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Yealands Wine Group: Balancing Business and Sustainability

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Abstract

Yealands Wine Group is a young NZ wine company established in 2008, incorporating environmental sustainability as a core business principle from inception. In 2012, Yealands was the sixth largest wine company in NZ with sales of 750,000 cases. They achieved a significant growth in sales for a short period of time. However, the sales forecasted in the next few years are less optimistic. Can Yealands use sustainability to drive sales and growth?

Keywords: New Zealand (NZ) wine industry, environmental sustainability, wine sustainability, Yealands

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*Think boldly, tread lightly and never say it can't be done***.**
— Peter Yealands, Executive Director and Founder, Yealands Wine Group Estate

Introduction

It was a beautiful summer day in Marlborough, New Zealand (NZ). Peter Yealands, chairman and founder of Yealands Wine Group Limited (Yealands), was sitting in his office overlooking the vineyards sprawled across the rolling hills of Awatere Valley. He was thinking about the amazing growth of Yealands since 2008 and how to use sustainability to drive future growth. The company had achieved significant growth in a very short period of time due to increased grape and wine production as well as a successful acquisition. However, a decreased growth rate was forecasted for this year and the next couple of years. In 2011/12, the company experienced about 90% growth in wine sales over the previous year. However, the estimate for 2012/13 was roughly 25% growth due to consolidation within the company. Established in 2008, Yealands owned two wineries and 12 vineyards spread across New Zealand; it produced 15,000 tonnes of grapes from its own vineyards and 12 million litres (L) of wine in 2011/12. Yealands had become the sixth largest wine exporter in New Zealand with sales of 750,000 cases[1] in 2011/12 (see Exhibit 1 for Yealands company data).

The history of Yealands dated back to 2001 when entrepreneur Peter Yealands bought his first Seaview vineyard of 120 ha. Developing a passion for grape growing, he continued buying neighboring vineyards. By 2013, the Seaview vineyard had grown to 1,150ha and was the largest privately-owned single vineyard in New Zealand[2] (see Exhibit 2 for the map of wine regions in NZ) (see Exhibit 3 on Peter Yealands).

Environmental sustainability involving innovation was Yealands' competitive advantage. Yealands' goal was to become the most sustainable vineyard and winery in the world, and the company had invested in environmental initiatives since its inception. A pioneering GPS technology had been used to accurately run the vineyards rows and orient them for the best aspect of the slopes. The design of the new winery incorporated various energy and water saving ideas. And a range of innovative environmental activities and certifications had been introduced. As a result, Yealands had achieved various environmental awards for their wines, which attracted new buyers including Tesco in the UK.

Global Wine Industry

The global wine industry had become very competitive and had changed dramatically over the last decade. Wine production and consumption in the Old World countries such as France, Italy, and Spain had declined while the New World countries such as Australia, New Zealand, and Chile had increased in both production and exports. China was one of the fastest-growing wine markets, accounting for about 7% of the global wine consumption in the last few years (see Exhibit 4 for a summary of the global wine industry).

[1] A case comprises 9 litres of wine (12 bottles of wine in a case; 0.75 litre in a bottle
[2] The second largest privately-owned single vineyard in New Zealand is about 600 ha

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International Wine Certification and Initiatives

A number of environmental certification schemes were available to wineries around the world. These included region- or country- specific wine programs (such as Certified California Sustainable Winegrowing[3], Entwine Australia[4]; Certified Sustainable Wine of Chile[5]; and Integrated Production of Wine in South Africa). Other certification schemes were not linked to specific geographical areas; examples included The Carbon Trust's Reducing CO_2 and CO_2 Measured Labels[6], and certification to ISO14001[7] (see Exhibit 5 for details of a selection of key international and NZ certification schemes).

The wine industries in different countries had co-operated on a number of wine environmental initiatives including:

1. A set of Global Wine Sector Environmental Sustainability Principles (GWSESP) was produced in 2006 by FIVS (Federation Internationale des Vins et Spiritueux, the trade association for all sectors of the alcohol beverage industry). The purpose of these principles was to "…ensure that there is a coordinated, efficient and results-driven approach to the international wine industry's commitment to environmental sustainability"[8];

2. The International Wine Industry Greenhouse Gas Accounting Protocol was released in 2008, the result of a partnership between the Wine Institute of California, NZ Winegrowers, South Africa's Integrated Production of Wine program, and the Winemakers' Federation of Australia. It provided a free greenhouse gas (GHG) protocol and calculator for measuring the carbon footprints of vineyard operations and wineries.[9]

Internationally, an increasing number of wineries were investing in environmental initiatives and certification to demonstrate their environmental credentials. Examples of recent environmental award-winning wineries[10] included Viñedos Emiliana[11] in Chile, Avondale[12] in South Africa, Torres[13] in Spain, and Jackson Family Wines[14] in California.

New Zealand Wine Industry

The New Zealand wine industry had experienced significant growth in production and exports in the last decade (see Exhibit 6 for a summary of the NZ wine industry). In 2012, there were 703 wineries in New Zealand divided into three categories based on production per year: more than 2 million L; between 200,000 L - 2 million L; and less than 200,000 L.

[3] http://www.sustainablewinegrowing.org/certified-sustainable-winegrowing.php
[4] http://www.wfa.org.au/entwineaustralia
[5] http://www.sustentavid.org/en/
[6] http://www.carbontrust.com/client-services/footprinting/footprint-certification/carbon-footprint-label
[7] http://www.iso.org/iso/iso14000
[8] http://www.ipw.co.za/content/pdfs/sustainability/eng/GWSESP_Brochure.pdf
[9] http://www.wineinstitute.org/ghgprotocol
[10] Winners of awards at the DB Green Awards 2012 and 2013 (see Green Awards at http://www.thedrinksbusiness.com/)
[11] http://www.emiliana.cl/
[12] http://www.avondalewine.co.za/
[13] http://www.torres.es/
[14] http://www.kj.com/ (Kendall-Jackson wines are the best known wines from Jackson Family Wines)

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Competitors

Pernod Ricard (NZ$236 Million in revenue in 2012), a French spirits group that owned several iconic New Zealand wine brands such as Brancott/Montana, Church Road and others, was the largest wine company (wine production and distribution) in New Zealand, selling about 3 million cases[15] a year of NZ-produced wines. The second largest wine company in NZ was *Delegat* (NZ$222 Million in revenue in 2012), a publicly owned company enjoying global success with its Delegat and Oyster Bay brands. Delegat sold around 2-2.5 million cases of NZ wine per year. In third position was *Constellation Brands NZ* (NZ$192 Million in revenue in 2012), an international company that was the world's biggest wine producer and owned several NZ brands like Nobilo, Selaks and Kim Crawford. Constellation sold around 2.0 million cases of NZ wine per year. The next largest company was *Villa Maria* (NZ$120 Million in revenue in 2012), the top NZ-owned company with its own Villa Maria brand and the fourth largest company in terms of sales of NZ wine; it sold around 1.5 million cases per year. *Treasury Wine Estates* (NZ$112.7 Million in revenue in 2012), an Australian-based wine making and distribution company that owned NZ brands including Matua, sold around 1.3 million cases of NZ wine per year. Yealands was in sixth place overall. The next position was shared by several companies, such as Mud House Winery, Guisen Wines, Babich Wines. The sales for each of these companies were about 500,000 cases per year.

New Zealand Wine Sustainable Certificates and Initiatives

Many New Zealand wine companies chose to associate themselves with the "clean and green" image of New Zealand in their marketing messages and branding. The benefits of this branding had been recognised for some time, and were promoted in a coordinated way through NZ Winegrowers, the national organization for New Zealand's grape and wine sector. NZ Winegrowers was mainly funded through a compulsory levy on the sale of grapes and wine. Perhaps the most tangible expression of the New Zealand wine sector's coordinated approach could be found in the development of the Sustainable Winegrowing New Zealand (SWNZ) program which was launched in 1998/99. In 2007, NZ Winegrowers launched its Sustainability Policy, which stipulated that wines from vintage 2010 on must have been produced under one of the recognized, independently audited, sustainability programs in order to be included in NZ Winegrowers' national and international marketing, promotional and awards events.[16] Effectively this meant that almost all New Zealand wine producers moved to achieve either SWNZ certification or organic/biodynamic certification by 2012. Accredited members of SWNZ who were also members of the Wine Institute of New Zealand were entitled to use the SWNZ logo on their wine bottle labels; however, some wine companies had expressed concerns that SWNZ did not provide them with a marketing edge.[17]

In New Zealand, greenhouse gas ("carbon footprint") certification was available for organizations, products and services through the CEMARS and carboNZero programs provided

[15] The data about the sales of cases of different NZ wine companies is based on case writers estimates.

[16] The approved certification schemes are: Sustainable Winegrowing NZ (SWNZ), BioGro-NZ, AsureQuality, Demeter, and ISO 14001. (http://wineinf.nzwine.com/sustainability.asp#sustain_policy)

[17] Strategic Report by Pricewaterhouse Coopers. 2011. November, p.23 (http://www.nzwine.com/assets/sm/upload/42/9r/g9/vf/NZW%20Strategic%20Review%20Dec%202012.pdf)

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by carboNZero holdings. These two programmes provided support tools, technical advice, and guides for measuring greenhouse gas (GHG) emissions. Programme requirements included developing a GHG management plan, independent verification of GHG claims, and support for marketing of CEMARS or carboNZero certification status. Only companies achieving the carboNZero certification were able to offset their GHG emissions by purchasing verified carbon credits (at an additional cost). Certification was awarded only after verification of the measurement and management of GHG emissions by independent approved verifiers. Organisations and products attaining certification were entitled to use the CEMARS and carboNZero logos respectively on their publicity materials, including use of the carboNZero logo on the wine bottle label for certified wine products.

Several wine companies in NZ had some form of environmental sustainability certification. Brancott Estate (owned by Pernod Ricard) had ISO 14001 certification and managed a number of environmental projects but did not have carboNZero certification. Treasury Wine Estates had carboNZero certification for two of its New Zealand wine brands (Squealing Pig and 900 Grapes). Villa Maria had CEMARS certification. Yealands had carboNZero certification on their core brands as well as ISO 14001 certification. A number of other smaller wineries, such as Kono Beverages and Kaimira Ventures Ltd, also had carboNZero certification for selected brands. In addition, a small number of Chilean wineries had attained CEMARS certification.

Yealands: Sustainable Wine Producer

Company Background

Yealands had been growing grapes since 2001 but in 2007 the company decided to build their own winery as a response to the rapid increase in grape production in the region. A fundamental principle for the design of the winery was the efficient use of energy and water. Energy was generated from vineyard prunings and the roof of the building was designed with an expansive curve in order to match the rolling hills and to collect rainwater. The winery was opened officially on August 8, 2008 and had maximum capacity of around 10-11million L per year.

After experiencing some distribution challenges and slow growth of sales in New Zealand, Yealands decided to establish its own distribution within New Zealand in 2010. The company wanted to establish closer relationships with their customers and have a greater control of its products. “No one can sell your wine better then yourself” Peter stated.

In early 2012, Yealands acquired Ager Sectus, another New Zealand wine producer that operated in two locations: Hawkes Bay in the North Island, and Marlborough in the South Island. Ager Sectus had small vineyards (around 100 ha) and a winery (maximum capacity of around 1 million L per year) in each location. The main objective of the acquisition was to establish a presence in the red wine market through buying strong brands in red wines. “Before the acquisition we produced mainly Sauvignon Blanc. We needed to diversify our wine portfolio, we needed to offer red wine to our customers too” explained Peter.

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Peter and his wife Vai owned 75% of the shares of Yealands Wine Group Limited. The remaining shares were held by Ager Sectus Wine Estates Limited which consisted of 14 individuals (New Zealand and overseas based) who were former Ager Sectus shareholders. Peter was Executive Director and Board Chair of Yealands Wine Group Limited.

Sustainability was managed in a flexible way at Yealands. A Committee for Sustainability existed to coordinate and instigate activities; it comprised five people including Peter. However, decisions about sustainability matters were often made as part of the normal decision-making processes in the company and new ideas might originate from staff in the company or from external people who came to Peter with suggestions. As an example, the winery engineer had an idea to produce biochar[18] from the vine prunings; in 2013, he was engaged in building a pilot plant in one of the vineyard barns to burn the prunings under controlled conditions in order to produce biochar. A "Green Ideas Competition" was popular among the employees: each month all staff members were invited to submit their suggestions for environmental improvements, and a prize[19] was awarded for the best idea.

Products and Brands

Over 85% of the wine produced at Yealands was white wine (mainly Sauvignon Blanc). Red wines such as Pinot Noir (over 10%) and Tempranillo (1%) were also produced. In the last two years, Yealands had worked on an innovative wine named 'Sauvignoir', which was a blend of 80% Sauvignon Blanc and 20% Teinturier (a grape variety with red flesh that was traditionally used for deepening the color of Pinot Noir). The new wine was created to serve customers who were not familiar with white wine varieties, and in particular for the Asian and Chinese market.

Between 40-45% of the wine produced at Yealands was sold under company-owned brands, which included three core brands (Yealands Estate, Crossroads and The Crossings) and several strategic brands (Three Stones, Flexborne, Babydoll, etc.). The company had four tiers for their core brands, which included Yealands Estate Reserve at the top; Yealands Estate Single Block Series and the Crossroads brand in the second tier; Yealands Estate and The Crossings in the third tier; and various other Yealands brands (Yealands Way, Peter Yealands, etc.) in the fourth tier (see Exhibit 7 for Yealands core brands). Yealands' top tier branded wines had been certified with carboNZero since 2011, and their product labels declared this certification. The issue of declaring sustainability credentials on Crossroads and the Crossings branded wine was under debate following the merger with Ager Sectus. "We still haven't decided if we want to put carboNZero stickers on Crossroads and the Crossings products. We are very protective of the sustainability value proposition of the Yealands Estate brand," commented Michael Wentworth, Yealands General Marketing Manager.

Eighty-five per cent of the company budget for advertising and promotions was spent on the three core brands. The fourth tier products made up approximately 70% of all the branded products, and

[18] Biochar is charcoal produced by heating biomass in the total or partial absence of oxygen.
[19] Mystery air flight

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were sold in over 65 markets (key markets - Australia, New Zealand and UK). Only third and fourth tier products were subject to sales promotions. Yealands strategic brands (comprising almost 50% of their branded products) were designed to serve specific markets.

The rest of the wine produced in Yealands was non-branded and sold as private labels. Michael explained: "The average selling price per bottle of New Zealand wine was around NZ$9, Yealands wine was selling from around NZ$13 through to late NZ$30s. The market for our branded product was small and if we wanted to gain some presence in the market, we needed to offer less expensive wines that the majority of people were purchasing. For Yealands, private labels were tools that secured a position on the shelf, without lowering the price of our branded wine. This way we were not pressured to sell large volumes of our branded wines." Yealands supplied about 50 private labels: customer-owned private labels (marketed under retailers' brands, such as Tesco) and other private labels owned by Yealands.

Markets and Distribution

In 2012, about 90% of Yealands production was exported and sold in more than 70 countries. Of the 675,000 cases that were exported in 2011/12, about 38% went to Europe, 36% to Australasia, 22% to Americas, 3% to Asia and the rest Middle East and Africa. The four key export markets in which Yealands aimed to strengthen its brand support and consumer awareness were: the United Kingdom, Australia, USA and China. In other markets, the company planned to increase retail presence and develop more efficient distribution. "We have stepped into many markets in the last few years, therefore now our strategy is to increase our presence in these markets, rather than increasing the number of countries we are in," commented Michael. Globally, around 85% of Yealands' wine was sold through supermarkets and retailers and the rest was sold directly to restaurants, bars, hotels, caterers or online.

Yealands held 5% share or less of the New Zealand-produced wine category in all of its overseas markets except in the Netherlands, where it had a 40% share of the New Zealand category due to Peter's personal connection with one of the major suppliers in that market. "They were our first distributor in 2008 and were our key client for the first three years. At one point in time, this distributor bought 30% of our wine. The risk of having a single market was too high so we tried to diversify our markets" recalled Peter. By 2012, the share of the Netherlands in Yealands' business was comparable to that of the Australian market. Peter also noted that the European market in general had become very difficult for New Zealand wine exports due to strong appreciation of the NZ dollar against the Euro. Moreover, the recession in Europe had caused the sales to slow down dramatically.

Yealands' growth rate in Asia and China in particular was over 600% in 2012 and it was becoming a very important market for the company. "We were probably one of the top five New Zealand wine exporters to China. We expect that China would be our biggest market in the next five years. Customers in China preferred red wines so we developed our new wine 'Sauvignoir' primarily for this market" explained Peter.

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Yealands worked mainly with distributors in export markets due to the distributors' market/consumer knowledge and local networks. Furthermore, the company had strengthened its wine distribution in key export markets by establishing subsidiaries and placing its own staff in the market. Building subsidiaries was part of Yealands' growth strategy. The company had two subsidiaries: one in Australia (since 2008) and one in the US (since 2009). Additionally, in 2010, one full-time employee was located in Brazil to support distribution of Yealands wines in the country. However, Peter explained that exporting wine to Brazil was very challenging: "We were the first major New Zealand wine supplier in the country, and we have a distribution agreement with the biggest retailer in Brazil. However, the Brazilian government is trying to restrict imports of wine through duties and taxation. If a bottle sells for NZ$100 at retail, the duties and taxes are 83% and only 17% is the wine value."

In China, Yealands had distributors in different regions and was in the process of establishing a subsidiary there with the goal of strengthening sales throughout Asia. Peter explained, "The competition in China is high, but the potential opportunities are enormous. We hope that having a subsidiary in China will push our growth in this market".

Since 2010, Yealands had been selling its wine in New Zealand through its own distribution system. The majority of the wine (around 75%) was sold through supermarkets in New Zealand.

Yealands Sustainable Certificates and Initiatives

Yealands first achieved carboNZero organisation certification in the 2008/2009 year, and had maintained its certification since that time. The certification addressed greenhouse gas (GHG) emissions associated with growing the grapes, producing the wine, production of bottles and the bottling processes, and distributing the product for Yealands Estate wines produced from the winery. Once they had been measured, the GHG emissions were offset as part of the certification scheme through purchase of carbon credits[20]. Yealands also achieved separate carboNZero product certification for its Yealands Estate wine products in the 2011/2012 year; this meant that these products could display the carboNZero logo on the bottle labels (see Exhibit 8 for Yealands bottle label).

As well as the carboNZero certification, Yealands Wine Group Limited invested in ISO 14001 certification (achieving certification in 2012), and was also a member of Sustainable Wine Growing NZ (SWNZ).

The environmental sustainability initiatives at Yealands could be divided into four broad groups:

1. **Design and operation of the winery**
   Rainfall was collected from the roof and either used in the winery for cooling or piped out to the wetlands in the vineyards. A wind turbine was used to generate electricity, and prunings from the vineyards were burned to produce heat; the electricity and heat were

[20] See http://www.carbonzero.co.nz/documents/Disclosure_Yealands_org_1112.pdf for organization certification, and http://www.carbonzero.co.nz/documents/Disclosure_Yealands_prod_1112.pdf for product certification.

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used in the winery. Various energy saving features in the winery included: advanced refrigeration systems, extensive insulation of fermentation and storage tanks, temperature and energy monitors, motion sensors for lighting, and external air cooling.

2. **Everyday operations in the vineyards**
   Sheep (a special breed named "Babydoll"[21]) were grazed in the vineyard in order to reduce use of diesel for mowing grass, and hydrogen generators were being installed on tractors in order to increase their efficiency. Use of synthetic pesticides was minimised through alternative means of controlling pests such as use of plastic strips around vines to stop wetas[22] climbing up them, and lights on the lakes running alongside the vineyards to attract grass grubs in the mating phase of their life cycle which then dropped into the water. There was a focus on encouraging biodiversity through maintaining 25 wetlands in the vineyard with associated plantings of native trees and flaxes, and on soil quality through use of compost produced from by-products in the winery and sourced from other local businesses.

3. **Improving the environmental profile of the wine product**
   Yealands introduced plastic bottles in 2012 which used less energy in production and in transportation compared with glass bottles.

4. **Ongoing innovative environmental projects**
   There was a continuing investment in innovative new projects that might improve the environmental performance of the Yealands vineyards, winery and its products. Examples of recent projects included: production of biochar from prunings (to sequester carbon and improve soil quality), and keeping chickens in the vineyards (to eat harmful insects) (see Exhibit 9 for details about Yealands' environmental initiatives).

Many of these environmental initiatives were relatively cost-effective because they offset existing costs such as fuel purchase; for example, it took just 18 months to pay back the cost of installing the two boilers for burning the prunings.

Yealands had also extended its sustainability focus beyond environmental considerations to include some activities that supported the local community. For example, staff managed a community garden close to the winery that provided vegetables to a community centre in town, along with eggs from the chickens in the vineyards. However, the social and economic dimensions of sustainability were yet to be explored in detail.

Looking Forward

Yealands had achieved significant growth as a young company. Yealands' short term goals in 2013/14 were to reach one million cases in sales and turnover of NZ$ 100 million. Peter explained, "We expect to reach NZ$ 100 Million turnover in a year and to sell one million cases

[21] "Babydoll" is a special breed with short legs. The sheep can graze but are not tall enough to damage the plant buds or the grapes.
[22] Wetas are similar to grasshoppers and are endemic to New Zealand.

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in two years. We have been growing NZ$ 25 Million a year in the last three years." Yealands also wanted to become NZ's fifth biggest wine company in sales, a goal that could take a few years to achieve.

In terms of the environment, Yealands' goal was to be the most sustainable producer of wine in the world. Peter was determined to take world leadership in sustainable winegrowing. In order to realise this goal, Yealands had started entering a range of different competitions. In 2012, it was the Gold Winner in the category "Most Sustainable Medium Business" at the International Green Awards[23]. In 2013, it was shortlisted in the "Sustainability Company of the Year" and "Green Company of the Year" categories for the Drinks Business Green Awards[24]. However, Peter's ambition was not limited to environmental sustainability. Yealands became one of the finalists in the Best Employer Award in New Zealand in 2012 and in 2013 South Island Farmer of the Year award. "If we do it, we want to do it well. We want to be the first in everything: in sustainability, quality, and as an employer," commented Peter.

Yealands were constantly on the lookout for new opportunities. They intended to build another winery with greater capacity, invest in R&D projects for alternative packaging, and were considering developing non-alcoholic wine and using manuka honey for sweetening wine.

As the Babydoll sheep bleated in the vineyard, Peter sat in his office and reflected on the future development of the company. He was thinking about how to maintain their growth. His thoughts moved further to the sustainability agenda that underpinned their whole business. How could the company use their sustainability credentials to drive growth?

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[23] The International Green Awards is the leading platform for sustainability intelligence, leadership and innovation. Launched in 2006, the objective is to recognize the best-in-class examples of sustainability communications (http://www.greenawards.com/winners/winners- 2012).

[24] The Drinks Business Green Awards is the world's largest program to raise awareness of green issues in the drinks trade (wine, spirits, beer, cider or soft drinks) and recognize and reward those who are leading the way in sustainability and environmental performance. (http://www.thedrinksbusiness.com/2013/04/db-reveals-shortlist-for-green-awards-2013)

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Appendix

Exhibit 1. Yealands company data

	2008	2009	2010	2011	2012	2013E
Vineyard (hectares)	1,150	1,150	1,150	1,500	1,500	1,500
Wine sales (thousand cases)	101	226	319	603	750	900
Growth (%)		123	41	89	24	
No. of full-time employees	15	21	35	60	105	131

Source. Company data

Exhibit 2. Main wine production regions in NZ

Source. New Zealand Winegrowers website http://www.nzwine.com/

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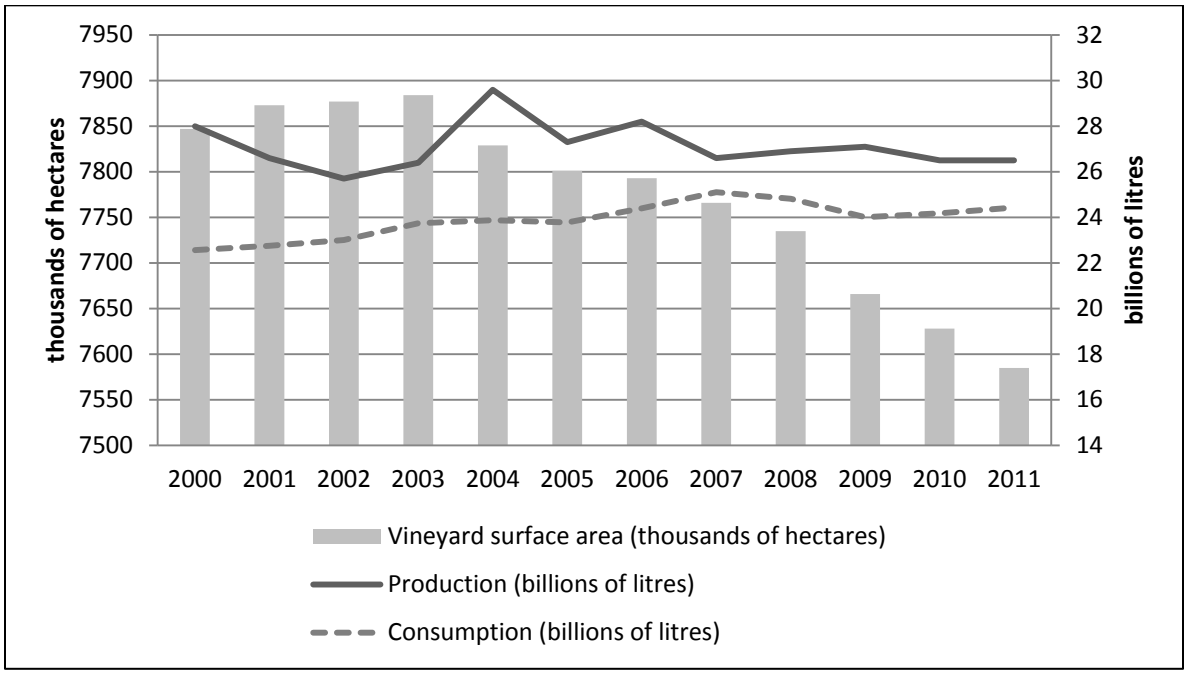
Exhibit 3. Who is Peter Yealands?

Peter is a third-generation Marlborough resident who has been involved in many different businesses. At the beginning of his working life, he had a contract for building work with the local government. In 1968, he became involved in aquaculture and remained in that industry for 15-20 years, receiving the first licence for mussel farming in NZ in 1975. He was also involved in a forestry business and animal farming. He developed the first embryo transplant programme with red deer in NZ. Peter was also a supplier of aggregates to the major concrete companies in the 1990s. The pre-history of Yealands began in 1998, when Peter Yealands bought 20 hectares (ha) of land in Wairau Valley, Marlborough. The price he paid was low because the land was perceived to be unfavourable for cropping and grape growing due a shortage of water. He transformed this 'unwanted' land using machinery and equipment he already owned, and planted grapes. He fell in love with the process of land transformation, and with grape growing, and bought another 300 ha of 'unwanted' land at Wairau Valley (then a river bed) in 2000 and transformed it into vineyards over an 18 month period; this land was later sold to an Australian owned wine company. 'With a pocket full of money' he bought his first Seaview vineyard of 120 ha in 2001 and over the next few years he bought more land and vineyards. *"I knew nothing about horticulture when I started and my learning curve was very steep,"* recalled Peter. He became passionate about grape growing and, supported by the increased demand for wine grapes from the region, he continued to buy more land and vineyards. The land transformation process was facilitated by Peter's pioneering use of GPS technology that enabled him to accurately run the vineyard rows, and orientate them for best aspect on the slopes.

Exhibit 4a. Global wine production and consumption



Source. FAOSTAT

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Exhibit 4b. World's top wine producers/exporters/importers

Rank in 2010	Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Production (tonnes)											
1	France	5,338,800	5,000,000	4,749,060	5,910,690	5,344,170	5,349,330	4,711,600	4,268,900	6,113,630	5,846,290
2	Italy	5,229,300	4,460,410	4,408,610	5,313,520	5,056,650	4,963,300	4,251,380	4,609,550	4,624,500	4,580,000
3	Spain	3,095,100	3,454,000	4,246,240	4,280,430	3,643,700	3,890,730	3,520,870	3,736,690	3,250,610	3,610,000
4	US	2,395,000	2,286,000	2,415,000	2,466,000	2,888,000	2,360,000	2,488,000	2,530,000	2,730,000	2,211,300
5	China	1,080,000	1,120,000	1,200,000	1,300,000	1,350,000	1,400,000	1,450,000	1,500,000	1,550,000	1,657,500
11	**NZ**	**53,300**	**89,000**	**55,000**	**119,200**	**102,000**	**133,200**	**147,600**	**205,200**	**178,000**	**189,800**
Exports by quantity (tonnes)											
1	Italy	1,537,064	1,518,682	1,280,200	1,435,898	1,552,077	1,793,152	1,826,635	1,733,889	1,918,407	2,192,254
2	Spain	904,986	901,638	1,175,810	1,352,196	1,364,746	1,336,762	1,433,966	1,698,171	1,457,607	1,771,386
3	France	1,551,660	1,536,883	1,496,243	1,435,043	1,367,842	1,461,663	1,492,933	1,345,513	1,215,987	1,411,363
4	Australia	376,154	471,505	536,467	646,121	695,475	762,278	781,419	701,050	771,949	799,465
5	Chile	486,717	344,227	391,000	468,207	411,233	471,557	601,734	581,685	691,823	729,938
11	***NZ***	***21.920***	***25.615***	***27.205***	***40.669***	***57.400***	***64.765***	***84.171***	***92.050***	***128.555***	***244.098***
Exports by value (thousands of US$)											
1	France	4,787,033	5,397,735	6,562,663	6,919,726	7,014,774	7,820,853	9,254,180	10,000,580	7,694,175	8,392,084
2	Italy	2,289,075	2,589,934	2,986,474	3,550,372	3,717,972	4,038,408	4,741,609	5,277,540	4,843,769	5,170,569
3	Spain	1,138,328	1,215,237	1,598,461	1,835,577	1,892,950	1,958,962	2,395,881	2,856,434	2,293,668	2,453,272
4	Australia	997,803	1,272,366	1,539,094	2,001,889	2,111,735	2,082,612	2,488,462	2,146,061	1,817,686	1,955,028
5	Chile	645,010	603,772	662,990	835,486	874,775	960,338	1,251,000	1,352,833	1,374,242	1,541,139
9	**NZ**	**97,196**	**127,275**	**157,691**	**245,451**	**331,970**	**396,741**	**559,343**	**599,167**	**643,242**	**789,130**
Imports by quantity (tonnes)											
1	Germany	1,126,787	1,170,961	1,190,564	1,304,256	1,258,954	1,330,423	1,418,522	1,366,335	1,411,069	1,421,739
2	UK	994,339	1,027,038	1,133,991	1,297,578	1,315,753	1,184,626	1,178,888	1,080,247	1,102,908	1,253,093
3	US	468,794	552,140	608,245	641,477	712,919	782,423	845,234	831,788	926,883	938,418
4	Russia	256,615	298,380	416,361	505,125	622,702	369,977	399,595	417,515	471,736	692,745
5	France	511,113	452,827	469,583	472,765	544,451	528,685	526,227	570,018	576,715	583,690
N/A	**NZ**	**40,192**	**40,227**	**47,159**	**37,965**	**35,097**	**39,094**	**42,478**	**38,410**	**31,791**	**51,697**
Imports by value (thousands of US$)											
1	US	2,324,904	2,654,634	3,408,778	3,577,778	3,944,567	4,369,830	4,856,118	4,841,338	4,189,623	4,461,891
2	UK	2,773,622	3,026,437	3,535,175	4,248,918	4,137,027	4,139,239	5,010,178	5,149,419	4,315,072	4,318,981
3	Germany	1,653,418	1,674,950	2,040,199	2,286,155	2,202,429	2,383,743	2,697,134	3,013,386	2,759,222	2,696,515
4	Canada	581,568	611,091	820,562	908,175	1,042,021	1,263,982	1,470,082	1,566,037	1,463,845	1,698,913
5	Japan	779,419	800,392	904,446	1,050,216	1,006,922	1,158,878	1,244,057	1,318,270	1,058,606	1,150,477
N/A	**NZ**	**62,060**	**73,845**	**95,509**	**103,024**	**108,201**	**107,820**	**130,928**	**136,149**	**91,809**	**106,590**

Source. FAOSTAT

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Exhibit 5. Some key international and New Zealand environmental standards and certification schemes

ISO 14001

*No specific logo for accreditation to ISO.

ISO 14001 sets out the criteria for an environmental management system and can be certified to. It does not state requirements for environmental performance, but maps out a framework that a company or organization can follow to set up an effective environmental management system.

http://www.iso.org/iso/home/standards/management-standards/iso14000.htm

PAS2050

The PAS2050 is a publicly available specification for the assessment of the life cycle greenhouse gas emissions of goods and services (published by British Standards Institution). It can be used by organizations of all sizes and types in any location. It offers practical advice to organizations wanting to assess the carbon footprint of their products, identify hotspots and reduce emissions in their supply chain.

http://shop.bsigroup.com/en/Browse-By-Subject/Environmental-Management-and-Sustainability/PAS-2050/

The Carbon Trust

The Carbon Trust Standard verifies the carbon footprint and emission reduction of organizations. It was developed in consultation with the private and public sector in the UK to implement carbon management strategies and international standards, such as the Greenhouse Gas Protocol.

http://www.carbontrust.com/client-services/footprinting/footprint-certification

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GLOBALG.A.P.

*No specific logos for GLOBALG.A.P. certifications.

GLOBALG.A.P. (Global Partnership for Good Agricultural Practices) provides benchmarks for food safety, sustainability, social welfare, animal welfare, etc. Producers may obtain an accredited certificate to gain globally accepted credibility to food retailers and food manufacturers. Its 142 independent and accredited certification bodies worldwide conduct both announced and unannounced onsite farm inspections and audits throughout the year.

http://www.globalgap.org/uk_en/what-we-do/the-gg-system/benchmarking/

carboNZero

Established in 2001 by Landcare Research NZ Limited, carboNZero is an internationally accredited greenhouse gas certification scheme based on over a decade of research on climate change, greenhouse gas measurement and carbon monitoring. There are five key steps to attaining certification through the carboNZero program: measure, manage, mitigate, verify, and market. CarboNZero program may certify organizations, products, services, events, or individuals.

http://www.carbonzero.co.nz/about/

CEMARS

CEMARS (Certified Emissions Measurement And Reduction Scheme) certification is an alternative certification option for carboNZero, offered also by the carboNZero program. CEMARS is essentially the first two steps of carboNZero certification. This scheme is developed for large organization or large emitting industries where offsetting is not a viable option or they wish to take a measured approach and further gauge the cost benefit of positioning their organization and products/services in the carbon neutral market space.

http://www.carbonzero.co.nz/cemars/

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SWNZ

SWNZ (Sustainable Winegrowing New Zealand) was established in 1995 as an industry initiative, and was adopted by growers from all the grape growing regions in 1997. The SWNZ program provides a framework for viticultural and winemaking practices. The seven focus areas in the SWNZ program are: biodiversity; soil, water and air; energy; chemicals; byproducts; people; and business practices. The program uses a scorecard approach for practices and management in both the vineyards and wineries; certified organizations are independently audited at least once every three years. Audited and certified companies may put the logo on their products which delivers a quality assurance from the vineyard through to the bottle.

http://wineinf.nzwine.com/swnzabout.asp

Exhibit 6a New Zealand wine industry overview

New Zealand is a small international player in terms of volume; however, it recorded the strongest growth in the New World countries in both exports and wine production in the last decade, predominantly in Sauvignon Blanc. Some key data are presented in the Figure 3a. New Zealand was also the fastest-growing wine exporter globally in the last decade and total New Zealand wine exports increased significantly over this period. Sauvignon Blanc dominated NZ's wine exports, accounting for 80% of bottled wines sold overseas. In 2011-12, the average export price for New Zealand wine was NZ$6.60 per litre and the national average grape price was $1,315 per ton. Grape prices moved up more than wine prices in 2012-13 due to a supply deficit. The top three markets for New Zealand wine were Australia, UK and USA, which account for about 90%. The wine industry was the eight most valuable export earner in New Zealand with $1.2 Billion in 2012.

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Exhibit 6b. New Zealand wine industry overview

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Wine companies*	421	463	516	530	543	585	643	672	698	703
Growers	625	589	818	866	1,003	1,060	1,117	851	791	824
Producing areas (hectares)	15,800	18,112	21,002	22,616	25,355	29,310	31,964	33,428	33,400	33,400
Average yield (tonnes per hectare)	4.8	9.1	6.9	8.2	8.1	9.7	8.9	8.0	9.8	8.1
Average grape price (NZ$ per tonne)	1,929	1,876	1,792	2,022	1,981	2,161	1,629	1,293	1,239	1,315
Tonnes crashed	76,400	165,500	142,000	185,000	205,000	285,000	285,000	266,000	328,000	269,000
Total production (millions of litres)	55.0	119.2	102.0	133.2	147.6	205.2	205.2	190.0	235.0	194.0
Domestic sales of NZ wine (millions of litres NZ wine)	35.3	35.5	45.0	50.0	51.0	46.5	59.3	56.7	66.3	63.5
Consumption per Capita NZ wine (litres NZ wine)	8.8	8.8	11.2	12.1	12.2	11.1	13.9	13.0	15.2	14.3
Total sales of all wine (millions of litres)	74.5	79.7	81.7	86.0	91.8	87.4	92.7	92.1	93.9	91.3
Consumption per Capita all wines (litres)	18.6	19.6	19.8	20.6	21.7	20.8	21.5	21.1	21.3	20.6
Export volume (millions of litres)	27.1	31.1	51.4	57.8	76.0	88.6	112.6	142.0	154.7	178.9
Export value (millions of NZ$ FOB)	281.9	302.6	434.9	512.4	698.3	797.8	991.7	1,041	1,094	1,177

*Includes companies without actual sites

Source. New Zealand Winegrowers, 2013

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Exhibit 7. Yealands core wine brands

Brand	Name	Tier - Retail Price	Certificate Markets	
Yealands Estate	**Yealands Estate Reserve Range**	Top Tier ~NZ $35	carboNZero, sold in key markets (UK, NZ, Australia)	
	Yealands Estate Single Block Range	2nd Tier NZ $27.95	carboNZero, sold in key markets (UK, NZ, Australia)	
	Yealands Estate Range	3rd Tier NZ $24.95 (or less on promotion)	carboNZero sold in over 55 countries	
	Yealands Range (Peter Yealands, Yealands Way, etc)	4th Tier NZ$ 17.95 (or less on promotion)	carboNZero, sold in all 72 markets	
	Violet Sparkling Range	4th Tier NZ $17.95 (or Less on Promotion)	carboNZero	
Crossroads	**Crossroads**	2nd Tier NZ $27.95	Sold mainly in NZ, Asia and UK	
The Crossings	**The Crossings**	3rd Tier NZ $19.95 (or less on promotion)	Sold in the key markets (UK, NZ, Australia, US)	

Source. Company data

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Exhibit 8. Yealands Estate carboNZero labelling

Source. Company data

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Exhibit 9. Environmental Initiatives at Yealands

Project and year	Stage	Benefits	Description
Wetlands (2007-)	Vineyard	Water conservation. Biodiversity.	25 wetlands are strategically positioned on the vineyard to capture water run-off from the vineyard and slowly release it back into the soil. Over 75,000 native trees and flaxes are planted and are home to a range of wildlife. In addition, the endangered New Zealand Falcon, the Karearea, released on Yealands vineyard as part of the breeding programme, helps in protecting grapes from other birds.
Compost (2012-)	Vineyard	Reduced synthetic fertilizer ($) Water retention	Over 10,000 tonnes of compost is produced and applied annually, using by-products from wine production, untreated bark from saw mills, mussel shells, and seaweed from aquaculture. It is planned to increase compost production in future using increased quantities of marc (waste left after pressing grapes for their juice) obtained from other wineries.
Biochar from pruning (2010-)	Vineyard	Improve soil quality, carbon storage. Displace synthetic fertilizers ($).	Experimental work underway for biochar generation from prunings for application onto soil in the vineyards.
Animal grazing (2011-)	Vineyard	Reduced diesel emissions ($). Reduced soil compaction from machinery. Reduced herbicides ($). Reduced synthetic fertilizers ($). Reduced diesel use ($) Animal products ($).	Babydoll miniature sheep grazed in vineyards (currently around 500 sheep). The sheep are being bred to build up an anticipated flock of 10,000 sheep. It is anticipated that another business will be created to sell their wool and meat; the meat has already been sold as a premium product to a UK supermarket, Marks & Spencer. Kunekune pigs grazed in vineyards and eat foodscraps from the staff kitchen (experimental trial).
Pest control (2008-)	Vineyard	Reduced pesticides ($). Protection of soil organisms. Chicken products ($).	Use of plastic sleeves on vines and posts to stop weta (similar to a grasshopper and endemic to New Zealand) climbing up them. Solar powered lights on some of the lakes attract grass grubs in their mating phase which then fall into the water and are eaten by fish. Chickens range around vineyards and eat pests.

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Exhibit 9. Environmental Initiatives at Yealands-*Continued*

Project and year	Stage	Benefits	Description
Beehives and native plants (2012-)	Vineyard Winery	Encourage beneficial insects. Produce honey to sell and/or use in wine production ($).	Trial of beehives in the vineyards, and planting native plants in between the vine rows to encourage bees (and other beneficial insects); honey can be collected and sold – or may be used in wine production.
Music in vineyards (2012-)	Vineyard	Better growth of vines.	Solar-powered loudspeakers play music over vineyards in an experiment to see if it benefits the vines.
Organics conversion (2009-)	Vineyard	Trial organic methods on vineyard.	A small vineyard has been converted to organic production in order to investigate methods for reducing agrichemical and fertiliser applications across Yealands owned vineyards.
Hydrogen generators (2012-)	Vineyard	Reduced carbon emissions Reduced diesel use ($).	Hydrogen generators installed onto the tractors.
Rainfall collection (2008-)	Vineyard Winery	Recycling of water.	Rainfall from the roof is collected in swale drains on either side of the building, and piped out to the wetlands in the estate.
Prunings for energy generation (2008-)	Vineyard Winery	Energy generation LPG cost savings ($).	Approximately 10% of the grapevine prunings are baled and burned; the energy is used to heat water and glycol (the liquid used on the exterior of wine tanks to heat and cool the wines) in the winery. Each 200 kg bale provides heat equivalent to burning 60kg liquid petroleum gas (LPG). The remainder of the prunings are mulched back into the soil.
Wind turbines and solar panels (2008-)	Vineyard Winery	Energy generation ($).	Two small wind turbines, and a small number of solar panels, are used to generate electricity. Investigations are underway for installation of a much larger wind turbine so that the winery can be self-sufficient for electricity.
PET bottles (2012-)	Packaging	Reduced weight (and therefore less transport fuel). Reduced carbon emissions.	PET bottles that incorporate a vapour barrier have replaced glass bottles for some brands. PET bottles are 89% lighter, have 54% less greenhouse emissions, and consume 19% less energy compared with traditional glass bottles.
Hybrid cars	Sales	Reduced carbon emissions.	Yealands sales team use hybrid cars.

Note.'$' cost saving and/or revenue generation

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