



'Responsible' drinking:

how can the buying behaviour of sustainable wine be stimulated?
The influence of sustainability claims, eco-labels and the kind of packaging.



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Acknowledgements

So this is it; the final 'assignment' in my university career. 4 years ago I started with my Bachelor Business Administration. This study is in my opinion the perfect basis for my further career. I learned much about the different aspects of a business. In the beginning of my Bachelor is thought I would choose a Master in the area of Finance or Accountancy. But along the way I noticed that Business is not only about profits, numbers and sell as much products as possible without looking at the impacts that these activities have. It is also about a making a positive impact on the world and balancing people, planet and profit. Therefore I chose the Master Global Business and Sustainability.

In this Master program I learned more about sustainability and the impact of businesses. These topics are very interesting, current and are applicable for everyone, because we are all dependent on the state of our earth. The interest in sustainability combined with my personal experience with the food sector by working at the Albert Heijn, resulted in sustainable food products as topic for my thesis. I did not know exactly which subject was the most interesting in the sustainable food sector. So I did research and came across the attitude-behaviour gap. This gap is not only a serious issue for the sustainable food sector in general; I, myself also experienced this gap.

The sustainable food sector is a quite broad sector with many areas and products; therefore my main focus is on one product, wine. Next to the literature review, I really wanted some practical form of conducting the research; therefore I chose to do a conjoint analysis. In this way, I made the experience of buying sustainable wine very real-life. The products and labels used in the experiment are all provided by and developed with Delta Wines, one of the biggest wine wholesale companies in the Netherlands. One of the most engaging things of my research are the conversations I had with the respondents about sustainable wine. This gave me interesting insights that go beyond the experiment I conducted. I hope my thesis will contribute to making the wine industry more engaged and aware of sustainability issues and the possibilities that sustainable wine and packaging materials have.

The process of writing this thesis was sometimes stressful and difficult, but now that I look at the result I know it was worth it. I want to thank a couple of people who helped me with making this thesis. First of all, my coach Guido Berens and co-reader Ingrid de Vries from the Erasmus University Rotterdam who helped me with the process of writing a thesis and making it as good as possible by giving their critical feedback and tips. I also want to thank Delta Wines for their collaboration and especially Maurice van der Voorst for helping me with designing the labels, Erik de Bruijn for connecting me with a couple of supermarkets and Wendy van den Hengel for supporting me with information and ideas. And I want to thank the Jumbo, Hoogvliet and Plus supermarkets for giving me the possibility to conduct the experiment in their supermarket. I also want to thank my talented nephew Bram Esveldt for designing the front of this thesis. And last but certainly not least my parents and my brother who supported me along the way.

Executive summary

The contemporary way this society is consuming has a negative impact on the environment. Sustainable products are produced with respect for our planet and have no or a low negative environmental impact. Nowadays, businesses and governments are more aware of the benefits that sustainable products have and are increasingly supporting and initiating innovation in this area. In addition, consumers are increasingly choosing for sustainable products and are becoming more positive about these products. However, the market share of sustainable products is still low when it is compared to the attitude towards these products.

This research will focus on the stimulation of the buying behaviour of sustainable wine and the role of three different attributes: sustainability claims, eco-labels and the kind of packaging. The literature review shows that there are different reasons for consumers to buy sustainable products, such as the concern about the environment and animal welfare, the perception that these products are healthier, more tasteful and of better quality than conventional products. But previous literature also identified a couple of significant barriers that widen the gap between attitude towards sustainable food products and the actual buying behaviour of these products. The main barriers that are identified are a lack of environmental knowledge and the price.

To see what the influence of sustainability claims, eco-labels and the kind of packaging is on the buying behaviour of sustainable wine, a conjoint analysis was conducted in different supermarkets in the province of South Holland in the Netherlands. The profiles, which were showed to the consumers, were created based on different levels of the attributes. The results show that the presence of a sustainability claim, in this case 'eco-friendly', has a positive effect on the buying behaviour of sustainable wine. The use and creation of an effective sustainability claim can be difficult, because it is sometimes linked to greenwashing. Moreover, consumers consider it as the least important attribute of the three.

Eco-labels are very important for the decision making process of consumers when buying sustainable wine. However, the results indicate that the familiarity with both eco-labels (EU organic farming and EKO) has no significant effect on the buying behaviour of sustainable wine. Another interesting result is that the overall familiarity with both the eco-labels is quite low. Moreover, there is still a lot of distrust in the labels, respectively 36.6 percent and 38.03 percent of the consumers indicated that they did not trust the labels. Furthermore, the results imply that the EU organic farming label has the highest (positive) effect on the buying behaviour of sustainable wine. This effect is higher than the EKO-label, both eco-labels together and no label. In addition, a mandatory label (EU organic farming label) has a more positive effect than a non-mandatory label (EKO label).

The kind of packaging is ranked as the most important attribute. This attribute consisted of three different levels: the conventional glass bottle, a bag in box and a paper bottle. The bag in box and paper bottle option are more sustainable than the glass bottle, because these options have a higher recycle rate and are lighter. The results show that consumers still prefer the conventional packaging the most. But a big part of them (75 percent) found that sustainable products should be packed in sustainable packaging materials.

Consumers have mixed feelings about the paper bottle. On the one hand, they found it a great initiative and were really curious about the idea behind it. But on the other hand, they are also sceptical about the quality and durability of the wine in this new kind of packaging. Therefore more information about the product and its characteristics is needed to make it reliable and therefore attractive to consumers.

The most preferred profile of sustainable wine is the glass bottle of wine with a sustainability claim and an EU organic farming label.

This research contributes to the academic literature by showing what the effect is of sustainable packaging and by looking at the effect of the available information, in this case a sustainability claim and different eco-labels, on the packaging of sustainable products.

In addition, this research has a couple of managerial implications for businesses in the wine sector. First of all, consumers still prefer sustainable wine packaged in glass bottles compared to bag in boxes and the paper bottle. However, there are a couple results that speak in favour of a transition to a more sustainable wine industry. Especially the high percentage of consumers (83 percent) that has a positive to very positive attitude towards sustainable wine. This can be an opportunity for the wine industry in general. Secondly, the wine sector should partner up with national and international governments to ensure that the recycling rate of glass goes up. International agreements should be made, because it is very difficult to only carry this out on a national level.

The knowledge of consumers about the environment, animal welfare and other related topics is essential to make the transition to a sustainable society. The government should increase the knowledge of these topics by setting up educational programs on primary and secondary schools. In this way the awareness about these topics can be raised what eventually can lead to more sales of sustainable products in general.

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Chapter 1: Introduction

In January 2017, the Dutch government organised the first National Food Summit. The Netherlands wants to be the world leader in healthy and sustainable food in 10 years (Food Holland, 2017). This is a very ambitious and difficult goal, but there are already many good initiatives. The government already stimulates sustainable food production by partnering with businesses and research institutes. In addition, they invest in alternative food sources and production ways (Rijksoverheid, 2016). These developments are in line with two of the Sustainable Development Goals (SDGs): "Good health and well-being" and "Responsible consumption and production" (UN, n.d.). Businesses play an essential role in the transformation to a more sustainable food industry. They increasingly see that they also have an important role. An example of a sustainable initiative is the Green Protein Alliance, where retailers, such as Jumbo and Albert Heijn, and suppliers, such as Hak, work together to find and promote sustainable and vegetable sources of protein (Thijssen, 2017). Businesses, both large and small, get support from the government, research institutes and financial institutions. For example, ING recently partnered with the Investment Ready Program which helps sustainable businesses with growth capital (Jelyta, 2017).

Also consumers increasingly choose for sustainable food; "the spending on sustainable food in the Netherlands increased by 12% in 2015 compared to 2014" (Logatcheva and Van den Puttelaar, 2016: 1). Sustainable food can be defined as products with a low environmental impact, contributing to food security and health for present and future generations. It not only involves the environment and climate, but also fair trade, animal welfare and nature conservation (Voedingscentrum n.d. a). This is a step in the right direction. But there is still a long way to go for the sustainable food industry; the market share of sustainable products is only 8 % (Logatcheva and Van den Puttelaar, 2016). In contrast, research shows that 85% percent of the respondents say they choose for a sustainable product if the price is similar and 42% percent if the price is 10% higher relative to a 'normal' product (Goos, 2017). Thus, it seems that people don't always walk the talk. This gap between the positive attitude towards sustainable food options and the actual behaviour of buying sustainable food is identified by several studies as the attitude-behaviour gap (Blake, 1999; Kollmuss and Agyeman, 2002; Tanner and Kast, 2003; Vermeir and Verbeke, 2006; Young, 2010).

Consumers are given much information to make a sustainable choice, such as the information on the packaging and various labels concerning sustainability (eco-labels). The increased attention from businesses and institutions such as the Dutch Nutritious Centre (Voedingscentrum) and the National Institute for Health and Environment (RIVM) also helps consumers to make a sustainable choice (NOS, January 24, 2017).

Goos (2017) concludes that the most important categories people look at when determining if a business or product is sustainable are the presence of an eco-label (16%) and the overall sustainability of business which can be displayed on the packaging (12%). While 15% of the respondents indicate that they don't know where to look.

Other important categories are the price of the product (8%) and origin of the product (8%). The packaging and eco-label are therefore essential determinants in the decision making process of consumers.

This research will focus on the following question:

What kind of information, in terms of eco-labels and sustainability claims, on the packaging of sustainable wine can stimulate the buying behaviour of sustainable wine? And what is the role of the kind of packaging?

1.1 Background

In this chapter, the main concepts and a part of the theoretical background will be described.

The attitude-behaviour gap is mainly identified in the environmental sector. It can be described as the difference between what people think, say and feel about something and what people actually do. Other names for this phenomenon are: value-action gap, intention-behaviour gap and belief-behaviour gap. Homer and Kahle (1988) claim that attitudes influence behaviour and therefore explain the reasons behind behaviour, but that this claim often isn't the case for environmental behaviour and some other types of behaviour. The Theory of Planned Behavior (TPB) links the behaviour of an individual to behavioural intentions, which are shaped by different aspects: attitude towards behaviour, subjective norms and perceived behavioural control (Ajzen, 1991).

Much research has been done into the attitude-behaviour gap. Research found many internal and external factors that affect the gap both positively and negatively. Blake (1999) identified three categories of barriers that stand between attitude and actual behaviour:

- Individual barriers such as laziness and lack of interest
- Responsibility barriers, such as lack of efficiency and trust, no need
- Practicality barriers such as lack of time, money and information

Another distinction, between individual and situational factors that affect the gap, is made by Yatish and Zillur (2015), who reviewed 53 empirical articles related to this topic. "Individual factors include variables related to an individual decision maker whereas situational factors comprise variables that make and describe the various situations in which an individual consumer makes consumption decisions" (Yatish and Zillur, 2015: 132). The effect of individual factors is recognised by many articles. A couple of articles concluded a negative relation between habits of consumers and sustainable food buying behaviour; consumers often stay with their habits rather than switching to sustainable options (Magnusson et al., 2001; Padel and Foster, 2005). Changing consumer preferences is seen as very difficult.

Bang et al. (2000) found that a lack of trust in green claims by consumers is a barrier between attitude and behaviour. Thus, consumer trust is very important. The review found that the factor 'knowledge' was the most studied variable. The knowledge of environmental issues may have a positive influence on sustainable food buying behaviour (Young et al, 2010; Eze and Ndubisi, 2013). But this relation is not supported by all studies (Chan and Lau, 2000).

In addition to a lack of trust and knowledge, the price of sustainable products is also one of the most researched factors. This situational factor has a negative influence on the sustainable food buying behaviour and makes the gap even bigger (e.g. Padel and Foster, 2005; Vermeir and Verbeke, 2006). Also product availability reportedly has a negative effect on the gap (Young et al., 2010). Where easy availability of sustainable products is assumed to have a positive effect on sustainable buying behaviour (Tarkiainen and Sundqvist, 2005). Aertsen et al., (2011) report that product attributes, like health related benefits, quality and taste, have a positive influence on the consumption of sustainable products.

An additional factor contributing to the attitude-behaviour gap, that has been studied very little, is the influence of the information on the package about for example the product, the place of origin and the eco-label. This research will focus on the influence of the information on the packaging and the packaging itself of the sustainable food product on the attitude-behaviour gap. The main concepts and variables will be discussed below. An attitude can be described as 'a feeling or opinion about something or someone' (Cambridge Dictionary n.d.). The attitude towards sustainable food product is the independent variable of this research. In the past few years the attitude of consumers towards sustainable products has become more positive. And an increasing amount of consumers think they can make a difference with their sustainable purchases. For more than four out of ten consumers sustainable aspects play an important role when purchasing products or services (Moeskops, 2015). Sustainable food (wine) buying behaviour is the dependent variable of this research. The consumer spending on sustainable food products in the Netherlands increases. There are three moderating variables in this research: sustainability claims, eco-labels and the kind of packaging. These three variables are displayed on the packaging of a product. Most of the consumers want information about a product before they purchase this product. This information is often communicated via the packaging of the product. The required information on the packaging in the Netherlands is defined in "de Warenwet". This law indicates what should be on the packaging (Rijksoverheid, n.d.). Examples are:

- Ingredients
- Name product
- Name and address producer
- Nutrition value, like the energy and nutrients level

- Nutrition claims, like 'light' products. Only scientifically proven nutritional claims are allowed on the packaging.
- The origin of a product, if the product consists of more than 50 percent of meat, fish or dairy
- E-numbers, these are additions that will improve or alter the characteristics of a product
- Allergens, like gluten and shellfish

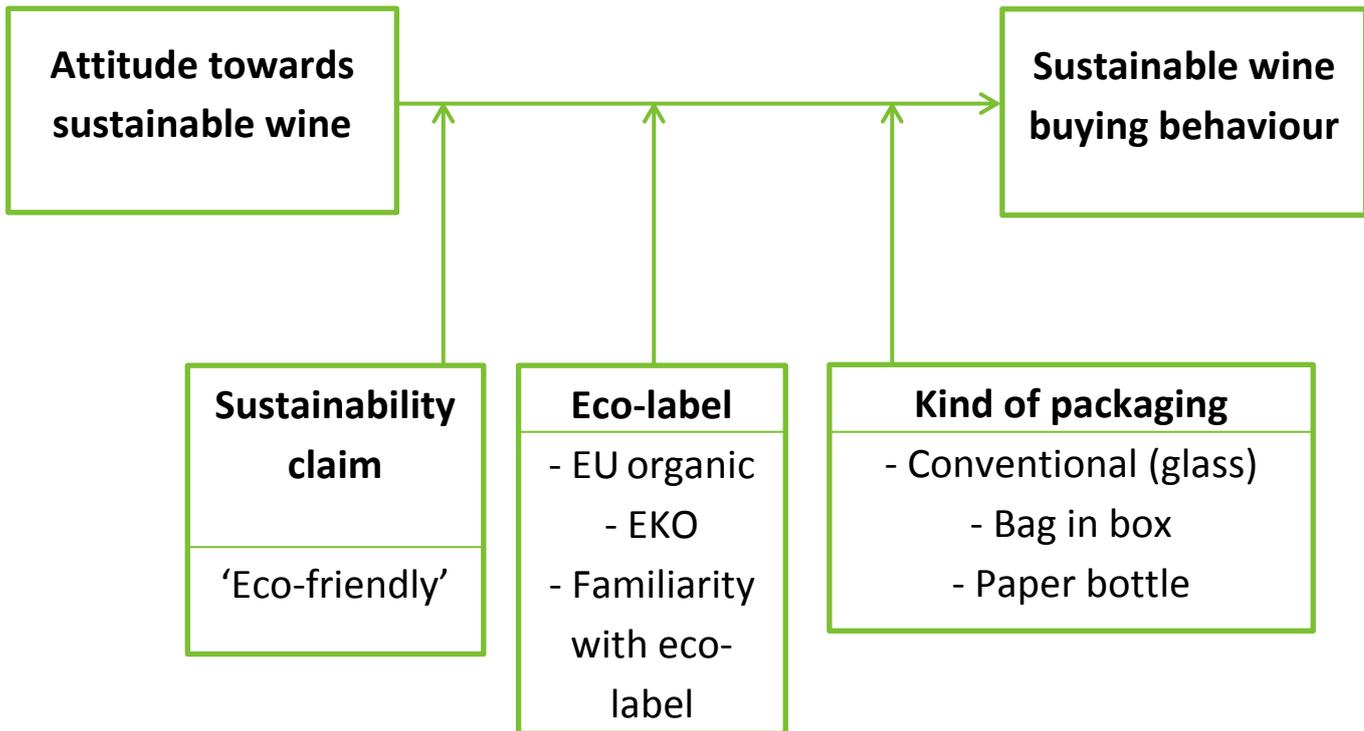
Other information given on the packaging are eco-labels (keurmerken), like UTZ certified, EKO and Beter Leven. These eco-labels can communicate something about a diverse set of subjects: sustainability (environment, animal welfare or fairtrade), origin and quality and health. They must meet certain requirements, which are different per kind. They can be created by governments (EU organic farming label), but also by private organisations (EKO) (Voedingscentrum n.d. b).

Fazli (2016) identifies that the visual appeals of an advertisement are the most important attribute when communicating about sustainability. Also cognitive elements are very important, especially eco-labels. But these eco-labels are not always proof of sustainability in the eyes of the respondents. Boon (2015) researched the influence of 3 aspects on the buying intention of the consumers. The research shows that the place of origin of a product is most valued by consumers, then the additional information on product characteristics and least valued is the label concerning sustainability.

The information on packages is not always fair and transparent. For example, the organization Foodwatch annually presents an award for the most misleading product according to the consumer (Foodwatch, 2015). In addition, Padel and Foster (2005) report that a lack of information has a negative influence on sustainable buying behaviour. Blake (1999) even argues that the main barrier between environmental concern and behaviour is the lack of appropriate information.

My personal experience with sustainable food products is that the amount of information is sometimes too much for me. The amount of information can sometimes be overwhelming. Burgess et al. (1998) argue that increasing the amount of information will not close the gap. Instead the right information should be communicated in the right way. In contrast, Roe et al. (2001: 23) suggest that "policies that require compulsory display of detailed information about price and environmental attributes would be more beneficial for consumers than simple eco-seal disclosure policies and most voluntary, detailed-disclosure regimes".

To give an overview of my research, I will formulate a provisional conceptual framework.



1.2 Research problem

The research question of this research is as follows:

What kind of information, in terms of eco-labels and sustainability claims, on the packaging of sustainable wine can stimulate the buying behaviour of sustainable wine? And what is the role of the kind of packaging?

To answer this question, a couple of sub questions should be answered. These questions can be, for example:

- *What drives people to buy sustainable products?*
- *Which barriers regarding the attitude-behaviour gap are already identified by prior research and what are today's businesses, (semi-)governmental institutes and NGO's do to overcome these barriers?*
- *What kind of information is required on a food package? And how can this kind of information be divided in subcategories?*
- *What are sustainability claims and eco-labels and what are their implications on the buying behaviour of sustainable food products?*
- *What is sustainable wine and which eco-labels are used to promote sustainable wine?*

1.3 Methodology

To answer the more theoretical questions, a literature review will be done by looking at articles regarding the attitude-behaviour gap and also news sources. The more practical questions will be answered by using a quantitative research design. An experiment will be developed in which respondents answer a few questions about a sustainable food product. To make the experience more real-life, the survey will be held in a number of supermarkets. Within this experiment I will conduct a conjoint analysis to see how the respondents react to different kinds of information on the packaging.

The sustainable food product that will be researched in the proposed experiment is wine. In contrast to other sustainable food products, the sale of sustainable drinks has decreased in 2015 relative to 2014. The market share of sustainable drinks only counts for 1 percent of this product group (Logatcheva and Van den Puttelaar, 2016). But according to wine professionals organic and natural wines are one of the trends of 2017 (Meeberg, 2017). Therefore this can be an interesting product to research. Organic wine can be defined as wine that is made from grapes which have been produced without the use of artificial or synthetic chemicals (Honan, 2015). In addition, wine wholesale company Delta Wines has indicated that they will help to create the different labels which can make the experiment more real-life.

1.4 Relevance

1.4.1 Academic

There are already many studies done in the field of the attitude-behaviour gap. Much research focuses on the individual consumer or the situational context. Not much is written about the effect of the available information on sustainable products. A couple of studies already have some interesting results; Fazli (2016) identifies that visual appeals are most important when it comes to advertisements about sustainability and Boon (2015) concludes that the place of origin is most valued by consumers of sustainable products. But there is still much to research and learn. This research can contribute to the academic field by showing which information is essential in the sustainable decision-making process of consumers.

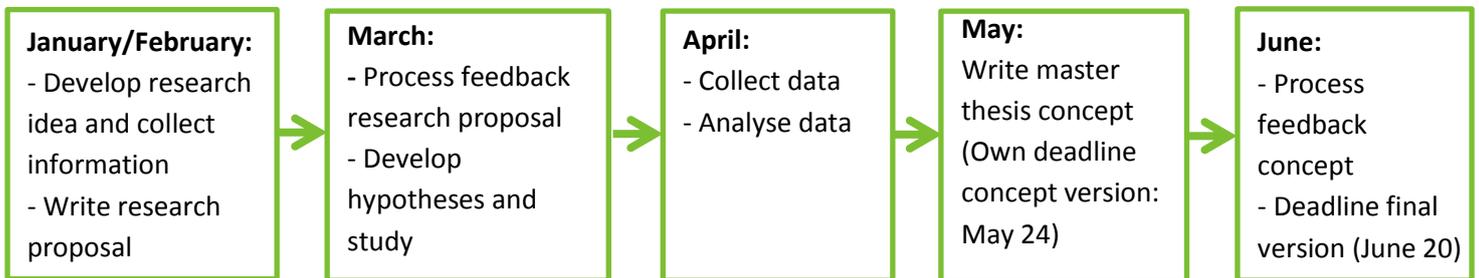
1.4.2 Managerial

The attitude of the consumer is one of the most important things for businesses, because this eventually should lead to sales. But this is not always the case in the sustainable food sector. This research can show businesses and also policymakers which information is essential for consumers in the sustainable decision-making process. This new knowledge can contribute to new ways of communicating information on packaging and eventually in more consumption of sustainable food products. The positive attitude is already there, now it is time that the sales go up.

1.4.3 Social

The contemporary way of consuming is a big problem for the environment. Many consumers are consuming without thinking about the impact of their purchases on the environment and the society as a whole. Also most of the wine consumption is not environmental friendly at the moment; wine is imported from all over the world. Wines from, for example, Chili or Australia are no exception in the Dutch wine industry. These wines are most of the time transported by truck and ship which can result in much CO₂ emissions. In addition the production of grapes costs a lot of water: it takes almost 500 litres of water to produce one litre of Australian wine (Amienyo et al., 2014). Sustainable wine¹ and wine packaging can reduce the negative effect on the environment, but this kind of wine is not yet the standard in the wine industry. Businesses and the government can have much influence on the buying behaviour of consumers, but the ultimate choice for buying sustainable products lies with the consumer. This research can make the society more aware and curious about sustainable wine and other products. First of all, through the experiment itself because this will be done in supermarkets and with consumers. And secondly, because it will make managers and businesses more aware which can lead to more sustainable wine options in the marketplace and more information dissemination about sustainable wine. In this way positive attitudes can be translated in the actual buying of sustainable wine and other products.

1.5 Timetable



¹ Sustainable winegrowing can be defined as following: 'Generally speaking, sustainable winegrowing comprises growing and winemaking practices that are sensitive to the environment (environmentally sound), responsive to the needs and interests of society at large (socially equitable) and economically feasible to implement and maintain (economically feasible)' (Sellers, 2016: 11).



Chapter 2: Theoretical background

This chapter will focus on the theoretical background of the research. First, a literature review will be conducted about the main concepts of this research. Based on these insights, a conceptual model and hypotheses will be developed.

2.1 Literature review

2.1.1 Sustainable buying behaviour

As described in the introduction chapter, the attitude-behaviour gap describes the difference between what people think, say and feel about something and what people actually do. This research focuses on the attitude towards sustainable food products and the actual buying behaviour of sustainable food products. Sustainable food products are products that are produced with respect for and low (negative) impact on people, animals and the environment. Indicators of the impact are greenhouse gases, land use, water use, resource depletion, loss of biodiversity and energy use. 20 to 35 percent of the environmental impact and greenhouse gas emissions are caused by the production and consumption of food (Voedingscentrum, n.d. a). Consumers can deduce the level of sustainability in particular from the information on the packaging (claims and eco-labels).

Consumers have different reasons to choose for sustainable food products. The most critical reasons will be discussed. Maybe the most obvious reason for consumers to choose sustainable food products is that they are concerned about the environment and/or animal welfare (e.g. Michaelidou and Hassan, 2008; Wee et al., 2014; Kareklas et al., 2014). This is mainly based on the perception of consumers that chemicals and pesticides which are used in conventional products are environmentally harmful (Hughner et al., 2007). Consumers also want to have a sustainable future and harmony with the universe which are related to environmental concern (Zanoli and Naspetti, 2002).

But environmental concern does not seem to be the driving force behind sustainable food purchases. Many studies have found that consumers view sustainable food products as healthier than conventional products (e.g. Miles and Fewer, 2001; Padel and Foster, 2005; Hughner et al., 2007). Padel and Foster (2005) found that (personal) health was by far the strongest reason for consumers to buy sustainable food products. Sustainable food products often contain less additives, chemicals, pesticides and fertilisers which are associated with health risks. For example, sustainable wine adds less or no sulphite, which is linked to nasal blockages (Anderson et al., 2009). Research from Padel and Foster (2005) and (Kareklas et al., 2014) also found that some of their respondents associate sustainable products with local initiatives and production. They buy sustainable food products to support the economy. Another important purchase criterion is quality or taste, found by Magusson et al. (2001) and Zanoli and Naspetti (2002). The basis for this criterion is hedonism, achievement and enjoyment.

The reasons to buy sustainable food products can vary between different kinds of food and drinks. But the two main reasons/criteria for consumers to buy sustainable food products are personal benefit (healthier, more quality/taste) and environmental concern.

2.1.2 Barriers

Besides various reasons for consumers to buy sustainable food products, there are also several factors or 'barriers' that seem to prevent consumers from translating their positive attitude towards sustainable food products into actual sustainable consumption decisions. The most researched and interesting (for this research) factors will be discussed, a couple of these factors are already been described briefly in the background chapter. Both individual and situational factors (as distinguished by Yatish and Zillur, 2015) are relevant for this research. The information on the packaging and eco-labelling can be seen as situational factors; because they are part of situations in which a consumer makes its decisions. Also individual factors, such as trust and knowledge, are relevant for this research because they can influence the way consumers look at the information on the packaging and the eco-labels.

The sales of sustainable products are increasing; "the spending on sustainable food in the Netherlands increased by 12% in 2015 compared to 2014" (Logatcheva and Van den Puttelaar, 2016: 1). There appears to be an interaction between a push and pull movement. On the one hand consumers are becoming more environmentally aware and this result in an increasing demand for sustainable food products. On the other hand, more and more producers, supermarkets, caterers and restaurant see the advantages of offering sustainable food products. The most popular and best-known supermarkets, Albert Heijn, Jumbo and Plus, have a growing range of sustainable products (Verhagen and Ploeg, 2016). But the supply of sustainable products can barely keep up with the demand, mainly because the transition towards sustainable production process and products for businesses takes time (De Leeuw, 2016). This can be linked to one of the most important barriers: the limited availability of and difficulty in accessing sustainable products (Young et al., 2010). Most consumers have a preference for easy accessible products which are available whenever and wherever they want (Tanner and Kast, 2003). Therefore it is important for the involved parties (government, businesses, NGO's and consumers) to focus on this transition and to join forces in the field of improvement, funding and innovation.

The factor 'knowledge' is the most researched factor according to Yatish and Zillur (2015); the authors found eighteen papers that examined the environmental knowledge of consumers in relation to the attitude-behaviour gap. Fifteen of these studies found that the amount of environmental knowledge of consumers has a negative effect on the attitude-behaviour gap (e.g. Young et al, 2010; Eze and Ndubisi, 2013). But also three studies did not find any relationship between these two variables (e.g. Chan and Lau, 2000).

Based on these findings it can be suggested that there may be a relationship between the environmental knowledge of consumers and sustainable food buying behaviour or intention. Information on packaging informs consumers about the product, its ingredients and the producer, and can lead to increased consumer knowledge about environmental and social issues. There is an increased awareness for the environmental and social issues amongst businesses, NGO's and consumers. Also national and international governments are increasingly supporting sustainable innovations and sustainable consumption (Monitor duurzaam Nederland, 2016). This increased awareness and support can lead to increased consumer knowledge which can have a negative influence on the attitude-behaviour gap. A related factor to knowledge is 'trust'. Chen (2010) defines trust in sustainable products as a belief about the environmental performance of these products. Trust in sustainable products is assumed as a very important factor in the decision making process of consumers; a lack of trust is found to be a significant barrier between a positive attitude and actual sustainable buying behaviour (e.g. Bang et al, 2000; Fotopoulos and Krystallis, 2002). Yatish and Zillur (2015) conclude that more information can strengthen consumers' trust in sustainable products by an increased level of consumer environmental knowledge.

Another assumed barrier that stands between the positive attitude of consumers and their sustainable buying behaviour is the price of sustainable (food) products. Sustainable (food) products are often more expensive than conventional products. This is mainly due to the production process and the different standards/rules regarding sustainable food. For example, the production of organic agriculture is on average 20 percent lower compared to conventional agriculture (Verhagen and Ploeg, 2016). Many different studies recognise and found proof for this barrier; the higher price of sustainable food products often outweigh the environmental and ethical considerations (e.g. Padel and Foster, 2005; Vermeir and Verbeke, 2006). However, many studies suggest that consumers are willing to pay a price premium for sustainable products. The level of the price premium depends on the type of products; wine, 12.87 percent (Sellers, 2016), apples, 5 cents per pound (Loureiro et al., 2002) and breakfast cereal, 33.28 cents on a box of \$3.00 or approximately 10 percent (Batte et al., 2007). Miremadi et al. (2012) researched the price premium consumers say they are willing to pay for different sustainable products. What stands out is the share of consumers that is willing to pay a (little) price premium ; for every sector 70 or more percent of the consumers are willing to pay a premium of five percent. For the packaging and automotive sector 70 percent of the consumers even want to pay 10 percent.

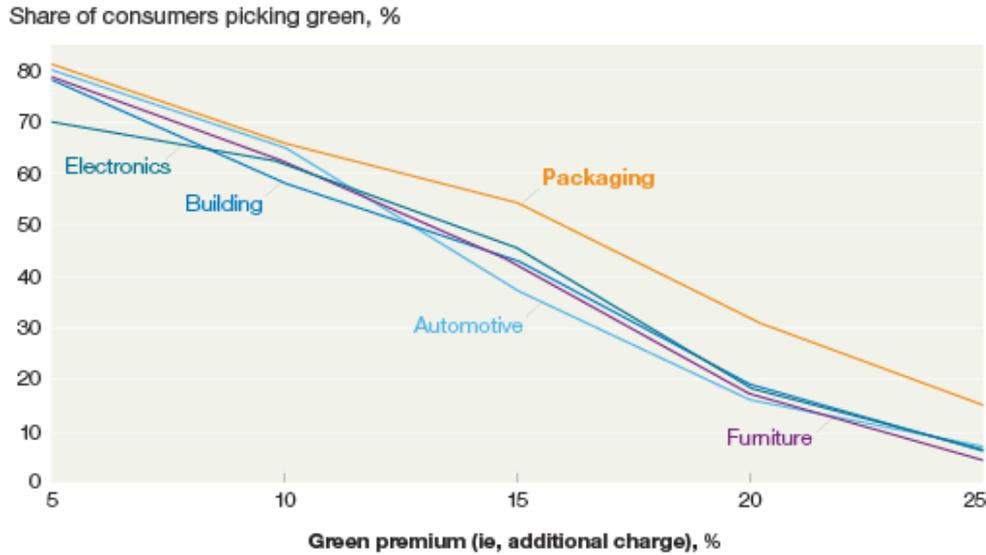


Figure 1: Share of consumers that are willing to pay a premium for sustainable products (source: Miremadi et al., 2012)

2.1.3 Information on the packaging

The product packaging can provide information about the specific product. But there is a growing amount of confusion among consumers due to misleading product information (Delmas and Burbano, 2011). Since December 2016, a new law regarding the information on packaging is introduced: 'Warenwet Informatie Levensmiddelen' which falls under European legislation. This law should encourage consumers to make healthier choices because products can be better compared and it should also prevent deception (Schipper, 2016). While this makes choosing healthy products a bit easier, choosing sustainable products is not always easy. Pickett-Baker and Ozaki (2008) argue that consumers have a difficult time differentiating sustainable products from unsustainable or greenwashed products.

A distinction in the available information on the packaging can be made between mandatory information and optional information, such as an eco-label (some are mandatory), a message from the producer or a recipe. The mandatory information on packaging in Europe is described in the 'Warenwet Informatie Levensmiddelen'. The packaging of pre-packaged food products should show the following elements: name, ingredients, allergens, name and address producer, net quantity of product, place of origin, alcohol percentage (if the product contains more than 1.2 percent alcohol), nutrition value, nutrition claims (if scientifically proven), instructions (if necessary), E-numbers (Voedingscentrum n.d., c).

The place of origin of sustainable products is in my eyes interesting, because if products come from the other side of the earth they probably have a higher impact on the environment. A study by Boon (2015) found that consumers really value information about the place of origin. For wine the place of origin is also important, because every region has its own taste, image and characteristics.

In addition to mandatory information, producers often add other information to the packaging. The aim of this optional information is to differentiate the product and it is also used for marketing purposes. For sustainable food products, sustainability claims and eco-labels are often added as optional information. These elements are important to differentiate sustainable food products from conventional products. Yiridoe et al. (2005) emphasize the differentiation; if consumers cannot differentiate a sustainable food product from a conventional food product and the sustainable food product has a premium, then consumers are more likely to buy the cheaper product. Sustainability claims indicate something about the product, the ingredients of the product or the production process. Examples of sustainability claims are: '100% bio', 'green' and 'eco-friendly'. Yatish and Zillur (2015) indicate that consumers are generally sceptical of sustainability claims made by producers. A possible explanation is the existence of misleading claims, also known as greenwashing. These misleading claims can have serious (bad) consequences for businesses, such as distrust and legal actions. "Misleading claims can have different forms (UL, n.d.: 4):

- "The "hidden trade-off" claim, the sustainability level of the product is based on only one or two attributes
- The absence of proof claim
- The vague claim, very poor or broad defined claims. Such as 'eco-friendly' or 'earth-friendly'.
- The irrelevant claim
- The "lesser of two evils" claim
- False or misleading claim"

Carlson et al. (2013) classify sustainability claims into five different categories:

- Product orientation which focuses on a sustainable attribute of the product.
- Process orientation which focuses on the sustainability level in the value chain.
- Image orientation which focuses on the overall company's CSR commitment
- Sustainable fact.
- Combination of the above four.

Eco-labels will be discussed below.

But food packaging can also create a dilemma; it has its benefits (information, recognition, protection and conversation), but it also impacts the environment (transport and the processing of packaging waste). Lea and Worsley (2008) conclude that consumers see a decrease of use of packaging as the most important item to help the environment. So the packaging is also important for consumers. Rokka and Uusitalo (2008) found that environmental packaging was among the most preferred product attributes together with the price when buying drink products. Nevertheless, little is known about the impact of sustainable packaging on the attitude-behaviour gap.

2.1.4 Eco-labels

Delmas and Lessem (2015: 323) describe the aim of eco-labels very clearly: 'The aim of eco-labels is to reduce the information asymmetry between producers and consumers that arise since consumers are not present during the production of the product and therefore cannot assess its environmental qualities'. Galarraga Gallastegui (2002) concludes that eco-labelling fulfils two objectives: information provision for consumers that can generate a change towards more sustainable consumption patterns and encouraging producers and governments to develop more environmental standards of products/services. But nowadays, many (packaged) products are offered with a huge diversity of eco-labels and claims, this makes it increasingly hard for consumers to make the choice for truly sustainable products. In the Netherlands there are ninety eco-labels available, this 'jungle of labels' is not conducive for the consumer. The Dutch Authority Consumer and Market concludes that consumers can lose confidence in eco-labels as reliable source of information, because of the proliferation and the lack of rules for the creation and management of eco-labels (ACM, 2016). Although the interest in sustainable consumption has grown, still 42 percent of the Dutch consumers distrust sustainability or CSR claims (GfK, 2015).

Therefore, Milieu Centraal, the education authority of the Ministry of Economic Affairs, has made a list with the eleven best eco-labels for sustainable and reliable food products. The eco-labels have been tested for ambition (going beyond the minimum requirements), transparency and reliability (audited by an independent organization) (Milieu Centraal, 2016). The eco-labels can be divided into three categories: animal welfare, fairtrade and nature conversation (Voedingscentrum n.d., b). The following eleven eco-labels are highlighted as top labels:

	Keurmerk	Animal welfare	Fairtrade	Nature conversation
ASC				X
Beter Leven keurmerk		X		
Demeter		X		X
EKO		X		X

EU organic farming label		X		X
Fairtrade			X	X
Milieukeur		X		X
MSC				X
Rainforest Alliance			X	X
RSPO Certified Sustainable Palm Oil		X	X	
UTZ Certified			X	X

Figure 2: Top eco-labels according to Milieu Centraal

Nittala (2014) found that consumers do not always trust the information provided on the packaging and are sceptical about the manufacturing, labelling and certification procedures of sustainable food products. Other studies conclude that eco-labels do not always deliver the desired message. Yiridoe et al. (2005) conclude that consumers not always see the extra value of eco-label products in comparison to non-eco-label and conventional products. Furthermore, Bhaskaran et al. (2006) and D'Souza et al. (2006) found that consumers have a difficult time differentiating eco-labels. Thus, the effectiveness of eco-labels mainly depends on the knowledge of consumers about environmental issues, the related eco-labels and the trust of consumers in eco-labels and other claims. The Dutch Authority Consumer and Market advises that eco-labels should be established in collaboration with various parties and audited by independent institutions (ACM, 2016).

Also Delmas and Lessem (2015) suggest that policymakers do not only need to focus on the information asymmetry between producers and consumers when developing eco-labels, but also on meeting consumer needs. In addition to more collaboration and control, Liu et al. (2012) recommend that also the media needs to contribute by spreading information on sustainability so that consumers can recognize eco-labels and understand their message.

Eco-labels are important in the decision making process of consumers; 61 percent of the Dutch consumers indicate that eco-labels play a role in their choice for food products (Multiscope, 2016). Thus, it is interesting to look at the effect of eco-labels on the attitude-behaviour gap. The study by Boon (2015) found that the eco-label has the least influence on the intention to buy sustainable products and the trust of consumers in comparison to additional information on product characteristics and the place of origin. And also that eco-label most of the time does not add any value to the sustainable product because most consumers do not know the meaning of the eco-label. Fazli (2016) did research on how the ideal sustainability advertisement in the beauty industry looks like. The findings suggest that cognitive elements, such as eco-labels, are an important attribute to communicate sustainability. But two eco-labels (BDIH and Fairtrade) had to be added to the advertisement to convince consumers of the environmental message. Fazli connects these findings to the findings from Janssen and Hamm (2012) that the perception of most consumers and trust in eco-labels is determined by subjective knowledge instead of objective knowledge as possible explanation.

The effect of different eco-labels in the food industry on the attitude-behaviour gap is not yet researched. It can be interesting to see if the different types of eco-labels have different effects and maybe even if consumers trust is different among these eco-labels. A distinction can be made between the different categories, but also between European eco-labels (EU organic farming label) and national eco-labels (EKO) or between eco-labels issued by the government (EU organic farming label) and eco-labels issued by third parties (Fairtrade).

2.1.5 Sustainable Wine

Wine, an alcoholic product that many people enjoy, can have a negative impact on the environment; it takes almost 500 litres of water to produce one litre of Australian wine (Amienyo et al., 2014). In addition, also the bottling, packaging and transportation costs much energy and CO₂ emissions. And usually wines are transported all over the world, which makes the negative impact even bigger.

Sustainable wine, often referred to as biological (bio)/organic wine, is wine produced with respect for the balance of the natural elements of the land and the grape. Sellers (2016: 11) gives a relevant definition of sustainable winegrowing:

'Generally speaking, sustainable winegrowing comprises growing and winemaking practices that are sensitive to the environment (environmentally sound), responsive to the needs and interests of society at large (socially equitable) and economically feasible to implement and maintain (economically feasible)'. For example, farmers use no chemical pesticides, fertilizer and genetic modification (Milieubewust, 2014). Another form of sustainable wine is biodynamic wine where farmers go even further in producing their product environmentally friendly; the various processes are aligned with the cosmic cycles (Syrah, n.d.).

Different eco-labels are available for these types of wine. The most important one in Europe is the 'EU organic farming label', which is mandatory on all organic/bio farming products produced in the European Union. The institute Skal monitors the compliance with regulations in the Netherlands. In addition, there are national and regional eco-labels, such as EKO, Bio-Siegel (Germany) and Biogarantie (Belgium), which are non-mandatory. For biological dynamic products there is also a special label: Demeter. Another eco-label for wine is Fairtrade-Max Havelaar which guarantees that products meet the standards of fair trade (Voedingscentrum n.d., d).



Figure 3: EU organic farming label

Sustainable wine and wine cultivation is receiving increasing attention from businesses, academia and institutions. But the final decision to buy or not buy the product lies with the consumer. In 2016 the Dutch retail sector almost sold 300 million bottles of wine. This is a slightly decrease in comparison to 2015, 315 million bottles (Nielsen, 2017). Unfortunately, no current data is available about the sales and perception of sustainable wine in the Netherlands. Forbes et al. (2009), who conducted a research in New Zealand, found that 72 percent of their respondents have the intention to choose an environmentally sustainable wine over a conventional one of similar price and quality.

Sirieux and Remaud (2010) found that consumers associate organic wine with the following terms: 'Good for my health', 'More expensive' and 'Good to give as a gift'.. Research from Delmas et al. (2016) shows that in blind taste-tests professional wine reviewers rate eco-certified wines 4.1 points (on a 100-point scale) higher than regular wines. The research looked at 74,000 California wines. Magali Delmas, one of the authors says about these results: 'The bottom line is that however we look at it, we find that organic and biodynamic farming has these small but significant positive effects on wine quality' (Hewitt, 2016).

The attitude towards sustainable wine is quite positive. Also the quality seems to be better. So what prevents consumers from buying sustainable wine?

Research from Delmas and Lessem (2015), which asked consumers from the United States to choose a wine based only on the label, indicates that the respondents not only obtain a positive feeling about eco-labelled wine, but also they interpret eco-labels as a sign of lower quality. But the study from Forbes et al. (2009: 1195) in New Zealand shows the opposite: 'Consumers believe that the quality of sustainable wine will be equal to or better than conventionally produced wine, and they are prepared to pay a higher price for this wine'.

Price can also be a barrier to put words into action. But different studies found that consumers indicate that they are willing to pay a premium for sustainable wine.

Forbes et al. (2009) found that 73 percent of their respondents say they are willing to pay more for sustainable wine. Also Sellers (2016) found that 78 percent of their Spanish participants say they would pay a premium for sustainable wine. The average premium they would pay is 12.87 percent (SD=5.32 percent). In addition, Sellers looks at the willingness to pay a premium price for sustainable wine (WTP) under different market segments; they found that urban consumers show the highest WTP (84.6%) and routine consumers the lowest WTP (70.2%). Further they conclude that the level of knowledge about the wine culture has a negative influence on the WTP while the level of knowledge about sustainable products has positive influence on the WTP. This suggests that wine experts are not entirely positive about sustainable wine which might be based on a preconception.

A majority of the consumers wish to see information regarding the sustainability of the product on the packaging or some form of eco-labelling, so they can distinguish sustainable products from conventional products (D'Souza et al., 2006; Forbes et al., 2009). But the influence of different kind of eco-labels and the information on the packaging of wine is not yet determined.

In addition to the information on the package, the package itself is also found to be important for consumers. There are already initiatives in the wine industry for more sustainable packaging options: paper bottles, which have a higher recycling rate: 91 percent and are 85 percent lighter than traditional glass bottles (Dunne, 2014). And also boxed wine also known as bag in box which requires less energy to produce and transport because it is 35 percent lighter and is also almost 100 percent recyclable (Pierobon, 2016). A well-known French champagne producer, Veuve Clicquot, even uses a packaging method which is 100 percent recyclable. This package is made from grape skins, a by-product of the production process (Thijssen, 2015). Glass is fully recyclable, but at the moment that is not the case. The recycle rate of glass bottles is very different across countries; it is approximately 34.5 percent in the United States, on average 73 percent in Europe and 80 percent in the Netherlands (Glass packaging institute, n.d.; FEVE, 2015; Afvalfonds Verpakkingen, 2016). Despite the sustainable advantages of the new kinds of packaging, glass bottles are still the standard in the wine industry.

This may be due to the opinion of consumers: the majority of the respondents seem to prefer a glass bottle and green packages are associated with a lower quality of wine (Farsi, 2012). But the results of this research can maybe be an incentive to use more sustainable ways of packaging in the wine industry. In this way, the quality and perception of sustainable packaged wine can be improved.

2.2 Conceptual model

Based on the literature review, a couple of hypotheses are developed.

2.2.1 Sustainability claims

Sustainability claims on the packaging are a way of highlighting the sustainability characteristics of the product, in this case wine. It is also seen as an incentive for consumers to buy the product. But a couple of studies indicate that consumers are generally sceptical about sustainability claims and do not trust them (Bang et al., 2000; Yatish and Zillur, 2015). Furthermore, Fotopoulos and Krystallis (2002) identify a lack of trust as a significant barrier between a positive attitude towards sustainable products and actual sustainable buying behaviour. Trust in a sustainable product is thus an essential part for consumers to translate their positive attitude into actual sustainable buying behaviour. No trust can also be seen as a lack of trust. So, when these results are combined, it can be assumed that there is a lack of trust in sustainability claims which can lead to a lack of trust in a specific sustainable product.

In this way sustainability claims on the packaging of sustainable wine might have a negative effect on the buying behaviour. This might not be the case for all sustainability claims and products. But in the case of the sustainability claim 'eco-friendly' and the product sustainable wine, this assumption is made. Besides, the creation of effective sustainability claims is very difficult through the various pitfalls and the linkage to green washing. Therefore the following hypothesis is expected.

H1: Sustainability claims have a negative effect on the buying behaviour of sustainable wine.

2.2.2 Eco-labels

Eco-labels are a very important attribute on the packaging of sustainable products for both consumers and producers. Eco-labels can reduce the information asymmetry between these two parties (Delmas and Lessem, 2015) and can help consumers make more sustainable buying choices. But eco-labels do not always have the desired effect; consumers found to have a difficult time differentiating them (Bhaskaran et al., 2006) and do not always trust them (Nittala, 2014). Familiarity and trust seem to be very import when it comes to the effectiveness of eco-labels.

Research from Boon (2015) concludes that people who are familiar with an eco-label have a higher buying intention than people who are not familiar with the label. The influence of the familiarity of the eco-label is also positively linked to consumer trust in this research. In addition, Fazli (2016) found that two eco-labels are needed to convince consumers of the environmental message in the beauty industry. Fazli (2016) linked this result to findings from Janssen and Hamm (2012) that the perception of most consumers and trust in eco-labels is determined by subjective knowledge instead of objective knowledge as possible explanation. Janssen and Hamm (2012) also conclude that official labels can create more trust than private labels.

H2: Consumers that are familiar with the eco-label are more likely to buy sustainable wine with this label.

H3: Consumers that are not familiar with the eco-label are less likely to buy sustainable wine with this label.

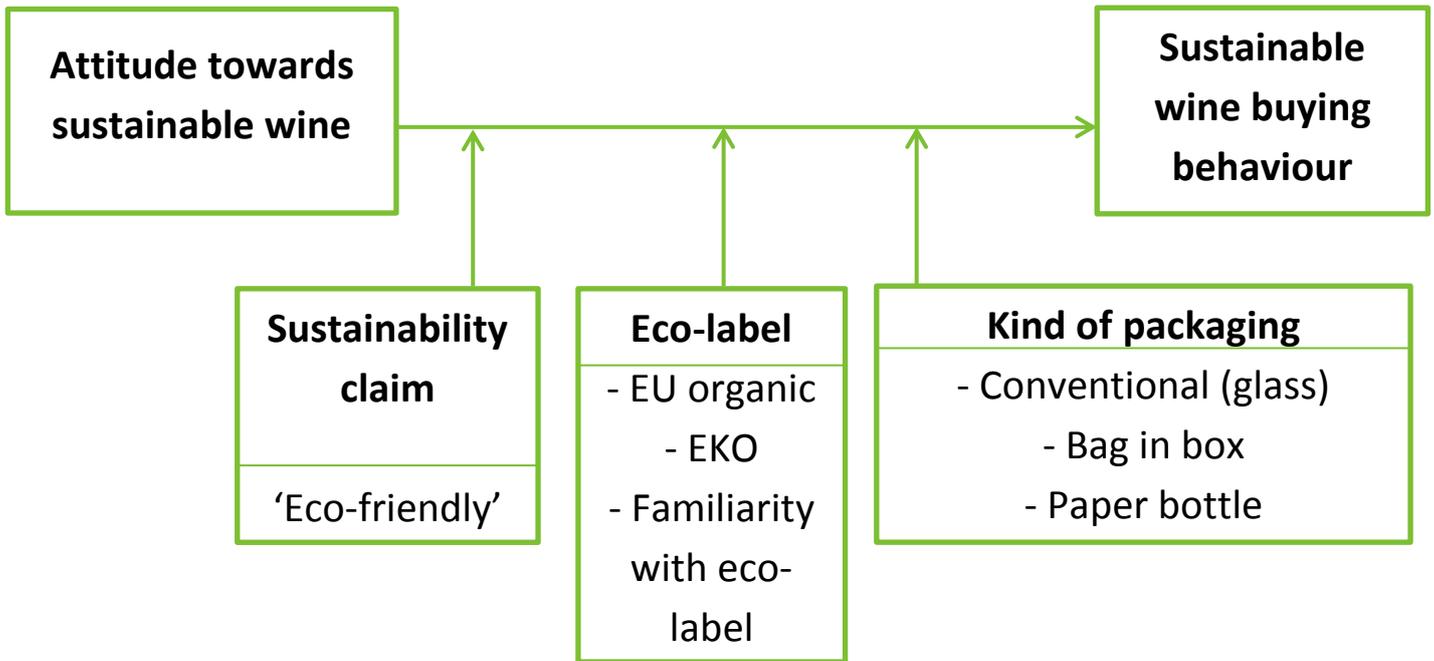
H4: Multiple eco-labels (mandatory in combination with non-mandatory) have a more positive effect on the buying behaviour of sustainable wine instead of just one eco-label.

H5: Mandatory eco-labels (EU organic farming label) have a more positive effect on the buying behaviour of sustainable wine than non-mandatory eco-labels (EKO).

2.2.3 Kind of packaging

The kind of packaging is important for consumers when buying environmental products (Rokka and Uusitalo, 2008), because they see a decrease of the use of packaging as the most important aspect to help the environment (Lea and Worsley, 2008). Although the packaging of wine probably is not going to disappear, sustainable options and innovations can decrease the negative impact on the environment. In my opinion, contrary to the findings of Farsi (2012), consumers will appreciate sustainable packaged wine. Times are changing; the sales of sustainable products is on the rise (Logatcheva and Van den Puttelaar, 2016) and I therefore think that people are more likely to value sustainable packaging options than five years ago.

H6: Sustainable packaged wine (paper bottles or bag in box) has a positive effect on the buying behaviour of sustainable wine compared to conventional packaged wine (glass bottles).



2.2.4 Theoretical domain

The hypotheses concern all individuals who buy wine in the world, in all countries and at all times.



Chapter 3: Methodology

This chapter will focus on the underlying methodology of the research. First the components of the conjoint analysis will be discussed, such as the different attributes, levels and the orthogonal design. And then the questionnaire, the measurement of the variables and the procedure will be explained.

3.1 Conjoint analysis

To test the developed hypotheses, a conjoint analysis was conducted. A conjoint analysis can measure which attributes or features of a product or service are (most) valued by consumers and how the researched product or service should be priced. This form of analysis is widely used in marketing research (Green and Srinivasan, 1978). Because conjoint analysis simulates the decision making process of consumers, it can have important and interesting implications for product development, advertisement, portfolio management, branding and pricing.

The simulation of the decision making process of consumers is one of the big advantages of using conjoint analysis; (hidden) drivers can be uncovered. Another main advantage is that several attributes can be tested at the same time and in combination with each other. But there are also a couple of disadvantages to take into account; it is considered as complex and attributes can be over- or undervalued if the research is poorly designed (ConnectUS, 2016). A conjoint analysis can have different important implications for businesses and policymakers. The value that consumers attach to certain attributes can be of high influence on the success of new or existing products.

There are different types of conjoint analysis; a couple of them will be highlighted. *Rating based conjoint analysis, also known as traditional conjoint analysis*, involves asking respondents to rate the different profiles. This type of conjoint analysis was the first method to conduct in this type of analysis. It is a full-profile analysis; all the possible attributes are shown in the different profiles. The level of analysis is individual. *Choice-based conjoint analysis*, let respondents choose between a set of two or more different profiles. This way of conjoint analysis can help to avoid respondent fatigue, because it narrows down the number of profile sets. The level of analysis is aggregate. If there are many attributes and levels the usage of an *Adaptive choice conjoint analysis* can be considered. This type of conjoint analysis adapts the presented profile to the preference of the respondent which is indicated at the beginning of the questionnaire. More attributes (up to 30) can be incorporated in a research. The data collection format needs to be computer-based and the level of analysis is individual (Orme, 2009; Hair et al, 2010).

For this research, the rating based/traditional conjoint analysis will be used. The number of attributes and levels is not very high and the focus is on the individual. Nevertheless Moore et al. (1998) suggest that individual level models can better predict individual choices than aggregate level models. Also the research will be done in supermarkets, to create a real-life setting, and not on a computer. Therefore the adaptive choice conjoint analysis cannot be used.

3.2 Attributes and attribute levels

The researched product, in this case sustainable wine, needs to be divided into different attributes. Attributes are features of the product, in this case 'sustainability claim', 'eco-label' and 'kind of packaging'. And in their turn, the attributes need to be divided in the possible levels, such as a claim or no claim. In the below table the different attributes and levels are presented.

Table 1: Attributes and attribute levels

Attribute	Attribute level			
Sustainability claim	1. Claim ('Eco-friendly')		2. No claim	
Eco-label	1. EU organic	2. EKO	3. EU organic and EKO	4. No eco-label
Kind of packaging	1. Conventional (glass)		2. Bag in box (Bib)	3. Paper bottle

The different attributes and levels are chosen because of the findings in the literature review and their topicality. These attributes can be of influence on the buying behaviour of sustainable wine. Other attributes that are important for sustainable wine are price and the taste, but these attributes are already researched many times (e.g. Delmas et al., 2016; Forbes et al., 2009). Therefore these attributes were a constant factor in the research.

3.2.1 Sustainability claim

The first researched attribute is the presence of a sustainability claim. The main question that rose during the literature review deals with the functionality of sustainability claims. Sustainability claims are added by producers and businesses to highlight the level of sustainability and encourage consumers to buy the product. However a couple of studies have indicated that sustainability claims might not have served their intentional purpose. Consumers are often sceptical about sustainability claims and even do not trust them (Bang et al., 2000; Yatish and Zillur, 2015). A lack of trust is identified as a significant barrier that stands between attitude and behaviour. It is interesting to see what the effect of a sustainability claim is on the attitude behaviour relation for sustainable wine. The different levels for this attribute are 'Claim' and 'No claim'. The sustainability claim 'eco-friendly' has been chosen, because it is very often seen on sustainable products. Furthermore, it actually does not say anything and it is quite vague which is one of the forms of greenwashing (UL, n.d.).

3.2.2 Eco-label

The second researched attribute is 'eco-label'. Eco-labels are a very important aspect in the sustainable food industry. These eco-labels can reduce information symmetry between producers and consumers and can be used by the government to set standards in the industry.

However consumers often are sceptical about and overwhelmed by the huge diversity of eco-labels. The different levels are 'EU organic farming label (EU organic)', 'EKO', 'EU organic and EKO' and 'No eco-label'. These two eco-labels have been chosen, because they are both among the 'top' eco-labels of Milieu Centraal and they are comparable to each other because they both focus on nature conversation and bio/organic farming. And most importantly they are applicable for the wine industry. But these two eco-labels also are different from each other; where the EU organic label is mandatory on all organic/bio farming products produced in the European Union, the EKO label is non-mandatory but optional in the Netherlands. Using the EKO label provides additional costs, such as subscription and inspection fees. So it is useful to see if two eco-labels are necessary on the packaging to convince consumers, such as in the beauty industry (Fazli, 2016). Furthermore, it is also interesting to see if the participants are familiar with the two different eco-labels and if they trust them. If this is not the case then this could have implications for the government, policymakers and businesses.

3.2.3 Kind of packaging

The third researched attribute is 'the kind of packaging'. The packaging is an important way of communicating information to the consumer. In terms of sustainability, packaging is not always that sustainable; the recycle rate can be low and the production costs energy and materials. Consumers see packaging as an important aspect when buying sustainable products (Rokka and Uusitalo, 2008). In addition to glass bottles, there are currently two other kinds of packaging in the wine industry: bag in box and paper bottle. These two types of packaging are more sustainable than the glass bottle that is now the standard in the wine industry, because the recycle rate is higher and the weight is lower (Dunne, 2014; Pierobon, 2016). So the three different levels are: 'Conventional (glass)', 'Bag in box' and 'Paper bottle'. In my opinion it is essential for the wine industry to see if consumers give a preference to sustainable packaging, because this can be an encouragement to use more sustainable ways of packaging.

The basic label was chosen in consultation with Delta Wines. It was necessary that the label was as neutral as possible to prevent prejudice. The chosen label is a concept which is not on the market yet. This prevents any possible prejudice compared to the name of the wine. Displaying the type of grape 'Chardonnay' can create some prejudices, because some consumers do not like Chardonnay. But it makes the label more realistic, because this information is almost always on the label.

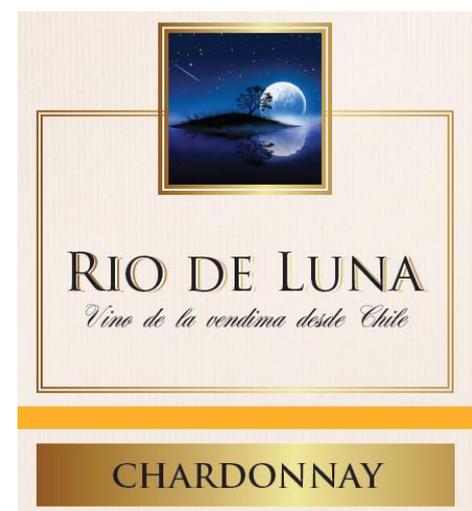


Figure 4: basic label

3.2.4 Orthogonal design

After the different attributes and levels of the product are identified, it is necessary to create all the possible combinations of levels also known as profiles. Even a small number of attributes and levels can lead to many possible profiles. Therefore it is useful to make a representative subset or orthogonal design by using SPSS. For the amount of attributes (three) and levels 24 profiles are possible (2x4x3). The orthogonal design (table 2) consists of 16 profiles. These 16 profiles come back in the questionnaire. The different profiles were developed in collaboration with Delta Wines; 8 identical wine bottles, 4 identical Bag in boxes and 4 identical paper bottles with the corresponding label.

Table 2: Orthogonal design

	Profile 1	Profile 2	Profile 3	Profile 4	Profile 5	Profile 6	Profile 7	Profile 8
Sustain ability claim	1 Claim	1 Claim	2 No claim	2 No claim	1 Claim	2 No claim	1 Claim	1 Claim
Eco-label	1 EU organic	4 No eco-label	1 EU organic	1 EU organic	2 EKO	2 EKO	1 EU organic	4 No eco-label
Kind of packaging	1 Glass	1 Glass	1 Glass	3 Paper Bottle	3 Paper Bottle	1 Glass	2 Bib	2 Bib

	Profile 9	Profile 10	Profile 11	Profile 12	Profile 13	Profile 14	Profile 15	Profile 16
Sustain ability claim	2 No claim	1 Claim	2 No claim	2 No claim	1 Claim	2 No claim	2 No claim	1 Claim
Eco-label	4 No eco-label	3 Both eco-labels	2 EKO	3 Both eco-labels	3 Both eco-labels	4 No eco-label	3 Both eco-labels	2 EKO
Kind of packaging	3 Paper Bottle	1 Glass	2 Bib	1 Glass	3 Paper Bottle	1 Glass	2 Bib	1 Glass

3.3 Questionnaire and measurement

The questionnaire, which can be found in appendix I, was developed to conduct the experiment. First the 16 different product profiles were shown to the respondent. In the appendix two images are added; one of the label and one of the complete packages as shown to the respondent.

3.3.1 *Buying behaviour*

After viewing each different package, the respondent is asked how likely it is he or she would buy that package. This question is measured on a 7 point Likert scale, where 1 is 'very unlikely' and 7 is 'very likely'.

3.3.2 *Attitude towards sustainable wine*

After the different packages are discussed, the respondent is asked what her or his attitude is towards sustainable wine. The attitude is measured on a 7 point Likert scale, where 1 is 'very negative' and 7 is 'very positive'. Sustainable wine is explained as following: "Sustainable wine is produced with respect for nature. The farmers use no pesticides, fertilizer and genetic modification". This definition is based on the definitions of Seller (2016) and Milieubewust (2014), mentioned in the literature review. This definition is chosen, because it is quite easy to understand and not too long. In addition, the respondent is asked if he or she thinks that sustainable products also should be packaged in sustainable packaging material. This question can give an image of the consumer's opinion about this subject.

3.3.3 *Eco-label*

In the experiment two questions are included about the eco-labels. The first question is about the familiarity with the two used eco-labels, the EU organic farming label and the EKO-label. To measure the recognisability the scale of Hanss and Bohm (2012) is used, where 1 is 'never seen before' and 7 is 'seen frequently'. And the second question is about the reliability of the two eco-labels which can be answered with yes or no. This question can be interesting, because it shows if the respondent trusts the used eco-labels.

3.3.4 *Demographic characteristics and wine consumption*

Finally, some questions will be asked about the background of the respondent: gender, age (male/female), education and wine consumption. Age is measured by using 4 different options; 18-25, 26-35, 36-60 and 60+. The minimum age of 18 is chosen, because this is the legal age to buy and drink wine in the Netherlands. The education of the respondent is measured using 6 different options; VMBO, HAVO, VWO, MBO, HBO and WO. And the wine consumption is measured by using 4 different options; 1 glass or less, 2 to 5 glasses, 6 to 10 glasses and more than 10 glasses.

3.4 Pre-test

Before the actual experiment has been conducted, a pre-test has been done. A pre-test is necessary to see if an experiment is clear and understandable for the participants. And also it can eliminate potential issues that participants can have during the experiment. Such as a different interpretation of the questions and terms, the length of the questionnaire or the visibility of the difference between the profiles.

The pre-test has been done with 4 persons from different age groups (between 28 and 60 years old) and backgrounds (2 women and 2 men). The participants went through the whole experiment. Afterwards, the questions, used terms and lay-out were discussed. The participant found the overall questionnaire understandable and clear. They found it good that the definition of 'sustainable wine' was provided and they thought it was complete and easy to understand. Furthermore, the difference between the profiles was visible. Also the neutrality of the used label was discussed; the participants did not recognize it and thought it was a pretty basic label.

But the pre-test showed also a couple of possible improvements. In the first two pre-tests the different packages were shown one by one. This made the experiment quite long and the respondents lost their attention. Thus, this proved not to be the right way to display the different packages. In the last two pre-tests, I showed the packages lined up next to each other. In this way, the experiment took less time and the participants focused more.

Another suggestion was made by one of the participants that consumers not always look at the label, but mostly at the price and the quality which is not an attribute in this experiment. Therefore one of my comments before a respondent conducts the experiment is that the price and quality of all the different packages is the same.

3.5 Procedure

The experiment will be held in supermarkets in four different cities and villages. The choice of a supermarket as place to conduct the experiment is based on the fact that most of the consumers buy their wine in supermarkets: 66 percent (Driessen and Morren, 2015). The population that will be researched in this research can be described as following: consumers aged 18 and over in the province of South Holland in the Netherlands with a diversity of education, age and gender. This population is part of the theoretical domain: 'All individuals who buy wine in the world, in all countries and at all times'.

The choice for four different cities and villages is based on the research of Berenguer et al. (2005). They indicate that there are differences in the attitudes and behaviour towards environmental responsibility between rural areas and urban areas: " Thus, our data confirm that, contrary to what is generally suggested in the literature, moral obligation and level of pro-environmental behaviours are higher in the rural context than in the urban one. Thus, while in cities the values are more salient, in villages the specific attitudes and behaviours are more relevant" (Berenguer et al.: 135). The four different cities and villages are Waarder (1.707 inhabitants), Wassenaar (26.046 inhabitants), Zoetermeer (124.763 inhabitants) and Den Haag (524.882 inhabitants), all based in the province of South Holland in the Netherlands (CBS, 2017). This difference in cities and villages can make the sample more diverse.



Chapter 4: Results

In this chapter the results of the experiment will be discussed. First there will be looked at the sample, then a conjoint analysis will be conducted using SPSS and a couple of general insights will be discussed. And lastly, the validity and reliability of the analysis will be discussed.

4.1 Sample

In an experiment, the most ideal way to sampling is the probability sample. However, no list of the entire population is available, so a convenience sample has been used. The sample consists of 71 respondents. The basic and demographic characteristics of the sample can be found in the table below. The gender of respondents is almost equally divided (49.3% vs. 50.7%). But in the other categories some groups are more represented than other groups. In the age category, the 36-60 year group is most represented (49.3%), but this is also the largest age group. In the education category, the high educated group (HBO and WO, 62%) is more representative than the low educated group (VMBO/HAVO/VWO/MBO, 38%). This can be justified, because wine drinkers are associated with a higher education (Tjonneland et al., 1999) and people with a higher education consume more socially conscious (Schyns, 2016). The sample can be seen as representative for the population 'consumers aged 18 and over in the province of South Holland in the Netherlands with a diversity of education, age and gender'.

Table 3: basic and demographic characteristics of the sample

		Frequency	Percentage
Gender	Male	35	49.3
	Female	36	50.7
Age	18-25	8	11.3
	26-35	18	25.4
	36-60	35	49.3
	60+	10	14.1
Education	VMBO	4	5.6
	HAVO	4	5.6
	VWO	3	4.2
	MBO	16	22.5
	HBO	24	33.8
	WO	20	28.2

Wine Consumption	≤1	13	18.3
	2-5	30	42.3
	6-10	20	28.2
	>10	8	11.3

4.2 Conjoint analysis

To test the hypotheses, the profiles and data are coded into dummy variables. In this way, a regression analyses can be conducted. The results which are in table 4 display the part-worth utilities of the different levels. In addition, the relative importance of the different attributes is calculated. The latter is calculated based on the difference between the part-worth utilities. Because the attributes have a different number of levels, the difference between the highest and lowest part-worth utility cannot just be used. This can lead to a distorted picture. Therefore the difference between the extreme values will be used; in this case: claim vs. no claim, EU organic and EKO vs. no eco-label and paper bottle vs. conventional (glass) (Wittink et al., 1992). The model is significant ($F=23.686$; $p<0.001$). The most important attribute with respect for the dependent variable 'sustainable wine buying behaviour' was the kind of packaging (43.58%), then the eco-label (41.77%) and least important was the presence of a sustainability claim (14.66%).

Table 4: Part-worth utilities and relative importance of the different attributes

Attribute	Level	Utility	St. Error	T	Sig.	Importance
Sustainability claim	Claim	<u>0.296</u>	0.098	3.024	0.003	0.1466 or 14.66%
	No claim	-0.296	0.098	-3.024		
Eco-label	EU organic farming	<u>0.514</u>	0.138	3.717	0.000	0.4177 or 41.77%
	EKO	0.391	0.138	2.826	0.005	
	EU organic farming and EKO	0.391	0.138	2.826	0.005	
	No eco-label	-1.296	0.138	-9.369		
Kind of packaging	Bag in box (BiB)	-1.282	0.120	-10.701	0.00	0.4358 or 43.58%
	Paper bottle	-0.239	0.120	-1.999	0.046	
	Conventional (glass)	<u>1.521</u>	0.120	12.700		

4.2.1 Sustainability claim

As seen in the above table a sustainability claim has a positive effect on the buying behaviour of sustainable wine (utility = 0.296). Therefore hypothesis 1: *Sustainability claims have a negative effect on the buying behaviour of sustainable wine*, is not supported. The presence of a sustainability claim is a significant predictor of the buying behaviour of sustainable wine ($p < 0.01$).

4.2.2 Eco-label

Eco-labels are an important attribute in the decision making process of consumers when buying sustainable wine. To test the two hypotheses about the influence of the familiarity with the eco-labels on the buying behaviour, the profiles with some kind of eco-label are selected and the familiarity with that particular label is added as independent variable. The results of the regression analysis of the familiarity with both the EU organic farming label and the EKO label are displayed in table 5. The familiarity with the EU organic farming label has a slightly negative effect (regression coefficient= -0.035) on the buying behaviour of sustainable wine, but it is not significant ($p= 0.323$). The familiarity with the EKO label has a slightly positive effect (regression coefficient= 0.005) on the buying behaviour of sustainable wine, but also this effect is not significant ($p= 0.876$). Therefore hypothesis 2: *Consumers that are familiar with the eco-label are more likely to buy sustainable wine with this label*, is not supported. Also hypothesis 3: *Consumers that are familiar with the eco-label are less likely to buy sustainable wine with this label*, is not supported.

Table 5: Part-worth utilities of the familiarity with both eco-labels

Attribute		Regression coefficient	St. Error	T	Sig.
Familiarity with label	EU organic farming	-0.035	-0.040	-0.990	0.323
	EKO	0.005	0.006	0.156	0.876

The results in table 4 show that the EU organic farming label has the most positive effect on the buying behaviour of sustainable wine in comparison to the other levels of the attribute 'Eco-label' (utility = 0.514). When the part-worth values of the EU organic farming label (utility = 0.514) and the EU organic farming label and EKO label together (utility =0,391) are compared, we see that EU organic farming label has a higher utility value. Therefore Hypothesis 4: *Multiple eco-labels (mandatory in combination with non-mandatory) have a more positive effect on the buying behaviour of sustainable wine instead of just one eco-label*, is not supported.

When the part-worth values of the 'mandatory' EU organic farming label (utility = 0.514) and the 'non-mandatory' EKO label (utility = 0.391) are compared, it becomes clear that the EU organic farming label has a higher utility value.

Therefore hypothesis 5: *Mandatory eco-labels (EU organic farming label) have a more positive effect on the buying behaviour of sustainable wine than non-mandatory eco-labels (EKO)*, is supported.

All the levels of the attribute 'Eco-label' are a significant predictor of the buying behaviour of sustainable wine ($p \leq 0.05$).

4.2.3 Kind of packaging

The kind of packaging is the most important attribute in the decision making process of consumers when buying sustainable wine. The conventional packaging glass has the highest effect of all the levels (utility = 1.521). The other two types of packaging have a negative effect on the buying behaviour of sustainable wine compared to the conventional packaging glass; Bag in box (utility = -1.282) and Paper bottle (utility = -0.239). All the levels of this attribute are a significant predictor of the buying behaviour of sustainable wine ($p < 0.05$). Based on the above results, hypothesis 6: *Sustainable packaged wine (paper bottles or bag in box) has a positive effect on the buying behaviour of sustainable wine compared to conventional packaged wine (glass bottles)*, is not supported.

4.2.4 Attitude-behaviour gap

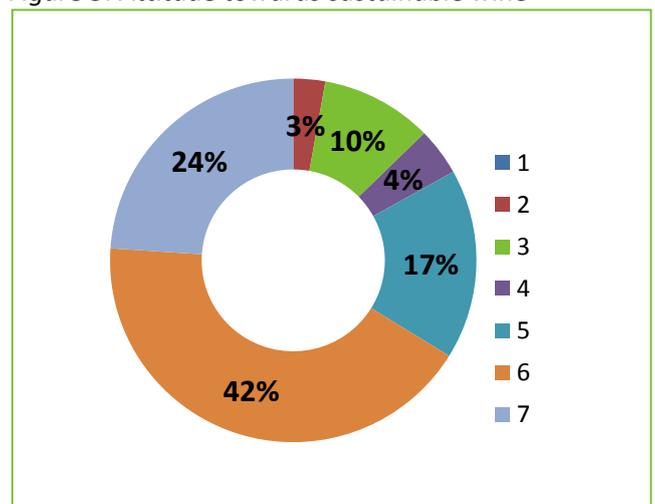
It is interesting to see if an attitude-behaviour gap is present in the buying behaviour of sustainable wine. To see if this is the case, a paired samples t-test is conducted.

The average attitude towards sustainable wine is $M = 5.58$ and the average buying behaviour of the different sustainable wine profiles is $M = 4.39$. To see if there is a correlation between these two variables, a Pearson correlation test is conducted. There is a non-significant weak correlation between both variables ($r(71) = 0.161$; $p = 0.180$).

On average the attitude towards sustainable wine of the respondents is quite high. As seen in figure 5, 83 percent of the respondents have a positive to very positive attitude towards sustainable wine (rating 5 until 7).

In addition, a couple of tests are conducted to see if there are differences in the attitude towards sustainable wine and buying behaviour of sustainable wine between men/women, different age groups, different levels of education and the wine consumption.

Figure 5: Attitude towards sustainable wine



The average attitude towards sustainable wine does not significantly ($t_{69}=0.318$; $p=0.752$) differ between men ($M=5.63$) and women ($M=5.53$). Also the average buying behaviour of sustainable wine does not significantly ($t_{69}=-1.191$; $p=0.059$) differ between men ($M=4.182$) and women ($M=4.5955$).

A one-way ANOVA shows that there is no significant difference between the different age groups considering the average attitude towards the sustainable wine ($F_{3,67}=0.734$; $p=0.535$). However, it is worth mentioning that the youngest age group (18-25) had the lowest average attitude ($M=5.00$). Moreover, the average buying behaviour of sustainable wine also does not significantly differ between the different age groups ($F_{3,67}=0.529$; $p=0.664$).

However, a one-way ANOVA shows that the attitude towards sustainable wine does significantly differ between the different levels of education ($F_{5,65}=3.090$, $p<0.05$). To see where this difference is, a Tukey post-hoc test is done. This test reveals the following differences: respondents with a VMBO education ($M=6.750$) have a significantly higher average attitude towards sustainable wine than respondents with a VWO education ($M=3.667$; $p<0.05$) and respondents with a WO education ($M=6.050$) have a significantly higher average attitude towards sustainable wine than respondents with a VWO education ($M=3.667$; $p<0.05$). But there is no significant difference in the average buying behaviour between the different levels of education ($F_{5,65}=1.307$, $p=0.272$).

Lastly, a one-way ANOVA shows that there is no significant difference between the different levels of wine consumption and both the attitude towards ($F_{3,67}=1.077$; $p=0.365$) and buying behaviour of sustainable wine ($F_{3,67}=1.585$; $p=0.201$).

4.3 Most preferred label and packaging

Based on the results in table 4, it can be concluded which label and packaging is most preferred when buying sustainable wine. The highest part-worth function values for each attribute are underlined in table 4. This means that the respondents prefer a glass bottle with a sustainability claim and the EU organic farming label the most when buying sustainable wine.



4.4 General insights

In addition to the results from the survey, there are some general insights and quotes collected during the experiment. Most of the respondents also talked about their opinion on sustainable wine and the different attributes. Therefore it is interesting to also discuss some of these opinions and insights.

Most of the respondents were of the opinion that sustainable products also should be packed in sustainable packaging materials. This is contradictory with the rating of the different packaging options.

The respondents want sustainable products to be packaged in sustainable packaging materials. But in the end they prefer the least sustainable packaging material, glass.



Figure 6: Attitude towards sustainable packaging

The opinions about the paper bottle were quite positive. Most of the respondents were very interested in the idea behind it and found it a great initiative. But the respondents also were sceptical. In particular about the quality and the durability of the wine in the paper bottle compared to the glass bottle. One respondent described this as following: 'I think the paper bottle is very interesting, but I would not choose it soon. That is probably a mental thing, since it is very different from the glass bottle.' Some of the respondents had an aversion of the bag in box packages. This can also be seen in table 4; the part-worth utility of bag in box packages is negative which means that this level has a negative effect on the buying behaviour of sustainable wine. For them it did not matter what was on the label. Most of them did not associated wine in bag in boxes with good wine and some mentioned that they did not buy this kind of wine as a gift or to serve at a dinner. One of the respondents mentioned the following: 'I do not see bag in box wine as good wine. For me it does not matter what kind of wine it is or what is displayed on the label.'

The respondents were also asked if they trust the two different eco-labels. A majority of the respondents responded that they do trust the eco-label: EU organic label (63.4%) and EKO label (61.97%). Another interesting insight that was generated during the experiment about the eco-labels is that a couple of respondents noticed that they think two eco-labels (and a sustainability claim) on one packaging is too much of a good thing. This is also reflected in the results; the EU organic farming label (utility=0.514) has a more positive effect than the both labels together (utility=0.391) and the EKO label has the same effect (utility=0.391).

Next to results conjoint analysis, the average familiarity with the EU organic farming label (M=2.99) and the EKO label (M=3.48) are not significantly different from each other ($t(70)=-1.583$, $p=0.118$). A big part of the respondents never saw the EU organic farming label (36.61%) and the EKO label (29.57%) before. This can be seen as disturbing, because these eco-labels are already on many sustainable food products. This can indicate that people do not really pay attention to eco-labels in general.

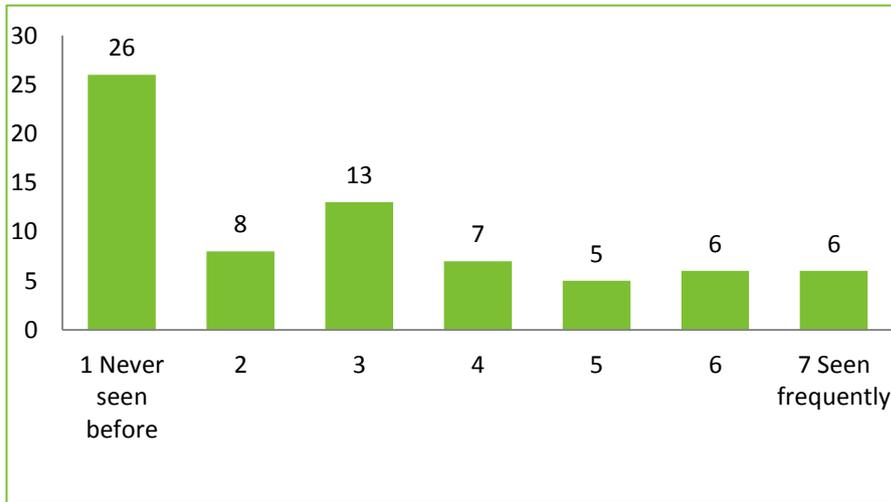


Figure 7: the familiarity with the EU organic farming label

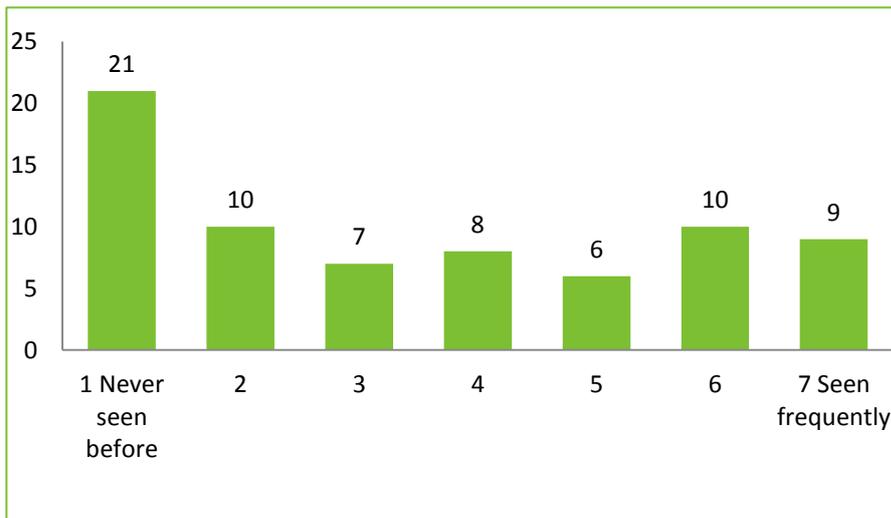


Figure 8: the familiarity with the EKO label

4.5 Reliability

To see how reliable the above results are, a couple of tests have been conducted. Firstly the R^2 from the conjoint analysis can be used. The R^2 is quite low: 0.112 which indicates that model does not fit the data well. This can also mean that not all the relevant attributes are included in the conjoint analysis.

Another way to assess the reliability of above results is to split the sample in two subsamples and see if the results are similar and consistent. The original sample is randomly split into two subsamples; subsample A (n=36) and subsample B (n=35). Then a conjoint analysis was conducted for both the subsamples. The results are displayed below in table 6.

Table 6: Part-worth utilities and relative importance of the different attributes from the two subsamples

Attribute	Level	Utility		Sig.		Importance	
		Sample A	Sample B	Sample A	Sample B	Sample A	Sample B
Sustainability claim	Claim	0.198	0.400	0.118	0.008	9.59%	20.02%
	No claim	-0.198	-0.400				
Eco-label	EU organic	0.494	0.544	0.006	0.011	42.19%	40.83%
	EKO	0.444	0.336	0.013	0.115		
	EU organic and EKO	0.417	0.364	0.02	0.087		
	No eco-label	-1.355	-1.268				
Kind of packaging	Bag in box (Bib)	-1.302	-1.265	0.000	0.000	47.51%	39.15%
	Paper bottle	-0.330	-0.150	0.033	0.414		
	Conventional (glass)	1.632	1.415				

As seen in the above table there are overall no substantial differences between the two subsamples. The models in both samples are significant; subsample A ($F=13.847$; $p<0.01$) and subsample B ($F=10.550$; $p<0.01$). But there are some differences, these will be described. The utilities of a couple of levels differ from each other, for example 'claim' and 'conventional'. In the subsamples a couple of levels are not significant compared to the original sample where these levels are significant (e.g. 'Sample A-Claim'). And the measured importances of both subsamples also differ a little bit. The most important difference is that the importance of the kind of packaging in subsample B is lower than the importance of the eco-label which is contrary to the original sample. But this is such a small difference that it is not considered as an issue. Most importantly the utilities direction of both subsamples and the importance almost equal the sample as a whole.

Another point to discuss is the way the data is collected and the bias that can result from this. By self-reporting, a response bias can arise. This can lead to a couple of things: socially desirable answers, extreme responding and acquiescence bias or also known as 'yea-saying'. These sorts of outcomes are hard to avoid. And using another way of collecting the data, such as via an online anonymous survey, may have led to other biases like a non-response bias.



Chapter 5: Conclusion and discussion

This chapter focuses on the discussion and interpretation of the results. Furthermore the research question will be answered and the results will be linked to the theoretical background.

The basis of this research is the following research question:

What kind of information, in terms of eco-labels and sustainability claims, on the packaging of sustainable wine can stimulate the buying behaviour of sustainable wine? And what is the role of the kind of packaging?

Although sustainability is gained more and more attention from businesses, the government and the public in recent years, the attitude-behaviour gap is still recognized as a serious problem in the sustainable food sector. Previous literature revealed many reasons for consumers to choose for sustainable food products. Such as, the concern about the environment and animal welfare (e.g. Kareklas et al., 2014; Wee et al., 2014) and the perception that it is healthier, more tasteful and of a better quality than conventional products (e.g. Magnusson et al., 2001; Zanolli and Naspetti, 2002). Against these reasons, also a number of barriers that widen the gap between the attitude towards sustainable food products and the actual buying behaviour of these products are identified. The two most researched and important barriers are environmental knowledge which has a negative effect on the attitude-behaviour gap (e.g. Young et al., 2010; Eze and Ndubisi, 2013) and the price which has a positive effect on the attitude-behaviour gap (e.g. Padel and Foster, 2005; Vermeir and Verbeke, 2006). Consumers are willing to pay a premium for sustainable products, but the percentage and level of this premium depend on the type of product.

In this research, the attitude-behaviour gap is found in the buying behaviour of sustainable wine; the average attitude towards sustainable wine is higher than the average buying behaviour of sustainable wine. However this is a non-significant weak correlation between attitude and buying behaviour. But if there was no gap, the correlation would be close to 1. Both attitude towards and buying behaviour of sustainable wine did not significantly differ among the demographic characteristics of the respondents, except for the level of education. It was quite interesting that the lowest and highest level of education had the highest average attitude towards sustainable wine. Whereas sustainable consumption is often linked to consumers with a higher education (Schyns, 2016).

In this research both individual (knowledge about or familiarity with eco-labels) and situational (the information on the label and the kind of packaging) factors are researched. These will be discussed below. Although some of the commonly researched reasons (concern, health and quality/taste) and barriers (price) for buying sustainable wine or other products are not included in this research, they are still important for the respondent. For example, many respondents mentioned that price and the taste of the wine are the most important attributes for them when buying (sustainable) wine.

5.1 Sustainability claim

Contrary to the findings of previous studies (e.g. Bang et al., 2000; Yatish and Zillur, 2015) and the hypothesis, sustainability claims have a positive effect on the buying behaviour of sustainable wine. Although previous research focused on other sustainable products and the trust of sustainability claims, it was assumed that the negative effect of a lack of trust in sustainability claims was also present for sustainability claims on sustainable wine labels. The sort of sustainability claim can also have influence on the results. The sustainability claim 'eco-friendly' was chosen, because it is very often seen on sustainable products and it is quite vague which is one of the forms of greenwashing (UL, n.d.). But this sustainability claim may not be representative for other sustainability claims. The positive effect of the sustainability claim 'eco-friendly' can be explained because it is a commonly used sustainability claim. This can result in more familiarity and may be even trust.

The findings of this research are somehow in line with the findings of D'Souza et al. (2006) and Forbes et al. (2009) which conclude that it is important for consumers to have information on the packaging, such as a sustainability claim, to differentiate sustainable products from conventional products. It is also seen as an incentive for consumers to buy the product. But a couple of studies indicate that consumers are generally sceptical about and do not trust sustainability claims (Bang et al., 2000; Yatish and Zillur, 2015). Nevertheless, Fotopoulos and Krystallis (2002) identify a lack of trust as a significant barrier between a positive attitude and actual sustainable buying behaviour. Even though sustainability claims have a positive effect on the buying behaviour of sustainable wine, it is the least important attribute for consumers. In addition, it is often linked to greenwashing, lack of trust and consumers are often a bit sceptical about these claims. Therefore it seems very important that a sustainability claim is not the only way of communicating the level of sustainability of a product. A combination with an eco-label or a story about the production of the product can be considered.

5.2 Eco-label

From the results it can be concluded that eco-labels are important for the decision making process of consumers when buying sustainable wine. This is also concluded by Multiscope (2016) which found that 61 percent of the Dutch consumers indicate that eco-labels play a role in their choice for food products. Galarraga Gallastegui (2002) identifies two objectives of eco-labelling: information provision for consumers that can generate a change towards more sustainable consumption patterns and encouraging producers and governments to develop more environmental standards of products/services. But there is much distrust and little confidence in eco-labels (e.g. Nittala, 2014; GfK, 2015).

The familiarity with both the eco-labels seems to have no significant effect on the buying behaviour of sustainable wine. This is opposed to the findings of Boon (2015) who identifies that people who are familiar with the eco-label have a higher buying intention than people who are not familiar with that label.

This research was done with organic milk; so the type of product might be of influence on the relationship between the familiarity of eco-label and the buying behaviour of the sustainable product. It would be possible that consumers expect an eco-label earlier on the packaging of organic milk than on the packaging of sustainable wine. And milk may be more connected to nature and sustainable practices whereas wine may be more connected with pleasure and less with sustainable practices.

The overall familiarity with both the eco-labels was quite low. This can be a result of the many available labels in the sustainable food products sector. This conclusion is familiar with the findings of Bhaskaran et al. (2006) and D'Souza et al. (2006) who found that consumers have a difficult time differentiating eco-labels. Although most of respondents have trust in the EU organic farming label and the EKO label, there is still much distrust; respectively 36.6 percent and 38.03 percent of the respondents do not trust them. This is similar to the results of GfK (2015) who concludes a distrust percentage of 42 percent.

The results also imply that the EU organic farming label has the highest effect on the buying behaviour of sustainable wine. The effect of this eco-label was higher than the effect of both the eco-labels together. This is contrary to the findings of Fazli (2016) who concludes that two eco-labels are needed to convince consumers of the environmental message. A reason for this could be that in the research of Fazli (2016) two eco-labels are used with very different backgrounds and messages (Fairtrade and BDIH label); in this research the used labels have similar messages.

And lastly, when it comes to the distinction between mandatory and non-mandatory eco-labels it is found that the mandatory label (EU organic farming label) has a more positive effect on the buying behaviour of sustainable wine than the non-mandatory label (EKO label).

5.3 Kind of packaging

As mentioned before, the packaging of sustainable products can create a dilemma. On the one hand, packaging is needed for the conservation and protection of the product, but also for the information provision of the level of sustainability. The latter is recognized as very important for consumers; if consumers cannot differentiate a sustainable food product from a conventional one, they tend to choose for the cheaper product (Yiridoe et al., 2005). The information provision does not necessarily needs to be done via the packaging, but is an interesting and effective way of communication especially when customers need to choose from a high number of products in a supermarket. But on the other hand, packaging impacts the environment (transport and the processing of packaging waste). Nevertheless, consumers seem to be very concerned about the impact of packaging on the environment; they see a decrease of use of packaging as the most important item to help the environment (Lea and Worsley, 2008). But the question rises if this is still the case, this opinion of customers can depend on a specific time and context.

The packaging of sustainable wine also seems to be the most important attribute of the three different attributes for the respondents when buying sustainable wine. However, the conventional packaging glass still is the most preferred option; the positive effect on the buying behaviour of sustainable wine is the highest. This is in line with the findings of Farsi (2012). Contrary to the findings of Rokka and Uusitalo, that environmental packaging is among the most preferred product attributes when buying drink products, both the (more) sustainable options, bag in box and the paper bottle, have a negative effect on the buying behaviour of sustainable wine.

The above results are a bit conflicted with the overall attitude towards sustainable packaging materials for sustainable products; a big part of the respondents (75 percent) found that sustainable products also should be packed in sustainable packaging materials. But instead of rating the (more) sustainable options, the bag in box and the paper bottle, higher the conventional option is the only level that has a positive effect on the buying behaviour of sustainable wine. Possible explanations for this are that the respondents did not know that the bag in box and paper bottle options are more sustainable than the conventional option or that they already had such a strong aversion of the bag in box. The respondents tend to hold on to the conventional idea of wine packaging. This result can be linked to the barrier 'knowledge' which is assumed to have a negative influence on the attitude-behaviour gap (e.g. Young et al, 2010; Eze and Ndubisi, 2013). Also Padel and Foster (2005) report that a lack of information has a negative influence on sustainable buying behaviour. So, if the respondents knew that the bag in box and paper bottle options were more sustainable than the conventional option and they got more information about the effects of for instance the recycle rate, the results might have been different.

Although the paper bottle option has a negative effect on the buying behaviour at the moment, this can change when the product is introduced and becomes more mainstream in the future. For most of the respondents it was such a new thing that they had mixed feelings about it. On the one hand, they found it a great initiative and really were curious about the idea behind it. But on the other hand, they also were sceptical about the quality and durability of the wine in this new kind of packaging. This result also can be linked to one of the founded barriers: 'trust'. Trust is considered to be very important when it comes to sustainable products; a lack of trust is seen as a significant barrier between a positive attitude and actual sustainable buying behaviour (e.g. Bang et al, 2000; Fotopoulos and Krystallis, 2002). The paper bottle is so new for most of the respondents that it creates questions about the quality and durability. Therefore more information about the product and its characteristics is needed to make it reliable and therefore attractive to consumers. In my opinion, this kind of packaging can really have a change in the wine sector but it needs to have the support of the wine sector itself and it really needs to be promoted as the most sustainable packing option.

As mentioned before the most preferred label and packaging of sustainable wine is a glass bottle of wine with a sustainability claim and an EU organic farming label. This corresponds with the research of Farsi (2012) who concludes that consumers prefer a glass bottle over green packages. It seems that consumers still want the standard and sometimes less sustainable option when it comes to buying sustainable wine. Also they want information about the level of sustainability of the wine. Although the eco-labels are not always recognized and trusted, they seem to be important.



Chapter 6:
Implications and
limitations

This chapter first discusses the contribution to the academic sector and the implications that this research has for businesses and policymakers. After this, the limitations of the research will be reviewed and some suggestions for future research are given.

6.1 Academic contributions

Even though much research is done in the area of the attitude-behaviour gap of sustainable products, this research has some interesting contributions to the academic literature. Little was known about the impact of sustainable packaging on the attitude-behaviour gap. The importance of the packaging of sustainable products was already identified, but literature about the effect of this on the attitude-behaviour gap was missing.

The role of knowledge is one of the most researched subjects in the area of the attitude-behaviour of sustainable products. However the effect of the available information on the packaging of sustainable products was not many times included in these researches. Now that the knowledge about and awareness for sustainable products are increasing, it is important to see what the effect of the available information is. And what the level of trust in and familiarity with eco-labels is.

The academic literature in the area of the attitude-behaviour gap of sustainable wine mainly focusses on the price and taste. This research contributes to this area with insights about the role of information on the label of wine (sustainability claim and eco-labels) and the kind of packaging. The kind of packaging seems to be the most important attribute in the decision making process of consumers when buying sustainable wine.

6.2 Managerial implications

One of the main goals of this research is that it has concrete implications for businesses in the field of sustainability. By choosing wine as product in the experiment, the managerial implications are most of all applicable for businesses in the wine sector, such as wine farmers, wine importers/ wholesales, liquor stores and supermarkets.

First of all, consumers still prefer sustainable wine packaged in glass bottles compared to bag in boxes and the paper bottle. A glass bottle is the least sustainable option of the three; because of the recycling rate which is lower and the weight which is higher, but still consumers prefer this kind of packaging.

The wine sector should partner up with national and international governments to ensure that the recycling rate goes up. This can be very difficult, because the bottles are often filled at the farms which are all over the world and the collecting and recycling has to happen in the land where it is consumed. Therefore international agreements should be made. There are already a couple of good initiatives such as 'Glas in 't bakkie' (The Netherlands), 'The glass recycling company' (South Africa) and 'Glass container association of America' (North America). Something that can be considered by both governments and businesses in this sector is a deposit money system.

This system is already in place for little glass bottles such as beer bottles and PET-bottles in some countries. This system is an incentive for consumers and businesses to reuse glass bottles.

Although this research did not conclude that consumers want their sustainable wine packaged in more sustainable packaging options, there are a couple results that speak in favour of a transition to a more sustainable wine industry. Especially the high percentage (83 percent) that has a positive to very positive attitude towards sustainable wine. This means that this can be a huge opportunity for the wine industry. In my opinion, the Dutch wine industry should also put more effort in Dutch wine. The environmental footprint of Dutch wine is lower because less transportation is involved in comparison to wines from other countries. The production and quality of Dutch wine is on the rise, but it is still not a mainstream product mainly because of the relatively high price. In addition, it is difficult to make because of the Dutch climate (Le Clercq, 2016). Innovations in this sector are necessary to make it more interesting for the mainstream market. But this cannot be done without the support of the Dutch wine industry and the government. One recent innovation is growing grapes in a garden greenhouse which is powered with sustainable energy; in this way, the climate can be more controlled, no pesticides are needed and the quality of the wine also seems really good (Meinders, 2017). I hope that my research contributes to the transition to a more sustainable wine industry.

6.3 Societal implications

Businesses and the government can have much influence on the buying behaviour of consumers, but the ultimate choice for buying sustainable products still lies with the consumer. The knowledge of consumers about the environment, animal welfare and other related topics is therefore essential. The government should increase the knowledge of these topics by setting up educational programs on primary and secondary schools. In this way the awareness about these topics can be raised what eventually can lead to more sales of sustainable products in general.

The use of eco-labels is important for the communication and recognisability of the level of sustainability of products. Previous research concluded that consumers are sceptical and confused about eco-labels. The main reasons for this is that there are so many national and international eco-labels and that there have been a couple of scandals in this area such as the allegations that German and Dutch farms sold conventional eggs as bio eggs in 2013 (RTL Nieuws, 2013). The recognition of eleven top eco-labels by Milieu Centraal is a step in the right direction, because it makes eco-labels more credible. But more promotion of these top eco-labels is needed in order for it to have a positive effect on the buying behaviour of sustainable food. Although the familiarity with both the eco-labels appeared to have no significant effect on the buying behaviour of sustainable wine, it is still important to promote the top eco-labels that are ambitious, transparent and reliable.

In this way, the trust and confidence in these eco-labels can raise and eventually this can lead to more sales of sustainable products.

6.4 Limitations

There are a couple limitations to this research. These will be discussed below. First of all, a convenience sample is used in this research which is not the ideal form of sampling. The use of a convenience sample is sometimes unavoidable, because information and data about the population is not available or accessible. In this research, the information about the population 'consumers aged 18 and over in the province of South Holland in the Netherlands with a diversity of education, age and gender' is not available. The use of a convenience sample can result in a low generalisability of the sample. Besides this, the theoretical domain is heterogenous; the effect is assumed to be different in different parts of the domain. Although the experiment is done in both rural and urban areas, these are still different from other provinces and regions in the Netherlands. And it is also the question to what extent the Netherlands is representative for the rest of the world.

Another limitation is the displaying of the sort of grape on the label of the wine, Chardonnay, because respondents can already have a positive or negative opinion about this kind of wine. This prejudice can result in biased answers about the attitude towards and the buying behaviour of sustainable wine. But as mentioned before, the inclusion of the sort of grape on the label is important to make the experiment more real-life; a bottle of wine has almost always a description of the sort of grape.

Third, the R square of the regression analysis used is founded to be quite low. This can indicate that not all the relevant attributes are included in this research. Factors such as the price and the taste of the wine are not included in this research. These factors are considered to be very important when it comes to the attitude-behaviour gap of sustainable. However, including them in this research was difficult; to say something about these factors, more levels and profiles were needed. The inclusion of more profiles would not have been conducive for the research because the respondents could have a difficult time with differentiating the profiles. Also undiscovered attributes can influence the buying behaviour of sustainable wine, so further research in this area is needed.

Fourth, a number of things might be a bit unclear in the research. A distinction was made between mandatory and non-mandatory eco-labels, but do the respondents also see the distinction between the mandatory and non-mandatory eco-label or are these just two different labels to them? Another distinction may be more understandable for them. Also do the respondents recognize that the bag in box and paper bottle options are more sustainable than the conventional (glass) option? In future research a question about recognisability should be included.

Fifth, the real reasons for the consumers to buy sustainable wine are not broadly discussed in this research. Although the 'general insights' chapter gives an overview of the opinions and insights of respondents, this information is not collected in a structural way.

6.5 Future research

This research contributes to the academic and business sector and society with new insights and implications. However, as seen in the limitations section there is still much to research in the area of the attitude-behaviour gap (of sustainable wine).

First of all, future research can focus on a more specific population from which the information and data is available and accessible. In this way, a probability sample can be used which can result in a higher generalisability of the sample. Also future research can broaden the sample and the population. The population can consist of for example 'consumers aged 18 and over in the Netherlands with a diversity of education, age and gender'. The experiment can be done in supermarkets all over the Netherlands.

Future research should also focus on other commonly used sustainability claims and eco-labels. Because the effect of a sustainability claim or eco-label can be different for different kinds of sustainable products. It is interesting to see which sustainability claim or/and eco-label has a positive influence on the buying behaviour of different sustainable products.

To increase the R square and in this way the level of fit, other attributes and levels can be included. As mentioned before, the inclusion of more attributes and levels results in more possible profiles. To make a research with many profiles accurate and reliable, a choice based conjoint can be used. Attributes such as the price of the sustainable wine can be included or the used attributes can be extended with other levels. The attribute 'eco-labels' can be extended with other sorts of eco-labels that are applicable for sustainable wine. To identify undiscovered attributes more research in the area of the attitude-behaviour gap of sustainable wine is needed.

Also more research is needed in the area of sustainable packaging. Consumers tend to favour sustainable packaging options, but in the end they choose for the standard option. It can be interesting to see if consumers recognize sustainable packaging options. And also how these options can become more mainstream and interesting for consumers? In recent years, there are many initiatives in the area of non-packaged products such as several new package free and zero-waste grocery stores (Borromeo, 2014). Future research should also look at the influence of no packaging on the attitude-behaviour gap of sustainable products.

Lastly, other ways of research in the area of the attitude-behaviour of sustainable wine should be considered. In-depth interviews could be used to search for the real reasons (not) to buy or sustainable wine for consumers and to find factors that make it more interesting for them.

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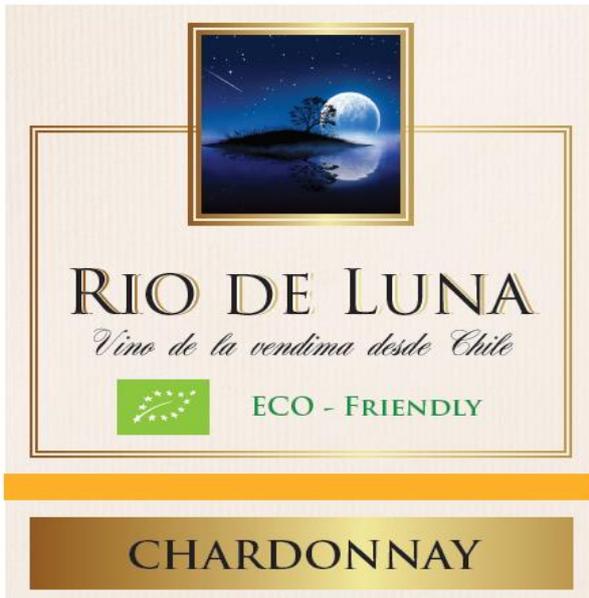
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Appendix I - Questionnaire

Dit onderzoek is onderdeel van mijn afstudeerscriptie voor de MSc Global Business and Sustainability aan de Erasmus Universiteit. Het onderzoek zal 5 tot 10 minuten tijd in beslag nemen. Er zal vertrouwelijk worden omgegaan met de door u verstrekte informatie.

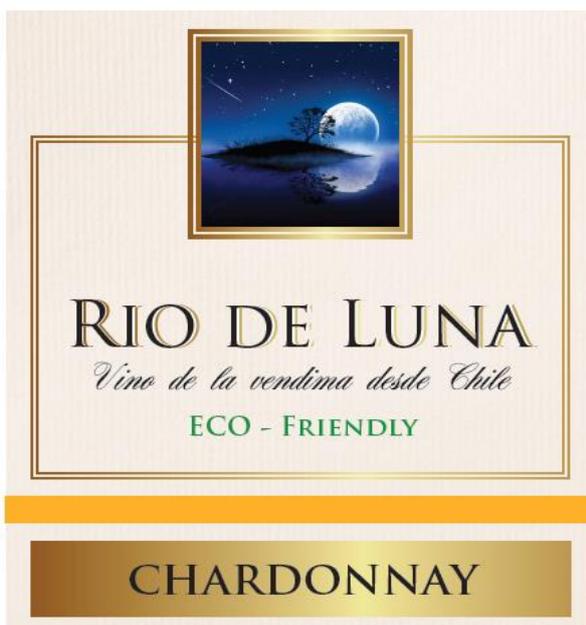
Profile 1 (Conventional + Sustainability claim + EU organic label)



Hoe waarschijnlijk is het dat u dit product koopt?

	1	2	3	4	5	6	7	
Zeer onwaarschijnlijk	0	0	0	0	0	0	0	Zeer waarschijnlijk

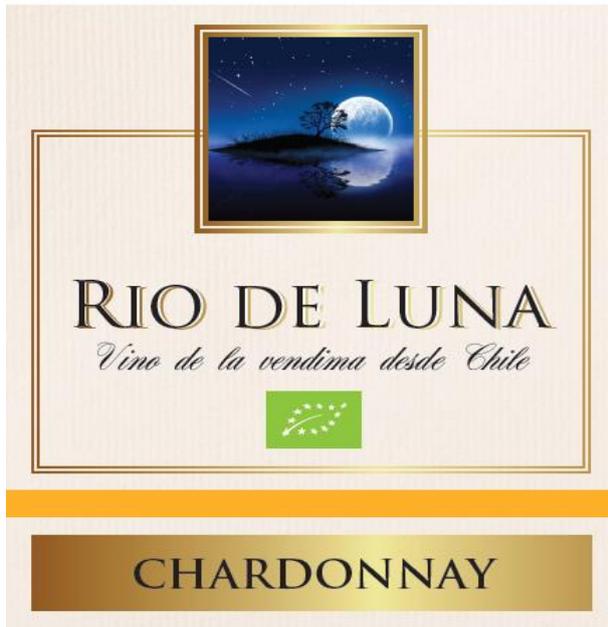
Profile 2 (Conventional + Sustainability claim + No label)



Hoe waarschijnlijk is het dat u dit product koopt?

	1	2	3	4	5	6	7	
Zeer onwaarschijnlijk	0	0	0	0	0	0	0	Zeer waarschijnlijk

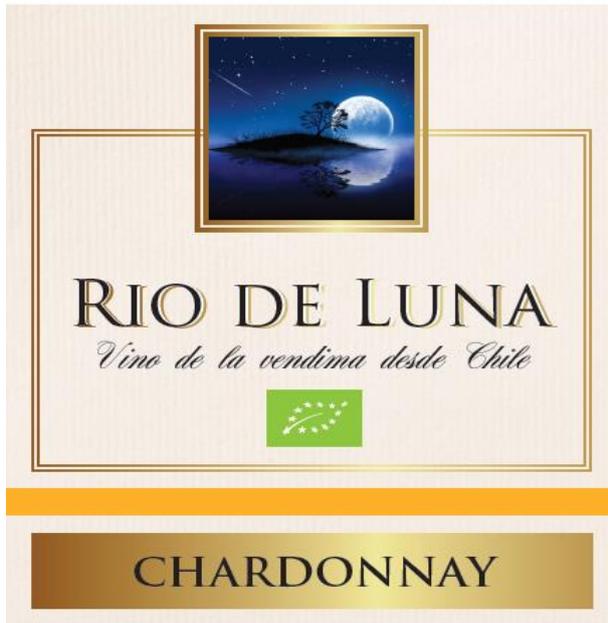
Profile 3 (Conventional + No sustainability claim + EU organic label)



Hoe waarschijnlijk is het dat u dit product koopt?

	1	2	3	4	5	6	7	
Zeer onwaarschijnlijk	0	0	0	0	0	0	0	Zeer waarschijnlijk

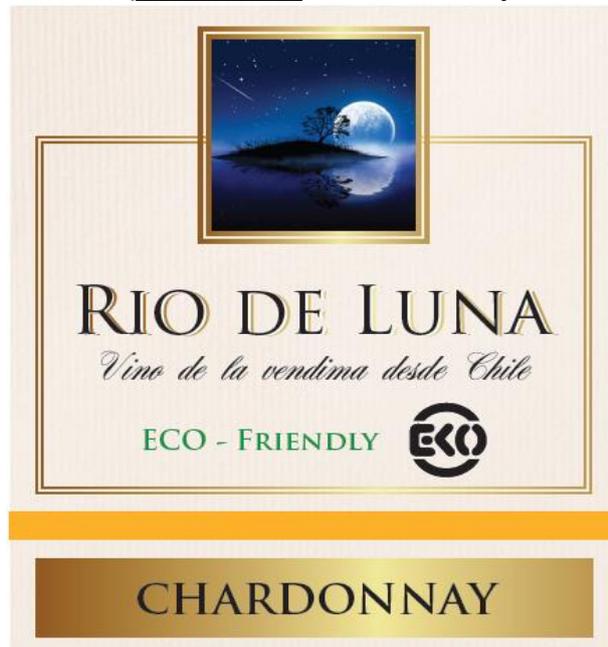
Profile 4 (Paper bottle + No sustainability claim + EU organic label)



Hoe waarschijnlijk is het dat u dit product koopt?

	1	2	3	4	5	6	7	
Zeer onwaarschijnlijk	0	0	0	0	0	0	0	Zeer waarschijnlijk

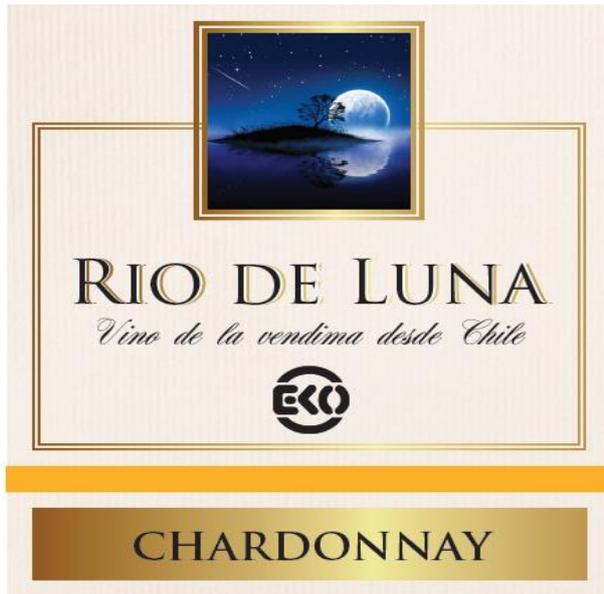
Profile 5 (Paper bottle + Sustainability claim + EKO label)



Hoe waarschijnlijk is het dat u dit product koopt?

	1	2	3	4	5	6	7	
Zeer onwaarschijnlijk	0	0	0	0	0	0	0	Zeer waarschijnlijk

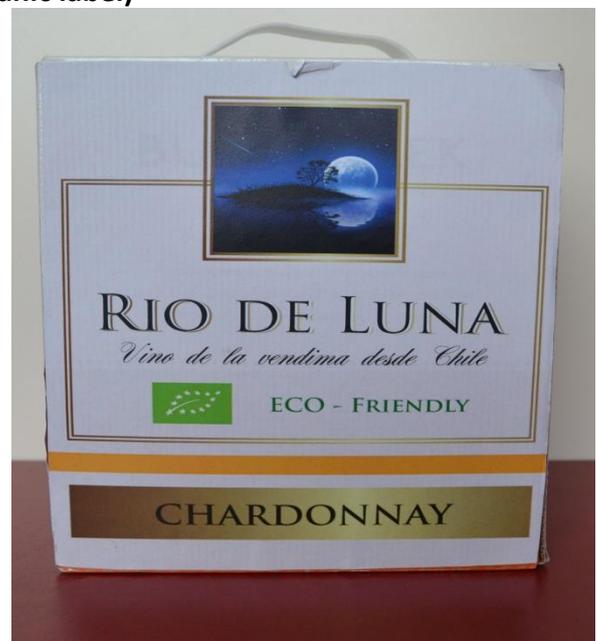
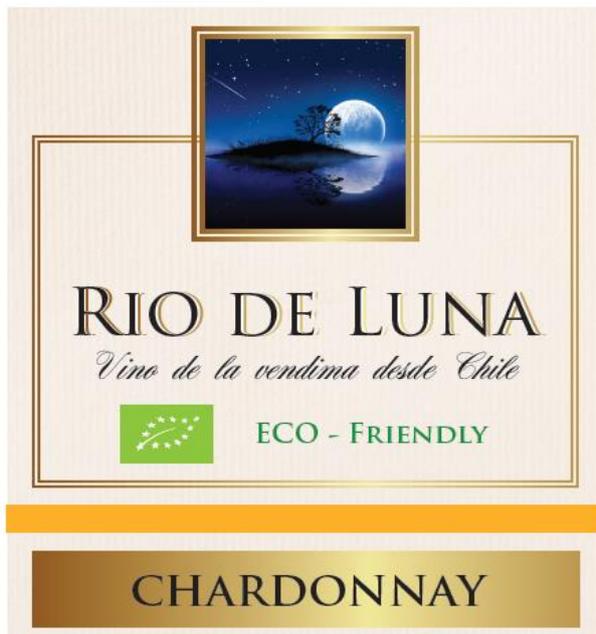
Profile 6 (Conventional + No sustainability claim + EKO label)



Hoe waarschijnlijk is het dat u dit product koopt?

	1	2	3	4	5	6	7	
Zeer onwaarschijnlijk	0	0	0	0	0	0	0	Zeer waarschijnlijk

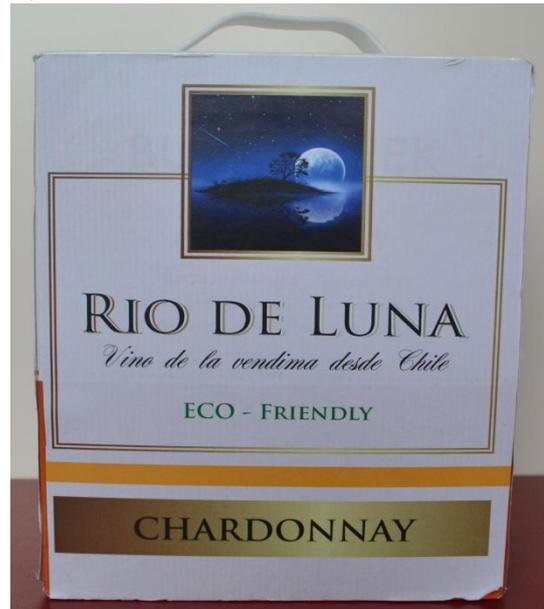
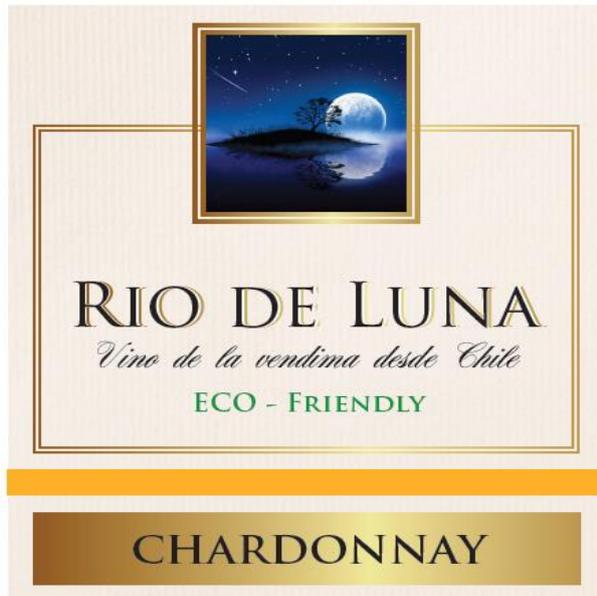
Profile 7 (Bag in box + Sustainability claim + EU organic label)



Hoe waarschijnlijk is het dat u dit product koopt?

	1	2	3	4	5	6	7	
Zeer onwaarschijnlijk	0	0	0	0	0	0	0	Zeer waarschijnlijk

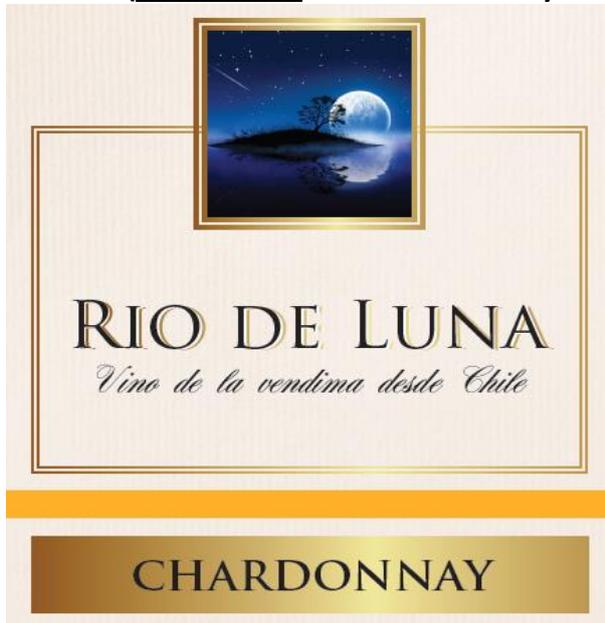
Profile 8 (Bag in box + Sustainability claim + No label)



Hoe waarschijnlijk is het dat u dit product koopt?

	1	2	3	4	5	6	7	
Zeer onwaarschijnlijk	0	0	0	0	0	0	0	Zeer waarschijnlijk

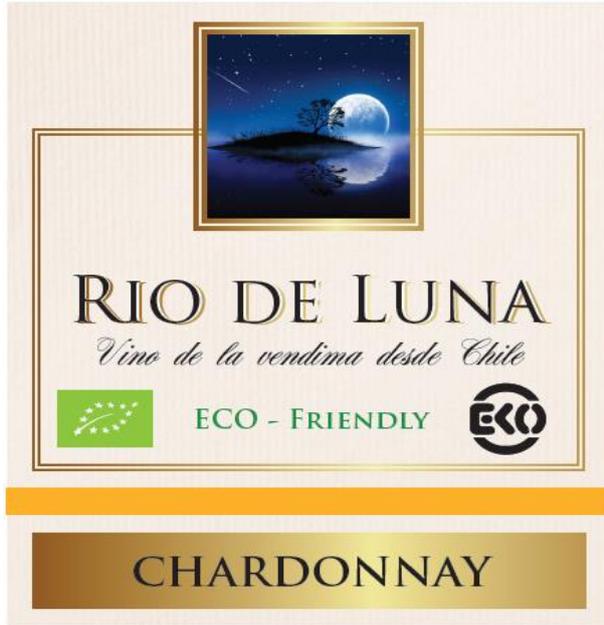
Profile 9 (Paper bottle + No sustainability claim + No label)



Hoe waarschijnlijk is het dat u dit product koopt?

	1	2	3	4	5	6	7	
Zeer onwaarschijnlijk	0	0	0	0	0	0	0	Zeer waarschijnlijk

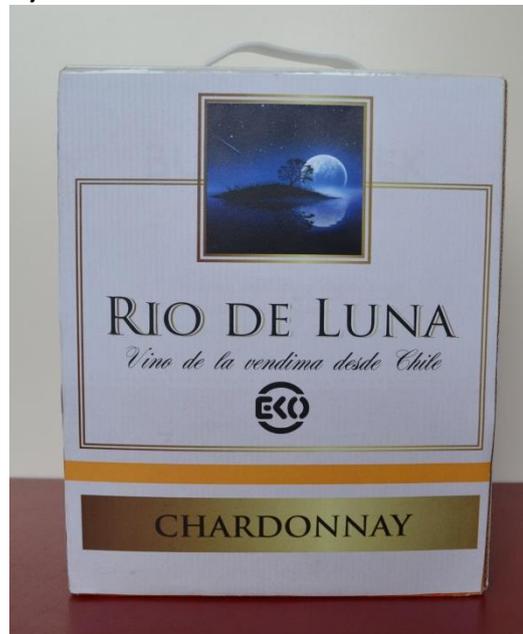
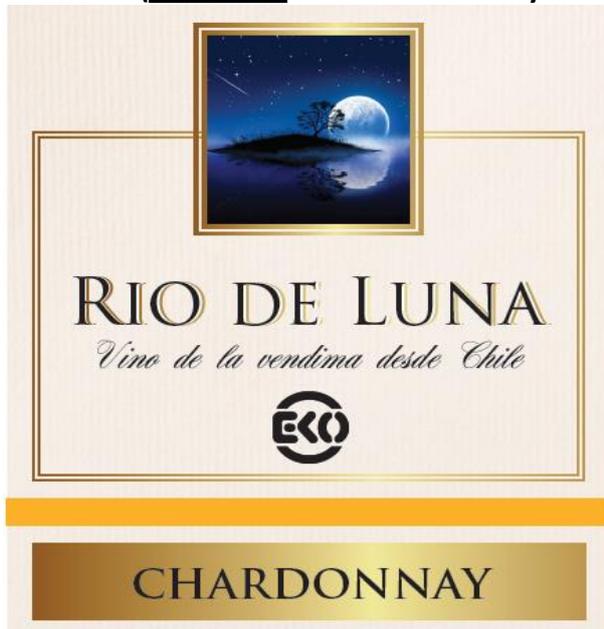
Profile 10 (Conventional + Sustainability claim + EU organic and EKO label)



Hoe waarschijnlijk is het dat u dit product koopt?

	1	2	3	4	5	6	7	
Zeer onwaarschijnlijk	0	0	0	0	0	0	0	Zeer waarschijnlijk

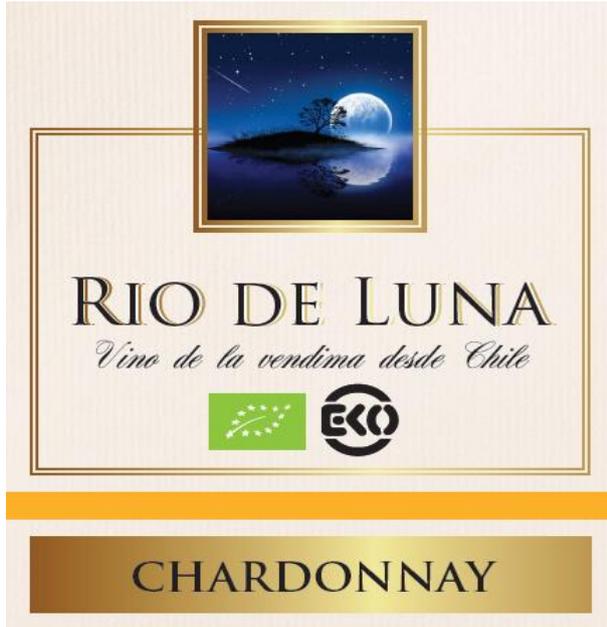
Profile 11 (Bag in box + No sustainability claim + EKO)



Hoe waarschijnlijk is het dat u dit product koopt?

	1	2	3	4	5	6	7	
Zeer onwaarschijnlijk	0	0	0	0	0	0	0	Zeer waarschijnlijk

Profile 12 (Conventional + No sustainability claim + EU organic and EKO label)



Hoe waarschijnlijk is het dat u dit product koopt?

	1	2	3	4	5	6	7	
Zeer onwaarschijnlijk	0	0	0	0	0	0	0	Zeer waarschijnlijk

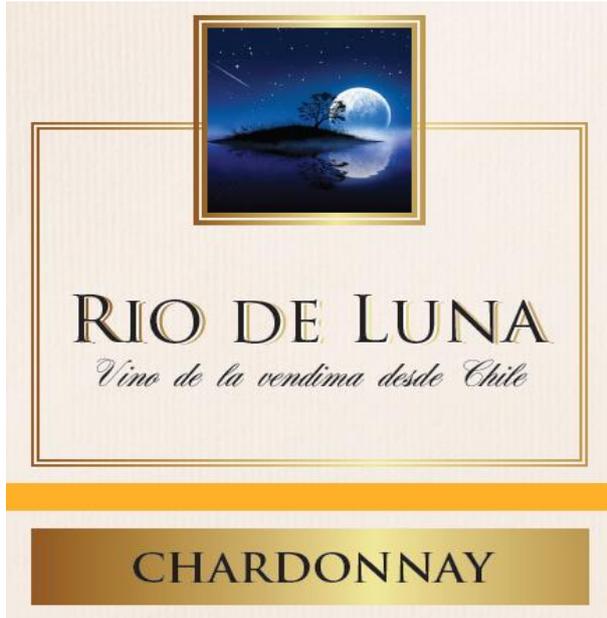
Profile 13 (Paper bottle + Sustainability claim + EU organic and EKO label)



Hoe waarschijnlijk is het dat u dit product koopt?

	1	2	3	4	5	6	7	
Zeer onwaarschijnlijk	0	0	0	0	0	0	0	Zeer waarschijnlijk

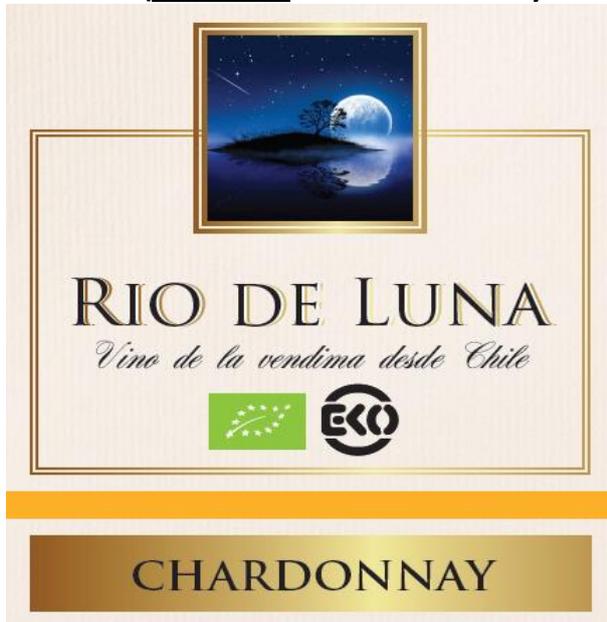
Profile 14 (Conventional + No sustainability claim + No label)



Hoe waarschijnlijk is het dat u dit product koopt?

	1	2	3	4	5	6	7	
Zeer onwaarschijnlijk	0	0	0	0	0	0	0	Zeer waarschijnlijk

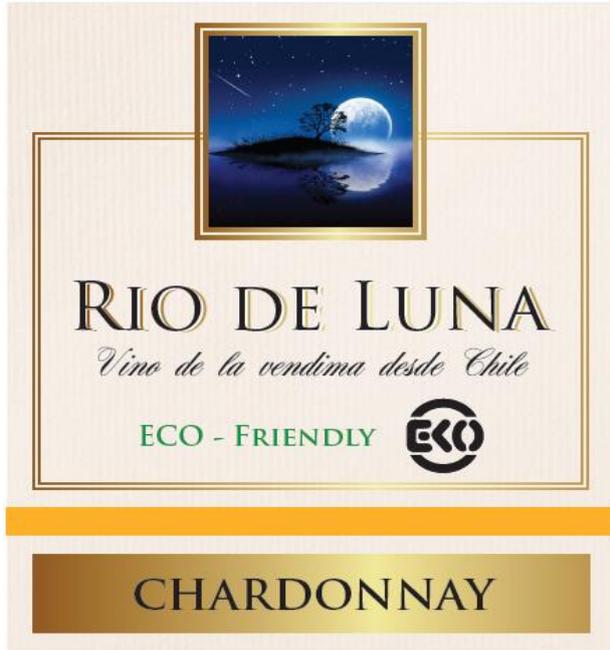
Profile 15 (Bag in box + No sustainability claim + EU organic and EKO label)



Hoe waarschijnlijk is het dat u dit product koopt?

	1	2	3	4	5	6	7	
Zeer onwaarschijnlijk	0	0	0	0	0	0	0	Zeer waarschijnlijk

Profile 16 (Conventional + Sustainability claim + EKO)



Hoe waarschijnlijk is het dat u dit product koopt?

	1	2	3	4	5	6	7	
Zeer onwaarschijnlijk	0	0	0	0	0	0	0	Zeer waarschijnlijk

1. Wat is uw houding ten opzichte van duurzame wijn?

Duurzame wijn is geproduceerd met respect voor de natuur. De boeren gebruiken geen pesticiden, kunstmest en genetische modificatie.

	1	2	3	4	5	6	7	
Zeer negatief	0	0	0	0	0	0	0	Zeer positief

2. Vindt u dat duurzame producten ook in duurzame verpakkingsmaterialen verpakt moeten worden?

- Ja
- Nee

3/4. Hoe bekend zijn de volgende keurmerken voor u?



	1	2	3	4	5	6	7	
Nog nooit gezien	0	0	0	0	0	0	0	Erg vaak gezien



	1	2	3	4	5	6	7	
Nog nooit gezien	0	0	0	0	0	0	0	Erg vaak gezien

5/6. Vertrouwt u de volgende labels?



- Ja
- Nee



- Ja
- Nee

7. Wat is uw geslacht?

- Man
- Vrouw

8. Wat is uw leeftijd?

- 18- 25
- 26-35
- 36-60
- 60+

9. Wat is uw hoogst genoten opleiding? Als uw opleiding er niet tussen staat kies dan de opleiding die er het meest op lijkt.

- VMBO
- HAVO
- VWO
- MBO
- HBO
- WO

10. Hoe veel wijn consumeert u per week?

- 1 glas of minder per week
- 2 tot 5 glazen per week
- 6 tot 10 glazen per week
- Meer dan 10 glazen per week

Heel erg bedankt voor uw medewerking!

Appendix II – Photos of the experiment



