of these sources has not been explored and may vary depending on the target market. The findings from these earlier studies were used to develop the questions presented in this study. Consumer preferences relating to these three factors will be assessed by asking the respondent to rank presented options in terms of extent to which they would positively influence their purchasing decision from least to most.

3.3.5 Piloting

3.3.5.1 Interviews

The interview questions were piloted with three university students to assess the clarity of the wording used. The interview protocol was then submitted in May of 2009 to the WCO's Sustainability Committee for approval prior to primary data collection, to ensure all pertinent questions were included and to ensure clarity of the questions. Minimal changes were made to the protocol, and those changes that were made, related to rewording of questions. The interview questions and protocol were also approved by the Ryerson University Research Ethics Board in May of 2009.

3.3.5.2 Surveys

A pilot test of the survey was conducted to assess the clarity of the survey questions and the reliability of the data during the month of May. The survey was given to twenty university students and restaurant patrons and employees at a downtown Toronto restaurant. The survey was also submitted to and approved by the WCO's sustainability committee and the LCBO's manager of customer research in May of 2009. Concerns were addressed prior to the primary administration of the survey and included rewording of some questions, changing labels on some response categories and ensuring that

there was no overlap between response categories. The visual format of the survey was also adjusted to make it easier to read and to appear shorter. Finally, two questions regarding familiarity with eco-labels were added, after which a definition of 'eco-labels' was provide before the remaining questions. (see Appendix B). The survey content and protocol was also approved by the Ryerson University Research Ethics Board in May of 2009.

3.3.6 Data Collection

3.3.6.1 *Interview data collection*

The potential participants selected based on the criteria discussed above were contacted first by email by the WCO encouraging them to support this research and indicating its importance to the WCO and the SWO initiative (see Appendix C). This was followed by telephone call by the investigator requesting their participation. In cases where it was difficult to reach the individual by phone an email was also sent, encouraging them to respond either by email or phone. The individual contacted was asked whether they were the most qualified representative to speak on behalf of the company with regards to their involvement in SWO, and if not contact information for a more qualified representative was requested. In all but one case the original contact was the person with whom the interview was conducted. In the cases in which the representative agreed to participate a face-to-face interview was scheduled at a time and location of their convenience.

Attempts were made to contact and schedule interviews with representatives from all seventeen wineries that were in their second year of participation in SWO. It was not possible to reach or arrange a time to meet with all individuals contacts and therefore the resulting sample included representatives from 12 of the seventeen wineries. Representatives from all four of the additional wineries requested by the WCO (who were not in their second year of SWO) participated in interviews.

Of these wineries, three were involved in SWO in some capacity, either in their first year of participation, involved in the pilot program or involved in the development of the program, and one was not involved in any capacity at the time of the interview. It should be noted that while 16 wineries were represented through the interviews conducted, only 13 interviews were conducted as two of the individuals represented more than one involved winery.

The interviews were all conducted by the primary researcher from June to August of 2009. The interviews were electronically recorded, with the exception of Respondent 13 who preferred not to be recorded. In the case of Respondent 13 detailed notes were taken during the interview. The recorded interviews were transcribed by the primary researcher. The interview transcripts were then sent to the interviewee for verification of the information therein, at which point the interviewee was given the option to omit or revise statements as they felt appropriate. This was done help to ensure that the true intent of the interviewees' statements was reflected in the data; however, none of the interviewees chose to modify the content of their interview. The transcripts were then used for data analysis.

3.3.6.2 *Survey data collection*

Representatives were contacted at the suggested locations and times and dates set up to conduct surveys where possible (the locations at which surveys were conducted can be found in the Survey Findings section). Where possible surveys were conducted on weekends from approximately 12:00 pm until 6:00 pm as it became quickly apparent that these were the times at which consumers were most willing to participate. However, in many cases, especially at LCBO locations, it was not possible to meet these criteria. Participants were selected at random from visitors to Ontario winery retail stores and LCBOs. Screening took place to ensure participants are of legal age to purchase alcohol in Canada (at least 19 years old). Participants were informed that participation was voluntary and were

assured of the confidentiality of the data and that the information collected would only be used in aggregate and names were not requested. As an incentive to encourage participation, participants at winery retail locations were offered the opportunity to enter their name in a drawing for one of two sets of stemware, valued at \$50. It was not possible to offer the drawing to participants at LCBO stores, as a separate approval process was required and was not possible within the time constraints of the research. The ballot for the prize draw was collected separately from the survey, so as to ensure confidentiality of the information provided. Participants were assured that the information provided for the draw would not be used for any other purposes.

The primary researcher administered the surveys from various locations at the different sites, due to variations in layouts and requests from the management at the sites. The surveys were provided to the respondents on a clipboard for them to fill out independently, unless assistance was requested, in which case it was provided. In all cases the researcher was in close proximity while the survey was being completed and was available to answer questions regarding the survey when they arose. The surveys were administered in wineries and LCBOs during June and July of 2009. It was not possible to determine the response rate, because due to the pace of the collection (in some cases) and the fact that only a single researcher collected all of the surveys it was not possible to track the number of surveys that were turned down.

3.3.7 Data Analysis

3.3.7.1 *Analysis of Interview Data*

The transcribed interviews were entered into a Atlas.ti The Knowledge Workbench, which is a software program for qualitative analysis. This program was used to assist in the organization of the

data. The Atlas.ti software is a program that functions as a “workbench” by allowing the researcher to code and index the data and organize the coded data in order to aid in the identification of themes (Muhr & Friese, 2004). The following strategy for coding and classification of data suggested by Patton (2002) was used. The first step was to look for ‘recurring regularities’ throughout the data, which led to the development of categories into which the data were clustered. Once the categories were developed the data in each were examined for agreement or disagreement between the items in the category. The analysis then became an iterative process in which the researcher “work[ed] back and forth between the data and the classification system to verify the meaningfulness and accuracy of the categories and the placement of the data in categories” (Patton, 2002, p. 466). Specifically, each interviewee’s response to a question was reviewed. From these responses the researcher developed coding categories that covered all of the responses. Care was taken to ensure that the intent of the response was clearly and accurately represented by the coding category, which in some case resulted in numerous categories for a question. Once the initial coding was performed, the researcher re-examined the categories looking for commonalities between the responses by which they could be grouped. In cases where such commonalities were found, the responses were presented hierarchically, first in terms of their overall meaning and then in terms of their specific content. This can be seen in the presentation of the findings as seen, for example, in Table 4.2, which presents respondents’ motivations for participating in SWO and where responses are grouped first in terms of whether they are an internal or external motivation and then in term of the specific motivating factors. The specific themes identified for each question are presented in Chapter 4, which contains the interview findings. Once themes were identified from the data, the results of this analysis were then related to the primary research question, assessing the degree of acceptance of an eco-labelling program for the Ontario wine industry and the factors that would influence its acceptance, which are presented in Chapter 6, which is the discussion.

3.3.7.2 Analysis of Survey Data

All of the survey data collected were coded and entered into SPSS Statistics 16.0 for analysis. Response frequencies were determined for all of the data collected. In some cases further analysis was required to allow for an interpretation of the significance of the data. The tests used for these analyses were all non-parametric tests because the data collected were ordinal or categorical in nature and, therefore, it is not appropriate to apply parametric tests. Additionally, nonparametric tests do not require that the data come from a population with a particular type of distribution, such as a normal distribution (Norusis, 2006). The tests used included the Friedman test, the Wilcoxon signed ranks test, Chi-squared test, the Kruskal Wallis test, the Mann-Whitney test and the Spearman correlation test. A brief description of each of these tests and their applications in this research is outlined in the next four sections.

3.3.7.2.1 Crosstabulations and Chi-squared tests

A crosstabulation is a table that displays counts of combinations of categorical variables. In order to determine whether the counts in the crosstabulation are statistically different from expected counts, a chi-squared test can be used. The chi-squared statistic is a measure of how greatly a count (as opposed to a mean) varies from an expected count and can be used to determine the probability of the observed outcome (Norusis, 2006). These tests were used to determine whether there were any significant differences in the profile of consumers surveyed at LCBOs versus winery retail stores. The chi-squared statistic was also utilized in other non-parametric tests used in this research.

3.3.7.2.2 Friedman Test and Wilcoxon Signed Ranks Test

The Friedman test is a non-parametric test used to identify if differences exist between measurements from the same subject. The test ranks the various measurements and compares the mean ranks. A chi-squared statistic is calculated and is used to determine the significance of the

differences between the rankings. If a significant difference is identified using the Friedman test, the Wilcoxon Signed ranks test can be used as a follow-up test that pinpoints where the difference(s) lie. It consists of a pair-wise comparison of medians from the same sample. These tests were used for determining the relationship between factors that influence consumer purchasing decisions as well as consumer preference for an eco-label certifier, label format and source of additional information on a label.

3.3.7.2.3 Kruskal-Wallis Test and Mann-Whitney Test

The Kruskal-Wallis test is the non-parametric equivalent of a one-way ANOVA, or in other words it compares how multiple groups within a population compare to the population as a whole using rankings. The Mann-Whitney test is similar but compares only two groups at a time and is the non-parametric equivalent of the *t*-test. Both of these tests used a chi-squared statistic to determine significance (Norusis, 2006). In this research the Kruskal-Wallis test was used to identify if differences existed between different groups within the population sampled; however, this test does not indicate where the differences lie. If a significant difference was found using the Kruskal-Wallis test, pair-wise Mann-Whitney tests were used as a follow-up to pinpoint where the difference occurred. These tests were used to identify whether there were differences between demographic groups in the degree of influence various factors had on wine purchasing decisions and the premium respondents would be willing to pay.

3.3.7.2.4 Spearman's Correlation test

The Spearman's correlation test is a non-parametric test that measures the strength of the linear relationship between two variables. The test uses the rank-order of the variables, as opposed to measured values. The statistic calculated is Spearman's rho which can range in value from -1 to 1 with a value of zero indicating no correlation and a value of one indicating a perfect linear correlation (or

negative correlation if the value is negative) (Norusis, 2006). This test was used to assess the relationship between the level of interest in purchasing eco-labelled wine and the willingness to pay a premium and the amount of the premium.

3.4 Limitations

Some limitations exist in any research conducted. In this study, three potential limitations of the study stemming from the methodology relate to the sample selection, the data collection techniques and bias in the data collected. These potential limitations will be discussed in the following sections.

3.4.1 Sample selection

The industry members selected to participate in this study were primarily those who had already participated in SWO for two years, indicating a commitment to environmental stewardship. For this reason their responses may have been more favourable towards an eco-labelling program than the responses of a non-participant would have been. However, due to the time and scheduling constraints it was determined that this would be the most relevant sample for assessing the feasibility of an eco-labelling program in its infancy. This is because these individuals would be the most familiar with what would be required of them and also the most likely to be early participants. Care is taken not to assume that the information obtained from the interviews conducted can be applied to the wine industry as a whole.

Consumer participants were selected based on their presence at a particular LCBO or winery location at a particular time. The sample size was sufficiently large to ensure that statistically relevant tests could be performed for all questions as outlined in section 3.3.3.2 ; however, the sampling cannot be considered entirely random, due to the aforementioned factors. While it may have been possible to

target a more random sample of consumers, it was deemed necessary to target busy locations at busy times as much as possible in order to collect the desired number of samples in the available time frame.

3.4.2 Data collection techniques

Both qualitative and quantitative techniques have limitations and benefits as outlined in sections 3.2.1.1 and 3.2.1.2. It may have been possible to collect a statistically representative sample of wine industry members using a quantitative method and a greater sample size. However, it would not have been possible to delve as deeply into the issues surrounding motivations and barriers that might determine participation in an eco-labelling program. Similarly, it might have been possible to glean a greater understanding of why a consumer would or would not purchase an eco-labelled wine using a qualitative method and a smaller sample, but the data would not have been generalizable to the greater population. The data collection techniques chosen were selected to get the most relevant information to answer the primary research question using the resources available.

3.4.3 Bias in data collected

3.4.3.1 Potential bias in interview data

While interviews allow for the collection of in-depth information, they are not without drawbacks. A primary drawback of interviews is the potential to introduce bias into the data collected. Sekaran (2000) and Frey et al. (2000) present a number of common ways in which bias can be introduced by the interviewer, the interviewee or the situation. The interviewer can introduce bias in the phrasing of questions, encouraging or discouraging certain answers unintentionally, misinterpreting answers and failing to earn the interviewees trust. Interviewees can bias the data by not providing truthful answers because they are trying to please the interviewer or because of a personal like or dislike of the interviewer. The interviewee can also introduce bias by failing to ask for clarification when

a question is not fully understood. Interviewees can also bias the data by answering questions in a socially desirable manner, especially in a situation where there is an answer which is clearly more socially desirable as is the case with many environmental issues (Mohr, Webb, & Harris, 2001). Situational bias such as the non-response bias previously discussed, as well as the physical setting of the interview can also impact the quality of the data collected. Finally, non-participation could have introduced a bias into the data collected as could the decision to include primarily representatives from wineries in their second year of participation in SWO.

The following efforts were made to minimize bias in the data collected. Questions were phrased in a non-biased and non-leading manner, or in a manner which does not imply a right or wrong answer, and presented in the same manner to each interviewee. The interviewee was allowed to choose the time and location of the interview to ensure that they felt comfortable and not rushed. Questions that may have influenced responses to other questions were ordered in a manner that mitigated this risk. If a response to an answer was unclear the interviewer asked for clarification or more detail. The interviews were recorded to ensure that the answers are not misinterpreted from the researcher's notes. The primary researcher conducted all of the interviews, in order to minimize differences in the interview process between interviewees and also ensure that the interviewer was very familiar with the questions and their intent and was able to provide clarification where necessary. Interviewees were assured as to the confidentiality of the data collected to minimize the influence of social desirability biases. While it is not possible to ensure that a good rapport is established, the interviewer attempted to control as many variables which may influence this factor, such as ensuring timeliness, establishing credibility, providing motivation, and meeting the interviewee at a time and place of their choosing (Frey, et al., 2000; Sekaran, 2000).

3.4.3.2 *Potential bias in survey data*

Bias in surveys is generally a result of how the questions are presented to the participant (Sekaran, 2000). Due to the nature of the information being collected, pertaining to the interest in environmentally friendly products, the greatest bias anticipated was that of social desirability response bias. As Mohr et al. (2001) explains there is a lower cost to answering the question about anticipated behaviour than the cost of the actual behaviour, which may result in an overestimation of interest in environmentally friendly products. A second anticipated bias, which is present in all voluntary data collection techniques is non-response bias in which the data become less representative of the population as a whole (Sekaran, 2000).

In order to attempt to minimize these potential biases in the data collected care was taken to present the questions in an unbiased manner. It was also made clear to participants that the data collected were confidential and that there was no way of linking their responses to their name. Finally, as mentioned, to attempt to encourage greater participation, a chance to enter a prize drawing was offered to participants (although this was only permitted at winery retail locations).

3.5 Summary

A mixed method approach, outlined in this chapter, was used to collect the data for this research. Qualitative interviews with industry members were selected in order to assess industry interest in participating in an eco-labelling program and the factors that might motivate or deter participation. Quantitative surveys with wine consumers were selected to assess the degree of consumer interest in purchasing eco-labelled wines and to determine what elements might influence their interest in purchasing these wines. The next two chapters will detail the results of the data analysis from both the qualitative and quantitative portions of this study.

4 Interview Findings

4.1 Introduction

This section will outline the findings of the qualitative portion of this research, the interviews with industry members. It is divided into four sections, specifically industry members' experience with SWO, perceptions of awareness of SWO, interest in participating in an eco-labelling and certification program and preferences for format of an eco-labelling and certification program. The response rate for the qualitative portion was 68% (13 out of 19 interviews). The interviewees and the wineries which they represent are shown in Table 4.1.

Table 4.1. Interview participants and the represented wineries.

Respondent	Winery/Wineries Represented	Years in SWO
Craig McDonald	Creekside Estate Winery	2
	Wayne Gretzky Estates	2
Dave Hooper	Cave Spring Cellars	2
Colin Ferguson	Flat Rock Cellars	2
Bruce Nicholson	Inniskillin Wines	2
John Tummon	Kacaba Vineyards	2
J-L Groux	Stratus Vineyards	2
Jens Gemmrich	Frogpond Farm	2
Ron Giesbrecht	Henry of Pelham	2
Tom Green	EastDell Estates Winery	2
	Lakeview Cellars Estate Winery	2
	20 Bees	1
Caroline Granger	Grange of Prince Edward Vineyards and Estate Winery	1
Tim Reilly	Colio Estate Wines	1
Bruno Friesen	Pelee Island Winery	N/A
Mario Testa	Willow Springs Winery	N/A
n = 13.		

4.2 Experience with SWO

The questions regarding experience with SWO were only directed at those respondents representing participating wineries. Therefore, the results presented in this section are based on the responses of only 11 of the interview participants.

4.2.1 Motivations

The motivations described for participating in SWO fall into two categories: internal motivations and external motivations. The response rates for the motivations identified are indicated in Table 4.2 and elaboration is provided in the following paragraphs.

Table 4.2. Motivations for participating in SWO.

Motivation	Response (%)
Internal Motivations	
Opportunity for self-evaluation	73
Fits with their company's ideology	36
Learn about industry best practices	36
Concern for the environment	36
The right/responsible thing to do	27
Become an industry leader	18
Cost savings	18
External Motivations	
Stay ahead of regulations	27
Pressure from the WCO	18
Greening wine markets	18

n = 11.

Internal motivations were more frequently mentioned by respondents, with all respondents indicating at least one internal motivation as compared with 27% that mentioned external motivation. Internal motivations ranged from concern for the environment to the potential for operational improvements. The most common type of internal motivation stated (73%) was the process of self-evaluation that the program requires and resultant improvements achieved. This sentiment was summed up by Respondent 1 (numbers do not relate to the order presented in Table 4.1) who stated that “when you participate in these things, it kind of forces you to look at how your company does things and then you know, hopefully you can evaluate that and get some sort of improvement from it.” Many respondents (36%) also indicated that a major motivation for participating was that the SWO program fits with their companies’ overall ideology and the program provides a way for them to share this philosophy with the rest of the industry. A desire to learn about industry best practices, especially as

the research had already been conducted by the WCO was another motivation mentioned by some respondents (36%). Genuine concern for the state of the environment in general, and on their grounds specifically, as well as the idea that the program was the right and responsible thing to do, also implying concern for the environment, were motivating factors for several respondents (36%). A few respondents (18%) expressed a desire to become industry leaders and to get ahead of the main stream of the industry as a motivation for participating. In the words of Respondent 6, “We as an industry, and we in this building and in this company, we want to be leaders and we want to be innovators. We can’t be left behind.” Finally, a small portion of the respondents (18%) stated that a part of their motivation for participation was access to savings to be reaped by moving to higher efficiency practices. While a cost saving was not mentioned by many as an initial motivation, when asked many felt it to be a benefit of participating.

External pressures were not as frequently identified when it came to motivating participating in the SWO program. The most commonly raised external motivation (27%) was the desire to be proactive in the face of increasing government regulations, in the hopes that this will allow the industry to chart its own course with regards to environmental protection. As Respondent 8 expressed, “[if] we keep it green, instead of waiting for people to ask questions and point fingers and accusing the wine industry of wrong things, to come, before they can even say, ‘Oh, look at this’ we can say, ‘Well, look at that here, it’s all taken care of.’” Peer pressure from the WCO to participate in SWO was also mentioned by some (18%) as a motivation for participating. Finally, a few respondents (18%) noted that the wine market is greening thereby forcing the wine industry as a whole to become greener and in turn serving as a motivation for their involvement in this voluntary environmental initiative.

4.2.2 Changes made in response to SWO

Those interviewees who are currently participating in SWO were asked to discuss what, if any, changes they had made since beginning participating in the program. Table 4.3 summarizes industry members' responses. A number of respondents included changes that were made in response to the Environmental Farm Plan (EFP); however, only responses pertaining to issues within the scope of the SWO program will be included in this report. The choice to only include issues in SWO was made both because this program was the focus of this research and the questions asked; therefore, most respondents focused only on these issues. It would not be accurate to make any statements about the percentage of respondents who made changes in response to the EFP as this question was not directly asked.

Table 4.3. Changes made by wineries as a part of their participation in SWO.

Changes made	Response (%)
Improved efficiency	73
Improved energy efficiency	55
Improved water use efficiency	36
Tracking of water and energy use	27
Plan future changes	36

n = 11.

The most commonly noted changes were improvements in efficiency (73%). These primarily referred to efficiency in terms of energy use (55%) and water use (36%). Specific measures taken to improve energy efficiency included the addition of new insulation, the creation of an underground cellar, heat diversion, changes to lighting, including the types of bulbs used and installing timers or motion sensor to minimize unnecessary use, updating outdated cooling equipment and modifying winery practices. Respondents were less specific about how they were reducing water usage, although modifying cleaning and sanitation processes were both mentioned. For example, Winery 5 has

implemented a centralized pressure washing system for cleaning that dramatically reduces the amount of water used and the amount of wastewater produced. Additionally, Winery 1 transitioned to using less toxic chemicals for cleaning in order to produce cleaner wastewater. For both water and energy conservation, closer tracking of usage was mentioned as an element that some respondents (27%) had introduced at the recommendation of the program. Others mentioned that they were already tracking usage as a result of high costs for energy and of having water shipped in or out because they were not connected to the city's water system. Several respondents stated that they were using suggestions made in the program to plan larger scale changes for the future, such as the introductions of solar power, bio-fuels, and the use of waste to generate biogas. Overall, the majority of respondents noted that they had made numerous small changes, such as changing lighting or introducing composting. Several respondents (36%) noted that that the information provided through the program would shape how they approach upcoming larger scale choices, such as which equipment to purchase or how to lay out facilities for maximum efficiency.

4.2.3 Important Issues in SWO

Table 4.4 outlines the issues that respondents identified as especially important to SWO and those that they thought were missing from SWO that should have been addressed. The majority of respondents (73%) felt that one of the most important aspects of the program was that it raised general awareness of environmental issues pertaining to the winemaking process. Water related issues were deemed very important as well (55%), with specific issues including water conservation, management of wastewater, and knowledge of the water table on which the winery is located. Energy efficiency was also identified as an important issue by several respondents (36%). Other issues presented were only mentioned by a single respondent each.

Table 4.4. Issues that industry members identified as important and missing from SWO.

Issues	Response (%)
Important Issues in SWO	
General awareness of environmental issues in winemaking	73
Water related issues	55
Energy efficiency	36
Awareness of legal obligations	9
Holistic approach to environmental issues in winemaking	9
Greening of the retail element of the industry	9
Awareness when planning future renovations	9
Issues Missing from SWO	
Link to sustainable farming practices	27

n = 11.

The primary issue that respondents (27%) found lacking in the SWO program was a link to sustainable farming practices. It was discussed that while this is covered under the Environmental Farm Plan, it would be beneficial to link these programs in order to make each more meaningful to the average consumer. These respondents expressed concern about the fact that the SWO only addressed the winemaking process and not the grape growing process. They felt that sustainable winemaking can only be considered truly sustainable if the manner in which the grapes are grown is also sustainable. They also thought that consumers were not likely to differentiate between issues related to grape growing and those related to winemaking . This sentiment was expressed by Respondent 5, who said:

I think that one of the areas that the program in a way misses, I miss anyway, is the fact that the Environmental Farm Plan has taken the vineyard application and sort of put that in its corral.... it's not integrated well enough.... I think that environmentally you've got huge impact when you farm. You know you can be positively impacting in some things, you can try and just stay neutral in others, and you can be incredibly negative in others if you're not careful. So I think it's important that that part of it becomes a little better integrated. Now I'm not saying that it doesn't still fall within the Environmental Farm Plan, but I'm a proponent of getting the information shared.

Additionally, while not specifically asked, 9% of respondents indicated that they found relations with neighbours to be unimportant to the issue of sustainable winemaking. In other words, since the primary emphasis of the program was environmental stewardship, the self-evaluation questions in the program should focus solely on environmental issues. This respondent felt that the inclusion of this element was not beneficial to the program and added unnecessary time in completing the self-evaluation.

4.2.4 Benefits of participating in SWO

Interviewees were then asked what benefits their business has reaped or what benefits they foresee from their involvement with the SWO program. Their responses are indicated in Table 4.5. As previously mentioned, cost savings was noted by 64% of the respondents. Specific sources of savings mentioned were from increased efficiency due to new equipment, changing of employee practices such as closing doors to refrigerated areas or turning off lights, as well as government incentives such as rebate programs. Another benefit identified by 55% of respondents was that it required them to perform a detailed, systematic look at their operations and identify areas in which they were excelling and those in which they needed improvement. Respondent 8 stated that while environmental issues were always a focus for his winery, he found the program beneficially because:

You think you are doing something and then when you have that program and you actually go through point by point, step by step you actually see things that you have been overlooking, and that's why I think it's a really good thing to do and a really good program to have, because a lot of people think, and I was quite sure, I was doing everything right. But it's not true.

In areas where improvement was needed, the program provided ideas about how to increase operational efficiency. For example, Respondent 8 found that it was possible to improve the manner in which winery wastewater was treated on site. Respondents also noted that the program could have benefits for the industry as a whole (45%). They suggested that this could be achieved by encouraging

greater participation in environmentally sound practices, thereby improving the health of the environment for all. The program also encourages the free exchange of ideas and consolidates them into one program and helps the industry to guide its future, potentially minimizing the imposition of additional government regulations. Finally, an enhancement of consumer relations was a benefit mentioned as currently being experienced by some and anticipated by others (55%). In contrast, 18% of respondents specifically noted that improved consumer relations were not a benefit that they were experiencing or expecting to experience.

Table 4.5. Benefits of participation in SWO.

Benefits	Response (%)
Cost savings	64
Evaluate and improve operations	55
Industry wide benefits	45
Enhanced consumer relations	55

n = 11.

4.3 Awareness of SWO

4.3.1 Current consumer awareness of SWO

All of the respondents currently participating in SWO indicated that awareness of the program among the average consumer was very low. Table 4.6 outlines respondents' perspectives on factors effecting consumer awareness and their suggestions for how it might be improved. Poor marketing was named as one cause for this low level awareness by 36% of respondents. However, 27% of respondents noted that more involved or knowledgeable consumers, such as licensees, LBCO product consultants, restaurant owners, health conscious consumers and the consumers who are passionate about learning all the ins and outs of the industry, were more likely to know about the program and the winery's participation. Additionally, recent news stories regarding environmental actions taken by wineries were

believed by 18% of respondents to have increased consumer awareness of environmental issues in the wine industry and in turn SWO.

Table 4.6. Industry members' perspectives on consumer awareness of SWO and how it might be improved.

Possible reasons for current consumer awareness of SWO	Response (%)
Low awareness due to poor marketing	36
High awareness among involved consumers	27
Moderate awareness due to recent news stories	18
Suggestions for how to improve consumer awareness of SWO	
Formalize SWO and introduce monitoring	27
Introduce an eco-label to indicate participation	27
Increase overall participation in SWO	18

n = 11.

A number of suggestions for how to increase consumer awareness were presented. One suggestion, voiced by 27% of respondents, was that the program needed to be formalized and to include monitoring in order to lend credibility. A second suggestion, made by 27% of respondents, was that a label designed to indicate participation to consumers would help to increase consumer awareness. A third suggestion, stated by 18% of respondents, was that increasing participation within the industry would help to increase consumer awareness of the program by increasing the amount of exposure consumers have to the program.

4.3.2 Employee awareness of SWO and other environmental initiatives

Interviewees were asked whether their employees were aware of and actively participated in the winery's environmental initiatives. Their responses are shown in Table 4.7. Only a small percentage of respondents, 18%, indicated very low internal awareness of environmental initiatives. In one case this was attributed to the use of seasonal workers. The majority of respondents, 62%, indicated moderate to high awareness among management and employees who had been with the company for more than one season. For example, Respondent 2 said of his staff:

I think, generally, people here have a pretty good understanding of let's not waste energy and let's try and look at minimizing that. Not just the bottom line, but I think they've just become more conscious. We use that word 'conscious consumption' of energy, you know, but that's the mindset that's sort of changing now, which is good.

The general sentiment shared by the respondents who indicated moderate to high awareness was that there were challenges with educating and involving seasonal staff in environmental initiatives but that it would be worthwhile to pursue this goal to a greater extent, through efforts such as including environmental issues in training programs and manuals and increasing dialogue on these issues. Finally, 18% of respondents indicated a high level of awareness of environmental initiatives among their staff. In one case, the winery had involved all staff in an environmental awareness training exercise. In another, the staff was very small and consistent, year to year, and environmental issues were a core value of the winery.

Table 4.7. Degree of staff awareness of environmental initiatives within the winery.

Degree of staff awareness	Response (%)
Low	18
Moderate to high	62
High	18

n = 11.

4.3.3 Eco-labels and consumer awareness

Interviewees were asked whether they thought that an eco-labelling program would help to increase consumer awareness of the program. Nearly all of the respondents (92%) indicated that they did indeed believe that an eco-label would help to drive awareness of SWO among consumers. However, many expressed concerns that if the program was not backed up by a formal, legitimate certification program, with ongoing monitoring of progress, consumers might become quickly disenchanted. In this case, it might actually negatively impact the reputation of the industry.

4.4 Participation in an eco-certification/eco-labelling program

Respondents were then asked whether they thought that their winery would participate in an eco-certification program if one was developed to accompany the SWO initiative; 100% indicated that they would be at least consider participating. For some (31%), there were concerns about the actual logistics of such a program. When asked about participating in a corresponding eco-labelling program (as opposed to just the certification program), 15% indicated that they would most likely not participate in a labelling program in which labels were place on the bottle, but would be willing to market the program in other arenas, such as through pamphlets or web materials. In the case of both an eco-certification and eco-labelling program, 38% of respondents indicated that while they personally thought their winery would participate, they would probably not be the individuals who would be making the final decision on the issue, because while the individuals interviewed were those responsible for administering the SWO program, they felt that decisions concerning an eco-certification and labelling program would be under the purview of the marketing department.

Table 4.8. Potential barriers to wineries' participation in an eco-labelling program.

Issues	Response (%)
Program logistics	31
Participate in certification but not labelling program	15
Decision would depend on marketing department	38

n = 13.

4.4.1 Factors that would motivate participation

Table 4.9 summarizes the factors that respondents indicated would help to motivate their participation in an eco-certification and labelling program. The most frequently noted factor (64%) was that the program must be credible and involve monitoring so as not to become a case of “greenwashing.” This corresponds to concerns that a program without these features could potentially

have a negative impact on consumer perception of the program, as previously described. Respondent 8 expressed this sentiment, saying:

I would say 100% if you're not just dealing one to one with your customer you need a certification, and even then, just to get some credibility. Because otherwise everybody claims to be green, and sure it still helps marketing at the moment, but the consumer gets better educated every day too and they're going to ask more questions and they're going to ask, 'Is there a third party?' 'Looking into it, is there any certification?' 'Is there any bite behind it?' Otherwise it's all just "greenwashing" and it's not going to be doing what it should be doing.

Table 4.9. Factors that would help to motivate participation in an eco-certification and labelling program.

Factors that would motivate participation	Response (%)
Credible and monitored program	46
Link to another labelling/marketing program	23
Encourage continuous improvement	15
LCBO support and promotion	15
Greater participation from wineries	8
Incorporate EFP	15

n = 13.

Another suggestion (23%) was to link the program to either other products or to marketing based on regional identity such as the 'Go Local'¹ advertizing campaign presented in LCBOs. Others (15%) suggested that if the eco-certification and labelling program was designed in such a way as to encourage continuous improvement, as the SWO program currently does, it would encourage participation. Support of and promotion in the LCBO was another factor indicated by some respondents (15%) as a potential motivator; however, it was pointed out that this may in fact be a deterrent or a disincentive for those wineries not represented (or minimally represented) in the LCBO. It was also suggested by 8% of respondents that eco-labelling/eco-certification might be best introduced after there is greater

¹ "Go Local" was an advertising campaign sponsored by the LCBO in partnership with the WCO promoting Ontario wines through in-store displays and tastings as well as print, radio and TV advertising. The WCO indicated that it was one of their most successful marketing campaigns ever (Wine Council of Ontario, 2009a).

participation in the voluntary initiative in its present format. Finally, some (15%) believed such a program would be strengthened by incorporating aspects of sustainable grape growing currently covered in the Environmental Farm Plan.

4.4.1.1 Premium for eco-labelled/eco-certified wines

Interviewees were asked whether they thought they would be able to charge a premium for their wines if they displayed an eco-label or otherwise indicated their participation in an eco-certification program. Their responses are summarized in Table 4.10. The majority of respondents (54%) indicated that they did not think that they would be able to charge a premium for eco-labelled wines. Some of these respondents provided justifications why they believed they would not charge a premium including: they did not think it would be right to charge a premium for being environmentally conscious (23%), because of the current economic situation that a premium could serve to impede sales (8%) and many of the actions recommended in the program should save the company money in the long term and hence it would not be fair or necessary to charge a premium (8%). The remaining respondents (46%) indicated that it may be possible to charge small premium if consumers' quality expectations were also met.

Table 4.10. Industry members' opinions on premiums for eco-labelled wines.

Type of Premium	Reasons/Stipulations	Response (%)
No Premium		54
	Not the right thing to do	23
	Could impede sales	8
	Program should lead to savings	8
Small Premium		46
	If high quality wine	46

n = 13.

4.4.1.2 Lessons from VQA

When asked about their experiences with the VQA as a labelling and certification body, respondents in most cases had a mix of positive and negative perceptions. Their responses are summarized in Table 4.11. Seventy-seven percent indicated that they felt that the VQA system was very important in improving the reputation of Ontario wines. The reasons given varied, but included that the symbol represents quality to consumers (15%), that it is a credible certifying body and that it is well branded (8%). It was also noted that throughout the development of the VQA system it had become evident that a labelling system should be simple and consistent and requires that consumers be educated as to the meaning of the label (38%).

Table 4.11. Lessons from the VQA that industry members thought should be applied to an eco-labelling program.

Lessons from VQA	Response (%)
VQA important	77
Represents quality	15
Credible	15
Well branded	8
Should be simple, consistent and requires educational component	38
Areas VQA could improve	
Less regulations and restrictions	31
Shorter application process and lower fees	23
Stronger branding	15

n = 13.

Despite the fact that the majority of the respondents felt that the VQA system has had a positive impact on the Ontario wine industry there were several elements that they felt were not optimal and should be taken into consideration if creating a new labelling system. Frustration with the regulations and restrictions surrounding labelling was a sentiment expressed by respondents (31%), which they felt could be remedied by increased flexibility. For example Respondent 4 found the rules regarding label size and placement problematic, stating, “It’s frustrating. All of the label restrictions, the size of the VQA

and where you can place it.... You have to have it on the front label and a certain size and on the top.”

Additionally, the length of the approval process and the costs associated with it were a cause for frustration for some (23%). Also, while some respondents thought that the VQA had done a good job of branding, as previously indicated, others (15%) thought this was an area that needed strengthening.

Respondent 5 summarized the sentiments of the majority of the respondent well, stating:

Yeah [there is] a little intimidation there in terms of jumping into another accreditation and auditing system. But also there are some plus sides, for instance, with VQA. There are way more people that know about VQA now than before and you know it's been on our capsules and our labels. There have been ads on radio and it's been a program that's lasted 20 years or more, to try and get the idea of VQA out there. And yes, there's been some purchase of the idea within the consumer, but there are still problems with it. There is still a lot of misunderstanding about what VQA is and what it isn't and therefore, starting something new I'm very aware that it is not an immediate thing to get the consumer to understand. You know, putting that on a label, makes a big difference, but it is still going to be a slow incremental step, that you're going to be frustrated many times along the way before you start to see that there is a general knowledge and acceptance of it.

4.4.2 Factors that would deter participation

Deterrents to participation in an eco-certification and labelling program identified by industry members are summarized in Table 4.12. For those respondents who indicated that they would most likely not be interested in participating in an eco-labelling program, the primary reason given was the aesthetic appearance of their bottles (15%). These respondents felt that due to the quantity of information that is already required to be displayed on the bottle, adding another element would appear crowded and detract from the visual appeal of their product. Additionally, they expressed concern that the label itself may be unattractive or not fit with their label designs.

Deterrents for an eco-certification program listed by respondents generally focused on the inputs that would be required and the format or organization of the program. Cost was cited as a

potential deterrent (54%); however, respondents who indicated cost as a potential deterrent also stated that they would have to weigh the benefits of the program and if deemed worthwhile would budget for the costs that would be required. Respondent 3 emphasized this saying, “[the costs would have to be] analyzed and reviewed, forecasted out, put into a budget and measured for performance and what we’re getting out of it.” When asked what costs they anticipated, respondents indicated both costs to bring their operations up to the level required to be certified and also the costs of obtaining certification. Another input that respondents (31%) were concerned about was the amount of time that would be required to complete the process needed for certification. Regarding the format and organization of the program, respondents (31%) expressed concern that the program may be overwhelming to implement (15%), poorly coordinated (8%), too strict (8%), poorly monitored (8%) or result in a loss of privacy (8%).

Table 4.12. Deterrent to participation in an eco-certification and labelling program.

Factors that would deter participation	Response (%)
Visual crowding/unattractive label	15
Cost	54
Time	31
Program format	31

n = 13.

4.5 Eco-label/eco-certification format

4.5.1 Certifier

Interviewees were asked who they would want to be responsible for certifying an eco-certification/eco-labelling program. Their responses are indicated in Table 4.13 (note that some respondents had more than one response). Many respondents (54%) indicated that they thought that this was a very important issue but that they had not given much thought to the specifics of such a

program. The most common response (54%) was that a third party organization should be responsible for the certification; however, none of the respondents identified any such organization currently operating that they thought would be an appropriate choice. It was pointed out by 8% of respondents that the formation a new organization would be an opportunity to create jobs for Canadians. The main reason cited by respondents (54%) for the need for a third party to certify this type of program was to give it credibility that would be lacking if the certification was performed by members the same industry

Table 4.13. Industry members' preferences for an eco-label certifying body.

Certifier	Response (%)
Third-party	54
WCO with third-party	31
WCO	8
New certifying body linked to VQA	23
New certifying body using VQA as a model	15
Government	8
Combine with another wine region's certification body	8

n = 13.

that was trying to benefit from the certification. Since the SWO program was initiated by the WCO some (31%) felt that it would be appropriate for the WCO to be involved in coordinating the certification, but not the ones to give the final approval for certification, whereas others (8%) felt that the WCO should be responsible for the entire certification process. Another suggestion, made by 23% of respondents, was that certification for SWO could be linked to VQA. The rationale provided for this suggestion was that the organizational structure is already in place, the VQA is familiar with the ins and outs of the Ontario wine industry and it is already responsible for approving labels for wine. Therefore, incorporating SWO certification into this pre-existing framework would save wineries from having to go through multiple approvals processes. It was suggested that this could be a very important factor for many Ontario wineries as they are very small and have minimal staff and therefore minimizing the time inputs required to become certified could increase the chances of getting more wineries to participate.

Still others (15%) advocated using the VQA as a model on which to base the structure of a certifying organization. Government involvement was also proposed (8%); however, other respondents (15%) specifically indicated a desire to keep government out of the process. Another idea that was supported by some (8%) and opposed by others (8%) was that a committee of industry members be involved in the certification process. It was argued by Respondent 1 that on the one hand they are very familiar with issues surrounding the Ontario wine industry and therefore could offer invaluable insight to the process, but on the other hand Respondent 5 argued that industry should not have any involvement in the certification process to ensure its credibility. Finally it was also posited, by 8% of respondents, that a certification program could be created that would combine Ontario's SWO program with another country or region's sustainability certification, which would result in more wide-spread use and therefore greater recognition.

4.5.2 Label format

Interviewees were also asked if they had a preference for the actual format of an eco-label as it would appear on the bottle. Their responses are indicated in Table 4.14. The majority of the respondents (69%) indicated a preference for a simple label that was presented as a logo with strong branding and could be incorporated into their existing label, as opposed to a sticker or a neck tag. It was suggested that in order for the logo to be strongly branded, its appearance would have to be consistent and standardized on all products. The remaining respondents (31%) indicated that they would want the use of an eco-label on the wine bottle to be optional, so that a winery could be eco-certified but would not be required to display this information on their bottles, or would have the option to include it only on some of their products.

Table 4.14. Industry members' preferences for an eco-label format.

Preferred eco-label format	Response (%)
Seal of approval incorporated into existing label	69
Optional seal of approval	31

n = 13.

4.6 Summary

Overall, industry members expressed an interest in participating in an eco-labelling program to accompany the SWO initiative. They did, however, indicate a number of factors that could potentially deter them from participating and also some that could encourage them. These insights, along with those of consumers, can provide a valuable platform on which to develop an eco-labelling program for the Ontario wine industry. The next section will detail the findings of the consumer surveys conducted.

5 Survey Findings

The following section details the results of the consumer surveys collected. To ensure that at least 384 usable surveys were available for analysis, a target sample size was set at 400. A total of 401 surveys were collected for the quantitative portion (one additional was collected unintentionally but was used as it provided valid data).

5.1 Survey Locations

Table 5.1. Number of surveys collected at each location type.

Location Type	Surveys (%)
LCBO	37
Winery Retail	63

Note: Percentages rounded to the nearest whole number.
n = 401.

Table 5.2. Number of surveys collected at each location.

Survey Location	Surveys (%)
Summerhill LCBO	10
Bayview LCBO	6
Queen's Quay LCBO	8
Fairview LCBO	8
Ancaster LCBO	5
Creekside	5
Angel's Gate	6
Inniskillin	8
Jackson Triggs	14
Vineland	6
Henry of Pelham	6
Tawse	3
Hillebrand	6
The Grange of Prince Edward	6
The Ice House	4

Note: Percentages rounded to the nearest whole number,
therefore, totals may not add up to 100.
n = 401.

The surveys were collected at LCBOs and winery retail stores (Tables 5.1 and 5.2 outline locations where surveys were collected). Sixty-three percent of surveys were collected at winery retail stores.

The locations that the most surveys were collected from were Jackson Triggs Winery (14%) and the Summerhill LCBO (10%).

5.2 Profile of Respondents

Table 5.3. Profile of consumers surveyed.

Demographic	Category	Response
Gender (n = 382)	Female	52
	Male	48
Age (n = 395)	19-25	8
	26-35	24
	36-45	19
	46-55	25
	56-65	17
	65+	7
Annual household income (n = 364)	Less than \$20,000	4
	\$20,001-\$40,000	9
	\$40,001-\$60,000	13
	\$60,001-\$80,000	14
	\$80,001-\$100,000	15
	Over \$100,000	46
Highest level of education completed (n = 378)	High school	11
	Trade school or professional	22
	Bachelor's degree	35
	Advanced degree	32
Marital status (n = 388)	Single	23
	Married/common-law/widowed	72
	Divorced/separated/other	5
Region of residence (n = 396)	Ontario	80
	Eastern Canada	3
	Central Canada	1
	Western Canada	2
	U.S.A.	13
	International	2

Note: Percentages are rounded to the nearest whole number, therefore totals may not add up to 100. n does not equal 401 in all cases as respondents were not required to provide any information which they did not wish to divulge.

The majority of respondents were female (52%), aged 46-55 (25%), had an above average annual household income (46% made over \$100,000), and had completed education beyond high school (89%). The majority were married (72%) and lived in Ontario (80%) (see Table 5.3).

5.3 Consumer purchasing behaviour

5.3.1 Wine purchase frequency

Consumers were asked to indicate the frequency of their purchasing of wine for both Ontario wines and in general (any wine) (see Table 5.4). The results indicate that the majority of consumers (77%) purchased wine once per week to once per month. In contrast, Ontario wine was only purchased once per year to once per month by most consumers (62%). This is far less frequently than wines from elsewhere, especially when it is taken into account that individuals may purchase more than one bottle of wine at a time and even in these cases Ontario wine was still only purchased a few times a year.

Table 5.4. Wine purchasing frequency wine in general and for Ontario wine.

Purchasing frequency	All wine purchase (%)	Ontario wine purchase (%)
Never	N/A ^a	8
Once per year	N/A ^a	27
Once per year to less than once per month	9	N/A ^a
Once per month	22	35
Twice per month	29	15
Once per week	27	9
More than once per week	13	7

Note. Percentages are rounded to the nearest whole number, therefore totals may not add up to 100.

n = 398.

^a N/A indicate the category was not offered as an option for this question, because only respondents who purchased wine at least once per year were asked to complete the survey.

5.3.2 Factors influencing purchasing decisions

Consumers were asked to rate a number of factors in terms of the degree of influence that they have on their purchasing decisions (see Table 5.5). The factor that greatly influenced the most respondents was taste (66%), followed to a lesser degree by varietal (20%), recommendations (18%) and price (16%).

Table 5.5. Consumers' ratings of factors which influence their wine purchasing decisions.

Factor	Degree of influence on purchasing decision					
	No response	Not at all	Somewhat	Moderately	Considerably	Greatly
Taste	0	1	2	3	28	66
Varietal/Grape	1	10	11	20	39	20
Recommendations from friends or experts	0	5	12	26	39	18
Price	0	2	9	36	37	16
Producer/Brand	0	9	19	30	34	9
Vintage	0	20	22	29	32	8
Winemaking Practices	1	34	28	22	10	6
Label Design	0	30	26	30	10	4

**Note. Percentages are rounded to the nearest whole number, therefore totals may not add up to 100.
n = 401.**

From these results, the factors of particular interest for this study are winemaking practices, label design and price. The consideration of winemaking practices in purchasing decisions is greatly skewed toward the lower end of the scale, indicating that for most consumers this is not presently a major factor when buying wines. However, it is interesting to note that only 34% indicated that it did not influence their decisions at all, which means that for 66%, while it may not be a major factor, it does have some bearing on their choice of wines. Label design was also a factor that was most heavily weighted on the lower end of the scale; however, with more even distribution between the 'not at all' (30%), 'somewhat' (26%) and 'moderately' (30%) categories. This is relevant because 15% of industry members interviewed expressed concern over modifications to their label designs that would be required to include an eco-label and also because an eco-label an aspect of the label.

One additional item to note is that while winemaking practices were included in this list of variables, but at this point it was not defined in terms of environmentally conscious practices, but rather any winemaking practices that may be relevant to the consumer. This aim of this question was not only to

determine the importance of these factors in purchasing decisions, but also to get consumers thinking about how they make their purchasing decisions before answer the following questions.

A Friedman test and Wilcoxon signed ranks test were conducted on these results to determine which factor was the most important for consumers overall (Table 5.6). These tests take into account all of the ratings for each factor and allow them to be compared to each other factor. The results shown in Table 5.6 indicate cases in which significant differences were found between the overall ratings of factors. Significant differences are indicated by different letters, so if two factors share the same letter they are not significantly different from one another in terms of their effect on wine purchasing decisions.

Table 5.6. Mean rating and significant differences of wine purchasing influence factors as indicated by a Friedman test and Wilcoxon signed rank tests.

Factor	Mean rating	Significant differences^a
Taste	4.56	a
Price	3.55	b
Recommendations from Friends or Experts	3.54	b
Varietal/Grape	3.50	b
Producer/Brand	3.16	c
Vintage	2.75	d
Label Design	2.33	e
Winemaking Practices	2.25	e

n = 401.

^a **Factors with different letters are significantly different from one another.**

The results of the Friedman and Wilcoxon signed ranks tests indicate that taste was rated as the most important factor overall and that it was rated significantly higher than all of the other factors. Price, recommendations, and varietal were rated second most important and were not significantly different from each other. The factors that were rated the lowest overall were label design and winemaking practices with no significant difference between these two factors.

5.3.3 Price consumers pay for wine

Consumers were asked how much on average they pay for a bottle of wine including all applicable taxes and deposit. The results (shown in Figure 5.1) indicate that, on average, the majority of consumers pay between \$10.01 - \$20.00 for a bottle of wine. Many Ontario wines fall into this range.

Figure 5.1. Average price Ontario consumers pay for a bottle of wine (n = 400).

5.4 Consumer interest in eco-labelled wines

5.4.1 Familiarity with eco-labels

Consumers were next asked if they had ever heard of eco-labels, and if they had, how familiar they were with what is meant by the term 'eco-label'. Figure 5.2 illustrates the results of these questions. The left side of Figure 5.2 indicates the whether the respondents had ever heard of eco-labels, showing that 36% of respondents had heard of eco-labels. The right side of Figure 5.2 gives

further detail as to the degree of familiarity of those who had indicated that they had heard of eco-labels.. Only 3% of respondents were greatly familiar with what is meant by the term 'eco-label'.

Figure 5.2. Consumer knowledge of and familiarity with the term eco-label (n = 398). Note: The percentages shown on both sides of the figure are based on all who responded to the question. The graph on the right-hand side provides detail on the degree of familiarity of those who had heard of eco-labels.

5.4.2 Frequency of eco-label purchases

Preceding the remaining questions the survey contained a definition of eco-labels used by the U.S. Environmental Protection Agency as well as some examples of commonly used eco-labels for a variety of product types. This was to ensure that all respondents knew what eco-labels were for the remainder of the questions. It was revealed through conversations with many of the respondents after the survey was completed that they were in fact quite familiar with what eco-labels were but did not know them by the term eco-label.

Consumers were asked how many eco-labelled products they had purchased at their last trip to the grocery store and how many eco-labelled wines they had purchased in the last month (see Table 5.7). Fifty-two percent of the respondents purchased at least one eco-labelled product on their last grocery shopping trip. In contrast, only 16% of consumers had purchased an eco-labelled wine in the

last month. The latter question may not yield very informative results at this time, due to the limited number of eco-labelled wines available in the Ontario marketplace at present. However, it is of interest to see that some consumers have managed to find and purchase eco-labelled wines or thought they had, despite their limited availability.

Table 5.7. Number of eco-labelled products purchased at the last trip to the grocery store and eco-labelled wines purchased in the last month.

Number of items	Eco-label purchases	
	Products at last grocery trip (%) (n = 390)	Wines in the last month (%) (n = 395)
0	48	83
1	20	10
2	14	3
3	7	2
4	3	0
5+	8	1

5.4.3 Interest in eco-labelled wines

Consumers were asked how interested they would be in purchasing eco-labelled wine on their next trip to buy wine. While only 10% of respondents indicated that they would not be interested, the majority of consumers were only somewhat or moderately interested (65%) and a smaller portion were considerably or greatly interested (25%) (see Figure 5.3). The fact that very few people indicated that they would not be at all interested in purchasing wines is promising for the success of an eco-label; however, the large number of responses on the low end of the interest scale indicates it will take some effort to get the majority of people to consider eco-labels when purchasing wine.

Figure 5.3. Degree of consumer interest in purchasing eco-labelled wine at next purchase (n = 398).

5.4.4 Eco-labelled wines compared with other wines

Consumers were then asked to compare their experiences with eco-labelled wines to those with non-eco-labelled wines in terms of quality, price, and availability for purchase. The results (shown in Figures 5.4, 5.5 and 5.6) indicate that over half of the respondents have had no experience tasting (60%) or purchasing (56-57%) eco-labelled wines and were therefore unable to compare them with other wines. Most respondents who had had experience with eco-labelled wines found their quality to be comparable (68%), their availability for purchase to be lower or much lower (73%) and their price to be slightly higher (53%) than other wines.

Figure 5.4. Consumer perceptions of quality of eco-labelled wines compared to traditional wines (n = 387). Note: The percentages shown on both sides of the figure are based on all who responded to the question. The graph on the right-hand side provides detail on perceptions of those who had experience with eco-labelled wines.

Figure 5.5. Consumer perceptions of availability for purchase of eco-labelled wines compared to traditional wines (n = 384). Note: The percentages shown on both sides of the figure are based on all who responded to the question. The graph on the right-hand side provides detail on perceptions of those who had experience with eco-labelled wines.

Figure 5.6. Consumer perceptions of price of eco-labelled wines compared to traditional wines (n = 385). Note: The percentages shown on both sides of the figure are based on all who responded to the question. The graph on the right-hand side provides detail on perceptions of those who had experience with eco-labelled wines.

5.4.5 Premium for eco-labelled wines

Figure 5.7. Price premium consumers would be willing to pay for an eco-labelled wine if a comparable non-labelled wine was \$15 (n = 383).

Consumers were asked whether they would be willing to pay a premium for an eco-labelled bottle of wine if a similar bottle of non-labelled wine was \$15, and if so how much. The results (shown in Figure 5.7) indicate that the vast majority of consumers (78%) would be willing to pay at least some premium for an eco-labelled wine. This potential premium could be promising for encouraging participation in an eco-labelling program from wineries that need to make costly changes to become certified.

5.5 Important issues

Consumers were then asked to list any environmental concerns that affected their wine purchasing decisions. In order to try to minimize the social desirability bias in this question, respondents were not provided with a list of possible environmental issues but rather a blank line to write in their answer. Most respondents, 67%, left this portion blank. The issues indicated by the remaining respondents are indicated in Table 5.8. Many of those who did write a response (4%) did not actually indicate environmental issues, but rather noted that they were not aware of environmental concerns surrounding winemaking but if they knew more it might affect their decisions. Others (4%) indicated that environmental issues did not yet influence their purchasing decisions, implying that they might in the future. From those who did list environmental concerns, the most commonly listed were minimal use of pesticides and/or a preference for organic wines, reduced carbon emissions, types of packaging used, buying local to minimize transport, water use, and waste disposal. Some also made references to sustainable practices with no specifics indicated. Additionally, several respondents mentioned that fair and safe labour practices influenced their choices (these and other issues that were not explicitly environmental in nature are grouped under 'other issues' in Table 5.8).

Table 5.8. Environmental issues that influence consumers' wine purchasing decisions.

Environmental Issue or Concern	Response (%)
No Response	67%
Organic/low or no pesticide use	11%
Other issues	5%
Not aware	4%
Not yet	4%
Yes (general)	3%
No (general)	3%
Local/minimize transportation/minimize GHGs	3%
Type of packaging	3%
Land impact	2%
Sustainable	2%
Water use	2%
Avoid Sulphites	1%

Note: Respondents were allowed to indicate more than one response, therefore, totals may not add up to 100.

n = 401.

5.6 Eco-label/eco-certification format

5.6.1 Certifier

Respondents were asked to rank three potential certifying bodies for an eco-labelling program in terms of the degree to which each would encourage them to buy a wine containing the label. The certifying bodies presented as options were the WCO, the Environmental Choice Program/Ecologo^M and Environment Canada which were chosen to represent possible options from industry, a third-party and government, respectively. These are the three types of groups that are generally responsible for eco-certification. Fifty-seven percent of respondents indicated that the WCO was their first choice as a certifying body, in contrast to only 19% that indicated that Environment Canada would be their first choice (see Table 5.9).

Table 5.9. Ranking of influence of eco-label certifying bodies on consumers' purchasing likelihood.

	Influence of certifying body on purchase likelihood				
	Most likely to buy				Least likely to buy
	1	1.5	2	2.5	3
WCO	57	1	19	5	19
Ecologo	27	1	39	10	24
Environment Canada	19	0	30	10	41

Note: Percentages are rounded to the nearest whole number, therefore, totals may not add up to 100.

Note: In cases where a respondent indicated only a single choice (instead of ranking the options) the other options were both assigned the mean value of the remaining standings.

n = 357.

While it appears that there is preference among consumers for the WCO as a certifying body (57% ranked it first), it is necessary to verify these findings statistically. In order to do this a Friedman test and a Wilcoxon signed ranks test were conducted on the mean ranks of the potential certifiers to determine whether there was a significant difference between the rankings (see Appendix D for mean ranks and significant differences). It was determined that there was a significant difference ($p < 0.01$) between all three and that there was a preference for the WCO as a certifier, followed by the Ecologo^M, and then Environment Canada.

5.6.2 Label Format

Respondents were next asked to rank three potential label formats for an eco-labelling program in terms of the degree to which they would encourage them to buy a wine containing the label. The label formats presented offer varying degrees of information. The options provided were a simple seal of approval, a seal of approval with different levels and a label with detailed information about how each winery performed with regard to specific environmental issues (illustrations can be seen in Appendix B). While the label with detailed information was chosen by 38% of respondents as their first choice for label format, it was also selected as the last choice by 40% (see Table 5.10) and it was ranked very similarly to both of the other options.

Table 5.10. Ranking of influence of eco-label format on consumers' purchasing likelihood.

	Influence of label format on purchase likelihood				
	Most likely to buy				Least likely to buy
	1	1.5	2	2.5	3
Seal	32	0	23	6	40
Seal with levels	32	0	52	8	8
Detailed Information	38	0	15	8	40

Note: Percentages are rounded to the nearest whole number, therefore, totals may not add up to 100.

Note: In cases where a respondent indicated only a single choice (instead of ranking the options) the other options were both assigned the mean value of the remaining standings.

n = 371.

Further statistical analysis can be used to determine whether there are in fact any difference between the rankings overall. As before a Friedman test and Wicoxon signed ranks test were conducted on the mean ranks of the label formats (see Appendix D) and it was found that consumers preferred the seal of approval with levels ($p < 0.01$), over the label containing detailed information and the simple seal of approval, but that there was no significant difference between the latter two formats.

5.6.3 Additional Information

Finally, respondents were asked whether they would like to see a source of additional information included on the label and if they would whether they would like to see it offered as a website, a toll free phone number or the address of the certifying agency. While it was expected that the majority of respondents would choose the website, the other options were offered for individual who do not have access to the internet or may not have been comfortable with it. In total 67% of respondents indicated that they would like for the label to include a source of additional information and of those respondents the majority (74%) preferred a website (see Table 5.11).

As before, a Friedman test and Wicoxon signed ranks test were conducted on the mean ranks of the potential sources of additional information (see Appendix D) and it was found that there was a

significant difference in the preference for label format. There was a significant preference for the website over the phone number and the address ($p < 0.01$) but no difference between the degree of preference for the latter two options ($p = 0.476$).

Table 5.11. Ranking of influence of source of additional information on consumers' purchasing likelihood.

	Influence of source of additional information on purchase likelihood				
	Most likely to buy				Least likely to buy
	1	1.5	2	2.5	3
Website	74	0	19	3	5
Toll-free phone number	7	0	37	25	31
Address of certifying agency	17	0	20	26	38

Note: Percentages are rounded to the nearest whole number, therefore, totals may not add up to 100.

Note: In cases where a respondent indicated only a single choice (instead of ranking the options) the other options were both assigned the mean value of the remaining standings.

n = 267.

5.7 Statistical Analysis

Further statistical analyses were performed on the data collected in order to ascertain whether any significant relationships existed between the characteristics measured and the respondent profiles.

Only those that yielded significant results at $p < 0.05$ are presented in this thesis.

5.7.1 Survey Location Type

Table 5.12. Cross tabulation of marital status by survey location type.

Marital Status	Survey Location Type	
	LCBO (%)	Winery Retail (%)
Single	31	18
Married/Common-law/Widowed	61	79
Divorced/Separated/Other	9	3

Note: Percentages are rounded to the nearest whole number, therefore totals may not add up to 100.

n = 388.

Chi-squared tests on cross tabulations of profile data by survey location type (either LCBO or winery retail store) indicated that there were no significant differences in the profile of consumers between the location types with the exception of marital status, $\chi^2(2, N = 388) = 14.63, p = 0.001$. As shown in Table

5.12, winery retail stores had a higher than expected proportion of married, common-law and widowed visitors.

5.7.2 Wine Purchasing Influence Factors

In order to assess whether differences existed in the importance of the aforementioned influence factors for wine purchasing decisions between those with different profile characteristics a Kruskal-Wallis test was performed comparing each of the influence factors (taste, price, label design, etc) for all demographic categories (age, gender, income, etc.) measured. The results, shown in Table 5.13, are displayed as the statistical significance of the observed difference for those with a significance level $p \leq 0.05$. The test indicates that in fact there are differences within at least one profile category for all influence factors except for price and producer/brand.

Table 5.13. Significant Differences in Influence Factors Between Demographic Groups ($p \leq 0.05$).

	Gender	Age	Income	Education	Marital Status	Location Type
Taste	NS	0.004	0.013	NS	0.009	NS
Price	NS	NS	NS	NS	NS	NS
Winemaking Practices	NS	NS	NS	NS	NS	0.008
Recommendations	0.002	NS	0.006	NS	NS	NS
Label Design	NS	0.001	NS	NS	0.004	NS
Producer/Brand	NS	NS	NS	NS	NS	NS
Varietal/Grape	NS	NS	0.038	0.001	NS	NS
Vintage	NS	0.021	NS	NS	0.004	0.024

Note: ■ $p \leq 0.01$, ■ $p \leq 0.05$, □ Not Significant

Note: The values shown in the table are the significances of the differences found for those determined to be significant ($p \leq 0.05$).

The Kruskal-Wallis test identifies that differences exist; however, it does not identify where the differences lie. To determine where the differences lie, a series of pair-wise Mann-Whitney tests were conducted for those categories identified as containing significant difference by the Kruskal-Wallis test. The full results of the category by category Mann-Whitney tests can be found in tables in Appendix E

(the tables in Appendix E show only those results that were found to be significant at $p \leq 0.05$); however, a brief discussion of the significant differences is provided below. Indicated in the table in Appendix E are not only the significance level of the differences, but the number of respondents in each category (N), mean, standard deviation, median and the range. Because the data collected were ordinal, or ordered but without even distribution between the values, the tests used were non-parametric and hence compare medians and not means; however, because there were only 5 points on the scale used many of the medians and ranges were identical for categories that had significant differences. For this reason, and because most individuals are used to interpreting means rather than medians, it is not uncommon to see means displayed for ordinal data. In this case means and standard deviations are also indicated, but it is important to keep in mind that these were not the values used in the tests performed. The findings of these tests and their meanings are discussed in the subsequent sections.

5.7.2.1 Taste

Statistically significant differences were found for the degree of influence that taste had on wine purchasing decisions between age groups, income categories and marital status categories. The 56 – 65 age group showed the most differentiation from the other groups in terms the importance they placed on taste, rating taste significantly higher than all but the 66+ age group. The income category comparisons revealed that those with an annual income of less than \$20,000 rated taste significantly lower than all other income categories. Significant differences based on marital status were observed between single respondents and those who classified themselves as married/common-law/widowed, with single respondents rating taste lower.

5.7.2.2 *Winemaking practices*

The only category for which significant differences in the influence of winemaking practices on wine purchasing decisions was observed was location type. Overall, those individuals surveyed at winery retail stores rated winemaking practices higher than individuals at LCBOs.

5.7.2.3 *Recommendations from a friend or expert*

The influence of recommendations from friends or experts was found to differ significantly between genders and income categories. Females rated recommendations as having a higher degree of influence on purchasing decisions than males did. Those who indicated an annual income of less than \$20,000 rated this factor as less important than those in all other income categories, with the exception of the \$20,001-\$40,000 category. Additionally there was a significant difference between the ratings of those in the \$20,001-\$40,000 category, who rated recommendations lower, and the \$80,001-\$100,000 category.

5.7.2.4 *Label Design*

Significant differences in the importance of label design on purchasing decisions were observed between age categories and marital status categories. Differences between age categories at first glance appear to be somewhat random; however, upon closer examination it there appears to be a general trend in which younger individuals place greater importance on label design than older individuals. Single individuals, on average, rated label design as more important than married, common-law, or widowed individuals.

5.7.2.5 *Varietal/Grape*

Two categories were found to have significant differences in their ratings for the importance of varietal or grape type, specifically, annual income and highest level of education completed.

Comparisons of income categories reveal that those with an annual income of less than \$20,000 rated varietal significantly lower than all other income categories. Similarly, comparison of education categories revealed that those who indicated that the highest level of education completed was high school rated this factor lower than all other categories. Additionally, those who completed trade school or held a professional designation rated the importance of this factor as significantly lower than those who held an advanced degree.

5.7.2.6 *Vintage*

The influence of vintage on purchasing decisions was rated significantly differently between people in different age groups, in different marital status groups and at different types of survey locations. In general, those between the ages of 46-65 rated vintage as more important than those in younger or older age categories. Those who were single rated the importance of vintage, on average, lower than those in all other marital status categories. Lastly, individuals surveyed at winery retail stores rated vintage as more important than those surveyed at an LCBO.

5.7.3 Interest in purchasing eco-labelled wines and WTP

As before, a Kruskal-Wallis test was used to determine whether any statistically significant differences existed between the responses regarding interest and willingness to pay a premium for respondents with different profile characteristics. In both cases the only demographic category for which significant differences existed was age ($p \leq 0.05$). Follow-up pairwise Mann-Whitney tests were conducted (results are shown in Appendix F). It was revealed that for those interested in purchasing eco-labelled wines there were significant differences between the over 65 group and the youngest four groups, 19-25, 26-35, 36-45 and 46-55, which all indicated greater interest. Additionally, there was a significant difference between the 26-35 group and the 56-65 group, again with the younger group

expressing greater interest. Similar results were found for the analysis looking at WTP. It was revealed that differences exist between the over 65 group and the three youngest groups, 19-25, 26-35 and 36-45, which all indicated a willingness to pay a higher premium than the older group. Additionally, the 46-55 age group differed from the 26-35, with the younger group again indicating a willingness to pay a higher premium.

A Spearman's correlation test was also conducted to determine whether there was any relationship between WTP and degree of interest in purchasing eco-labelled products. A statistically significant relationship was found ($p < 0.001$) with Spearman's rho of 0.430, indicating that there is a moderately strong positive relationship. In other words, those who indicated that they were not interested in purchasing eco-labelled wines were not likely to be willing to pay a premium and those that were greatly interested were more likely to be willing to pay a higher premium.

5.8 Summary

The findings presented here indicate that there is interest in eco-labelled wines from consumers and that they may even be willing to pay a premium for them. These findings also indicate, however, that most consumers do not currently purchase eco-labelled wine and are not generally very familiar with eco-labels or the environmental issues concerning winemaking. The following section will provide a discussion of the results presented here and in the interview findings in the context of the existing literature. It will present the themes or conclusions that have arisen out of the findings of both the survey and interview data and discuss their implications for the feasibility of an eco-certification and labelling program for the Ontario wine industry.

6 Discussion

6.1 Introduction

This section will discuss the results of the industry member interviews and the consumer surveys performed, in the context of the current literature, and relate these results to the objectives laid out at the outset of this research. Based on the primary research, the following conclusions were reached: quality plays the greatest role in influencing wine purchasing decisions, the willingness of consumers to pay a premium for eco-labelled wines was not matched by an intention from the majority of industry to charge a premium, an eco-label would need to encompass both sustainable winemaking and grape growing, there is a need for education and promotion to accompany the introduction of an eco-label, an eco-label format should be simple but informative and meaningful and internal motivations and barriers play the greatest role in influencing industry interest in an eco-labelling program.

6.2 Factors that influence wine purchasing decisions

6.2.1 Importance of wine quality, price, recommendations and varietal

When asked to rate the importance of a number of factors that may influence wine purchasing, respondents rated taste significantly higher than all other factors followed by price, recommendations from friends or experts and the varietal. Baughman, et al. (2000) conducted a similar investigation for consumers in California and obtained results consistent with this study, finding that previous tasting experience was the most influential factor followed by grape varietal. Respondents were also asked to indicate their current perceptions of how eco-labelled wines compared to traditional wines in terms of their quality and price. Since consumers identified taste, an important element of quality, and price as two of the most important factors for wine choices, their current perceptions of these characteristics of

eco-labelled wines could be used to help determine if they might be preventing the widespread acceptance of these wines.

Approximately 40% of respondents had tried a wine that they considered to be eco-labelled. In general, respondents' perceptions were that the quality of eco-labelled wines was similar to traditional wines, while the availability was lower and the price higher. The fact that Ontario consumers found eco-labelled wines to be of comparable quality to other wines is a positive finding, because a previous study indicated that some consumers perceive eco-labelled wines to be of lower quality (Delmas & Grant, 2008). The research conducted by Delmas and Grant (2008) on purchasing trends in California revealed that consumers put quality first when it comes to the amount of money that they are willing to spend on wine. Their study looked specifically at organic wines and found that the presence of a label had little impact or a negative impact on the price consumers were willing to pay, but that many organic wines not labelled as such did garner a premium in the marketplace, presumably because they were of a higher quality. As Ontario wine consumers do not perceive eco-labelled wines to be of lower quality, this is not likely to be a barrier to the success of an eco-labelling program for Ontario wines.

Ontario consumers also perceive eco-labelled wines to be higher in cost. Since cost has been identified as a major factor in wine purchasing decisions, eco-labelled wines that do not cost more may exceed consumer expectations and act as an additional motivation for purchase, at least initially. Sustained purchasing is most likely to occur only if both price and quality expectations are met and/or exceeded.

6.2.2 Label design and winemaking practices

Label design and winemaking practices were rated least important to consumers' wine purchasing decisions. These results could have positive or negative implications for an eco-labelling program. It should be noted that at this point in the survey it may not yet have been evident to the respondents that the focus of the survey was on environmental issues in winemaking and eco-labels (although it was mentioned in the introduction to the survey) and therefore, the factors label design and winemaking practices were intentionally left vague to allow the respondent to interpret them as broadly as they liked. This may have played a role in the relatively low importance placed on label design and winemaking practices; however, this was accounted for by further probing the issue more directly later in the survey.

The findings that label design and winemaking practices were of relatively low importance for consumers also corresponded well with those in the study by Baughman et al. (2000), which found that winery environmental sensitivity and label design were rated as very important by relatively few respondents. In both studies the interpretation of the phrase label design was not limited to the literal visual design of the label, but also label content, specifically with regard to environmental consideration. While similar results were obtained, one noteworthy difference between the survey used in this research and the survey conducted by Baughman et al. (2000) should be mentioned. In their study, Baughman et al. (2000) present environmental impacts of winemaking as "winery environmental sensitivity," whereas in the survey used in this research environmental impacts were considered under the more generic label of "winemaking practices." Both approaches have advantages and disadvantages. As previously discussed, using terminology such as environmentally "friendly" or "sensitive" can introduce a bias to the results as this response is clearly a socially desirable one.

However, the use of the more ambiguous terminology allows for other non-environmentally related issues to be included in this category and therefore it is less conclusive. This issue was addressed by asking the question in a more direct fashion after the idea of eco-labelling was introduced. These results should therefore not be considered in isolation.

The lack of importance placed on label design by consumers could be an indication that either consumers would not pay attention to an eco-label or that its presence on a bottle would not detract from their interest in purchasing the wine by creating visual clutter, a concern that was mentioned by some winemakers. Further investigation would be required to determine more definitively how consumers would react to the presence of an eco-label on bottles.

6.2.3 Profile characteristics of consumers interested in eco-labelled wines

In this study it was revealed that younger wine consumers were more interested in purchasing eco-labelled wines and were willing to pay a greater premium. This was the only profile characteristic for which any significant differences were revealed. One possible reason that older consumers might be less interested in purchasing eco-labelled wines is that they may be less interested or informed about issues surrounding sustainability or eco-labels, or they may not wish to introduce a new factor into their wine purchasing decisions. It is also possible that older consumers may be living on a fixed or reduced income and therefore, would not be willing or able to pay a premium for eco-labelled wines, when wine is already a luxury item. This finding is in contrast to other studies examining consumer profiles for eco-labelled products. A study by Loureiro (2003) found that females and those with higher incomes were more inclined to pay a premium for eco-labelled Colorado wines. Similarly, a study by Armah (2001) found that females and those with higher incomes were more likely to use eco-labels when purchasing organic produce. One possible reason that no significant differences were found for the effect of

income on eco-label interest or WTP in the current study is that the average income of the consumers surveyed in this study was high; however, this is typical of the profile of wine consumers (Barber, et al., 2009).

6.2.4 Importance of understanding factors that influence purchasing decisions

Taken together, these findings emphasize the importance of ensuring that eco-labelled products are of high quality and reasonably priced. This does not mean that they need to be cheap, or even that they cannot cost more, just that they should be in line with other products of comparable quality. Environmental concerns and the presence of an eco-label may have some influence on purchasing behaviour; however, these results indicate that if the more important elements of quality, price and presence of the consumers preferred varietal are not satisfactory, the purchasing behaviour will likely not continue. This sentiment was also expressed by Delmas and Grant (2008) who found that among eco-certified and labelled wines, quality was the most important factor for consumers. It is also important to understand that the profile of consumers interested in purchasing eco-labelled wines is extremely varied and therefore the types of products to which they could be applied and the marketing to accompany their introduction should reflect this.

6.3 Acceptance of a premium for eco-labelled wines

6.3.1 Industry perspective on premiums for eco-labelled wines

Much of the previous research on eco-labelling for wine has focused on whether the labelled products could or do garner a premium in the marketplace (Barber, et al., 2009; Delmas & Grant, 2008; Forbes, et al., 2009; Loureiro, 2003; Zucca, et al., 2009). Interestingly, none of the interviewees in the current study cited being able to charge a premium for wines as a motivation for participating in an eco-labelling program. When they were specifically asked about premiums, many thought they would not

be able to get a premium, others thought that they should not be charging one and a few thought it might be possible to get a small premium, but that it would not be a deciding factor for participation. It is unclear whether this would also hold true in other wine regions as no other studies directly ask members of the wine industry whether a price premium would motivate their participation in an eco-labelling program. A study by Silverman, et al. (2005) did find that winery managers were influenced to a greater extent by internal motivations than external motivation to participate in environmental initiatives. A price premium for eco-labelled wine would be considered an external factor and therefore, these results support the findings from the current study. Similarly, a study of New Zealand wineries found that personal values and product quality were the primary drivers for improving environmental performance and that while market demand had some influence, wineries did not receive a premium for sustainable or organic products (Gabzdyllova, Raffensperger, & Castka, 2009).

Some of the previous studies have focused solely on organic and biodynamic wines (Baughman, et al., 2000; Delmas & Grant, 2008), as opposed to sustainably produced wines, which may in part explain the focus on price premiums. This is because there may be a difference in the costs to produce organic wines versus the costs to produce sustainable wines, especially since many of the practices encouraged in sustainable winemaking can eventually result in cost savings (Martin, 2007a).

6.3.2 Consumer willingness-to-pay a premium for eco-labelled wines

While there is little indication from the members of the wine industry included in this research that a price premium would be introduced for eco-labelled wines, the potential for a premium could serve as strong motivation for participation of wineries that are less environmentally motivated. The previously published literature on the topic of WTP for eco-labelled products shows no clear consensus. Studies investigating stated WTP revealed results ranging from seventeen cents on a \$10 bottle of wine

to \$7 on a \$23 bottle of wine (Barber, et al., 2009; Forbes, et al., 2009; Loureiro, 2003). In contrast, the study by Delmas and Grant (2008) investigating revealed WTP found that wines labelled as organic and biodynamic were actually priced lower than comparable wines, but those that were certified but not labelled were priced higher. This variation in results indicates the importance of targeting the appropriate consumer group for the product of interest. Since nearly all of Ontario wine is sold within the province, it was possible to target a statistically representative segment of Ontario wine consumers (with the exception of wine sold through restaurants).

The current study found that less than a quarter (22%) of respondents would be unwilling to pay any premium for an eco-labelled wine and that approximately half (51%) would be willing to pay between \$0.51 and \$2.50 on a \$15 bottle. Additionally, 14% of respondents indicated that they would be willing to pay a premium of \$2.51 or more on a \$15 bottle. These findings fall near the middle of the range of findings of other investigations (Barber, et al., 2009; Forbes, et al., 2009; Loureiro, 2003). There was also a positive correlation between those who were not willing to pay a premium and those who were not interested in purchasing eco-labelled wines in the first place. This suggests that for some, the unwillingness to pay a premium is related to a lack of interest in purchasing eco-labelled wines. The findings of this study could be used to provide an incentive to wineries that are not sure if they want to participate in an eco-labelling program. These wineries may be able to tap in to a segment of the market, which according to this research may consist of as much as 90% of consumers, who are interested in purchasing eco-labelled wines. It may also be possible for these wineries to charge a premium for eco-labelled wines as sixty-five percent of consumers in this study indicated that they would be willing to pay a premium of \$0.50 or more over the cost of a \$15 bottle of non-labelled wine.

6.4 An eco-label must incorporate sustainable winemaking and grape growing

6.4.1 Following the example of other wine regions

In its current form, the SWO program focuses solely on the production aspects of winemaking, because the environmental issues relating to grape growing are dealt with in another document, the EFP, which is administered through the provincial government (Government of Ontario, 2010). Ideally, an eco-certification and labelling program should encompass the entire process from cradle-to-grave, or in other words from the very beginning of the process, in this case from grape growing, to the very end, which would be the ultimate disposal of the wine container. This topic has not been addressed in the literature on eco-labelling for the wine industry because the sustainability initiatives in the other new world winemaking regions already take into consideration both grape growing and wine production aspects of winemaking (California Sustainable Winegrowing Alliance, 2009; Integrated Production of Wines, 2008; Sustainable Winegrowing New Zealand, 2008; Winemakers' Federation of Australia, 2008). Since Ontario is a relatively small player in the global wine scene and if all of the major player's programs (and probably future eco-labels) are developed in a way that addresses the entire winemaking process, an Ontario wine eco-label should also address it if it aims to compete in this market. Additionally, the majority of well known eco-labels for other products also take a cradle-to-grave approach (Banerjee & Solomon, 2003).

6.4.2 Consumer expectations of an eco-label

Even without the introduction of eco-labels from other wine regions consumers are unlikely to consider the grape growing and winemaking processes separately when choosing a wine based on its environmental impacts. Since an eco-label for the Ontario wine industry has not yet been developed, it was not possible to specify what practices would be required for certification as a sustainable wine. In

lieu of defining what practices would be included in an eco-label, consumers were asked to identify what characteristics they look for in an eco-friendly wine. The majority of those respondents who indicated any characteristics, cited issues relating to grape growing rather than winemaking, such as reduced use of pesticides or herbicides (11%), land impact (2%) or water use (2%). From the consumer perspective, it was evident from the responses (regarding environmental issues that affect their wine choices) that many of the issues related to how the grapes were grown or how far the product had to be transported and that consumers did not view these elements in isolation.

6.4.3 Industry expectations of an eco-label

Finally, the concept of merging the grape growing and winemaking elements addressed in the EFP and SWO, respectively, was explicitly mentioned by some industry members when asked about factors that could potentially deter them from participating in an eco-labelling program. These industry members felt that consumers would not distinguish between the different elements leading up to the finished product and therefore the eco-label needed to address the entire process.

6.5 Need for educational/promotional campaign to accompany introduction of an eco-label

6.5.1 Evidence of the need for education/promotion of eco-labelled wines

A number of the findings of this study suggest that an eco-labelling program for Ontario wines would be accepted by consumers and industry members. There is also evidence, however, that in order for such a program to be successful it would need to be accompanied by an educational promotion campaign. The following sections discuss the evidence for this need after which there is a discussion of how the findings of this research could direct the development of a promotional campaign.

6.5.1.1 *Consumer interest in eco-labelled wine*

When consumers were asked directly how interested they were in purchasing eco-labelled wines the next time they purchase wine, the response was overwhelmingly positive with 90% indicating some level of interest. There was substantial variation in the degree of interest overall. Eight percent of consumers indicated that they were greatly interested, 17% were considerably interested, 28% were moderately interested and 37% were somewhat interested. This is a very promising indication for the potential success of an eco-labelling program for the Ontario wine industry, because in order for an eco-labelling program to be successful in motivating industry behaviour consumers must engage by purchasing the eco-labelled products. These results should, however, be viewed with some caution, because as noted only 8% of consumers were greatly interested and, as discussed in the following section, consumers may not have been familiar with what eco-labels represent or what makes a sustainable wine. These results are supported by the findings of Zucca, et al. (2009) whose study found that consumers and industry members in California thought that sustainability and environmental considerations should be considered in winemaking.

6.5.1.2 *Consumer awareness and knowledge surrounding eco-labels*

Only 36% of the consumers surveyed in this study indicated that they had heard of eco-labels before and of that 36%, sixteen percent were only somewhat familiar with what was meant by the term. This provides evidence that most Ontario wine consumers have little understanding of eco-labels or their function. It is probable that only those who are greatly (3%) and considerably (6%) familiar with the concept are aware of differences that exist between various labels and what criteria are used to qualify a product for a label. These are important aspects for consumers to understand about eco-labels as many of the labels present in the marketplace are unverified and can be misleading to consumers.

6.5.1.3 Consumer purchasing behaviour for eco-labelled products

The questions regarding consumer interest in eco-labelled wines and WTP ask consumers to state their intentions or preferences. Because the questions use stated preferences, there is no cost associated with providing an answer based on good intentions. In reality when it comes time to making a purchase there will be associated costs, whether they are a price premium or time spent finding an environmentally preferable product. There are also no consequences for not following through on the response given. While there are relatively few studies directly comparing stated preferences and revealed preferences for eco-labels, a study conducted by Loureiro, et al. (2003) found that consumers' stated preferences for eco-labelled apples were a good indicator purchasing behaviour. Due to the relatively recent widespread introduction of eco-labels for wines, no studies have evaluated the link between stated and revealed preferences for wine, and in particular for Ontario wine.

This study attempts to estimate reveal preferences asking consumers to indicate their current purchasing behaviour, both for products purchased at the grocery store and for wine (as the vast majority of respondents resided in Ontario there should be little overlap of these categories). The stated preference for eco-labelled wines was not found to carry over into purchasing behaviour at the time of the study. This may be because at the time of this study there were very few eco-labelled wines available in the Ontario marketplace. It could also relate to that fact that consumers in general have a low degree of understanding of the environmental issues surrounding winemaking. This was not directly investigated in this study, but was revealed by many respondents when asked what (if any) environmental considerations affected their wine purchasing. Zucca, et al. (2009), found a similar lack of awareness and understanding from consumers in California when investigating consumer understanding

of the term 'sustainable' and familiarity with specific practices that would constitute sustainable winemaking.

While the majority of respondents (83%) had not purchased eco-labelled wines in the last month, over half (52%) had purchased some type of eco-labelled product at their last trip to the grocery store. The data on purchasing of eco-labelled products in the grocery store can serve as a proxy for revealed preferences, which are those which are actually carried out in the marketplace, as opposed to stated preferences or contingent valuation. This is an indication that, at least to some extent, eco-labels have influenced the purchasing decisions of over the half the consumers surveyed, even if only in the sense that they noticed that they were purchasing an eco-labelled product and the label was not the determining factor for the purchase. Research conducted by Armah (2001) found that for Arkansas consumers, previous purchasing of organic products increased consumers' likelihood of reading and using eco-labels. While the current study did not ask consumers to indicate only organic products purchased, the trend may still hold true and should be considered a positive indication. Additionally, the fact that nearly 16% of respondents had purchased eco-labelled wine in the last month is also significant due to the overall low availability and visibility of such products in at the time of the survey (at least through the LCBO). Six percent of respondents had purchased two or more bottles of eco-labelled wine in the previous month. This means that this segment of the consumer population may be actively seeking out and purchasing products that have environmentally friendly attributes, making them very valuable to this market. These results are in agreement by those reported by Baughman, et al. (2000) who found that approximately 11% of California consumers purchased organic wine (which is just one example of an eco-labelled product) at least once per month.

6.5.2 The need for education and marketing for eco-labels

These aforementioned factors: the large portion of consumers interested in purchasing eco-labelled wines, the large portion of consumers who are currently purchasing other eco-labelled products, coupled with the low overall awareness of environmental issues in winemaking and the low level of understanding surrounding eco-labels, when considered together, indicate that there is a need for consumer education regarding sustainable winemaking practices and promotion of the label's meaning if an eco-label is to be successful. A marketing campaign could be used to make consumers aware of both the environmental challenges posed by the wine industry and also the meaning of the label and the terminology used. This is in agreement with findings by D'Souza, et al. (2006) who assert that eco-labels are most effective when consumers have a clear understanding of the meaning of the labels and knowledge about the labels which is can either be introduced on the label itself (discussed in Section 6.2.2) or through marketing of the label. Specifically, the campaign should ensure that consumers know what the label looks like and what issues the label addresses and how the terms, such as 'sustainable' are being used. Prime example of eco-labels that that have successful in the Canadian and U.S. marketplace are the Energy Guide and Energy Star labels for energy efficiency, both of which were introduced with substantial promotion through internet and television ads and public information campaigns (Banerjee & Solomon, 2003).

6.5.3 Possible directions for a promotional campaign

Several findings of this research will be useful in directing the promotional campaign for an Ontario wine eco-label if one is developed. First, the majority of industry members interviewed did not express interest in charging premium for eco-labelled wines. This would be an important element to make clear in any advertising and educational campaigns that would accompany the introduction of an

eco-label, especially since Ontario wines generally fall at the higher end of what respondents indicated they pay, on average, for wine. Second, ensuring the visibility and availability of eco-labelled wines could also play a role in encouraging purchasing, as at present most consumers (of those who have looked) believe they are not readily available. Third, the fact that taste is rated as the most significant factor influencing wine purchasing decisions may point to a potential marketing avenue for eco-labelled wines, in which consumers are able to taste before buying, not only in wineries but at LCBOs.

Finally, it is important to note that support and advertising through the LCBO were mentioned as a potential motivating factors by industry members. This suggestion could be contentious as not all wineries are currently able to sell their wines through the LCBO for a variety of reasons including the costs involved and the supply requirements. The LCBO has shown an interest in supporting the greening of their industry, as demonstrated by the number of environmental initiatives undertaken, such as their advertising of alternative packaging options, removal of plastic bags, participation in the 'Bag-it-Back' program which encourages the recycling of alcoholic beverage containers, promotion of organic wines through in store displays and their willingness to participate in this research (LCBO, 2010). They may also be able to find a way to support all eco-labelled Ontario wines. For example, it may be possible to reduce the supply requirements for such wines (currently all wines stocked in the LCBO have to ensure a substantial supply of the wine is available which can be a challenge for small wineries). An alternate suggestion made by some industry members was the linking of the label to either another eco-labelling campaign or promotional campaign. This could potentially involve generating one label for numerous product types, to increase the recognisability of the label, as has been attempted with Ecologo (Environment Canada, 2002).

6.6 Eco-label format should be simple but meaningful

Previous research has shown that elements such as price premiums and label format, including label content, can play a significant role in determining whether consumers will purchase an eco-labelled product. If an eco-label is developed, information on what elements would affect consumer acceptance of an eco-label for the Ontario wine industry could be used maximizing the label's potential impact on purchasing behaviour.

6.6.1 The effect of the type of certifier on consumer acceptance of eco-labels

Respondents ranked three choices representative of an industry organization, government, and a third party, specifically, the WCO, Environment Canada, and Ecologo^M, respectively. There were significant differences between the ranks of all three options. The highest ranked of the three options was the WCO followed by Ecologo^M and in last place was Environment Canada. The finding that the WCO, an industry association, was ranked highest was somewhat unexpected as it is generally believed that third party certification is more credible and trustworthy than certification by industry (Cason & Gangadharan, 2002; Harris, 2007a; Ozanne & Vlosky, 1998; Teisl, et al., 2002; Teisl & Roe, 2000). It does, however, fit with the results found by Teisl, et al. (2002) who found that when consumers were unfamiliar with the third party certifier offered they would opt for a more familiar option even if it were a government or industry organization. An additional hypothesis for the higher rating of the industry organization (gleaned from feedback from survey participants but not explicitly measured) is that the industry organization would know the most about the factors involved with the winemaking process. While it may be the case that the WCO would know the most about the environmental issues facing their industry, industry certification of their own members is likely to face scrutiny down the road, as there is a potential conflict of interest. Additionally, the WCO is an organization set up to represent the members of the wine industry, but does presently not have legal standing that would entitle it to

become a certifying body for the wine industry. Since respondents are concerned about certifier knowledge of wine, it may be worth using (or creating) a certifying body that specializes in environmental certification of the wine industry and has a name that clearly indicates it. For example, an independent third-party body could be created to administer and certify a 'Certified Sustainable Winemaking Ontario' label. This approach is currently being used in California, where a 'Certified California Sustainable Winegrowing' program is being developed to accompany their existing voluntary initiative (California Sustainable Winegrowing Alliance, 2009). This approach may be a good option in the case of the Ontario wine industry because while there may be benefits associated with using a label certified by an organization that consumers are already familiar with, it may be difficult as at present because there is no well recognized label for sustainability. This is in contrast to organic or fair trade labels which are more prevalent in the Ontario marketplace than sustainability eco-labels.

6.6.2 Effect of label format and content on consumer acceptance of eco-labels

The amount and type of information presented on eco-labels has been shown to impact their effectiveness. For example, O'Brien and Teisl (2004) found that consumers in Maine were more concerned with the environmental impacts (as indicated on an eco-label) of a forest product if it was also labelled as being from Maine. It is, therefore, important that the label's content match up with consumers concerns. When presented with three options for label format, respondents indicated a significant preference for a simple seal of approval with multiple levels showing the level of achievement (e.g. gold, silver and bronze). This is in keeping with the findings of Banerjee and Solomon(2003) who conducted a study comparing eco-labels for energy efficiency and found that, in general, simple seal-of-approval style labels were more effective than labels containing detailed information. However, there are also a number of studies that have found results to the contrary indicating that consumers are more

likely to place trust in a label with more information (D'Souza, et al., 2006; O'Brien & Teisl, 2004; Teisl, 2003; Teisl, et al., 2002; Teisl & Roe, 2000; Teisl, et al., 1999). In this case, the preference for a simpler label may in part be due to the fact that wine labels already include a lot of information, a factor mentioned by many industry members, and the inclusion of a detailed label would be overwhelming. These findings are also consistent with the findings of other studies which indicate that consumers prefer detailed information for large expensive purchases but for smaller more frequent purchases they want a label that is quickly understood (Teisl, et al., 2002). This may be because the consumer believes the environmental impacts of such purchases to be greater or because they perceive the large purchase as an investment and therefore they are willing to spend time investigating its various attributes.

Respondents may have preferred the label with multiple levels because it presents more information than what is available in a single seal of approval, but it can still be quickly interpreted. It may also relate to the fact that similar labelling systems are used to represent awards received for quality in the wine industry and so the format may feel familiar or comfortable, as was mentioned by some respondents. Additionally, while industry members indicated a preference for a single seal of approval format for an eco-label, the multi-level seal preferred by consumers could be used to encourage ongoing improvement on the part of industry, by allowing consumers to differentiate between wines based on the degree of environmental consideration that went into its creation. Encouragement of continuous improvement was an element of an eco-labelling program that 15% of industry members cited as key to such a program's success and also to their interest in participating.

Respondents were not asked directly what type of content they would like to see included in an eco-label, rather they were asked what type of environmental considerations they currently use to make their wine purchasing decision, if any. Since these are the characteristics that consumers are currently

looking for in eco-friendly wines it would be logical to ensure that they are addressed in an eco-label. The majority of respondents (67%) did not indicate any factors and many of those who provided a response indicated that they were not yet aware of the environmental issues surrounding winemaking. This indicates again, that in order for an eco-label to be successful in this market it would have to be accompanied by a substantial educational campaign.

6.6.3 Effect of a source of additional information on consumer acceptance of eco-labels

Many studies on eco-labels have found that the inclusion of a source of additional information is key to consumer trust of the label (Harris, 2007b; O'Brien & Teisl, 2004; Teisl, 2003; Teisl, et al., 2002). As previously discussed for label format, this factor may be more important for large purchases than small frequent purchases (Teisl, et al., 2002). The majority of respondents (67%) indicated that they would like a source of additional information provided and the preferred source was a website. This is not surprising as many people have access to the internet and the information can be easily accessed at any time and the user can access as much or as little information as they desire. This finding is important because it indicates that while consumers do not want to see detailed information displayed on the label, they do want to be able to access more detailed information on the meaning of the label. A web address could be incorporated into a seal of approval which would lead consumers to a website detailing specific requirements for certification, differences between different levels of the label and provide information on which products are certified and where they can be purchased.

6.7 Understanding motivations and barriers of industry members is key to encouraging industry participation

One of the functions a successful eco-labelling program is to encourage industry members to adopt environmentally sound practices. Without industry participation an eco-labelling program for the

wine industry would not be able to move forward. For this reason, it is important to understand the motivations for participation in SWO potential motivations and barriers to participation in an eco-labelling program facing the members of the Ontario wine industry.

6.7.1 Motivations for participating in SWO

The motivations for participating in SWO were categorized as either internal, which generally focus on ethical considerations, opportunities for business improvement and employee welfare, or external, which stem from outside the company by such groups as regulators, customers, or NGOs (Marshall, et al., 2005). For the majority of those interviewed, internal motivation played a much larger role in their decision to become involved in SWO than external motivations did. Specific internal motivations mentioned by industry members in this study were that: SWO provided an opportunity for self-evaluation; it fit with their company's ideals; they were genuinely concerned for the environment; it gave them access to information on industry best practices; it was the responsible thing to do; it would help them become an industry leader; and it could yield cost savings. External motivations included: staying ahead of regulations; pressure to participate from the WCO; and appealing to a greening market.

These results are in agreement with findings by Marshal, Cordano and Silverman (2005) who evaluated motivations for proactive environmental behaviour in California wineries. Their study asked winery managers to rate a number of internal and external motivations as to the extent to which they had influenced their proactive behaviour. The findings are also supported by a study conducted by Knowles and Hill (2001) who compared participation of South African wineries in voluntary environmental initiatives by winery size and the type of initiative. They found that in the case of the South African wine industry's initiative, IPW, both large and small wineries' motivations for participating included a desire to protect the environment, to be involved in an industry initiative and to appeal to

export markets. Interestingly, many of the specific internal motivations mentioned by members of the Ontario wine industry were not included in the investigation by Marshal et al. (2005) or Knowles and Hill (2001). The decision in these studies to offer discrete options to respondents may have an impact on the answers provided either by leading the respondent to a response they would not have considered independently or by introducing a social desirability bias into the results. This limits the ability to directly compare the findings of their study to the results found in this study. A study by Gabzdylova et al. (2009) investigated the drivers of proactive environmental behaviour in the New Zealand using interviews with open ended question. These researchers also found that involvement in environmental initiatives was driven primarily by internal motivators such as the environmental values of the managers and concern for the quality of their product.

Marshal et al. (2005) do suggest that there is evidence that the type of motivations a firm experiences are likely to vary by industry. With that in mind, there appears to be evidence from these three investigations that participation in voluntary environmental initiatives in the wine industry is generally more strongly motivated by internal factors than external factors. These findings should be taken into consideration when trying to motivate industry participation in an eco-labelling program. The fact that the majority of wineries are primarily interested in doing the right thing and continuously improving their business and their practices may suggest, for example, that pitching an eco-labelling program solely as marketing tool may not be the most effective approach. Depending on the goals and ideals of the winery, it may be the case that emphasizing the certification process and the opportunities for improvement and access to information that it provides might prove more persuasive.

6.7.2 Barriers to participation in an eco-labelling program

Many of the industry members interviewed voiced concerns about the legitimacy and verification of an eco-labelling (which interestingly was actually brought up by most interviewees in the discussion of motivations). These interviewees indicated that they would not want to participate in a program that would be perceived as 'greenwashing'. This issue is addressed frequently in the literature on eco-labelling; however, generally from the perspective of consumers rather than industry (Banerjee & Solomon, 2003; D'Souza, et al., 2006; de Boer, 2003). This concern, again, supports the need for third party verification.

Industry members also cited concerns over the amount of time and money that certification required. The concerns regarding the time inputs generally focused on the amount of time spent on administrative activities related to certification, whereas concerns about cost were related to both cost of certification and getting operations to a certifiable level. Some of these concerns stem from frustrations faced when dealing with the VQA labelling program. Similar findings were reported by Knowles and Hill (2001) who observed that small wineries in South Africa were less involved or interested in being involved in internationally recognised environmental management systems than their industry-wide voluntary initiative, Integrated Production of Wine. One of the primary reasons cited was a lack of necessary resources. This is an important factor to consider in the development of a certification and labelling program. While it may be necessary to input time and money to upgrade operations, the administrative burdens can be minimized by creating a clearly structured and well organized program and make the requirements and application process easy to understand and complete.

Finally, a few of the interviewees were interested in participating in an eco-certification program but did not want to display an eco-label on their products, primarily for aesthetic reasons. This may lead to lower visibility of the program overall. It may not have negative impacts on the specific wineries as indicated by the results of Delmas and Grant (2008) which found that certification and not labelling was associated with higher prices in wines. Additionally, some of the wineries included in this research have already made a name for themselves as environmentally responsible and so the addition of a label may not provide them any further benefit in terms of their environmental performance or their reputation with consumers.

6.8 Implications of this research

There are four major implications of this research. First, it can provide the Ontario wine industry with evidence whether it should proceed with the development of an eco-labelling program for the wine industry. Second, it can provide valuable insight as to how an eco-labelling program for the Ontario wine industry should be structured. Third, it can be used to help identify the optimal format and contents of an eco-label for this industry. Finally, it highlights the need to accompany any new eco-labelling program with an educational promotional campaign.

6.8.1 Whether to proceed

The outcomes of this research will help the WCO, and the wine industry in general, decide whether to proceed with the development of an eco-certification and labelling program to accompany their voluntary sustainability initiative, SWO. Grote, Basu and Chau (2007, p. 2) assert that the success of an eco-labelling program is, at least in part, dependent on two major factors: “(i) the size of the price premium that consumers are willing to pay for the attributes advertised via labelling, and (ii) consumer and producer receptiveness to the labelling initiatives themselves.” While the research of others may

indicate that eco-labels influence consumer purchasing decisions, an eco-labelling program for the Ontario wine industry can only be successful if there is adequate participation from within the Ontario wine industry and if there is a consumer base in Ontario that is interested in purchasing these products.

This research indicates that there was a high degree of interest from industry members currently involved in SWO. Additionally, despite the fact that consumers indicated only a moderate degree of interest in eco-labelled wines, over 75% of consumers indicated that they would be willing to pay a premium for eco-labelled wines. Interviews with industry members indicated a lack of interest in charging a premium for eco-friendly wines; however, the industry members interviewed were those who chose to be involved in SWO from its inception and may be more environmentally focused than other wineries in Ontario. A price premium may be an important element to promote participation by motivating wineries that are less environmentally focused.

6.8.2 Program format

Most industry members indicated that the factors that would motivate them to participate in an eco-labelling program were largely internal factors. In contrast, factors that would deter participation largely related to the format of the program. Industry members expressed concerns regarding the administrative elements of the program. The majority of wineries in Ontario are very small operations with minimal staff. Therefore, a certification program that required substantial time or financial commitments would not be feasible. These will be vital elements to consider when developing an eco-certification program for this industry, because despite a high degree of interest from industry members, participation will be limited if the costs or time commitments are too demanding. Finally, many industry members expressed about the legitimacy of an eco-label, which would be most directly addressed by ensuring that the certification was verified by a reputable third-party. Consumer concerns

regarding the degree of knowledge about winemaking of the certifying body could be addressed by creating a certifying body (or a branch of a certifying body) that specialized in environmental issues facing the wine industry.

6.8.3 Label content and format

This research elicited consumer and industry members' opinions regarding what elements of sustainable winemaking were important to them. This could be used to determine which issues addressed in SWO should be incorporated into a certification and labelling program. Of particular significance was the importance that consumers placed on the manner in which the grapes were grown, an element which is currently not assessed in SWO (due to its inclusion in another assessment scheme). Consumers were largely unaware of the environmental concerns surrounding the manufacturing of wine. Therefore if this were to be a substantial part of an eco-certification program, consumer education would be required in order to generate sufficient interest. Industry members, in most cases, identified issues that were presently included in SWO, most likely due to their familiarity with the program. Findings from both consumer surveys and interviews with industry members suggested that an eco-label developed for the Ontario wine industry should incorporate issues relating to grape growing and winemaking. This would involve merging the contents of the SWO initiative with those of the EFP, which would simplify administration for wineries and result in a simpler label concept for consumer. It would also ensure that the eco-label for the Ontario wine industry was comparable to those from other wine regions.

There was a lack of consensus between industry members and consumers regarding the optimal format for an eco-label; however, there was agreement that the label should not be of the variety that contains detailed information. Further research may be required to determine whether an eco-seal or

an eco-seal with levels would be a better choice both in terms of their acceptance and their costs to implement. Whichever format is determined most appropriate, it should contain a link for consumers to access more information about the certification, as the label itself would contain minimal information. The findings of the consumer surveys revealed that a website is the preferred source of additional information.

6.8.4 Need for educational promotional campaign

This research indicates that while consumers are interested in purchasing eco-labelled, they have little idea of what is actually meant by sustainable winemaking or what environmental impacts the wine industry. In addition to educating consumers about the issues that constitute sustainable winemaking, educating consumers about the appearance of the eco-label and its meaning will be key elements of creating a successful program. This could take the form of advertising on TV, radio, internet and promotional and educational events in LCBOs and at wineries.

6.9 Summary

The primary objective of this research was to assess the feasibility of an eco-certification and labelling program for the Ontario wine industry. The findings of this study support the development of an eco-certification and labelling program as presented in this discussion. This study identifies a number of elements that could affect how successful an eco-label will be in terms of industry adoption and influence on consumer purchasing. The findings of this study can provide the groundwork for the development of an eco-labelling program for the Ontario wine industry. The following section will present the conclusions of this study and address the objectives set at its outset. It will also present limitations of this research and directions for future work building on the findings of this work.

7 Conclusion

The purpose of this thesis was to assess the feasibility of an eco-certification and labelling program from the wine industry. As outlined in the framework shown in Figure 1.1, the approach taken in this study was to determine variables that would either aid or hinder the success of an eco-label in terms of industry adoption and consumer use. Industry adoption and consumer use are essential if an eco-label is to succeed in encouraging the adoption of sustainable practices in the wine industry. This study is unique in that it aimed to identify motivations and barriers to the success of an eco-label for the wine industry from the perspective of both consumers and industry members simultaneously. This provided an opportunity for a comparison and discussion of issues which were either areas of agreement or disagreement between industry members and consumers. This research also addressed a gap in the literature on eco-labelling, in which there are very few studies looking at eco-labelling for wine and none that look specifically at the Ontario, or even the Canadian wine market.

7.1 Meeting the Objectives

At the onset of this study three primary objectives were set out to guide the direction of the research to meet the primary research goal. A brief summary of how each was is detailed below.

7.1.1 Objective 1: To find out the degree of consumer interest in eco-labelled wines produced in Ontario.

The determination of the degree of consumer interest in eco-labelled wines in Ontario was accomplished by first performing a literature review to determine the extent of consumer acceptance of eco-labels in general and for wine in other regions and to identify methods to measure consumer interest used by other researchers. Then, primary research was conducted using a consumer survey. Consumer surveys indicate that while the majority of consumers surveyed (90%) were at least somewhat interested in purchasing eco-labelled wine, only a much smaller subset currently considered

environmental issues when making wine purchasing decisions. Many consumers indicated that they had no experience with eco-labelled wines and that they were not aware of the environmental issues surrounding winemaking. This, paired with the low availability and visibility of eco-labelled wines in the current Ontario market place, may explain why few consumers have purchased eco-labelled wines. Over half of those surveyed indicated that they did purchase eco-labelled items on their last trip to the grocery store, indicating that eco-labels do have some impact on consumer purchasing behaviour. Introducing an eco-labelling and certification program with a clear, meaningful logo and a strong marketing and education campaign would be key to generating consumer awareness of the issues and interest in the products.

7.1.2 Objective 2: To determine elements affecting acceptance of eco-labelled wines by consumers including willingness-to-pay and label format.

A literature review was conducted in order to determine the elements that would affect consumer acceptance of eco-labelled wines. Primary research was then conducted through the use of consumer surveys that were developed based on the findings of the literature review. The consumer survey results showed that the primary factors that play a significant role in determining the majority of consumers' wine purchasing decisions are taste and price. Label design and winemaking practices, factors of particular relevance for this study, had a fairly low degree of impact. Despite the apparently low impact of label design and winemaking practices, over 75% of consumers indicated that they would be willing to pay a premium for eco-labelled wines, with over 50% indicating a willingness to pay \$0.51-\$2.50 more for an eco-labelled wine than a comparable non-labelled wine priced at \$15.

With regards to label format consumers, revealed a preference for a seal of approval style label with different levels indicating the degree of sustainability or environmental friendliness that the winery

had achieved. Consumers indicated a wide range of environmental issues that they considered to be important in winemaking including the use of pesticides and/or a preference for organic wines, reducing carbon emissions, types of packaging used, buying local to minimize transport, water use, and waste disposal. Many of these issues address not only the food processing end of winemaking addressed in SWO, but also the grape growing process. This ties in with suggestions made by industry members to create a link to the EFP, which addresses the environmental issues on the farming end of operations. Addressing the entire winemaking process would also help to align the label with those that are likely to be developed in other wine regions.

7.1.3 Objective 3: To determine potential motivations and barriers to participation in an eco-labelling program for industry members currently participating in SWO.

The motivations and barriers of industry members to participating in an eco-labelling program were determined first through the literature review which reviewed past studies on factors that influence participation in voluntary environmental initiatives both in general and in the wine industry. This was then followed by a series of semi-structured interviews with Ontario wine industry members. Nearly all industry members felt that an eco-labelling and certification program to accompany SWO was a logical and necessary next step. Ninety-two percent indicated that their motivations for participation thus far were primarily environmentally motivated, but that factors such as increased visibility could encourage participation in a labelling program. Interviews also revealed three main issues that industry members involved in SWO believed would act to deter participation in an eco-certification program. The main factor they identified was cost, which included both the cost associated with upgrading their operations to a certifiable level and with obtaining certification. A second factor was the potential time requirements that such program would entail, again both to implement changes and to complete the necessary administrative procedures. Finally, industry members expressed concern over how a

certification program would be formatted, specifically that it may be overwhelming to comply with or implement, or may be too strict, or result in a loss of privacy. Additionally, some industry members indicated that while they would be interested in participating in a certification program they would not want to display an eco-label on their bottle, primarily for aesthetic reasons. While the environmental impacts will be the same whether or not an eco-label is displayed, it would benefit the program overall to have greater participation in both aspects of the program in order to increase visibility and awareness of the label among consumers. Finally, industry members expressed concerns about the legitimacy of the eco-label, fearing that if the label was not reputable it could in fact have a negative impact on the reputation of those involved. These findings indicate that if industry participation is to be maximized the program will have to be formatted in a manner that is simple and quick to administer and with minimal costs associated with the actual certification. It will also be critical to ensure that the label is certified by a reputable third party.

7.2 Contribution to the body of research

Eco-labels and eco-certification have been touted by both industry and government as an efficient and effective alternative to command and control regulations, utilizing market forces to encourage improvements in environmental performance. There is a growing body of knowledge looking at the utility of eco-labels and factors that affect their acceptance. This study focused on the potential role of eco-labels in the wine market in the Canadian context, an area not yet explored in the literature on eco-labelling. Additionally, this study looked at the factors that impact acceptance of an eco-label from the perspective of the industry being certified, where much of the research on eco-label acceptance focuses on the consumer perspective. This study also took an approach to investigating barriers and motivations to an eco-certification and labelling program that looked at the perspectives of

both consumers and industry members simultaneously, an approach which is not common in the literature on eco-labelling. The findings of this study are particularly important because they are practical and readily applicable, since at the time of the study the WCO was considering the development of an eco-labelling program to accompany SWO. Significant findings of this research include: Ontario wine consumers and industry members are interested in eco-labelled wines, and most consumers are willing to pay a small premium for eco-labelled wines; however, in order for an eco-label to be successful the label itself must be simple and meaningful, the label must incorporate aspects of both grape growing and wine production, the introduction of the label will need to be accompanied by an educational/promotional campaign to increase awareness, and eco-labelled wines must meet consumers' quality and price expectations. Additionally, industry participation in an eco-labelling program will depend on the structure or format of the program and the cost and time requirements to implement it.

7.3 Limitations

As with any research a number of limitations confine the scope and depth of the research that can be performed. In this study the greatest limitations were time, money and access. Time was constrained because the research was performed by a single researcher and the data collection had to be completed within a four month period, as this was the time period in which the researcher had access to the people and sites necessary. This research was funded by the WCO and MITACS through a MITACS program, Accelerate Ontario. The budget determined by this program set financial limitations, which stipulated that all of the research be carried out by the primary researcher. Despite this factor it was still possible to achieve a sample large enough to obtain statistically significant results; however, the number and regional variation of sites that could be included in the surveys and interviews were limited.

For this reason it was only possible to conduct research in south western Ontario. It was possible, however, to obtain a large enough sample to allow for the use of statistical tests and to collect surveys from the locations at which the greatest volumes of Ontario wines are sold. Also, with regard to the collection of surveys, the target was to collect sample sizes that were proportionally representative of Ontario wine sales from winery retail stores and LCBO stores. Winery retail stores were relatively flexible in terms of scheduling. In contrast, the LCBO was very rigid as to the approval process and scheduling. It was not possible to collect the desired number of surveys at the LCBOs in the originally scheduled appointments, due to factors such as low volumes of traffic, the collection of surveys by a single individual and in some cases a low response rate. The LCBO did not allow additional dates to be added. Therefore, the additional samples required to get the desired sample size were collected from additional winery retail stores, which may have lead to a slight over-representation of this segment of the market. Finally, access was a major limiting factor in this research. With regards to interviews, it was not possible to reach and arrange interviews with all of the desired candidates from the wine industry, primarily due to scheduling conflicts. It was possible to arrange interviews with representatives from 11 of the 17 wineries in their second year of participation in SWO as well as four interviews with representatives from other wineries (three of whom were involved to some degree in SWO). Additionally, it was not possible to conduct interviews with any representatives from any of the sixty-five wineries that are not members of the WCO, again due to limited time for the collection of data. Despite the limitations presented here, it was it was possible to obtain the target number of surveys and enough interviews to develop and understanding of the issues that might influence industry members' participation.

7.4 Implications of this research

This research has four major implications for the development of an eco-label for the Ontario wine industry. The first and most important is that it can provide the WCO and the wine industry with evidence for whether or not to proceed in developing an eco-label. It provides evidence that there is interest from both industry members and consumers and that many consumers are even willing to pay a premium for eco-labelled wines. The second is that this research identified elements of an eco-label program format that could encourage or discourage its acceptance which can be used to guide program development. Specifically, industry members are most likely to participate in a program that is certified by a third party and is straightforward and cost effective to implement. Consumers are interested in purchasing eco-labelled wines but their other expectations must also be met, such as being able to select a high quality wine of their preferred varietal for a reasonable price. Third, this research determined the type of label format preferred by consumers and by industry members, as well as issues that each would like to see encompassed in an eco-label, which can be used to aid in the development of an eco-label. Consumers and industry members both indicated a preference for an eco-seal style label; however, consumers preferred an eco-seal with multiple levels indicating the level of achievement of the winery. The issues that consumers and industry members felt were important for inclusion in an eco-label included many elements of grape growing, and therefore an eco-label for the wine industry should address aspects of both grape growing and winemaking. Finally, this research reveals that there is a need for education and promotion if an eco-label is to be successful. Consumer understanding of eco-labels in general and the environmental issues surrounding the wine industry is minimal. Evidence from other successful eco-labels suggests that education and promotion can help to overcome these obstacles. Promotion and education could be carried out through television, radio, print sources and internet as well as in stores.

7.5 Potential future research

This section outlines possible areas for future research regarding a potential eco-labelling program for the Ontario wine industry. The areas identified in which future research could be valuable are increasing the representativeness of the consumer and industry samples, conducting a cost benefit analysis, conducting more detailed studies on program and label format and if an eco-labelling program is created, conducting a follow-up study to see if consumers follow through on their stated intended behaviour.

7.5.1 Representativeness of the sample

7.5.1.1 Consumers

A goal of this research was to survey a subset of consumers that was representative of consumers of Ontario wines in general. Ontario wines are almost entirely sold through one of three channels: the LCBO, winery retail stores or directly to restaurants. As discussed in the limitations, it was not possible to obtain a proportionally representative number of surveys at the LCBO due to time and scheduling constraints. It may therefore be valuable to conduct additional surveys at LCBOs, as this does make up the largest portion of the market. Additionally, the LCBOs selected for the current study were those with the largest volumes of traffic and therefore were those with the largest selections of wine, which could potentially bias the results. Inclusion of smaller LCBOs with more limited selections of Ontario wines may yield different results and may in fact be more representative of the experience of the average Ontario wine consumer. Finally, while most of the wineries in Ontario are located in south western Ontario this is not the case with LCBOs. Therefore, it might also be valuable to collect further samples from additional regions of Ontario. It might also be valuable to collect surveys from regions outside of Ontario in order to allow for a comparison of the results. Finally, buyers for restaurants were

not included in this study, primarily due to limited access to information on who the buyers were and challenges regarding how to weight their inputs. Some restaurants may have vastly different contributions to the overall purchasing of Ontario wines based both on the makeup of their wine list and the amount of traffic they experience. Despite their currently low contribution to the overall purchasing of Ontario wines, this group holds the potential to increase sales by shifting a greater portion of their wine list to Ontario wines (or even better, eco-labelled Ontario wines) thereby significantly influencing the visibility of these wines to their patrons. For these reasons, it could be very valuable to determine whether (and to what degree) an eco-certification and labelling would impact the purchasing behaviour of restaurant wine buyers.

7.5.1.2 Industry Members

This study included interviews with only select industry members, the majority of whom had been participating in SWO since its inception. These individuals were selected due to their familiarity with the program and also because they were likely to have developed some insight into the issues surrounding SWO. Unfortunately, this introduces a substantial bias into the data collected, which indicates that industry members are generally in support of moving the SWO program in the direction of a more formalized eco-certification program. It may be that the response will not be so unanimous among industry members who are not currently involved in SWO, either due to a lack of interest in the program or because they would not want to be left out of a potential marketing opportunity but do not necessarily want to get involved with the sustainability initiative. Since one goal of a certification program is to encourage participation from those who may not be motivated by environmental concern alone by offering a market incentive, it may not be necessary to assess the opinions of every industry member. It is more important to ensure that some threshold number of wineries will in fact participate

initially in order to generate visibility for the program. For this reason, it may be useful for future research to elicit some general opinions from WCO membership as a whole, perhaps in a discussion at a general meeting at which the topic is presented or through a brief online survey available immediately following such a meeting.

7.5.2 Attitude-behaviour gap

Much of the research on the efficacy of eco-labelling is based on consumers' stated interest in or willingness to pay for eco-labelled products. Unfortunately, there is often a discrepancy between what consumers say they will do and what they do in practice. In cases, such as eco-labelling, where consumers may perceive one option as more "correct" they may select this option even though they would not actually choose this option in the marketplace, thereby introducing a social desirability bias. Other factors may also impact consumers' decisions in the market, such as an abundance of choices, unfamiliarity with the meanings of labels and financial constraints. It would therefore be a very valuable next step to evaluate the performance of eco-labelled wines in the marketplace. Due to the fact that there are currently very few eco-labelled wines available in the Ontario marketplace, it would presently be difficult to assess revealed preferences in this market. However, as more eco-labelled wines enter this market it will be important to monitor purchasing behaviour of Ontario consumers to assess whether consumers' stated preferences match up with their revealed preferences. Many other winegrowing regions are currently in the process of developing eco-labelling programs, which may provide an opportunity for an assessment of the impact of eco-labels in the Ontario wine marketplace prior to the development of such a program for its own industry.

7.5.3 Program Format

If a decision is made to proceed with the development of an eco-certification and labelling program, it will be important to involve both industry members and consumers in the process (de Boer, 2003). Industry members should be involved at an early stage as they will be the most informed, invested and also the most strongly impacted by the specifics of the program. Industry involvement early in the process should also help to minimize concerns about fairness that could arise at later stages in a program's development. Because the industry is quite small, it would be possible to invite all interested members to participate in the early stages of development.

Consumer involvement, perhaps in the form of focus groups, would be more useful at later stages of development once a prototype of the program has been developed. Consumer input could be useful in determining whether issues addressed are indeed those that are important to consumers. Consumers could also be helpful in fine tuning how the information is presented in the marketplace to ensure that it is clear and impactful.

7.5.4 Cost-Benefit Analysis

The costs of certification and the costs of improving operations to a certifiable level were issues identified by most industry members as factors that would potentially deter their participation in an eco-labelling and certification program. Rigorous and credible certification programs often require a high cost for certification and for reaching the set standards (Auriol & Schilizzi, 2003). High costs for certification can lead to a monopoly on certification by large companies (Auriol & Schilizzi, 2003), which is not in keeping with the spirit of the SWO program or the goals of the WCO (Martin, 2007a; Wine Council of Ontario, 2009b). The majority of the wineries in Ontario are small operations, so an expensive certification program may not be possible for many wineries unless they are able to quickly

recover the costs for certification via premiums for wines. Benefits beyond just the readily obvious premiums for wines may also be experienced by wineries, some of which could be incorporated into a cost-benefit analysis such as increased efficiency, potential increased visibility in the marketplace, improved knowledge and awareness of operations, and increased productivity and health of the land. A complete cost-benefit analysis would help the WCO and its member wineries determine whether a certification program would benefit the Ontario wine industry as a whole or whether they would be monopolized by the larger wineries.

7.6 Summary

The findings of this research indicate that the Ontario wine industry should proceed with the development of an eco-labelling program. The results of this study show that there is definite interest in an eco-labelling and eco-certification program for the Ontario wine industry from both consumers and industry members. In order for such a program to succeed it will be necessary to take into consideration the concerns of both groups with regards to what information to include and how to format the program and the label. The issue of whether to charge a price premium will be up to each involved winery, but there is a strong indication many wineries may chose not to add a premium. Achieving high industry involvement and high consumer awareness in such a program will both serve as positive feedbacks to one another, thereby strengthening the program. Developing an eco-labelling and certification program at a time when “green” wines are increasingly becoming available will help Ontario wines compete in the marketplace, but more importantly it will encourage environmentally responsible practices which will help to keep Ontario wineries productive and healthy.

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Appendix A: Industry member interview questions

1. What is your role in the company do you work for?
2. How long has your company been participating in Sustainable Winemaking Ontario (SWO)?
3. What were your company's motivations for participating in SWO?
 - a. For the company?
 - b. For the industry?
4. What steps has your winery taken in order to become more sustainable?
5. Which, if any, of these were in response to SWO?
6. What do you think are the most important issues addressed in SWO? (Water conservation, integrated pest management, fertilizer reduction, energy conservation, packing materials, waste management, carbon neutrality?)
7. What benefits do you see your company reaping from their current involvement in SWO?
 - a. Do you think that greater benefits could be achieved? How?
8. Do you think consumers are aware of SWO? If yes, to what extent?
9. Do you think winery staff are aware your company's involvement in SWO and what it means for the company?
10. Do you think an eco-labelling program to accompany SWO would help increase awareness?
11. Do you think your winery would participate in an eco-labelling program if one were developed?
12. What factors, if any, might deter your company from participation in an eco-labelling program?
13. Do you think an eco-labelling program would allow participants to charge a premium for sustainable produced wines?
 - a. If yes, how much?
 - b. If yes, would this be a significant motivator for participation in an eco-labelling program?
14. What other factors, if any, would motivate your winery to participate in an eco-labelling program?
 - a. Do you think eco-labels would improve the standing of Ontario wines in the local market?
 - b. In the national market?
 - c. In the international market?
15. What impact, if any, does your experience with the VQA labelling system have on your interest in an eco-labelling program?
16. If an eco-labelling program were developed...
 - a. Who do you think should be responsible for certifying products or wineries?
 - b. What information would you want to see presented on the eco-label?
 - c. Do you have a preference for a label format or style?

Appendix B: Consumer survey questions

Final Survey Questions and Format

This survey is being conducted by a graduate student at Ryerson University in order to study the potential for an eco-labelling program for the Ontario wine industry. Your participation is voluntary and you have the right to refuse to answer any question that you feel is not appropriate. Thank you for taking the time to take part in the survey. By completing this survey, you indicate that the information gathered may be part of this research. The responses will be used in a way that respects and ensures the privacy of the respondents so that their individual contributions will remain confidential.

This survey should take approximately 5 minutes to complete.

1. How often do you buy wine? If you purchase wine less than once per year, please do not continue the survey.

☐ Less than once per month ☐ Once per month ☐ Twice per month ☐ Once per week ☐ More than once per week

2. How often do you buy wine produced in Ontario?

☐ Never ☐ Once per year ☐ Once per month ☐ Twice per month ☐ Once per week ☐ More than once per week

3. To what degree do the following factors influence your wine *purchasing decisions*?

	Not at all	Somewhat	Moderately	Considerably	Greatly
Taste	☐	☐	☐	☐	☐
Price	☐	☐	☐	☐	☐
Winemaking Practices	☐	☐	☐	☐	☐
Recommendation from Friend or Expert	☐	☐	☐	☐	☐
Label Design	☐	☐	☐	☐	☐
Producer/Brand	☐	☐	☐	☐	☐
Varietal/Grape	☐	☐	☐	☐	☐
Vintage	☐	☐	☐	☐	☐

4. How much do you pay, on average, for bottle of wine including deposit?

☐ Less than \$10 ☐ \$10.01-\$15 ☐ \$15.01-\$20 ☐ \$20.01-\$25 ☐ \$25.01-\$50 ☐ Over \$50

5. Have you ever heard of “eco-labels”? ☐ Yes ☐ No

6. If you have heard of eco-labels, how familiar are you with what is meant by “eco-labels”?

Not at all	Somewhat	Moderately	Considerably	Greatly
☐	☐	☐	☐	☐

“Eco-labels are intended to help consumers and businesses identify products and services that are less harmful to the environment” (U.S.E.P.A., 2008, p.1). Examples of eco-labels include ENERGY STAR® labels for appliances, Forestry Stewardship Council® labels for paper and wood products and certified organic labels for food shown below.

7. On your last trip to the grocery store, how many eco-labelled products (food or non-food items) did you purchase? ☐ None ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 or more

8. In the last month, how many bottles of eco-labelled wine have you purchased? ☐ None ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 or more

9. How interested would you be in purchasing eco-labelled wine on your next trip to buy wine?

Not at all ☐ Somewhat ☐ Moderately ☐ Considerably ☐ Greatly ☐

How do you think eco-labelled wines compare to other wines in terms of:

	No experience	Much lower	Slightly lower	Same	Slightly higher	Much higher
Quality	☐	☐	☐	☐	☐	☐
Price	☐	☐	☐	☐	☐	☐
Availability for Purchase	☐	☐	☐	☐	☐	☐
Other _____		☐	☐	☐	☐	☐

10. How much more would you be willing to pay for an eco-labelled wine if a similar non-labelled wine was \$15? ☐ No premium ☐ Less than \$0.50 ☐ \$0.51 - \$1.50 ☐ \$1.51 - \$2.50 ☐ \$2.51 - \$3.50 ☐ More than \$3.50

11. Do environmental concerns influence your WINE purchasing decisions? If so, what are they? (list all that apply) _____

12. Please rate the following label components (certifying body, label format and additional information) in terms of the extent to which they would encourage you to buy a WINE product:

a) Certifying body

Rank the following certifying bodies. How would they affect your purchasing decision?

(1) most likely to buy, (2) second most likely to buy and (3) least likely to buy. Use each number once.

- ☐ Certified by the Wine Council of Ontario
- ☐ Certified by the Environmental Choice Program/ EcoLogo^M (shown to the right)
- ☐ Certified by Environment Canada

b) Label Format

Rank the following label formats. How would they affect your purchasing decision?

(1) most likely to buy, (2) second most likely to buy and (3) least likely to buy. Use each number once.

☐ Seal of approval

☐ Seal of approval with different levels

☐ Seal of approval with detailed information on each category evaluated

	1	2	3	4	5	6	7	8	9	10
Energy Conservation	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Integrated Pest Management	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Water Conservation	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Carbon Neutral	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Recycling Packaging	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black

c) Additional Information

Often eco-labels will include a source of additional information to ensure credibility. Rank the following sources of additional information. How would they affect your purchasing decision?

(1) most likely to buy, (2) second most likely to buy and (3) least likely to buy. Use each number once.

☐ Web site ☐ Toll free phone number ☐ Address of Certifying Agency

☐ N/A (place an X here if this factor would not affect your purchasing decision)

Socio-Demographic Information

Gender ☐ Male ☐ Female

Age ☐ 19-25 ☐ 26-35 ☐ 36-45 ☐ 46-55 ☐ 56-65 ☐ Over 65

Annual household income

☐ Less than \$20,000 ☐ \$20,001 - \$40,000 ☐ \$40,001 - \$60,000 ☐ \$60,001-\$80,000 ☐ \$80,001 - \$100,000 ☐ Over \$100,000

Education ☐ High school ☐ Trade school or professional designation ☐ Bachelor's degree ☐ Advanced degree

Marital Status ☐ Single ☐ Married ☐ Divorced/Separated ☐ Common-law ☐ Widowed ☐ Other

Where do you reside? ☐ Ontario ☐ Eastern Canada ☐ Central Canada ☐ Western Canada ☐ USA ☐ International

If you reside in Ontario, how long have you lived here?

☐ Less than 1 year ☐ 1-5 years ☐ 6-10 years ☐ Over 10 years ☐ N/A

Thank you.

Preliminary Survey Questions and Format

How often do you buy wine?

__Never __1x/year __<1x/month __2x/month __1x/week __>1x/week

How often do you buy wine produced in Ontario?

__Never __1x/year __1x/month __2x/month __1x/week __>1x/week

How often do you buy eco-labelled wine?

__Never __1x/year __1x/month __2x/month __1x/week __>1x/week

How often do you currently purchase other eco-labelled products?

__Never __Rarely __ Occasionally __ Often __ Always (when available)

Please rate the importance of following factors in *influencing your wine purchasing decisions*.

Place an X in the appropriate box between not important and very important.

Taste	Not Important									Very Important
Price	Not Important									Very Important
Production Manner	Not Important									Very Important
Recommendation	Not Important									Very Important
Label	Not Important									Very Important
Producer/Brand	Not Important									Very Important
Varietal	Not Important									Very Important
Vintage	Not Important									Very Important

How important are environmental factors when purchasing wine?

Place an X in the appropriate box between not important and very important.

Not Important									Very Important
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How important are the following issues in wine production in *influencing your wine purchasing decisions*?

Place an X in the appropriate box between not important and very important. If you were previously not aware of the issue or do not understand the issue as it pertains to wine, mark 'not sure.'

Water conservation	Not Important	☐	☐	☐	☐	☐	☐	☐	Very Important	Not sure	☐
Minimizing pesticide use	Not Important	☐	☐	☐	☐	☐	☐	☐	Very Important	Not sure	☐
Minimizing fertilizer use	Not Important	☐	☐	☐	☐	☐	☐	☐	Very Important	Not sure	☐
Carbon neutral	Not Important	☐	☐	☐	☐	☐	☐	☐	Very Important	Not sure	☐
Energy conservation	Not Important	☐	☐	☐	☐	☐	☐	☐	Very Important	Not sure	☐
Packaging Materials	Not Important	☐	☐	☐	☐	☐	☐	☐	Very Important	Not sure	☐
Organic or biodynamic	Not Important	☐	☐	☐	☐	☐	☐	☐	Very Important	Not sure	☐
Other (please specify)	Not Important	☐	☐	☐	☐	☐	☐	☐	Very Important	Not sure	☐

Other environmental issues/concerns? _____

What, if in any, is your experience with the quality of wines eco-labelled wines?

Place an X in the appropriate box between very low quality and very low quality. If you have not had any previous experience with eco-labelled wines, mark 'no experience.'

Very low quality	☐	☐	☐	☐	☐	☐	☐	Very high quality	No experience	☐
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How much of a premium, if any, would you be willing to pay per bottle in order to get an eco-labelled wine that matches your taste if the current price was \$15?

___ No premium ___<\$0.5 ___\$0.50 - \$1.50 ___ \$1.50 - \$2.50 ___\$2.50 - \$3.50 ___>\$3.50

Rate the items in each of the following categories from (1) most likely to buy to (3) least likely to buy

Certifying body

- Certified by the Wine Council of Ontario
— Certified EcoLogo^M
— Certified by Environment Canada

Label Format

[illegible]

Industry
Best

Additional Information

- **Web site**
— **Toll free phone number**
— **Address of Certifying Body**

Appendix C: Letter of Support from WCO

Dear Members,

The WCO has partnered with two Ryerson University students to conduct research of the *Sustainable Winemaking Ontario: An Environmental Charter for the Wine Industry*. Each student will focus on a different aspect of the program as outlined below. Part of their research is to conduct interviews with wineries. Each interview will take approximately one hour and will be conducted over the months of June and July. They will be contacting wineries to schedule appointments at a convenient time. All comments will be kept confidential and results will be in aggregate not winery specific.

Naomi Berghoef –Benefits of certification for program - from consumer and winery view. Interviews with consumers at LCBO and winery locations + winemakers

Lindsay Walker – Winery motivation / decision to adopt sustainable winegrowing practices. Interviews with winemakers and owners.

Please assist these research projects as the resulting reports will be beneficial to the WCO on moving the program to the next level.

Thank you in advance for your cooperation, if you have any questions or concerns, please do not hesitate to contact me at the WCO office.

Regina

Regina Foisey
Marketing Project Manager

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Appendix D: Results of Friedman test and a Wilcoxon signed ranks test for consumer preference for eco-label characteristics

Table D.1. Mean ranks and significant differences for consumer preferences for an eco-label certifier.

Possible Certifier	Mean Rank	Significant Differences ^a
WCO	1.66	a
Ecologo ^M	2.04	b
Environment Canada	2.30	c

n = 356.

^a Factors with different letters are significantly different from one another.

Table D.2. Mean ranks and significant differences for consumer preferences for eco-label format.

Possible Label Format	Mean Rank	Significant Differences ^a
Seal with Levels	1.81	a
Detailed Category Information	2.06	b
Seal	2.12	b

n = 370.

^a Factors with different letters are significantly different from one another.

Table D.3. Mean ranks and significant differences for consumer preferences for a source of addition information on an eco-label.

Possible sources of additional information	Mean Rank	Significant Differences ^a
Website	1.32	a
Address of Certifying Agency	2.33	b
Toll Free Phone Number	2.35	b

n = 267.

^a Factors with different letters are significantly different from one another.

Appendix E: Statistically significant differences in consumer importance of wine purchasing influence factors.

Table E.1 lists all instances where statistically significant differences were identified for consumer importance of influence factors in wine purchasing decisions. The findings are arranged by the influence factor and then by the profile characteristic for which differences were observed. For each profile characteristic category the number of respondents in the category, the mean, standard deviation, median and range rating for the factor of interest are indicated. The final column of the table indicates the p-value for either the Kruskal-Wallis test (when multiple categories are being compared) or the Mann-Whitney test (when only two values are being compared) comparing the categories indicated in the corresponding row.

Table E.1. Statistically significant differences between consumer profile groups for interest ratings of factors that influence wine purchasing.

Characteristic*		Subgroups of Categories Compared**											
Influence Rating scores (from 1 = Not at all to 5 = Considerably) with mean (SD) and median (range)													
Influence of Taste													P
Age	19-25	N = 33	26-35	N = 93	36-45	N = 73	46-55	N = 100	56-65	N = 67	66+	N = 29	0.004
	Mean	4.48 (0.834)	Mean	4.30 (0.987)	Mean	4.66 (0.506)	Mean	4.58 (0.572)	Mean	4.75 (0.682)	Mean	4.76 (0.511)	
	Median	5 (2-5)	Median	5 (2-5)	Median	5 (1-5)	Median	5 (3-5)	Median	5 (1-5)	Median	5 (3-5)	
	19-25								56-65				0.041
			26-35		36-45								0.041
			26-35								66+		0.017
							46-55		56-65				0.006
Income	Less then \$20,000	N = 15	\$20,001-\$40,000	N = 33	\$40,001-\$60,000	N = 47	\$60,001-\$80,000	N = 50	\$80,001-\$100,000	N = 53	Over \$100,000	N = 166	0.013
	Mean	3.87 (0.990)	Mean	4.48 (0.795)	Mean	4.6 (0.771)	Mean	4.52 (0.789)	Mean	4.62 (0.593)	Mean	4.60 (0.593)	
	Median	4 (2-5)	Median	5 (2-5)	Median	5 (2-5)	Median	5 (1-5)	Median	5 (2-5)	Median	5 (1-5)	
	Less then \$20,000		\$20,001-\$40,000										0.017
	Less then \$20,000				\$40,001-\$60,000								0.002

Characteristic*				Subgroups of Categories Compared**									
	Less then \$20,000			\$60,001-\$80,000									0.007
	Less then \$20,000			\$80,001-\$100,000									0.001
	Less then \$20,000			Over \$100,000									0.001
Marital Status	Single	N = 88	Married/comm on-law/widowed	N = 280	Divorced/sep arated/other	N = 20							0.009
	Mean	4.27 (1.025)	Mean	4.64 (0.606)	Mean	4.65 (0.587)							
	Median	5 (1-5)	Median	5 (2-5)	Median	5 (3-5)							
	Single		Married/common-law/widowed									0.002	
Influence of Winemaking Practices													
Location Type	LCBO	N = 145	Winery Retail	N = 253									0.008
	Mean	2.08 (1.214)	Mean	2.35 (1.161)									
	Median	2 (1-5)	Median	2 (1-5)									
Influence of Recommendations													
Gender	Female	N = 196	Male	N = 185									0.002
	Mean	3.71 (1.024)	Mean	3.37 (1.076)									
	Median	4 (1-5)	Median	4 (1-5)									
Income	Less then \$20,000	N = 15	\$20,001-\$40,000	N = 33	\$40,001-\$60,000	N = 46	\$60,001-\$80,000	N = 50	\$80,001-\$100,000	N = 53	Over \$100,000	N = 166	0.006
	Mean	2.73 (1.100)	Mean	3.21 (1.364)	Mean	3.48 (1.005)	Mean	3.74 (0.986)	Mean	3.87 (0.921)	Mean	3.54 (1.048)	
	Median	3 (1-5)	Median	4 (1-5)	Median	4 (1-5)	Median	4 (1-5)	Median	4 (2-5)	Median	4 (1-5)	
	Less then \$20,000				\$40,001-\$60,000								0.017
	Less then \$20,000			\$60,001-\$80,000									0.002
	Less then \$20,000			\$80,001-\$100,000									0.001

Characteristic*			Subgroups of Categories Compared**										
Less then \$20,000			Over \$100,000										0.005
\$20,001-\$40,000			\$80,001-\$100,000										0.034
Influence of Label Design													
Age	19-25	N = 33	26-35	N = 93	36-45	N = 73	46-55	N = 100	56-65	N = 67	66+	N = 29	0.001
	Mean	2.76 (1.001)	Mean	2.53 (1.069)	Mean	2.42 (1.154)	Mean	2.27 (1.176)	Mean	1.93 (0.958)	Mean	2.14 (1.382)	
	Median	3 (1-4)	Median	2 (1-5)	Median	2 (1-5)	Median	2 (1-4)	Median	2 (1-4)	Median	2 (1-5)	
	19-25						46-55						0.023
	19-25								56-65				p<0.001
	19-25										66+		0.020
			26-35						56-65				p<0.001
			26-35								66+		0.046
					36-45				56-65				0.011
Marital Status	Single	N = 88	Married/common-law/widowed	N = 279	Divorced/separated/other	N = 20							0.004
	Mean	2.66 (1.016)	Mean	2.25 (1.144)	Mean	2.4 (1.273)							
	Median	3 (1-5)	Median	2 (1-5)	Median	2 (1-5)							
	Single		Married/common-law/widowed										0.001
Influence of Varietal/Grape													
Income	Less then \$20,000	N = 15	\$20,001-\$40,000	N = 33	\$40,001-\$60,000	N = 46	\$60,001-\$80,000	N = 50	\$80,001-\$100,000	N = 53	Over \$100,000	N = 165	0.038
	Mean	2.67 (0.976)	Mean	3.79 (1.139)	Mean	3.39 (1.256)	Mean	3.44 (1.198)	Mean	2.40 (1.391)	Mean	3.59 (1.115)	
	Median	3 (1-4)	Median	4 (1-5)	Median	4 (1-5)	Median	4 (1-5)	Median	4 (1-5)	Median	4 (1-5)	
	Less then \$20,000		\$20,001-\$40,000										0.002

Characteristic*		Subgroups of Categories Compared**											
	Less then \$20,000				\$40,001-\$60,000								0.021
	Less then \$20,000								\$60,001-\$80,000				0.012
	Less then \$20,000											\$80,001-\$100,000	0.034
	Less then \$20,000											Over \$100,000	0.001
Education	High school	N = 39		Trade school or professional designation	N = 82		Bachelor's degree	N = 134		Advanced degree	N = 121		0.001
	Mean	2.90 (1.209)		Mean	3.35 (1.261)		Mean	3.60 (1.125)		Mean	3.70 (1.181)		
	Median	3 (1-5)		Median	4 (1-5)		Median	4 (1-5)		Median	4 (1-5)		
	High school			Trade school or professional designation									0.049
	High school						Bachelor's degree						0.002
	High school									Advanced degree			p<0.001
				Trade school or professional designation						Advanced degree			0.036
<i>Influence of Vintage</i>													
Age	19-25	N = 33		26-35	N = 92		36-45	N = 73		46-55	N = 100		0.021
	Mean	2.27 (1.206)		Mean	2.55 (1.217)		Mean	2.62 (1.186)		Mean	2.92 (1.107)		
	Median	2 (1-5)		Median	3 (1-5)		Median	3 (1-5)		Median	3 (1-5)		
	19-25									46-55			0.007
	19-25											56-65	0.006
				26-35						46-55			0.042
				26-35								56-65	0.020
							36-45					56-65	0.042
Marital Status	Single	N = 87		Married/comm on-law/widowed	N = 280		Divorced/separated/other	N = 20					0.004
	Mean	2.38 (1.22)		Mean	2.81 (1.199)		Mean	3.15 (1.137)					

Characteristic*		Subgroups of Categories Compared**				
	Median	2 (1-5)	Median	3 (1-5)	Median	3 (1-5)
	Single		Married/common-law/widowed			0.004
	Single			Divorced/separated/other		0.011
Location Type	LCBO	N = 145	Winery Retail	N = 253		0.024
	Mean	2.56 (1.126)	Mean	2.85 (1.126)		
	Median	3 (1-5)	Median	3 (1-5)		
*Kruskal-Wallis test used to compare 3 or more categories followed by pairwise comparison of significant categories using a Mann-Whitney test						
** Only cases with significance of $p \leq 0.05$ presented						

Appendix F: Statistically significant differences in consumer interest in and willingness to pay a premium for eco-labelled wines.

Table F.1 lists all instances where statistically significant differences were identified for consumer interest in and willingness to pay a premium for eco-labelled wines between profile groups. The findings are arranged factor being measured and then by the profile characteristic for which differences were observed. For each profile characteristic category the number of respondents in the category, the mean, standard deviation, median and range rating for the factor of interest are indicated. The final column of the table indicates the p-value for either the Kruskal-Wallis test (when multiple categories are being compared) or the Mann-Whitney test (when only two values are being compared) comparing the categories indicated in the corresponding row.

Table F.1. Statistically significant differences between consumer profile groups in their degree of interest in purchasing eco-labelled wines and willingness to pay for eco-labelled wines.

Willingness to pay for eco-labeled wines													
Characteristic*			Subgroups of Categories Compared**										
Interest in purchase													
Scores presented are based on coding where 1 = Not at all , 2 = Somewhat, 3 = Moderately, 4 = Considerably, 5 = Greatly with mean (SD) and median (range)													
p													
Age Category	19-25	N = 33	26-35	N = 93	36-45	N = 73	46-55	N = 100	56-65	N = 66	66+	N = 29	0.011
	Mean	2.82 (1.103)	Mean	2.99 (1.048)	Mean	1.77 (1.161)	Mean	2.82 (1.140)	Mean	2.48 (0.965)	Mean	2.31 (1.198)	
	Median	3 (1-5)	Median	3 (1-5)	Median	3 (1-5)	Median	3 (1-5)	Median	2 (1-5)	Median	2 (1-5)	
	19-25										66+		.044
			26-35						56-65				.003
			26-35								66+		.002
					36-45						66+		.043
							46-55				66+		.020
Willingness-to-Pay a Premium													
Scores presented are based on coding where 1 = No premium, 2 = Less than \$0.50, 3 = \$0.51 to \$1.50, 4 = \$1.51 to \$2.50, 5 = \$2.51 to \$3.50 and 6 = More than \$3.50 with mean (SD) and median (range).													
Age Category	19-25	N = 33	26-35	N = 92	36-45	N = 72	46-55	N = 95	56-65	N = 61	66+	N = 26	0.029

Characteristic*		Subgroups of Categories Compared**										
Mean	3.24 (1.501)	Mean	3.23 (1.446)	Mean	3.01 (1.379)	Mean	2.73 (1.402)	Mean	3.05 (1.607)	Mean	2.35 (1.018)	
Median	3 (1-6)	Median	3 (1-6)	Median	3 (1-6)	Median	3 (1-6)	Median	3 (1-6)	Median	2.5 (1-4)	
19-25										66+		0.013
26-35						46-55					0.015	
26-35										66+		0.004
36-45										66+		0.024
*Kruskal-Wallis test used to compare 3 or more categories followed by pairwise comparison of significant categories using a Mann-Whitney test												
** Only cases with significance of p ≤ 0.05 presented												