UNIVERSITÉ DE FRIBOURG
UNIVERSITÄT FREIBURG

University of Fribourg
Faculty of Management, Economics and Social Sciences
Department of Management Sciences
Studies:

Bachelor/Master Thesis

Consumer's willingness to pay for sustainable labelled Cheese in Switzerland

The role of demographics, knowledge, ecological sensitivity and multi-labelling in shaping purchase intention

Deposed by

Perruchoud Charel
B.A. Science of Communication and Media

Date of birth: 06.04.1996
Student number: 17-205-329
Mail address: charel.perruchoud@unifr.ch

In fulfilment of the requirements for the degree of Master of Arts (M.A.)

Supervisor

Prof. Dr. Furrer Olivier

Period of processing

01.02.2025 – 31.05.2025

Place, Date of impression

Fribourg, 2025

SUMMARY

In recent years, sustainable labeling has gained increasing importance in consumer decision-making. This study adds to the literature on sustainable food labeling by focusing on sustainable labeled cheese in the Swiss market. The main goal is to investigate how different factors: eco-sensitivity, knowledge and recognition, gender, age, educational level and the number of labels influence the willingness to pay (WTP) for sustainable labeled products. A survey was conducted with 413 participants, each randomly assigned to one of 11 product scenarios featuring different combinations of four labels: AOP, Bio Suisse, Demeter, and Retour aux sources. The results show that the label AOP reaches the highest willingness to pay. While multiple labeling alone does not significantly increase WTP, other factors such as label knowledge, gender, and education level show a stronger influence on purchasing decisions. Therefore, companies should prioritize one label rather than combining multiple ones. Efforts should also focus on improving consumer understanding of label meanings. Additionally, strategies considering demographic differences can help optimize sustainable product strategies.

TABLE OF CONTENTS

_Toc198637411
1 Introduction 1
2 Literature review 1
2.1 Sustainable Labels 1
2.2 Types of Sustainable Labels 1
2.3 Characteristics of sustainable labels 2
2.4 Functions of sustainable labels 3
2.5 Limitations of sustainable labels 6
2.6 Willingness to pay for food products 7
2.7 Influencing factors of the willingness to pay 8
2.7.1 Trust 8
2.7.2 Environmental concerns 8
2.7.3 Knowledge and recognition 9
2.7.4 National preference 10
2.7.5 Number of labels 10
2.8 Sociodemographic Factors 11
2.8.1 Age and Gender 11
2.8.2 Educational level 11
2.9 Estimation of Price premium 11
2.10 Literature critique 12
3 Conceptual Framework 13
4 Methodology 16
5 Results 18
5.1 Descriptives 19
5.1.1 H1: Ecological Sensitivity 20
5.1.2 H2: Knowledge and recognition 22
5.2 Sociodemographic factors 26
5.2.1 H3a: Genders 26
5.2.2 H3b: Age 27
5.2.3 H3c: Educational level 28
5.3 Moderation Effects 29
5.3.1 H4: Number of labels and eco-sensitivity 29
5.3.2 H5: Number of labels and level of knowledge 30
5.3.3 H6: Number of labels 31
5.4 Label preferences 32
5.4.1 AOP and Demeter Suisse 32
5.4.2 AOP and Bio Suisse 33
5.4.3 AOP and Retour aux sources 34
5.4.4 Demeter Suisse and Bio Suisse 35
5.4.5 Demeter and Retour aux sources 36
5.4.6 Bio Suisse and Retour aux sources 37

6 Discussion 38

6.1 Interpretation of the findings regarding literature 39

6.1.1 Eco-sensitivity 39
6.1.2 Knowledge and recognition 39
6.1.3 Gender 40
6.1.4 Age 40
6.1.5 Education level 40
6.1.6 Number of labels 41
6.1.7 Moderation effect on eco-sensitivity 41

6.2 Managerial and theoretical contribution 42

7 Conclusion 43

7.1 Limitations and future study recommendations 43

8 Bibliography *46*

9 Appendix *51*

LIST OF FIGURES

Figure 1: Selected sustainable labels 3
Figure 2: Types of sustainable labels (R.Horne, 2009) 2
Figure 3: Conceptual model 13
Figure 4: Likelihood of purchase for a single labeled cheese by ecological sensitivity 21
Figure 5: Likelihood of purchase for a single labeled cheese by knowledge and recognition 23
Figure 6: Likelihood of purchase for a single labeled cheese by label definition known 25
Figure 7: Likelihood of purchase for a single labeled cheese by gender 26
Figure 8: Likelihood of purchase for a single labeled cheese by age 27
Figure 9: Likelihood of purchase for a single labeled cheese by education 28
Figure 10: Likelihood of purchase by number of label and eco-sensitivity 29
Figure 11: Likelihood of purchase by number of label and knowledge-recognition 30
Figure 12: Likelihood of purchase for cheese by number of labels 31
Figure 13: Likelihood of purchase for labeled cheese by label 32
Figure 14: Likelihood of purchase for labeled cheese by label 33
Figure 15: Likelihood of purchase for labeled cheese by label 34
Figure 16: Likelihood of purchase for labeled cheese by label 35
Figure 17: Likelihood of purchase for labeled cheese by label 36
Figure 18: Likelihood of purchase for labeled cheese by label 37

A. List of tables

Table 1: Main process attributes of the selected sustainable labels 3
Table 2: Overview of the pricing scale of the product 16
Table 3: Combinations of the product and the selected labels 17
Table 4: Descriptive statistics of sample characteristics 19
Table 5: Descriptive statistics - Ecological sensitivity 20
Table 6: Likelihood of purchase for a single labeled cheese by ecological sensitivity 21
Table 7: Descriptive Statistics - Knowledge and recognition 22
Table 8: Likelihood of purchase for a single labeled cheese by knowledge and recognition 23
Table 9: Descriptive Statistics - Label definition 24
Table 10: Label Definition known by knowledge and recognition 25
Table 11: Likelihood of purchase for a single labeled cheese by label definition known 25
Table 12: Likelihood of purchase for a single labeled cheese by gender 26
Table 13: Likelihood of purchase for a single labeled cheese by age 27
Table 14: Likelihood of purchase for a single labeled cheese by education 28
Table 15: Likelihood of purchase by number of label and eco-sensitivity 29
Table 16: Likelihood of purchase by number of label and knowledge-recognition 30
Table 17: Likelihood of purchase for cheese by number of labels 31
Table 18: Likelihood of purchase for labeled cheese by 32
Table 19: Likelihood of purchase for labeled cheese by label 33
Table 20: Likelihood of purchase for labeled cheese by label 34
Table 21: Likelihood of purchase for labeled cheese by label 35
Table 22: Likelihood of purchase for labeled cheese by label 36
Table 23: Likelihood of purchase for labeled cheese by label 37
Table 24: Summary of the hypotheses analysis 38

1 INTRODUCTION

There is no doubt, sustainability has become a major subject in society during the last decade (Sonntag et al., 2022). In the food sector, consumption has been shifting towards more sustainable food, especially when it comes to millennials as explained by Bjelkengren et al (2024). Industry has been under the radar as most consumption habits in wealthy countries are widely considered to exceed the boundaries of sustainable consumption (Pink et al., 2021). The stakes are high for producers, firms, government and individuals. The impact of food consumption happens at the cost of the environment. Moreover, ethics within the entire food chain of logistics as well as the health implications of a non-sustainable diet are being questioned too. When it comes to food consumption, product strategies are developed to guide the consumer through its choice of food. To do so, marketers rely on elements such as food labels to convey non-tangible clues to provide individuals with information. Sustainability labels provide consumers with information about environmental impact, animal welfare, and ethical production standards (Lazzarini et al., 2018). When developing strategies marketers can refine it by knowing the effect of sustainable labels on the customers. It can help focus on the right label or labels. If customers are willing to pay more for a certain label the product decision can be made around those aspects to create an effective product as well as price strategy.

The amount of sustainable multi-level labels encountered a significant increase such as the Nutri-Score, Health star rating, animal welfare label and Eco-Score (Annunziata et al., 2018; Jürkenbeck, 2023; Sonntag et al., 2022). Labels can originate from private organization, being governmentally regulated or supervised by a third party. There are pros and cons for each aspect. For example, governmental regulated certification has been introduced by political entities for standardization purposes. Some countries enforce the use of certain labels as it is the case for the Nutri-Score in various EU countries such as Germany, France, Belgium, Spain, the Netherlands and Luxembourg (Andreeva et al., 2021; De Bauw et al., 2021; Jürkenbeck, 2023; Sonntag et al., 2022). In Switzerland, the Nutri-score has not been enforced by the authorities. However, the Federal Office of Public Health strongly recommended its adoption to promote balanced nutrition and deliver standardized

information to the public (Conseil fédéral, 2022) in alignment with its neighbor countries. Nonetheless, the Nutri-Score is just one of more than 135 labels existing in Switzerland (Steve, 2020). As some adopt it, major Swiss entities such as Migros, Emmi and Switzerland Cheese Marketing also decided to abandon the label due to high cost, low impact or confusion concerns for consumers according to Chandrasekhar (2024). This emphasizes that some companies rather set their strategy on labels providing sustainable information over health positioning. There once again the focus of a label can be set on one aspect of the pillars of sustainability or multiple one leading to have multi-level labels (Eco-Score, Bio Suisse) Previous studies indicate consumers struggle with multiple sustainability labels, leading to decision fatigue and skepticism (Lazzarini et al., 2018; Sonntag et al., 2022) but there again other results happen to show a shift where consumers actually can cope with multiple labels on the package of a food product (Sonntag et al., 2022).

As the importance of sustainability gained in society, so did the scientific interest. However, research suggests that multiple sustainability labels on a single product can create confusion and decision fatigue (Sonntag et al., 2022). While some labels such as AOP are well-established and trusted in the specific food categories, newer labels like CO_2 footprint, animal welfare, or organic certifications may be less familiar to consumers (Schmitt et al., 2016). Furthermore, existing research has focused on other cultural contexts such as: Germany, France, UK, Japan, USA, (Aprile & Punzo, 2022; Gracia & de-Magistris, 2016; Jürkenbeck, 2023; Lazzarini et al., 2018; Schmitt et al., 2016).

To sum up, despite growing awareness in society and the increasing introduction of sustainable labels and certifications, the effectiveness of these initiatives in shaping consumer behavior remains uncertain if not chaotic in the eyes of consumers as studies show mixed results. It is also relevant for marketers, producers and retailers to optimize label placement and pricing strategies thanks to the study's insights. Considering the elements above, this study aims to contribute to answering these questions:

- *What factors influence the consumer's willingness to pay for food products?*
- *Do consumers understand the significance of sustainable labels?*

- *Are consumers willing to pay more for single labeled or multiple labeled food products?*

This study investigates the willingness to pay for sustainable labeled food products to contribute to gaining a deeper knowledge on the topic. The first objective is to find factors influencing the consumer's willingness to pay for a sustainable labeled food product. Secondly, the goal is to observe if consumer's willingness to pay for a sustainable product change between different label attributes as well as comparing the effect of a single or multiple label strategy. The third objective is to assess whether consumers can correctly understand the meaning of a sustainable label to be found on the market.

The focus is therefore set on 4 different sustainable labels. All labels respond to the "type I" criteria as the certification brings guarantees related to product and production processes responding to strict criteria (Aprile & Punzo, 2022; Janssen & Langen, 2017, p.1234). The selected labels are available in Swiss supermarkets and certify clear processes and to ensure the quality of a food product. The 4 labels are : AOP, Bio Suisse, Demeter Suisse, Retour aux Sources.

Figure 1: Selected sustainable labels

The next part of this paper focuses on reviewing the extand of literature on the topic. After that follows the conceptual framework in which the study is set before presenting the methodology section. The results of the study are then presented and summarized. To conclude the study a critical assessment of it's limitations is discussed and recommendations for further studies are highlighted.

2 LITERATURE REVIEW

2.1 Sustainable Labels

The concept of sustainability is based on three dimensions: environmental, society and economy (Janssen & Langen, 2017). The societal dimension focuses on the human aspect by reflecting a concern on fair trade, the non-discrimination, respecting human dignity and supporting the local producers (McGuinn et al., 2020). The second dimension targets the environmental impact (Williams et al., 2023, p.2). A more precise definition to consider is that the environmental approach is “any claim that suggests or otherwise creates the impression that a good or service has a positive or no impact on the environment or is less damaging to the environment than competing goods or services, due to its composition, mode of manufacturing/producing, how it can be disposed of and/or the energy or pollution reduction expected from its use.” (Mengual et al., 2023). The economic pillar is the last one. This one is not actively seeked in food labeling but is a result of the two previous ones as they lead to those benefits such as self-promotion or an increase in sales for companies (Janssen & Langen, 2017, p.1234).

The European Commission underlines different elements and considers eco labels as a “voluntary environmental label for goods and/or services. These products must meet specific criteria related to a reduction in the overall environmental impact. The criteria depend on the product group.” Moreover, it must be conformed with the “Regulation (EC) No 66/2010” as well as responding to the International Organization for Standardization (ISO) definition for a Type I which are presented in the next chapter. Lastly the European Commission eco-labels are “awarded on a voluntary basis, based on multiple criteria, by an independent third party to indicate overall environmental preferability within a specific product category based on a life-cycle assessment.”

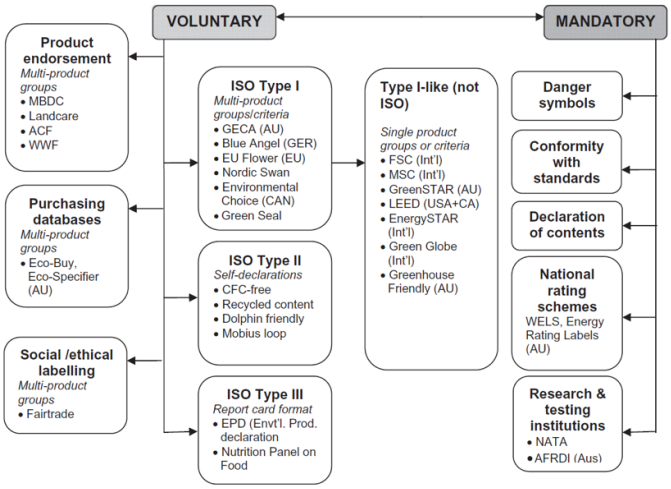
2.2 Types of Sustainable Labels

The International Organization for Standardization (ISO) has worked on establishing managemental standards, ISO 14000, to improve environmental performance. Those standards include 3 categorizations of sustainable labels:

- ISO 14024 Type 1 environmental label: awards a license that authorizes the use of environmental labels on products indicating overall environmental preferability of a product within a particular product category based on life cycle considerations.
- ISO 14021 Type 2 Self-declared environmental claims: may be made by manufacturers, importers, distributors, retailers or anyone else likely to benefit from such claims (Lee & Uehara, 2003).
- ISO 14025 Type 3 environmental declaration: quantified environmental information on the life cycle of a product to enable comparisons between products fulfilling the same function.

In other words, certification can originate from some different entities. Based on those criteria Horne established in 2009 a more comprehensive overview of the various classifications based on the type of label. His work includes a broader landscape allowing to include all sustainable labelling options as shown on figure 2. It distinguishes between different levels of environmental information provision, ranging from basic consumer communication to more comprehensive sustainability evaluation methods. There is also a distinction made between voluntary and mandatory labels. His study confirms that type I labels are intended to signal overall environmental preferability within a product category, meaning that the labeled product is considered more environmentally friendly than others in the same category. Horne also created a subcategory, the type I-like which is not based on an ISO standard as those certifications are specialized in a single product category rather than an entire panel of product category.

Figure 2: Types of sustainable labels (R.Horne, 2009)



2.3 Characteristics of sustainable labels

The taste and safety, which is defined as the "ability of the product not to cause harm to health" (Aprile & Punzo, 2022, p.6) are two important characteristics. Certifications are there to help guarantee those untaggable elements. When it comes to sustainable certifications look at the management of processes within the production chain (Janssen & Langen, 2017, p.1234). Each certification has its own specifications and companies need to align several characteristics within the entire lifecycle (Aprile & Punzo, 2022). Achieving those required standards is key to being allowed to use the desired label (Delmas & Gergaud, 2020). The tolerance level might depend on the nature of the certification; some might accept broader types of chemicals (Delmas & Gergaud, 2020). A further consideration relies on the emitting entity, if it is a third-party or not as if a company owns directly a label, it might be easier to adapt the criteria compared to modifying the criteria imposed by an external controlling entity. This point is crucial with regard to credibility and trust in sustainable labels as presented later in this paper. Relevant criteria are the origin of the production, traceability, traditional methods, environmental methods, safety and animal welfare (Gracia & de-Magistri, 2016). When it comes to the labels selected for this study, their criteria are summarized on the table below. As all 4 labels are multi-dimensional, meaning they cover more than one attribute which is why not every attribute is enounced in figure 3. The website labelinfo.ch powered by the Zurich

University of Applied Sciences (ZAHW) was used as the main evaluation tool complemented with information found on the website of each respective label.

Table 1: Main process attributes of the selected sustainable labels

	Biodiversity	Animal welfare	Social responsibility	Traceability	Environmental impact	Worker safety	Seasonality	Certified product origin	Local heritage
Retour aux sources	x	x	x	x	x	x	x	x	
AOP	x	x		x			x	x	x
Bio Suisse	x	x	x	x	x		x	x	
Demeter Suisse	x	x	x	x	x	x	x	x	x

2.4 Functions of sustainable labels

A generic definition of label refers to a label as an “information that the manufacturer or marketer of a product provides to the consumer at the point of sale” as mentioned by Williams in 2023. The role of labels depends on the stakeholder perspective from which they are looked on. The following chapter elaborates the use of labels for consumers, companies and governments, starting with the consumer’s point of view.

Food items can be classified through 3 attributes: search, experience and credence (Aprile & Punzo, 2022). Search attributes are possible to be checked in advance by looking for clues such as the design whether it is directly at the point of sales or online. Experience attributes cannot be evaluated before consuming the product before tasting the food for example (Aprile & Punzo, 2022) such as the taste. Credence attributes can at no point of the process not even after experiencing it (Aprile & Punzo, 2021) such as knowing if workers and animals within the entire process are treated as expected from the consumers expectations. The consumer in those situations must rely on his own beliefs about the product. This makes the benefits of a sustainable food product difficult to assess entirely before buying the product, especially without previous past experience with the product (Duckworth, et al., 2022, p.2). Sustainable attributes are particularly important for consumers when it comes to food products (Bangsa & Schlegelmilch, 2020) as they aim to simplify such complex attributes (Casswell & Padberg, 1992). An advantage of labels are that they

are simplistic visual clues making it easy for consumers to process (Pink et al., 2022 Sonntag et al., 2022). It catches visual intention faster which is important in the context of grocery shopping as decisions are made rapidly within seconds (Duckworth et al., 2022; Aprile & Punzo, 2022; Pink et al., 2022). Labels guide consumers with some information when making a decision to help them make an informed decision towards their preference without creating the feeling of being forced to choose a specific product (Aprile & Punzo, 2022; Gracia & de-Magistris 2016; Williams et al., 2023, p.1). The motivation of the consumers to engage with a sustainable product is mainly based on personal preferences and values. All in all, labels are useful symbolic and minimalist tools for consumers to rely on when purchasing food products.

For companies, using trustworthy labels for companies is equivalent to showing desirable qualities of a product especially for food products as they are even more difficult to assess (Gracia & de-Magistris, 2016). Stakeholders are elevating their expectations towards firms to act for a more sustainable approach. A great label strategy is incorporated directly into a broader sustainable strategy of a company allowing it to contribute to the performance (Bornhause et al., 2023). Labeling products is an opportunity to create value beyond the core of the product alone as well as positioning the brand with regards to its competitors (Bornhause et al., 2023; Müller & Remaud, 2013). It also serves to segment customers as it is possible to underline a specific aspect even within the actual dimension to respond to precise demands (Janssen & Langen, 2017, p.1235). However, they have the disadvantage for companies to be costly and having to comply with lots of strictly regulated processes as well as increasing the administrative work (Annunziata et al., 2018). On top of that, adding a label on the front package of a food product alone is not enough and does not guarantee any success. Furthermore, sometimes intentionally choosing not to label a product can be beneficial if there is a risk of the product being negatively perceived (Sonntag et al., 2022). A further risk is to have a product being perceived untrustworthy leading to skepticism and greenwashing suspicion (Janssen & Langen, 2017, p.1235). Such situations can occur when consumers feel that the claim made is more important than the actual effort to reduce the global impact of the product or when the certification does not bring enough credibility (Annunziata et al., 2018). The selection of a label should be directly correlated with the overall

environmental social governmental strategy of the company to lead to a long-lasting competitive advantage.

To sum up, labels can be beneficial for companies when the strategy is integrated and thoughtfully thought through, thus complex elements must be taken into consideration when elaborating a labelling strategy as it has an impact on the entire outcome of the product's performance. The importance of a label cannot be ignored for a food company.

From a government perspective, introducing or supporting certain labels serves the goal of standardizing the wanted sector as the number of labels keeps increasing (Sonntag et al., 2022). Those labels usually come along with guidelines as well. The major advantage of governmentally supported labels is that it gives clear guarantees to consumers that the food respects established standards thanks to controlling those requirements (Gracia & de-Magistris, 2016). Especially considering the proliferation of released regulated and private labels (Aprile & Punzo, 2022; Gracia & de-Magistris, 2016). To do so governments at times enforce or recommend the usage of certain labels on producers and distributors (Aprile & Punzo, 2022; Sonntag et al., 2022). Such an example is the Nutri-Score based on a traffic light system which is mandatory for some product categories in European countries such as in France (Annunziata et al., 2018; Jürkenbeck, 2023; Sonntag et al., 2022). This leads to numerous products being labeled red (Sonntag et al., 2022) as to understand no in favor of a healthy diet without companies having the choice to display it on the package or not. In Switzerland, the Nutri-score has not been enforced by the authorities. However, the Federal Office of Public Health strongly recommended its adoption to promote balanced nutrition and deliver standardized information to the public (Conseil fédéral, 2022). As some adopt it, major Swiss entities such as Migros, Emmi and Switzerland Cheese Marketing also decided to abandon the label due to high cost, low impact and confusion concerns for consumers according to Chandrasekhar (2024).

In the end, governments also find their interest in food labelling even if governmentally regulated or supported labels seem to have a mixed success and acceptance among professionals which is why deepening the knowledge on the thematic is necessary to elevate and affine the policies.

2.5 Limitations of sustainable labels

There are 8 barriers existing for sustainable labels to impacting food choices of customers according to Grunert (2011) and are supported by several studies: overseeing the label (Annunziata et al., 2019), the lack of perception of the label (Annunziata et al., 2019; Aprile & Punoz, 2022; Grunert et al., 2014), the misunderstanding of condensed, complex information the label represents (Annunziata et al., 2019; Aprile & Punoz, 2022; Duckworth, 2022; Janssen & Langen, 2017; Pink et al., 2022; Gracia & de-Magistris, 2016; Sonntag et al., 2023), the trade-offs between a sustainable label and an alternative (Aprile et al., 2022; Duckworth, 2022; Janssen & Langen, 2017), the lack of motivation at the moment of decision (Annunziata et al., 2019; Duckworth, 2022) and the lack of credibility of the label (Delmas & Grenaud, 2021; Sonntag et al., 2023).

The complexity and amount of information provided by a label “limits the opportunity to make a decision” for a customer (Annunziata et al., 2019, p. 109). As the information overlaps several aspects of sustainability, they are difficult to understand entirely especially since the information needs “to be absorbed quickly as consumers often make relatively quick decisions at the point of purchase with many perceiving high levels of time pressure” (Duckworth et al., 2022, p 2). Therefore, people tend to focus on a single independent information (Pink et al., 2022). Sonntag et al. (2023) support this direction by stating, the difficulty is accentuated when there is more than one label to be found on the packaging. All in all, such complex information transmitted by sustainable labels brings the risk of “inhibiting sustainable choices, even when consumers try to adopt more sustainable buying habits” (Sonntag et al., 2023, p.3).

Credibility is an essential foundation for sustainable labels. Credibility is higher when the label is provided by a third party as “it provides independent monitoring and eliminates potential conflicts of interest.” (Delmas & Grenaud, 2021, p.4). Such third-party certification can be defined as “a written procedure by which a third-party provides written assurance that a product, process or service conforms to specified standards, on the basis of an audit conducted to agreed procedures.” (Delmas & Grenaud, 2021, p.4). If there is no or little credibility for the label it can lead to

reputation damage for the organization behind it and the use of the food product directly can also be impacted (Grunert et al., 2014). With scandals being uncovered in the food sector in the last years the credibility of food labels and their entities are more at stake than ever as it led consumers to mistrust the sector when it comes to certain products and their standards.

The number of available labels also limits the perceived quality of sustainable labels as it is difficult to gain an overview. According to KPMG there were more than 300 sustainable labels internationally in 2023. In Switzerland at least 135 food labels exist (Steve, 2020). The number of labels being launched keeps increasing constantly (Sonntag et al., 2023). As cited before, the decision time being short (Grunert, 2011). Adding on top of that the context of the point of sales which reflects “an information-overloaded information” (Grunert, 2011, p.209) consumers are faced with numerous choices and limited resources to make their decision. Adding even more labels to select from at the supermarket to the highly complex psychological mechanism generates more confusion for the consumers.

2.6 Willingness to pay for food products

The willingness to pay “denotes the maximum price a buyer is willing to pay for a given quantity of a good.” (Wertenbroch & Skiera, 2002, p.1). As explained in Chapter 3.4 consumers evaluate different characteristics when purchasing a food product. Pink et al. (2021) found out that consumers tend to be willing to consume healthy products but tend to reduce their consumption if the environmental impact of the food product is high. This reflects just one of the numerous trade-offs considered in the purchase decision for consumers.

In the context of sustainable labels, the marginal willingness to pay can be defined as “the amount of money that consumers are willing to pay for a prescribed change in labelling, assuming that the change in utility is zero” (Jürkenberg, 2023, p. 3). Understanding how consumers set their willingness to pay helps marketers to develop an impactful strategy by optimizing the retail price (Duckworth et al., 2022) and developing new food labels strategies (Sonntag et al., 2023).

Numerous studies analyzed the willingness to pay for sustainable labels in various contexts with a more explicit listing of them resumed in appendix 3 as the coming section focuses only on some of them. Duckworth (2022) showed a greater WTP for

labelled products compared to non-labelled ones. Additionally for Sonntag et al. (2023) and Janssen & Langen (2017), combining multiple labels can positively influence the WTP of consumers. Nonetheless, too much information can lead to market failure if the consumer is overwhelmed and thus the price becomes the decisive attribute leading to a low willingness to pay (Sonntag et al., 2023).

However, the motivation behind such decisions is challenging to uncover. Aprile & Punzo (2022) have explored various socio-demographic factors such as the level of education and the income influencing WTP. Annunziata et al. (2019) additionally showed the influence of intrinsic and altruistic considerations where such personal values and sustainability concerns play a role in the WTP. Motivations of individuals are based on internal personal beliefs and conditions such as “cultural, social or resource related factors” (Bangsa & Schlegelmilch, 2020, p.10) rather than the labelling itself (Duckworth, 2022). On a meta level, analysis and literature reviews on the stands of the literature proved that consumers are willing to pay more for sustainable labels (Bangsa & Schlegelmilch, 2020; Bastounis et al., 2021).

As expressed above, numerous factors can influence the consumer’s willingness to pay. Adding a label to a package only is not enough to explain how consumers set their willingness to pay for a sustainable product as cited above. The findings of further studies will be detailed to deepen insights of specific factors in the next chapter.

2.7 Influencing factors of the willingness to pay

2.7.1 Trust

Unknown labels tend to lead to mistrust among consumers (Sonntag et al., 2022). However, being highly aware of a label can still be associated with a low trust-level (Sonntag et al., 2022). A label will not have any impact on WTP if a consumer does not trust it (Yokessa & Marette, 2019).

2.7.2 Environmental concerns

Duckworth (2022, p.10) described individuals with “higher propensity to act” are more likely to choose a labelled product and willing to pay more for it. People with higher environmental concern tend to have a will to act in favor of the environment. Their personal values can be transcribed through their consumption behavior. However, only caring for the environment does not always reflect the highest priority in the mind of consumers if compared to other values (Duckworth et al., 2022; Grunert et al., 2014). Production offering an alternative to the common techniques can also influence the willingness to pay (Janssen & Langen, 2017). Avoid “unnecessary waste, the use of pesticides and chemicals or the land or/and air degradations” (Aprile & Punzo, 2022, p.6) are examples of main concerns influencing the willingness to pay for sustainable labels. Altruistic attitudes and pro environmental attitudes play a leading role in consumer decisions and the WTP (Maaya et al., 2018).

2.7.3 Knowledge and recognition

The awareness and knowledge of the label catches consumers in another manner for example if they bring novelty (Janssen & Langen, 2017). The level of understanding influences the benefits consumers give to the product (Janssen & Langen, 2017). Some labels become almost inherent for consumers aware of labels such as the organic Increasing the awareness and providing information for consumers on a label is needed to obtain a higher WTP according to Janssen & Langen, (2017) and Jürkenbeck (2023). Long established labels profit from a high level of awareness compared to newly introduced ones Jükenbck (2023).

Contrary, for some consumers the actual meaning of the label is not relevant to them as they only focus on whether there is a label on the package or not (Janssen & Langen, 2017). This suggests “labels are exchangeable” (Janssen & Langen, 2017, p.1243). This is especially the case for interpretative labels (Jükenbeck, 2023). Being aware of labels do not necessarily mean consumers know the meaning of it as Aprile & Punzo (2022) explained with “less than half of the respondents who claimed to know the Rainforest Alliance Certified label, correctly answered a follow-up question about the meaning of the label” (Aprile & Punzo, 2022, p. 6). “The magnitude of WTPs becomes greater for informed consumers (except for Legambiente for which the difference is negligible), while significance levels are lower (Organic becomes

statistically insignificant) for their uninformed peers." (Aprile & Punzo, 2022, p. 6). This raises discussions to know if consumers prioritize being aware of a label over understanding its meaning. For Grunert et al. (2014) knowing the meaning of the label is related to the awareness of it and how self-explanatory they are.

2.7.4 National preference

The PDO indication is preferred to organic labels according to Gracia & de-Magistris (2015). Consumers tend to value local aspects more than others when the product is strongly according to their study. Further research suggests that consumers favor local label and newer sustainability claims (Schmitt et al., 2016; Lazzarini et al., 2016). However contradictory results were found in past research.

2.7.5 Number of labels

According to Sonntag et al. (2022, p.8) "an additional piece of information about sustainability, in the form of a second positive label on food, can help to increase the customer benefit of the product". According to Janssen & Langen (2017, p. 1234) at the time of their study, there were "465 ecolabels in 199 countries" on the market. Combining different attributes allows to increase the benefits in the eye of the consumer (Janssen & Langen, 2017). Consumers being able to handle more than one label displayed on the front of the package was also supported by Sonntag et al. (2023): "An Additional piece of information about sustainability, in the form of a second positive (multilevel) label on food, can help to increase the customer benefit of the product and can lead to a higher WTP compared to a single label,..." (Sonntag et al., 2023, p.8). Thus, consumers can cope with multiple labels. Even though combining two labels doesn't create a strong interaction effect, simply adding a second positive label still increases the product's total perceived value because each label individually adds value in the eyes of the consumer, not because of a synergy between them (Sonntag et al., 2023, p.8). On the contrary, according to Shaihk et al. (2024) combining different sustainable labels reduces their impact due to the increase of information complexity.

2.8 Sociodemographic Factors

2.8.1 Age and Gender

The older people get the more likely they are to choose sustainable claims (Duckworth, 2022). De-Magistris & Gracia (2016) found out young male are less likely to choose labeled food whereas older females are more likely to pay more for local and organic labels. Based on Grunert et al. (2014) women generally show higher willingness to pay for sustainability products than men. Nonetheless, other studies suggest, younger consumers are willing to pay more than older ones (Carley & Yahng, 2018; Van Loo et al., 2013).

2.8.2 Educational level

The educational level has been shown to be influencing the willingness to pay for sustainable labels. “Environmental sustainability labels are not relevant in influencing the purchasing behavior of poorly educated consumers” (Aprile & Punzo, 2022, p. 8). “The utility of environmental sustainability labelled products will be greater than that of unlabeled products when education is higher” (Aprile & Punzo, 2022, p. 8). Consumers with a University degree were found to have a significantly higher willingness to pay for sustainable coffee (Maaya et al., 2018). Nonetheless, there are also opposite results to be found where the education level can have a negative impact on the willingness to pay: “WTPs are higher for uninformed consumers whether highly educated or high-income.” (Aprile & Punzo, 2022, p. 8).

2.9 Estimation of Price premium

Various studies also paid attention to the price premium consumers are willing to buy for sustainable labels. Van Loo (2011) showed in a study sustainable labelled chicken breast a price premium of 35% and 104% depending on the label. Furthermore, a study conducted by Maaya et al. in Belgium resulted in consumers being willing to pay on average 88% more for sustainable labelled coffee.

Li and Kallas (2021) reviewed numerous studies on sustainable food labels. Their analysis concluded that the average price premium overall was 29,5%. Likewise, Bastounis et al. (2021) conducted a meta-analysis on the standing of food product experiments in scientific literature. In their analysis, the price premium was converted into a ratio, the Purchasing Power dollars per kilogram (PPP$/kg) while taking the inflation into consideration. This resulted in a price premium of 3.79 PPP$/kg for sustainable labelled food.

2.10 Literature critique

Reviewing the existing literature on the subject revealed multiple factors influence consumer's willingness to pay for sustainable labeled food products. There is a divergence to consider in how those factors impact the consumer as each consumer weighs different criteria with each other. The own condition of the consumers plays a role. This makes it difficult to explain the phenomena for an entire population.

Different methods have been used with the large party being experimental such as hypothetical choice experiments (HCE) and contingent validation methods (CVM) with fewer ones employing a questionnaire approach (Bastounis et al., 2021; Li & Kallas, 2021; Yokessa & Marette, 2019). This leads to a lack of diversity limiting the comparison possibilities between different approaches.

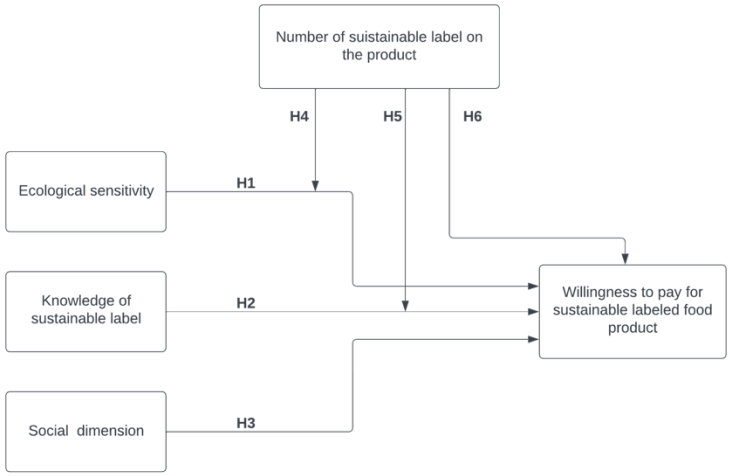
Moreover, studies generally focus on one specific product such as chicken, beef, tomatoes or milk and one label which is not representative of the entire panel of choices available on the market. "Eco-labels could be coupled with other labels signaling quality, safety, or health benefits." (Yokessa & Marette, 2019, p.24) combining sustainable labels with each other or other labels could contribute to the current standing on the topic.

Finally, there is no study of knowledge focusing on the willingness to pay for sustainable labels for widely consumed products in Switzerland. This would be another contribution from the study as Grunet et al. (2014) shed light on the cultural implications. The aim of this study is to contribute to the debate on sustainable labels and decision-making responding to the suggestions of Li & Kallas (2021).

3 CONCEPTUAL FRAMEWORK

This chapter is dedicated to the development of the conceptual model in which the study takes place. The relationship between four independent variables (Ecological concerns, Knowledge of sustainable labels, social demographics and the number of eco-labels) and the dependent variable (willingness to pay for sustainable labelled food products) will be explored.

Figure 3: Conceptual model



Ecological sensitivity

Consumers differ in their attitudes and beliefs towards ecological issues. Individuals with a high level of ecological sensitivity are more likely to consider the environmental impact of their consumption choices. This often translates into their food purchasing behavior, leading them to seek out products that align with their values. As sustainable labels are meant to signal such positioning of a food product, these consumers should show a greater willingness to pay for products carrying sustainability labels. Thus, the following hypothesis can be derived:

H1: *Consumers with a high level of ecological sensitivity are willing to pay more for a labeled food product.*

Knowledge and recognition of sustainable label

Sustainable labels can be specific to one region or one country. This means the level of knowledge can differ depending on the country. Therefore, examining the level of

knowledge of sustainable labels of the Swiss population is relevant to be tested. Thus, the impact of sustainable label knowledge on consumer's willingness to pay will be tested thanks to this hypothesis:

H2: *Consumers with a high level of recognition and knowledge on sustainable labels are willing to pay more for sustainable labeled food products.*

Gender

Gender-based differences in food involvement suggest that women are generally more engaged in food purchasing based on tradition. Despite the dynamics in society, women are still greatly engaged in food-related tasks in the household, from buying to preparing the food, compared to men. This greater involvement may translate into a higher consideration for food product attributes such as labels. Thus, the following hypothesis is proposed:

H3a: *Women are willing to pay more than men for sustainable labeled food products.*

Age

The mixed results in studies might suggest a shift in newer generations. The greater space given to sustainability topics in public discussions or also in academic curricula. For that reason, younger generations should be more aware of sustainability challenges and the impact their behavior can have on the environment, which would make them naturally lean towards sustainable attributes. This leads to the formulation of the subsequent hypothesis:

H3b: *Younger consumers are willing to pay more than older consumers for sustainable labeled food products.*

Education Level

The level of education influences decision making and purchase behavior. Consumers with a stronger educational background seek substantial information on products and prefer to select the option with the least impact on their health and the planet. Hence, a sustainable labeled product should be more valuable to consumers with a higher educational background leading to this hypothesis:

H3c: *Consumers with a higher level of education are willing to pay more for food products than consumers with a lower level of education.*

Multi-labelling

Ecologically sensitive consumers tend to seek out products that align with their environmental values. When multiple sustainability labels are displayed, these individuals may perceive a stronger ecological commitment from the producer, which could increase their willingness to pay. Therefore, the number of labels may enhance the effect of ecological sensitivity on purchasing behavior. This leads to the following hypothesis:

H4: The relationship between ecological sensitivity and willingness to pay for a sustainably labeled food product is moderated by the number of labels on the product, such that willingness to pay is higher for products with two labels compared to one and no labels.

Knowledge of sustainable labels may strengthen consumers' ability to interpret and evaluate the information conveyed by such labels. When consumers are familiar with the meaning behind sustainability certifications, they are more likely to perceive them as credible and relevant. In this context, the presence of two labels instead of one could reinforce their perceived value, especially among informed consumers. This leads to the following hypothesis:

H5: The relationship between knowledge of sustainable labels and willingness to pay for a sustainably labeled food product is moderated by the number of labels, such that willingness to pay is higher for products with two labels compared to one and no label.

Displaying two sustainability labels may create a cumulative effect in how consumers perceive the product's sustainability. This could reinforce trust and signal a broader or more robust commitment to sustainability. As a result, consumers may be more inclined to pay a premium when two labels are present compared to just one. This leads to the following hypothesis:

H6: Combining two sustainable labels has a positive influence on the willingness to pay of consumers compared to one and no label for food products.

4 METHODOLOGY

The study employs a quantitative approach, with a focus on survey methodology as the preferred tool for data collection. Utilizing surveys allows for the systematic gathering of data from a diverse sample, enabling the exploration of various factors and their relationships within the research context. Through this quantitative approach, the study aims to analyze and quantify key variables. A structured survey seeks to gather comprehensive insights, thereby contributing to a deeper understanding of the subject. This methodological approach ensures rigor and reliability in data collection and analysis, enhancing the validity of the study findings. Cheese holds a significant place in the Swiss diet, with consumption averaging approximately 23 kilograms per capita annually and over 700 varieties (Swiss Federal Department of Foreign Affairs, 2024). This reflects not only the cultural importance of dairy products in Switzerland. It was therefore selected as a product for the study and declined as follows: without a sustainable label, with a sustainable product (each label) and a combination of two sustainable labels making it in total 11 combinations as resumed in table 3.

To assess the purchase intention, participants were asked to indicate their likelihood of purchasing the cheese at 5 different price levels based on a Lickert scale (1 = will never buy it to 5 = will definitely buy it). The average local cheese price of 2.29CHF/100g (www.numbeo.com) in Switzerland was used as a reference price. The scale was developed to have an approximative price close to the reference price in the middle of the scale to ensure a balance range as shown in the overview below.

Table 2: Overview of the pricing scale of the product

	Cheese (150g
Price Levels	2.50CHF
	3.00CHF
	3.50CHF
	4.00CHF
	4.50CHF

11 scenarios were randomly assigned based on a between-subjects design approach to each participant. Each subject was randomly assigned to one of the surveys

versions, each with a different visual stimulus for the willingness to pay as resumed in the table below by operating the randomizer tool of the survey software.

Table 3: Combinations of the product and the selected labels

Survey version	Cheese (150g)
Version 1	no label
Version 2	AOP
Version 3	Demeter Suisse
Version 4	Bio Suisse
Version 5	Retour aux sources
Version 6	AOP + Bio Suisse
Version 7	AOP + Demeter Suisse
Version 8	AOP + Retour aux sources
Version 9	Bio Suisse + Demeter Suisse
Version 10	Bio Suisse + Retour aux sources
Version 11	Demeter Suisse + Retour aux sources

The education level (H3c), age (H3b), gender (H3a) was each measured with a single item. The knowledge and recognition (H2), eco-sensitivity (H1) were measured by using multiple items. The multi-labeling (H4, H5, H6) was manipulated through visual stimulus. The willingness to pay was measured to assess the price premium customers are accepting for sustainable labeled food products.

Before commencing the primary data collection phase, a pre-test was conducted to validate the effectiveness and clarity of the survey instruments developed with “SoSci-Survey”. The pre-test aimed to evaluate the relevance of the various variables to know if necessary. There were no further modifications needed based on the result of the pre-test with a sample of 10 respondents even if one respondent mentioned being confused with the fatigue question inserted between two label knowledge questions.

The target population are the residents of Switzerland involved regularly in grocery shopping. Thus, the survey was elaborated in French and German to reach the largest population possible. The distribution channels used were WhatsApp, emailing, social media platforms, online forums and online survey specialized

websites by using a link or a QR code redirecting participants randomly to one of the eleven questionnaire versions.

For this study, a minimum sample size of 330 respondents with a minimum of 30 valid completed questionnaires for each scenario is required to maximize normal distribution (Pallant, 2007, pp.201-208). Doing so ensures that each scenario receives adequate representation within the sample, allowing for robust statistical analysis and meaningful comparisons between groups. A total of the data analysis was operated by using IBM SPSS Statistics and Microsoft Excel.

5 RESULTS

To analyze the data collected, several statistical techniques will be applied. Firstly, descriptive statistics will be used to summarize the characteristics of the sample and give an initial overview of purchase intentions across the different scenarios. Then, binary logistic regressions were conducted to estimate the probability of purchase. To do so, the Likert-scale score of each average willingness to pay based on the price levels across consumers were computed. If the average willingness to pay (wtp_1 to wtp_5) based on the price across all cases was >3 then it was recoded into 1 reflecting a likely purchase intention and the opposite was recoded into 0 leading to the new variable “wtp_bin”. The binary transformation enables the use of logistic regression modeling. This approach is supported by Wertenbroch & Skiera (2002) and Morwitz et al. (2007), who argue that converting intention data into binary outcomes allows for robust modeling of purchasing behavior.

To test the effects of price and various consumer-related predictors on the likelihood of purchase, binary logistic regression was used. The general model is specified as:

$$\text{logit}(P_i) = \beta_0 + \beta_1 \cdot price_i + \beta_2 \cdot X_{2i} + \beta_3 \cdot X_{3i} + \cdots + \beta_k \cdot X_{ki}$$

where:

- P_i = the probability that respondent i intends to purchase the product
- $price_i$ = the price level shown in the scenario
- $X_{2i}, X_{3i}, \ldots, X_{ki}$ represent additional predictors such as ecological sensitivity, label knowledge, gender, age, education

The general regression model was extended to fit to the analyzed variable. Each model was tested on it's significance. The accepted error likelihood across the analysis is 0.05.

5.1 Descriptives

The various variables below were used to conduct the analysis of the different hypotheses. A total of 447 responses were collected. 34 cases were substrate due to the incompletion of the full survey, making it n = 413 valid cases in total meaning n= 2065 when considering the dataset based on the willingness to pay levels. The sample is presented on the table below.

Table 4: Descriptive statistics of sample characteristics

Variables	Description	Statistics	
Gender	Female = 1	Ratio	0.535
	Male = 2	Ratio	0.465
Age	Ages were divided into 4 categories accordingly:	Mean	2.04
		Standard deviation	1.042
	19 to 30 = 1	Ratio	0.395
	31 to 40 = 2	Ratio	0.293
	41 top 55 = 3	Ratio	0.186
	56 to 75 = 4	Ratio	0.126
Education level	The education level is divided into 4 categories	Mean	4.13
		Standard deviation	0.918
	Primary = 1	Ratio	0.000
	Secondary School 1 = 2	Ratio	0.053
	Secondary School 2 = 3	Ratio	0.206
	Bachelor/ Federal Diploma = 4	Ratio	0.303
	Master or PHD = 5	Ratio	0.438

For the educational level variable, no respondent indicated "Primary" as it's highest which is why it was left aside in the analysis. Additionally, the number of respondents in the category "Secondary School 1" was insufficient to be considered as representative of the group. Therefore, it was put together with "Secondary School 2"

as the educational level was observed as subgroups with every level below Bachelor/Federal Diploma considered “low level of education” for the analysis.

5.1.1 H1: Ecological Sensitivity

The items in the table below were checked on reliability resulting in a Cronbach’s Alpha = 0.772. The 4 items were thus combined into a single variable “rekno_av”.

Table 5: Descriptive statistics - Ecological sensitivity

Variables	Description	Statistics	
The issues related to climate change concern me.	Totally disagree = 1 Totally agree = 5	Mean Standard Deviation	4.40 0.784
	1	Ratio	0
	2	Ratio	0.017
	3	Ratio	0.136
	4	Ratio	0.278
	5	Ratio	0.569
I feel concerned about the impact my consumption can have on the environment	Totally disagree = 1 Totally agree = 5	Mean Standard Deviation	3.81 1.181
	1	Ratio	0.058
	2	Ratio	0.094
	3	Ratio	0.174
	4	Ratio	0.322
	5	Ratio	0.351
Food products should be produced with respects for the dignity of animals	Totally disagree = 1 Totally agree = 5	Mean Standard Deviation	3.86 1.246
	1	Ratio	0.080
	2	Ratio	0.068
	3	Ratio	0.169
	4	Ratio	0.276
	5	Ratio	0.407
I try to prioritize products that minimize environmental impact	Totally disagree = 1 Totally agree = 5	Mean Standard Deviation	3.70 1.202
	1	Ratio	0.073
	2	Ratio	0.087
	3	Ratio	0.220
	4	Ratio	0.310
	5	Ratio	0.310
I believe it is important to adopt environmentally friendly behaviors in daily life.	Totally disagree = 1 Totally agree = 5	Mean Standard Deviation	4.07 0.992
	1	Ratio	0.019
	2	Ratio	0.065
	3	Ratio	0.145
	4	Ratio	0.363
	5	Ratio	0.407

To test the influence of ecological sensitivity on purchase intention, a logistic regression was conducted. The model was significant (χ^2 = 242.753, p = < 0.001, R^2 = 0.370). The ecological sensitivity showed a significant positive effect (β = 0.135, p = 0.642, Exp(β) = 1.145).

Figure 4: Likelihood of purchase for a single labeled cheese by ecological sensitivity

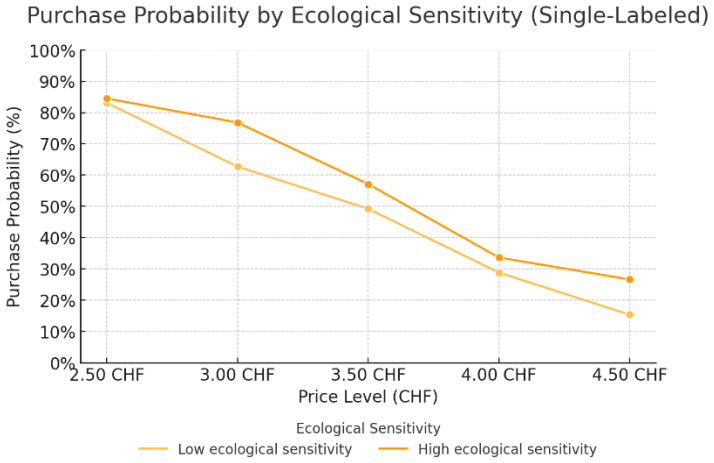


Table 6: Likelihood of purchase for a single labeled cheese by ecological sensitivity

	2.50CHF	**3.00CHF**	**3.50CHF**	**4.00CHF**	**4.50CHF**
Low eco-sensitivity	83,03%	62,71%	49,15%	28,81%	15,25%
High eco-sensitivity	84,46%	76,84%	57,06%	33,62%	26,55%

At 2.50CHF, purchase probability is 83,03% for the low ecological sensitivity group and 84,46% for the high ecological sensitivity group. At 3.00CHF, the difference increases with 62,71% and 76,84%, respectively. At 3.50CHF, purchase probability decreases to 49,15% for the low sensitivity group and is at 57,06% for the high sensitivity group. At 4.00CHF, the willingness to pay reaches 28,81% for the low group and 33,62% for the high eco-sensitive group. Finally, at the highest price level 4.50CHF, variance between the two group is of 11,03%.

5.1.2 H2: Knowledge and recognition

The items in the table below were checked on reliability resulting in Cronbach's α = 0.826. The 4 items were thus combined into a single variable "rekno_av" and then recoded into a binary variable.

Table 7: Descriptive Statistics - Knowledge and recognition

Variables	Description	Statistics	
I am able to differentiate one label from another.	Totally disagree = 1 Totally agree = 5	Mean Standard Deviation	3.03 1.325
	1	Ratio	0.165
	2	Ratio	0.211
	3	Ratio	0.213
	4	Ratio	0.254
	5	Ratio	0.157
I know the signification of most labels.	Totally disagree = 1 Totally agree = 5	Mean Standard Deviation	3.24 1.198
	1	Ratio	0.104
	2	Ratio	0.157
	3	Ratio	0.286
	4	Ratio	0.296
	5	Ratio	0.155
I recognized most labels.	Totally disagree = 1 Totally agree = 5	Mean Standard Deviation	3.79 0.997
	1	Ratio	0.022
	2	Ratio	0.068
	3	Ratio	0.291
	4	Ratio	0.341
	5	Ratio	0.278

The regression model shows to be significant with $\chi^2 = 248.075$, $p < 0.001$. The relationship between knowledge-recognition with the willingness to pay results in R2 = 0.376. The effect of knowledge based on the analysis equals to $\beta = -0.416$, $p = 0.019$, $Exp(\beta) = 0.660$.

Figure 5: Likelihood of purchase for a single labeled cheese by knowledge and recognition

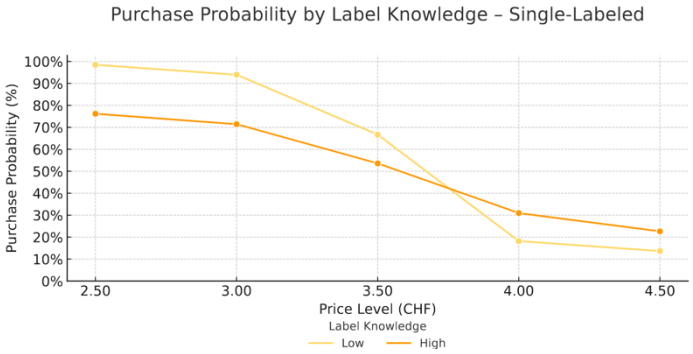


Table 8: Likelihood of purchase for a single labeled cheese by knowledge and recognition

	2.50CHF	**3.00CHF**	**3.50CHF**	**4.00CHF**	**4.50CHF**
Low knowledge	98,48%	39,40%	66,67%	18,18%	13,64%
High knowledge	76,19%	71,43%	53,57%	30,95%	22,62%

Respondents with a low knowledge have a higher willingness to pay for lower price ranges from 2.50CHF to 3.50CHF. This changes in the higher price ranges as respondents with a higher knowledge show a higher likelihood of purchasing.

In addition to the knowledge based on their own judgement, the analysis also explored the role of actual label understanding, measured through the number of correct definitions identified. The variables in the table below were recoded for the analysis using a binary approach to gather them into one variable. The correct definitions are highlighted.

Table 9: Descriptive Statistics - Label definition

Variables	Description	Statistics	
Definition AOP		Mean	0.574
		Standard Deviation	0.495
	1 = *Indique que toutes les étapes de la production, de la matière première jusqu'à l'élaboration du produit fini, ont lieu dans la région définie.*	Ratio	0.574
	2 = Indique que le produit est entièrement biologique, cultivé sans aucun ajout chimique et transformé de manière respectueuse de l'environnement.	Ratio	0.046
	3 = Indique que le produit provient d'une région spécifique, mais que certaines étapes de la production peuvent avoir lieu ailleurs, hors de la zone définie.	Ratio	0.320
	4 = Indique qu'au moins une étape du processus de production est effectuée dans la zone de provenance du produit.	Ratio	0.060
Definition Retour aux Sources		Mean	0.262
		Standard Deviation	0.440
	1 = Certifie que le produit est fabriqué sans recours à des techniques agricoles intensives en privilégiant des circuits courts de distribution.	Ratio	0.232
	2 = *Certifie que le produit est fabriqué biologiquement et provient de fermes suisses respectant des normes strictes de durabilité, de bien-être animal, et garantissant une traçabilité complète jusqu'à la ferme d'origine.*	Ratio	0.262
	3 = Certifie que le produit est fabriqué en privilégiant des circuits courts de distribution.	Ratio	0.203
	4 = Certifie que le produit est fabriqué avec une attention particulière à la réduction de l'empreinte carbone et à la gestion des ressources en eau.	Ratio	0.160
	5 = Certifie que le produit est fabriqué en respectant des standards élevés de qualité, avec un contrôle strict des pratiques agricoles	Ratio	0.143
Definiton Bio Suisse		Mean	0.501
		Standard Deviation	0.500
	1 = Certifie que le produit est issu d'une agriculture biologique, avec une majorité des matières premières provenant de l'UE.	Ratio	0.036
	2 = *Certifie que le produit est issu d'une agriculture biologique stricte avec au moins 90 % des matières premières provenant de Suisse.*	Ratio	0.501
	3 = Certifie que le produit est issu d'une agriculture biologique stricte avec l'entièreté des premières provenant de Suisse.	Ratio	0.410
	4 = Certifie que le produit est issu de l'agriculture biologique, avec une préférence pour les ingrédients provenant de fermes situées dans l'Union Européenne.	Ratio	0.053
Definition Demeter Suisse		Mean	0.685
		Standard Deviation	0.465
	1 = *Certifie que le produit est issu de l'agriculture biodynamique Suisse.*	Ratio	0.685
	2 = Certifie que le produit est issu de l'agriculture biodynamique avec au moins 10% d'importation.	Ratio	0.070
	3 = Certifie que le produit est issu de l'agriculture biodynamique sans aucune intervention chimique.	Ratio	0.199
	4 = Certifie que le produit est issu de l'agriculture biodynamique pratiquée dans la région européenne.	Ratio	0.046

When taking the two groups and looking at which label they answered correctly the results are as follows in the table below:

Table 10: Label Definition known by knowledge and recognition

	AOP	Demeter Suisse	Bio Suisse	Retour aux Sources
Low knowledge	50,28%	74,85%	53,14%	36,00%
High knowledge	62,61%	63,87%	47,90%	18,91%

Before adding it to the model, both independent variables about knowledge were tested to avoid multicollinearity through Pearson correlation. The result was negative and weak ($r = -0.109$, $p < 0.001$). When added to the model along the logistic regression model results in $\chi^2 = 464.229$, $p < 0.001$ with a Nagelkerke R^2 of 0.269. For the effect, the number of labels correctly understood had no significant effect ($\beta = 0.082$, $p = 0.117$). The self-estimated knowledge of respondents was of $\beta = 0.185$, $p = 0.068$.

Figure 6: Likelihood of purchase for a single labeled cheese by label definition known

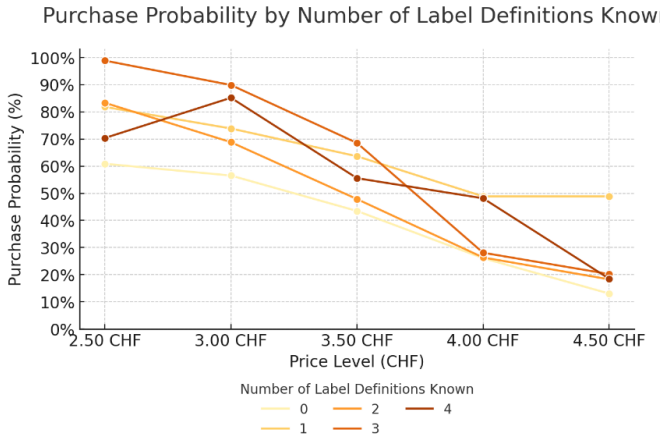


Table 11: Likelihood of purchase for a single labeled cheese by label definition known

Label Definition known	2.50CHF	3.00CHF	3.50CHF	4.00CHF	4.50CHF
0	60,87%	56,52%	43,48%	26,09%	13,04%
1	81,82%	73,86%	63,64%	48,86%	48,86%
2	83,33%	68,82%	47,85%	26,34%	18,28%
3	98,88%	89,89%	68,54%	28,09%	20,22%
4	70,37%	85,19%	55,56%	48,15%	18,52%

At lower price levels (2.50CHF, 3.00CHF), respondents with 3 correct definitions show high probabilities of purchasing with respectively 99% and 70%, with those scoring 4 reaching over 70% and 85%. However, as price increases, all groups show a decline in purchase intention. Nonetheless, at 4.00CHF the curve for participants giving 1 correct definition flatten. No correct label definition signals the lowest purchase intention across all price ranges.

5.2 Sociodemographic factors

In the coming chapter, the results of the sociodemographic factor analysis investigating their effect on the purchase likelihood of a sustainable labeled product are presented separately following this order: gender, age and educational level.

5.2.1 H3a: Genders

When it comes to gender, the result of the regression model highlights it's significance with a $\chi^2 = 406.123$ and a p-value of < 0.001, $R^2 = 0.260$. The effect of gender key outcomes are as followed: $\beta = -0.440$, $p = <0.001$, $Exp(\beta) = 0.644$.

Figure 7: Likelihood of purchase for a single labeled cheese by gender

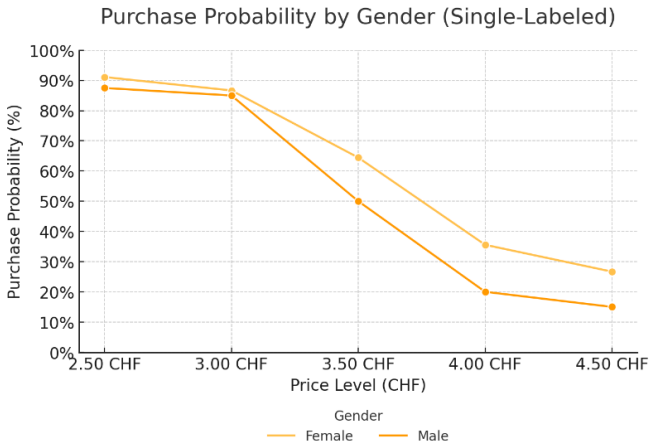


Table 12: Likelihood of purchase for a single labeled cheese by gender

	2.50CHF	3.00CHF	3.50CHF	4.00CHF	4.50CHF
Female	83,33%	82,05%	66,67%	29,49%	25,64%
Male	88,89%	80,56%	51,39%	20,83%	11,11%

Female respondents show a higher willingness to pay at all price levels compared to male respondents. The difference in purchase intention is particularly pronounced from 3.50CHF upwards, where female respondents continuously express a greater likelihood of purchase at higher prices.

5.2.2 H3b: Age

The logistic regression model (χ^2 = 459.121, p = < 0.001) is significant. Nonetheless, no statistically significant differences is shown when looking at the effect (β = -0.016, p = 0.734, Exp(β) = 0.984).

Figure 8: Likelihood of purchase for a single labeled cheese by age

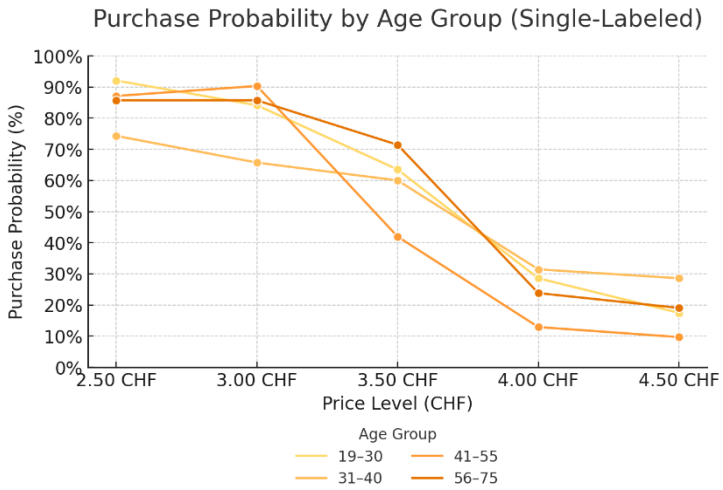


Table 13: Likelihood of purchase for a single labeled cheese by age

	2.50CHF	**3.00CHF**	**3.50CHF**	**4.00CHF**	**4.50CHF**
19-30	92,06%	84,13%	63,49%	28,57%	17,46%
31-40	74,29%	65,71%	60,00%	31,43%	28,57%
41-55	87,10%	90,32%	41,94%	12,90%	9,68%
56-75	85,71%	85,71%	71,43%	23,81%	19,05%

Across all price levels, the youngest group shows the highest purchase probability at 2.50CHF. The group aged 41 to 55 has the lowest willingness to pay for all price points aside from 3.00CHF. The 56 to 75 group remains stable, following a more similar line to the middle-aged respondents than the youngest two groups. The age group 31 to 40 has the highest willingness to pay at 4.00CHF.

5.2.3 H3c: Educational level

The logistic regression model is significant (χ^2 = 247.580, p = < 0.001). Overall, the effect of the educational level on the willingness to pay expresses the following results: β = 0.235, p = 0.025 Exp(β) = 1.265 signaling a significant deviation of variance.

Figure 9: Likelihood of purchase for a single labeled cheese by education

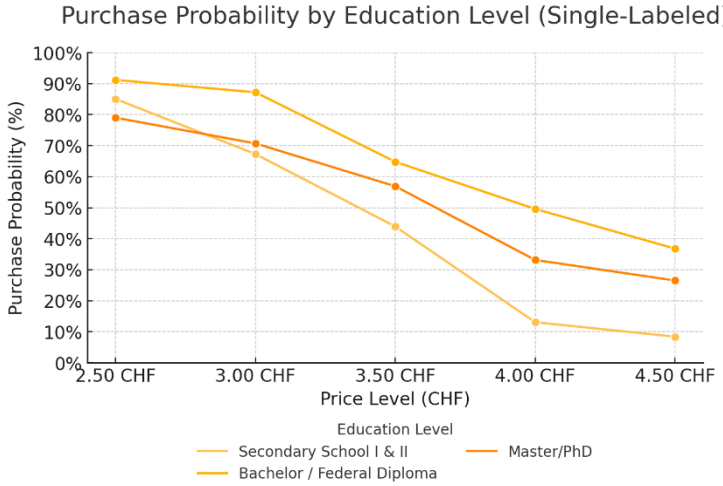


Table 14: Likelihood of purchase for a single labeled cheese by education

	2.50CHF	3.00CHF	3.50CHF	4.00CHF	4.50CHF
Secondary School I & II	85,05%	67,29%	43,93%	13,08%	8,41%
Bachelor / Federal Diploma	91,20%	87,20%	64,80%	49,60%	36,80%
Master/PhD	79,01%	70,72%	56,91%	33,15%	26,52%

Across all price levels, consumers with a Bachelor/Federal Diploma demonstrate the highest willingness to pay. At the lowest price of 2.50CHF, this group reaches over 91,20% purchase likelihood and still shows 36,80% at the highest price point of4.50 CHF. Respondents with a Master/PhD have a willingness to pay relatively high through mid-range prices with 56,91% at 3.50CHF but it declines more steeply at higher prices than the Bachelor group. For the Secondary School group, the highest willingness to pay goes from 85,05% down to 8,41 at the highest price point.

5.3 Moderation Effects

5.3.1 H4: Number of labels and eco-sensitivity

The insight indicates a meaningful the logistic regression model (χ^2 = 469.480, p = < 0.001, R^2 = 0.272). However, the interaction effect between ecological sensitivity and number of labels was not significant (β = 0.264, p = 0.167, Exp(β) = 1.302).

Figure 10: Likelihood of purchase by number of label and eco-sensitivity

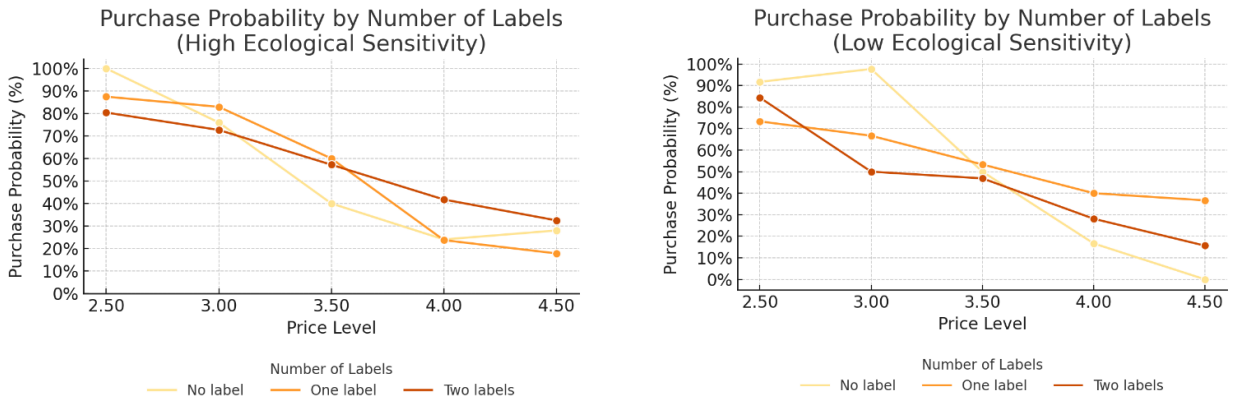


Table 15: Likelihood of purchase by number of label and eco-sensitivity

Price Level	Eco-sensitivity	Number of labels	%
2.50 CHF	low eco-sensitivity	no label	91,67%
		one label	73,33%
		two labels	84,37%
	high eco-sensitivity	no label	100,00%
		one label	87,47%
		two labels	80,41%
3.00 CHF	low eco-sensitivity	no label	97,67%
		one label	66,67%
		two labels	50,00%
	high eco-sensitivity	no label	76,00%
		one label	82,96%
		two labels	72,68%
3.50 CHF	low eco-sensitivity	no label	50,00%
		one label	53,33%
		two labels	46,88%
	high eco-sensitivity	no label	40,00%
		one label	60,00%
		two labels	57,22%
4.00 CHF	low eco-sensitivity	no label	16,67%
		one label	40,00%
		two labels	28,13%
	high eco-sensitivity	no label	24,00%
		one label	23,70%
		two labels	41,75%
4.50 CHF	low eco-sensitivity	no label	0,00%
		one label	36,67%
		two labels	15,63%
	high eco-sensitivity	no label	28,00%
		one label	17,78%
		two labels	32,47%

5.3.2 H5: Number of labels and level of knowledge

The model was significant (χ^2 = 479.808, p = < 0.001), confirming that the predictors help explain purchase intention. The interaction is also significant (χ^2 = 17.589, p = < 0.001). A significant negative interaction effect was found for one label and low recognition (β = -0.855, p = < 0.001 which was not the case for low recognition and no label (β = 0.564, p = 0.336) with the high level of knowledge serving for comparison.

Figure 11: Likelihood of purchase by number of label and knowledge-recognition

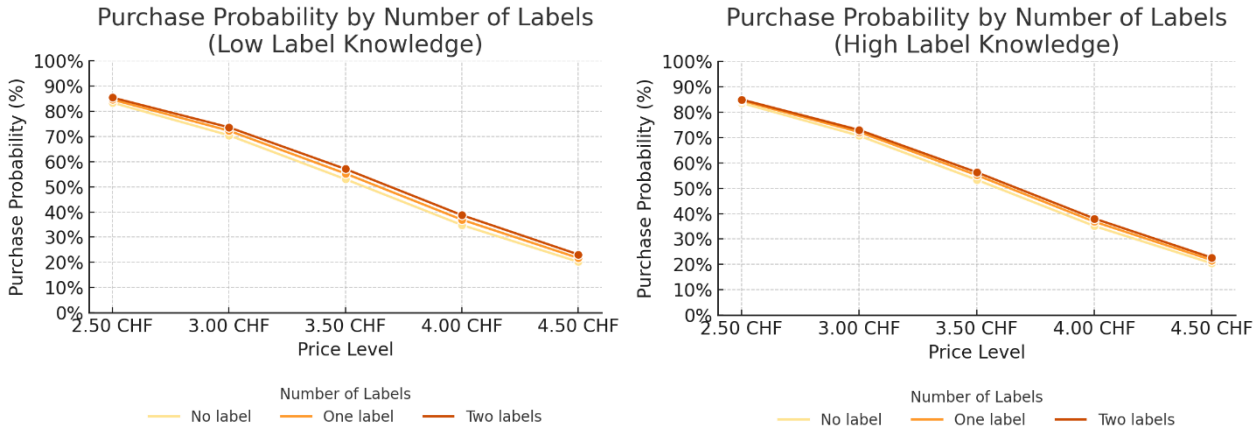


Table 16: Likelihood of purchase by number of label and knowledge-recognition

Price Level	Knowledge	number of labels	%
2.50 CHF	low knowledge	no label	83,47%
		one label	84,66%
		two labels	85,49%
	high knowledge	no label	83,65%
		one label	84,59%
		two labels	85,04%
3.00 CHF	low knowledge	no label	70,49%
		one label	72,32%
		two labels	73,67%
	high knowledge	no label	70,76%
		one label	72,21%
		two labels	73,02%
3.50 CHF	low knowledge	no label	53,05%
		one label	55,30%
		two labels	57,10%
	high knowledge	no label	53,37%
		one label	55,18%
		two labels	56,33%
4.00 CHF	low knowledge	no label	34,83%
		one label	36,94%
		two labels	38,75%
	high knowledge	no label	35,12%
		one label	36,84%
		two labels	38,07%
4.50 CHF	low knowledge	no label	20,18%
		one label	21,71%
		two labels	23,10%
	high knowledge	one label	20,38%
		one label	21,64%
		two labels	22,62%

5.3.3 H6: Number of labels

The logistic regression model to test the influence of the number of labels was significant (χ^2 = 459.737, p = < 0.001, R^2 = 0.267). Despite a significant model the effect of the number of labels itself did not present any significant in variance (β = 0.065, p = 0.392, Exp(β) = 1.067).

Figure 12: Likelihood of purchase for cheese by number of labels

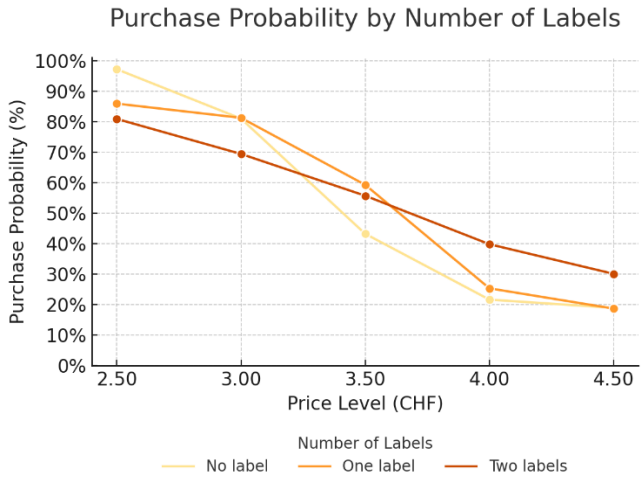


Table 17: Likelihood of purchase for cheese by number of labels

	2.50CHF	**3.00CHF**	**3.50CHF**	**4.00CHF**	**4.50CHF**
No label	97,30%	81,08%	43,24%	21,62%	18,92%
1 Label	86,00%	81,33%	59,33%	25,33%	18,67%
2 Labels	80,97%	69,47%	55,75%	39,82%	30,09%

At the lowest price point level of 2.50CHF, the no labelled product without a label showed the highest purchase probability of 97,30% overall, followed by one label 86,00% and two labels 80,97%. While products with no label start strong at lower prices, they experience a steeper decline as price increases. The curve of the multi-labeling stays almost constant across all 5 price ranges. At 3.50CHF, two-label products reach a higher purchase intention of 55,75% than both one-label (59,33%) and no-label (43,24%). At 4.00CHF and 4.50CHF, the two-label product has the highest likelihood of purchase with 39,82% and 30,09%.

5.4 Label preferences

5.4.1 AOP and Demeter Suisse

The regression to compare AOP and Demeter Suisse was significant (χ^2 = 127.893 p = < 0.001), confirming that the difference between the effect of the two labels. The AOP label was used as the reference category. The results show that AOP leads to a significantly higher willingness to pay compared to Demeter Suisse (β = -0.927, p = < 0.001). This confirms that AOP is more valued than Demeter for participants.

Figure 13: Likelihood of purchase for labeled cheese by label

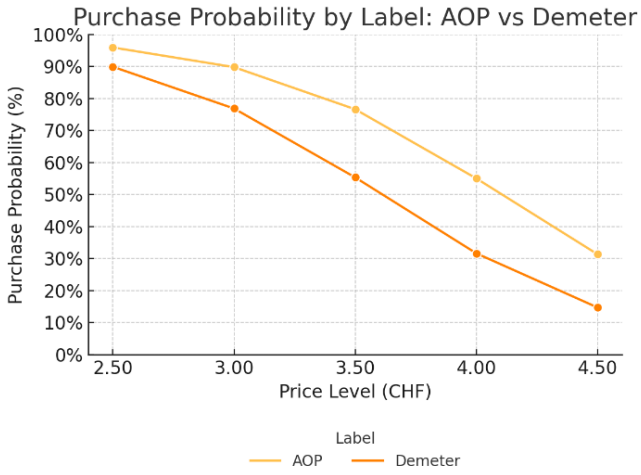


Table 18: Likelihood of purchase for labeled cheese by

	2.50CHF	3.00CHF	3.50CHF	4.00CHF	4.50CHF
AOP	95,92%	89,78%	76,62%	55,01%	31,33%
Demeter Suisse	89,90%	76,86%	55,34%	31,62%	14,71%

At CHF 2.50CHF, AOP reaches 96%, while Demeter Suisse is at 90%. At 3.50CHF, AOP the difference is the biggest between the two labels (76% vs 55%). The difference persists at 4.50CHF, where AOP reaches 55% and Demeter 15%. The AOP label remains higher than the Bio Suisse label across all price levels.

5.4.2 AOP and Bio Suisse

The regression model was also significant (χ^2 = 167.282, p = < 0.001, R^2 = 0.491). AOP was used as the reference category. The results show that AOP leads to a significantly higher willingness to pay compared to Bio Suisse (β = -1.423, p = < 0.001).

Figure 14: Likelihood of purchase for labeled cheese by label

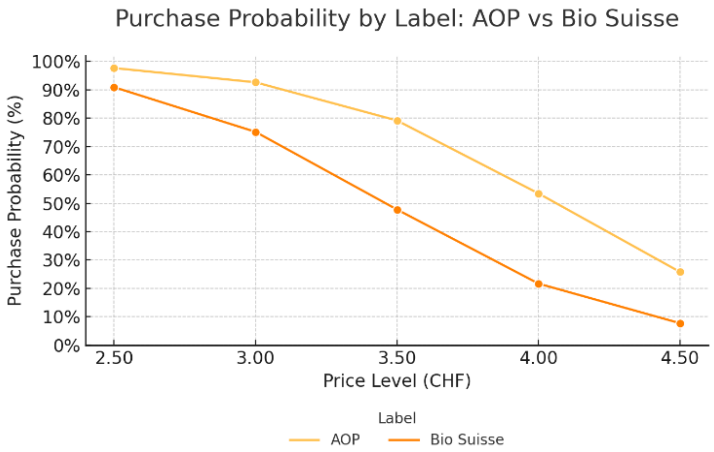


Table 19: Likelihood of purchase for labeled cheese by label

	2.50CHF	**3.00CHF**	**3.50CHF**	**4.00CHF**	**4.50CHF**
AOP	97,64%	92,62%	79,15%	53,45%	25,79%
Bio Suisse	90,90%	75,15%	47,78%	21,68%	7,73%

At price level 2.50CHF, AOP reaches 98%, while Bio Suisse is at 91%. This gap persists across the price range. At 3.50CHF, the difference remains, with AOP showing at 93% and Bio Suisse 48%. At 4.50CHF, AOP still reaches 26%, whereas Bio Suisse falls to 8%.

5.4.3 AOP and Retour aux sources

The regression model indicates evidence in variance (χ^2 = 148.368 p = < 0.001). The results of the analysis show that AOP leads to a significantly higher willingness to pay compared to Retour aux Sources (β = -1.529, p = < 0.001).

Figure 15: Likelihood of purchase for labeled cheese by label

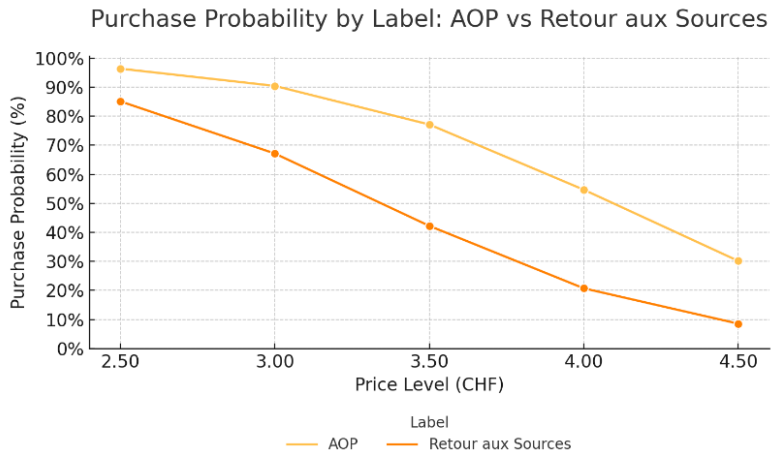


Table 20: Likelihood of purchase for labeled cheese by label

	2.50CHF	**3.00CHF**	**3.50CHF**	**4.00CHF**	**4.50CHF**
AOP	96,34%	90,40%	77,11%	54,66%	30,14%
Retour aux Sources	85,08%	67,12%	42,21%	20,72%	8,55%

The AOP reaches higher percentages across all price levels. At 2.50CHF, the AOP reaches 96%, while Retour aux Sources is 85%. At 3.50CHF, the AOP remains higher at 77% compared to Retour aux Sources at 45% with the biggest difference across for that price level as well as for 4.00CHF with 55% for the AOP and Retour aux Sources at 21%. For the highest price level of 4.50CHF, the AOP reaches 30% and Retour aux Sources only 9%.

5.4.4 Demeter Suisse and Bio Suisse

The analysis focusing on Demeter Suisse and Bio Suisse results in a significant regression model with (χ^2 = 131.327 $p < 0.001$, R^2 = 0.491). Looking at the variable effect no significant difference was found between Bio Suisse and Demeter (β = -0.295, p = 0.240).

Figure 16: Likelihood of purchase for labeled cheese by label

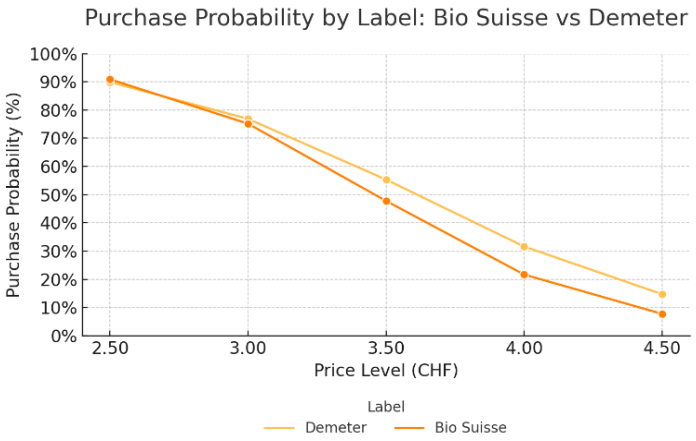


Table 21: Likelihood of purchase for labeled cheese by label

	2.50CHF	**3.00CHF**	**3.50CHF**	**4.00CHF**	**4.50CHF**
Demeter Suisse	90,09%	77,05%	55,37%	31,43%	14,48%
Bio Suisse	87,13%	71,44%	48,03%	25,45%	11,20%

From the first price point to the second price point, both labels remain quite close together. The margin increases afterwards. The largest difference is at 4.50CHF, where Demeter Suisse shows 31,43% and Bio Suisse 25,45%.

5.4.5 Demeter and Retour aux sources

The regression model for that analysis was significant with (χ^2 = 107.597 p < 0.001, R^2 = 0.329). Nonetheless, the variance between the two variables happened to underline meaningful evidence based on the statistics (β = -0.488, p = 0.043) expressing that Demeter Suisse has a higher willingness to pay.

Figure 17: Likelihood of purchase for labeled cheese by label

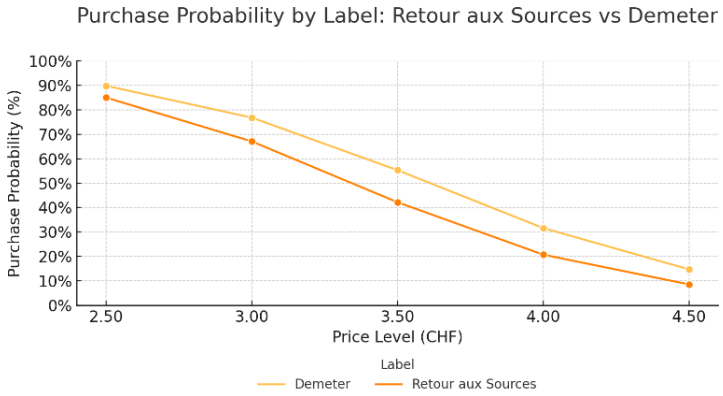


Table 22: Likelihood of purchase for labeled cheese by label

	2.50CHF	**3.00CHF**	**3.50CHF**	**4.00CHF**	**4.50CHF**
Demeter Suisse	87,55%	74,56%	55,01%	33,77%	17,54%
Retour aux Sources	81,18%	64,27%	42,86%	23,83%	11,54%

At the lowest price level Demeter Suisse shows 87,55% of willingness to purchase, while Retour aux Sources is slightly lower at 81,18%. The difference becomes slightly more visible at 3.50CHF, where Demeter Suisse is at 55,01% compared to 42,86% for Retour aux Sources. This pattern continues through 4.50CHF, with Demeter Suisse showing 17,54% while Retour aux Sources dropping to 11,54%.

5.4.6 Bio Suisse and Retour aux sources

To compare logistic regression to test, Retour aux sources and Bio Suisse was significant ($\chi^2 = 137.55$, $p < 0.001$, $R^2 = 0.410$). However, no significant difference was found between Retour aux Sources and Bio Suisse ($\beta = -0.235$, $p = 0.355$).

Figure 18: Likelihood of purchase for labeled cheese by label

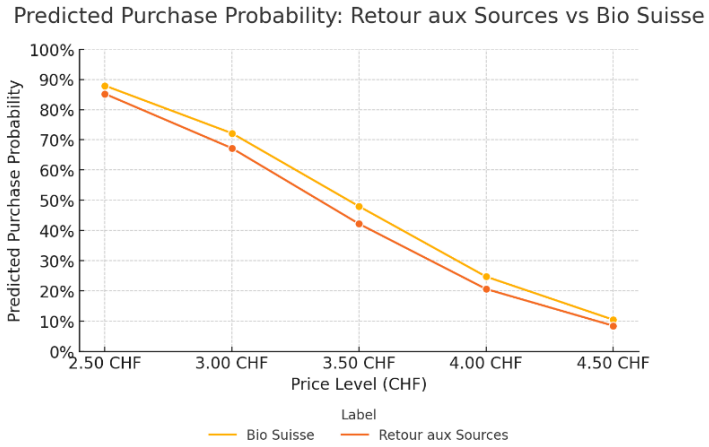


Table 23: Likelihood of purchase for labeled cheese by label

	2.50CHF	3.00CHF	3.50CHF	4.00CHF	4.50CHF
Bio Suisse	87,95%	72,18%	47,98%	24,70%	10,44%
Retour aux Sources	85,23%	67,23%	42,18%	20,60%	8,44%

The two labels follow similar paths for every price level. At the lowest price level 2.50CHF, Bio Suisse leads slightly with a probability of 90,90%, compared to 85,08% for Retour aux sources. At 3.50CHF, Bio Suisse reaches 47,78%, while Retour aux sources shows 42,21%. At the highest price point of 4.50CHF, the difference becomes smaller again compared to the middle range price with Bio Suisse at 7,73% and Retour aux Sources close behind at 8,55%, essentially reversing the pattern seen at the lower price range.

All in all, the results of the label preferences go to show a clear preference for the AOP certification when faced with Demeter Suisse, Retour aux Sources and Bio Suisse. Now, the results will be discussed in the following chapter to come.

6 DISCUSSION

The analysis were conducted by using a logistic binary regression approach to reflect the likelihood of purchase for a given price. According to the various results of the analysis the hypotheses can be summarized as follows in the table:

Table 24: Summary of the hypotheses analysis

H1	Consumers with a high level of ecological sensitivity are willing to pay more for a labeled food product.	Rejected
H2	Consumers with a high level of recognition and knowledge on sustainable labels are willing to pay more for a sustainable labeled food product.	Supported
H3 a	Women are willing to pay more than men for sustainable a labeled food product.	Supported
H3b	Younger consumers are willing to pay more than older consumers for a sustainable labeled food product.	Rejected
H3c	Consumers with a higher level of education are willing to pay more for food products than consumers with a lower level of education.	Supported
H4	The relationship between ecological sensitivity and willingness to pay for a sustainably labeled food product is moderated by the number of labels on the product, such that willingness to pay is higher for products with two labels compared to one and no labels.	Rejected
H5	The relationship between knowledge of sustainable labels and willingness to pay for a sustainably labeled food product is moderated by the number of labels, such that willingness to pay is higher for products with two labels compared to one and no label.	Partially supported
H6	Combining two sustainable labels has a positive influence on the willingness to pay of consumers compared to one and no label for food products.	Rejected

A hypothesis is supported when there is statistical evidence of variance. It is partially supported when the overall relationship between the variables exists but is not relevant for all classifications. Finally, a hypothesis is rejected when there is no evidence to support it.

6.1 Interpretation of the findings regarding literature

The findings of the study have underlined that all the observed factors, aside from the number of labels as moderator, the gender and the knowledge and recognition, do not influence the willingness to pay consumers.

6.1.1 Eco-sensitivity

The results expressed that the willingness to pay for a sustainable label product does not differ based on the eco-sensitivity of the respondents. There for the hypothesis that consumers with a higher eco-sensitivity are willing to pay more for a sustainable labeled product can not be supported. This result contradicts the findings of previous studies (Gracia & de-Magistris, 2016; Lazzarini et al., 2018). One possible explanation could be the disconnection between ecological concern and actual purchase decisions, which has been highlighted by the findings of Schmitt et al. (2016). Consumers may express high ecological values in general, but these do not necessarily guide their concrete choices when evaluating specific products such as cheese.

6.1.2 Knowledge and recognition

The level of knowledge and recognition influences the willingness to pay for a sustainable product. Therefore, the hypothesis that higher knowledge and recognition leads to a higher willingness of consumers for a sustainable labeled product is supported. Combining recognition and correct definition of labels was not found to be a significant predictor of willingness to pay. These findings align with previous studies. As shown by Jürkenbeck (2023), even without additional information, labels like Eco-Score can influence consumer behavior. Similarly, Williams et al. (2023) point out that visual attributes such as shape or natural imagery can enhance perceived trustworthiness, regardless of whether consumers fully understand the label content. This suggests that the feeling of being familiar with a label rather than actually understanding it’s meaning has more importance.

6.1.3 Gender

In the present study, female participants showed a significantly higher willingness to pay across different price levels and label types. The hypothesis assuming that women are more willing to pay for a sustainably labeled food product than men can also be supported. The result confirms that gender plays a role not only in sustainability attitudes but also in economic behavior related to sustainable labeled food products. This finding is consistent with previous literature suggesting that gender differences influence sustainability-related attitudes and behaviors such as the study of Williams et al. (2023).

6.1.4 Age

The results of the analysis did not show a difference between the age when it comes for the willingness to pay for a sustainable labeled product. This suggests that, within the Swiss cheese context, younger consumers do not systematically express a stronger economic preference for sustainable labels compared to older age groups Therefore, the hypothesis assuming that younger consumers are more willing to pay for a sustainably labeled food product than older consumers is rejected. This result contrasts with several expectations from prior literature, where younger generations are often portrayed as more environmentally conscious and engaged in sustainable consumption (Gracia & de-Magistris, 2016; Schmitt et al. (2016).

6.1.5 Education level

In this study, education happened to be a significant predictor of willingness to pay, with participants holding university-level qualifications consistently reporting higher purchase intention for a sustainable labeled product. The hypothesis assuming that consumers with a higher level of education are more willing to pay for a sustainably labeled food product than those with a lower level of education is supported based on the statistical results. The findings are aligned with previous literature suggesting that education is positively associated with sustainable consumption patterns as suggested by Schmitt et al. (2016).

6.1.6 Number of labels

In the context of Swiss cheese, the addition of a second label did not result in a significant increase in purchase intention or willingness to pay compared to no or one sustainable label. As suggested by Lazzarini et al. (2018) and Sonntag et al. (2023), the presence of too many labels may overwhelm consumers, leading to confusion, reduced trust, or even skepticism. Rather than reinforcing the sustainability message, multiple labels might be perceived as redundant or as marketing tactics lacking substance.

6.1.7 Moderation effect on eco-sensitivity

The hypothesis assuming that the relationship between ecological sensitivity and willingness to pay for a sustainably labeled food product is moderated by the number of labels is rejected as there was no data evidence. When it comes to the effect on knowledge and recognition, results show that the willingness to pay is higher for products with two labels compared to one or no label. Since the analysis did not show any evidence beyond that group, the hypothesis that the “relationship between knowledge of sustainable labels and willingness to pay for a sustainably labeled food product is moderated by the number of labels, such that willingness to pay is higher for products with two labels compared to one and no label is only partially supported.”

Taking the results concerning the number of labels together, it suggests that the number of sustainability labels does not function as a straightforward factor of willingness to pay for a sustainable labeled product. These findings contrast with the findings of Van Loo et al. (2011) who expressed a strengthening effect of displaying more than one label on a package. On the other hand, the results of this hypothesis tend to support the findings of Lazzarini et al. (2018) and Sonntag et al. (2023) who have raised concerns about the effects of label overload.

6.2 Managerial and theoretical contribution

From a managerial point of view, these insights are relevant for producers, retailers, and policymakers as they bring theoretical and practical contributions to the understanding of sustainability labeling in the food sector.

Firstly, from a theoretical perspective, the results challenge the assumption that more sustainability labels necessarily enhance product value. This research confirms that in context of Swiss cheese, adding more labels does not lead to higher willingness to pay. Brands should focus on a small number of credible, widely recognized labels, rather than attempting to impress consumers with multiple overlapping certifications. In particular, labels such as AOP are strongly associated with regional authenticity and trust can be prioritized when it comes to food products closely linked to the culture of the country.

Second, educational efforts remain important. While consumers who scored high on label knowledge were more willing to pay, the weak link between recognition and correct understanding shows that familiarity may be just as influential as cognitive comprehension. Accurate label knowledge enhances consumer willingness to pay for sustainable labeled products. Communication campaigns aimed at clarifying what labels stand for and how they differ from one another may reduce confusion and restore potential lack of trust, particularly among younger or less educated consumers.

Third, the study highlights the importance of selecting the correct target group and developing a strategy accordingly. Female participants and those with higher education levels showed a significantly higher willingness to pay for sustainably labeled products. This suggests that launching a sustainability communication dedicated to those groups can be more effective due to those groups being responsive to such information. At the same time, generational targeting should be approached with caution, as no systematic WTP differences were observed across age groups.

In summary, this study contributes to a deeper understanding of how sustainability labels influence consumer behavior in the Swiss food sector. While this study

provides important insights into the role of sustainability labels in consumer decision-making, it is essential to acknowledge its boundaries. Several methodological and conceptual limitations may have influenced the results and open opportunities for future investigation. The following section outlines these limitations and presents potential directions for further research.

7 CONCLUSION

7.1 Limitations and future study recommendations

The main objective of this study was to examine how different sustainability labels and their combinations influence consumer's willingness to pay for cheese in Switzerland. There were 3 questions the study aimed to answer. The first one was: "What factors influence consumer's willingness to pay for food products?" The results highlighted that gender, education and label knowledge and recognition do influence the willingness to pay for a sustainable labeled product. The second one was to explore if consumers did understand the actual meaning of the selected labels. This was shown not to be the case for the exception of AOP. The last question was to explore whether one or multiple labels led to a stronger willingness to pay among consumers. The addition of a second label did not systematically increase the willingness to pay. Overall, the study meets its objective by providing a clearer understanding of how label effects interact with consumer characteristics in the context of sustainable food products. Nonetheless, the study has several limitations that should be acknowledged.

First, the sample size for some subgroups such as participants with lower levels of formal education, Secondary I, was too small to allow for detailed interpretation. A larger and more balanced sample would be necessary to draw more refined conclusions regarding the effect of education.

Second, certain technical aspects of the questionnaire may have introduced inconsistencies. In particular, the variable for the definition of Retour aux sources label included one additional answer option compared to the other label variables, which may have affected data comparability. Additionally, due to synchronization issues in the survey software, variable IDs were not always sequential when deleted or reorganized, adding complexity to the data treatment and potentially introducing minor risks of confusion during data processing.

Additionally, the methodological approach used in this study also presents certain constraints. It was conducted within a single product category, Swiss cheese. Focusing only on one specific product category limits the possibility of extending the findings to other product categories. Furthermore, the national context may also influence the results. In fact, labels such as AOP carry a strong regional and cultural significance especially in combination with cheese. Thus, the transferability of the results to another country is also limited. Comparative studies across different cultural contexts could provide insights into the role of labels that are strongly linked to regional or food product of cultural importance. Future studies also could explore the impact of sustainability labels across multiple product categories to determine if the effects are similar.

In this study, not all socio-demographic variables were found to be significant. Future studies could include them as well to support the transferability of the results. Nonetheless, exploring further sociodemographic factors that may influence the willingness to pay for sustainable labeled food products would be also relevant as complex psychological mechanisms play a role in decision making. These could include the income level, urban vs rural residence, family status or professional position. Individuals with higher income households or those with managerial positions and no family status could show a greater financial flexibility which could influence their responsiveness to labeling. Likewise, living in a rural or urban area could affect the perception of sustainable label communication. Including those dimensions in future research could help to understand how social and economic context interact with each other in the context of label perception and purchase behavior.

While using a logistic regression model provides a useful approximation for analyzing label effects, it does not capture actual decision-making under realistic trade-off conditions. In this study, the willingness to pay was estimated based on purchase intention across different given price levels and therefore participants did not have to choose between competing options or to prioritize one aspect over another one. Additionally, the participants find themselves in the actual situation where there are more stimuli competing together at the same time, more distraction and pressure, which is not the case in a fully controlled environment. Future studies could tackle these aspects by conducting a field experiment in retail environment, where consumers behavior can be observed under real conditions. Such studies would allow to test how sustainable labels influence concrete purchasing decisions when consumers must choose between actual products to spend their own money on. This would extend the knowledge of how message framing or visual design impact consumers beyond self-reported preferences.

In addition, future research could investigate the visual effects of sustainability labels, as this study suggests that accurately understanding the label is not as important. For this study the product itself was shown with the accompanying label. However, in a real-world environment, cheese would likely be sold in a package. There, the decision on where to put which label could play a role when choosing a multi labeling strategies with one impactful label directly on the front and a complementary label on the back to strengthen other attributes of the product. One objective may simply be to capture consumer attention through strategic placement or design. Exploring the influence of visual design elements, such as color, shape, and label placement, would also contribute to whether these aspects alone can drive consumer behavior. Going a step further, experimental methods such as eye-tracking or simulated shelf tests could be used to identify which visual elements are most effective in capturing attention and driving willingness to pay. Such findings would be particularly valuable for label developers and food marketers aiming to make sustainable certifications more noticeable without overloading the consumer with technical information.

8 BIBLIOGRAPHY

Aprile, M. C., & Punzo, G. (2022). How environmental sustainability labels affect food choices: Assessing consumer preferences in Southern Italy. Journal of Cleaner Production, 351, 131627. https://doi.org/10.1016/j.jclepro.2022.131627

Andreeva, V. A., Egnell, M., Touvier, M., Galan, P., Julia, C., & Hercberg, S. (2021). International evidence for the effectiveness of the front-of-package nutrition label called Nutri-Score. Central European Journal of Public Health, 29(1), 76–79. https://doi.org/10.21101/cejph.a6239

Bastounis, A., Buckell, J., Hartmann-Boyce, J., Cook, B., King, S., Potter, C., Bianchi, F., Rayner, M., & Jebb, S. A. (2021). The impact of environmental sustainability labels on willingness-to-pay for foods: A systematic review and meta-analysis of discrete choice experiments. Nutrients, 13(8), 2677. https://doi.org/10.3390/nu13082677

Bjelkengren, C., Dutzler, H., Przybysz, M., & Kalsbach, O. (2024, August 5). Sustainably feeding a growing Switzerland. Strategy& (PwC). https://www.strategyand.pwc.com/ch/en/industries/consumer-markets/feeding-a-growing-switzerland.htm

Bornhauser, F., Hu, C., Campfens, B., Pueyo Viñuales, R., Burri, C., Stoll, T., Ali, S. A., Slavinski, S., Otterström, T., & Decelis, R. (2023). Sustainability standards and labels: Navigating the jungle. KPMG International. https://assets.kpmg.com/content/dam/kpmgsites/ch/pdf/kpmg-eco-labels-sustainability-standards-labels.pdf

Bornhauser, F., Hu, C., Campfens, B., Pueyo Viñuales, R., Burri, C., Stoll, T., Ali, S. A., Slavinski, S., Otterström, T., & Decelis, R. (n.d.). Sustainability standards and labels: Navigating the jungle. KPMG International. https://assets.kpmg.com/content/dam/kpmgsites/ch/pdf/kpmg-eco-labels-sustainability-standards-labels.pdf

Carley, S., & Yahng, L. (2018). Willingness-to-pay for sustainable beer. PLOS ONE, 13(10), e0204917. https://doi.org/10.1371/journal.pone.0204917

Caswell, J. A., & Padberg, D. I. (1992). Toward a more comprehensive theory of food labels. American Journal of Agricultural Economics, 74(2), 460–468. https://doi.org/10.2307/1242500

Chandrasekhar, A. (2024, July 12). Has food label Nutri-Score passed its expiry date in Switzerland? SWI swissinfo.ch. https://www.swissinfo.ch/eng/multinational-companies/has-food-label-nutri-score-passed-its-expiry-date-in-switzerland/83433201

De Bauw, M., Vandenberghe, W., & Verbeke, W. (2021). A combined Nutri-Score and 'Eco-Score' approach for more nutritious and more environmentally friendly food choices? Evidence from a consumer experiment in Belgium. Food Quality and Preference, 93, 104276. https://doi.org/10.1016/j.foodqual.2021.104276

de-Magistris, T., & Gracia, A. (2016). Consumers' willingness-to-pay for sustainable food products: The case of organically and locally grown almonds in Spain. Journal of Cleaner Production, 118, 97–104. https://doi.org/10.1016/j.jclepro.2016.01.050

Delmas, M. A., & Gergaud, O. (2021). Sustainable practices and product quality: Is there value in eco-labels? Business Strategy and the Environment, 30(1), 382–397. https://doi.org/10.1002/bse.2621

Duckworth, J. J., Randle, M., McGale, L. S., Jones, A., Doherty, B., Halford, J. C. G., & Christiansen, P. (2022). Do front-of-pack green labels increase sustainable food choice and why? A systematic review. Food Quality and Preference, 99, 104561. https://doi.org/10.1016/j.foodqual.2022.104561

Gracia, A., & de-Magistris, T. (2016). Consumer preferences for food labeling: What ranks first? Food Control, 61, 39–46. https://doi.org/10.1016/j.foodcont.2015.09.023

Grunert, K. G. (2011). Sustainability in the food sector: A consumer behaviour perspective. International Journal on Food System Dynamics, 2(3), 207–218. https://doi.org/10.18461/ijfsd.v2i3.232

Grunert, K. G., Hieke, S., & Wills, J. (2014). Sustainability labels on food products: Consumer motivation, understanding and use. Food Policy, 44, 177–189. https://doi.org/10.1016/j.foodpol.2013.12.001

Janssen, M., & Hamm, U. (2012). Product labelling in the market for organic food: Consumer preferences and willingness-to-pay for different organic certification logos. Food Quality and Preference, 25(1), 9–22. https://doi.org/10.1016/j.foodqual.2011.12.004

Jürkenbeck, K., Mehlhose, C., Zühlsdorf, A., & Spiller, A. (2021). Health and nutrition claims on packaged food products: A pan-European study. Food Quality and Preference, 94, 104326. https://doi.org/10.1016/

Lazzarini, G. A., Visschers, V. H. M., & Siegrist, M. (2018). How to improve consumers' environmental sustainability judgments of foods. Journal of Cleaner Production, 198. https://doi.org/10.1016/j.jclepro.2018.07.033

Lee, K.-M., & Uehara, H. (2003). Best practices of ISO 14021: Self-declared environmental claims. Center for Ecodesign and LCA, Ajou University. Published for the APEC Secretariat. https://www.apec.org/Publications/2003/02/Best-Practices-of-ISO-14021-Self-Declared-Environmental-Claims

Li, C., Marette, S., Roosen, J., & Yue, C. (2023). Meta-analysis of consumers' willingness to pay for sustainable food products. Nature Communications, 14, 3921. https://doi.org/10.1038/s41467-023-39680-2

Maaya, L., Meulders, M., Surmont, N., & Vandebroek, M. (2018). Effect of environmental and altruistic attitudes on willingness-to-pay for organic and fair trade coffee in Flanders. Sustainability, 10(12), 4496. https://doi.org/10.3390/su10124496

McGuinn, J., McNeill, A., Markowska, A., Martinez-Bris, I., O'Brien, S., De Cuyper, K., Esser, A., & Meeusen, T. (2020). Environmental claims in the EU: Inventory and reliability assessment (Final report). European Commission, Directorate-General for Environment. Milieu Consulting SRL and IPSOS NV. https://ec.europa.eu/environment/eussd/smgp/pdf/

Mengual, E. S., Boschiero, M., Leite, J., Casonato, C., Fiorese, G., Mancini, L., Sinkko, T., Wollgast, J., Listorti, G., & Sala, S. (2023). Sustainability labelling in the EU food sector – Final report (EUR 32003, JRC130117). Publications Office of the European Union. Retrieved from https://publications.jrc.ec.europa.eu/repository/handle/JRC130117

Morwitz, V. G., Steckel, J. H., & Gupta, A. (2007). When do purchase intentions predict sales? International Journal of Forecasting, 23(3), 347–364. https://doi.org/10.1016/j.ijforecast.2007.05.015

Müller, S. S., & Remaud, H. (2023). Exploring organic food consumers' knowledge: An interdisciplinary review and agenda for future research. Journal of Business Research, 158, 113669. https://doi.org/10.1016/j.jbusres.2022.113669

Müller, S., & Remaud, H. (2023). What drives consumer preferences and willingness to pay for carbon labels? A meta-analysis. Food Quality and Preference, 110, 104954. https://doi.org/10.1016/j.foodqual.2023.104954

Numbeo. (2025). Food Prices in Switzerland. Numbero.com. https://www.numbeo.com/food-prices/country_result.jsp?country=Switzerland

Office fédéral de l'agriculture (OFAG). (2020). Protection des appellations d'origine (AOP) et des indications géographiques (IGP) des produits agricoles et sylvicoles – Guide pour le dépôt d'une demande d'enregistrement ou de modification de cahier des charges. Département fédéral de l'économie, de la formation et de la recherche (DEFR).

https://backend.blw.admin.ch/fileservice/sdweb-docs-prod-blwch-files/files/2024/08/12/8063f84f-25cc-4bb1-a119-31c9f6fc52e2.pdf

Pallant, J. (2020). SPSS Survival Manual. In *Routledge eBooks*. https://doi.org/10.4324/9781003117445

Pink, A. E., Stylianou, K. S., Lee, L. L., Jolliet, O., & Cheon, B. K. (2021). The effects of presenting health and environmental impacts of food on consumption intentions. Food Quality and Preference, 100, 104920. https://doi.org/10.1016/

Pink, A. E., Stylianou, K. S., Lee, L. L., Jolliet, O., & Cheon, B. K. (2022). The effects of presenting health and environmental impacts of food on consumption intentions. Food Quality and Preference, 100, 104920. https://doi.org/10.1016/j.foodqual.2022.104920

Schmitt, E., Keech, D., Maye, D., Barjolle, D., & Kirwan, J. (2016). Comparing the sustainability of local and global food chains: A case study of cheese products in Switzerland and the UK. Sustainability, 8(5), 419. https://doi.org/10.3390/su8050419

Shaikh, M., Janssen, M., & Hamm, U. (2023). Are all-encompassing better than one-trait sustainable labels? Effects on food choice and willingness to pay for multi-trait labeled products. Food Quality and Preference, 109, 104935. https://doi.org/10.1016/j.foodqual.2023.104935

Sonntag, W. I., Lemken, D., Spiller, A., & Schulze, M. (2022). Welcome to the (Label) Jungle? Analyzing how consumers deal with intra-sustainability label trade-offs on food. Food Quality and Preference, 104, 104746. https://doi.org/10.1016/

Sonntag, W. I., Lemken, D., Spiller, A., & Schulze, M. (2023). Welcome to the (Label) Jungle? Analyzing how consumers deal with intra-sustainability label trade-offs on food. Food Quality and Preference, 104, 104746. https://doi.org/10.1016/j.foodqual.2022.104746

Steve, I. (2020, May 18). The future of food – Food labels. Major Online Business and Marketing. https://blog.hslu.ch/majorobm/2020/05/18/future-food-food-labels/

U.S. Environmental Protection Agency. (2024.). Introduction to ecolabels and standards for greener products. https://www.epa.gov/greenerproducts/introduction-ecolabels-and-standards-greener-products

Van Loo, E. J., Caputo, V., Nayga, R. M., Jr., Meullenet, J. F., Crandall, P. G., & Ricke, S. C. (2014). Consumers' valuation of sustainability labels on meat. Food Policy, 49, 137–150. https://doi.org/10.1016/j.foodpol.2014.07.002

Van Loo, E. J., Caputo, V., Nayga, R. M., Meullenet, J. F., & Ricke, S. C. (2011). Consumers' willingness to pay for organic chicken breast: Evidence from choice experiment. Food Quality and Preference, 22(7), 603–613. https://doi.org/10.1016/j.foodqual.2011.02.003

Wertenbroch, K., & Skiera, B. (2002). Measuring consumers' willingness to pay at the point of purchase. Journal of Marketing Research, 39(2), 228–241. https://doi.org/10.1509/jmkr.39.2.228.19086

Yokessa, M., & Marette, S. (2019). A review of eco-labels and their economic impact. International Review of Environmental and Resource Economics, 13(1–2), 119–165. https://doi.org/10.1561/101.00000111

9 APPENDIX

9.1 Questionnaire

9.1.1 Consent question

Bienvenue dans cette enquête sur la volonté des consommateurs de payer pour un produit alimentaire labellisé durable. Merci beaucoup par avance pour votre participation. Cette étude est menée dans le cadre de mon Travail de Master en Marketing avec par la Chaire de Marketing de l'Université de Fribourg. La participation à cette étude prend environ 5-10 minutes.

Le questionnaire se compose de plusieurs questions à choix multiples. Les données seront collectées de manière anonyme et ne seront pas transmises à des tiers. Les labels sélectionnés servent uniquement d'exemple. La participation à cette étude est volontaire, et vous pouvez à tout moment choisir de retirer votre participation sans avoir à fournir de motif. Si vous décidez de vous retirer, vos données ne seront pas enregistrées. Nous ne considérons pas qu'il y ait de risques, de désagréments, d'inconvénients ou de préjudices prévisibles liés à la participation.

Si vous avez des questions veuillez me contacter: charel.perruchoud@unifr.ch

◯ Je confirme avoir reçu des informations sur le projet et je suis disposé(e) à participer à cette enquête.

Willkommen zu dieser Umfrage zur Zahlungsbereitschaft der Verbraucher für ein nachhaltig zertifiziertes Lebensmittelprodukt. Vielen Dank im Voraus für Ihre Teilnahme. Diese Studie wird im Rahmen meiner Masterarbeit im Bereich Marketing in Zusammenarbeit mit dem Lehrstuhl für Marketing der Universität Fribourg durchgeführt. Die Teilnahme an dieser Umfrage dauert etwa 5-10 Minuten.

Der Fragebogen besteht aus mehreren Fragen. Die Daten werden anonym gesammelt und nicht an Dritte weitergegeben. Die ausgewählten Labels dienen nur als Beispiel. Die Teilnahme an dieser Studie ist freiwillig, und Sie können jederzeit entscheiden, Ihre Teilnahme ohne Angabe von Gründen zu beenden. Falls Sie sich zurückziehen, werden Ihre Daten nicht gespeichert. Wir gehen davon aus, dass es keine vorhersehbaren Risiken, Unannehmlichkeiten, Nachteile oder Schäden im Zusammenhang mit der Teilnahme gibt.

Falls Sie Fragen haben, können Sie mich kontaktieren: charel.perruchoud@unifr.ch

◯ Ich bestätige, dass ich Informationen über das Projekt erhalten habe und bereit bin, an dieser Umfrage teilzunehmen.

9.1.2 Qualifying question

1. Faites-vous des achats au moins une fois par semaine dans un magasin d'alimentation en Suisse?

◯ Oui
◯ Non

1. Kaufen Sie mindestens einmal pro Woche in einem Lebensmittelgeschäft in der Schweiz ein?

◯ Ja
◯ Nein

9.1.3 Product illustrations

9.1.4 *Willingness to pay*

2. Fromage (150g)

Veuillez regarder l'image du produit et évaluez les déclarations suivantes:

Si le prix est de 2.50 CHF	Je n'achèterai certainement pas	○	○	○	○	○	J'achèterai certainement
Si le prix est de 3.00 CHF	Je n'achèterai certainement pas	○	○	○	○	○	J'achèterai certainement
Si le prix est de 3.50 CHF	Je n'achèterai certainement pas	○	○	○	○	○	J'achèterai certainement
Si le prix est de 4.00 CHF	Je n'achèterai certainement pas	○	○	○	○	○	J'achèterai certainement
Si le prix est de 4.50 CHF	Je n'achèterai certainement pas	○	○	○	○	○	J'achèterai certainement

2. Käse (150g)

Bitte schauen Sie sich das Produktbild an und bewerten Sie die folgenden Aussagen:

Wenn der Preis 2.50 CHF beträgt	Ich würde es bestimmt nicht kaufen.	○	○	○	○	○	Ich würde es bestimmt kaufen.
Wenn der Preis 3.00 CHF beträgt	Ich würde es bestimmt nicht kaufen.	○	○	○	○	○	Ich würde es bestimmt kaufen.
Wenn der Preis 3.50 CHF beträgt	Ich würde es bestimmt nicht kaufen.	○	○	○	○	○	Ich würde es bestimmt kaufen.
Wenn der Preis 4.00 CHF beträgt	Ich würde es bestimmt nicht kaufen.	○	○	○	○	○	Ich würde es bestimmt kaufen.
Wenn der Preis 4.50 CHF beträgt	Ich würde es bestimmt nicht kaufen.	○	○	○	○	○	Ich würde es bestimmt kaufen.

9.1.5 Recognition question

3. Évaluez les déclarations par rapport aux différents labels représenté sur l'image...

	pas du tout en accord				totalement en accord
J'ai reconnu la majorité des labels.	○	○	○	○	○
Je connais la signification de la plupart des labels.	○	○	○	○	○
J'arrive à différencier la signification d'un label par rapport à un autre.	○	○	○	○	○

3. Bewerten Sie die Aussagen im Hinblick auf die verschiedenen Labels, die Sie in der Umfrage gesehen haben...

	stimme gar nicht zu				stimme total zu
Ich habe die meisten Labels erkannt.	○	○	○	○	○
Ich kenne die Bedeutung der meisten Labels.	○	○	○	○	○
Ich kann die Bedeutung eines Labels im Vergleich zu einem anderen unterscheiden.	○	○	○	○	○

9.1.6 Label definition question: AOP

4. Veuillez regarder l'image ci-dessus représentant un label de durabilité. Sélectionnez la phrase qui correspond le mieux à la signification de ce label.

- ◯ Indique que le produit est entièrement biologique, cultivé sans aucun ajout chimique et transformé de manière respectueuse de l'environnement.
- ◯ Indique que toutes les étapes de la production, de la matière première jusqu'à l'élaboration du produit fini, ont lieu dans la région définie.
- ◯ Indique que le produit provient d'une région spécifique, mais que certaines étapes de la production peuvent avoir lieu ailleurs, hors de la zone définie.
- ◯ Indique qu'au moins une étape du processus de production est effectuée dans la zone de provenance du produit.

4. Bitte schauen Sie sich das obenstehende Bild eines Nachhaltigkeitsetiketts an. Wählen Sie den Satz aus, der für Sie die Produktgarantie am besten widerspiegelt.

- ◯ Das Produkt ist vollständig biologisch, ohne jegliche chemische Zusätze angebaut wurde und umweltfreundlich verarbeitet wird.
- ◯ Alle Produktionsschritte, von der Rohware bis zur Herstellung des Endprodukts, finden in der festgelegten Region statt.
- ◯ Das Produkt stammt aus einer bestimmten Region aber einige Produktionsschritte finden auch an anderen Orten ausserhalb der definierten Zone statt.
- ◯ Mindestens ein Schritt des Produktionsprozesses wird in der Ursprungsregion des Produkts durchgeführt.

1.1.1. Label definition question : Bio Suisse

5. Veuillez regarder l'image ci-dessus représentant un label de durabilité. Sélectionnez la phrase qui correspond le mieux à la signification de ce label.

- ◯ Certifie que le produit est issu d'une agriculture biologique stricte avec au moins 90 % des matières premières provenant de Suisse.
- ◯ Certifie que le produit est issu d'une agriculture biologique, avec une majorité des matières premières provenant de l'UE.
- ◯ Certifie que le produit est issu d'une agriculture biologique stricte avec l'entièreté des premières provenant de Suisse.
- ◯ Certifie que le produit est issu de l'agriculture biologique, avec une préférence pour les ingrédients provenant de fermes situées dans l'Union Européenne.

5. Bitte schauen Sie sich das obenstehende Bild eines Nachhaltigkeitsetiketts an. Wählen Sie den Satz aus, der für Sie die Produktgarantie am besten widerspiegelt.

- ◯ Das Produkt stammt aus einer strengen biologischen Landwirtschaft, wobei mindestens 90 % der Rohstoffe aus der Schweiz kommen.
- ◯ Das Produkt stammt aus biologischer Landwirtschaft, wobei die Mehrheit der Rohstoffe aus der EU kommt.
- ◯ Das Produkt stammt aus einer strengen biologischen Landwirtschaft, wobei alle Rohstoffe aus der Schweiz kommen.
- ◯ Das Produkt stammt aus biologischer Landwirtschaft, mit einer Präferenz für Zutaten von Bauernhöfen in der Europäischen Union.

1.1.1. Fatigue question

6. Pour cette question, veuillez sélectionner «Pas du tout d'accord».

- ◯ Pas du tout d'accord
- ◯ Pas d'accord
- ◯ Neutre
- ◯ D'accord
- ◯ Tout à fait d'accord

6. Bitte wählen Sie bei dieser Frage „Stimme überhaupt nicht zu" aus.

- ◯ Stimme überhaupt nicht zu
- ◯ Stimme eher nicht zu
- ◯ Weder Zustimmung noch Ablehnung
- ◯ Stimme eher zu
- ◯ Stimme eher zu

1.1.2. Label definition question : Retour aux sources

7. Veuillez regarder l'image ci-dessus représentant un label de durabilité. Sélectionnez la phrase qui correspond le mieux à la signification de ce label.

- ◯ Certifie que le produit est fabriqué biologiquement et provient de fermes suisses respectant des normes strictes de durabilité, de bien-être animal, et garantissant une traçabilité complète jusqu'à la ferme d'origine.
- ◯ Certifie que le produit est fabriqué sans recours à des techniques agricoles intensives en privilégiant des circuits courts de distribution.
- ◯ Certifie que le produit est fabriqué en privilégiant des circuits courts de distribution.
- ◯ Certifie que le produit est fabriqué avec une attention particulière à la réduction de l'empreinte carbone et à la gestion des ressources en eau.
- ◯ Certifie que le produit est fabriqué en respectant des standards élevés de qualité, avec un contrôle strict des pratiques agricoles

7. Bitte schauen Sie sich das obenstehende Bild eines Nachhaltigkeitsetiketts an. Wählen Sie den Satz aus, der für Sie die Produktgarantie am besten widerspiegelt.

- ◯ Das Produkt ist biologisch hergestellt und stammt aus Schweizer Bauernhöfen„ die strenge Nachhaltigkeits- und Tierschutzstandards einhalten und eine vollständige Rückverfolgbarkeit bis zum Ursprungsbauernhof ist gewährleistet.
- ◯ Das Produkt wurde ohne den Einsatz intensiver landwirtschaftlicher Techniken hergestellt und kurze Vertriebswege wurden bevorzugt.
- ◯ Das Produkt wurde unter Bevorzugung kurzer Vertriebswege hergestellt.
- ◯ Das Produkt wurde mit besonderem Augenmerk auf die Reduzierung des CO2-Fussabdrucks und das Wassermanagement hergestellt.
- ◯ Das Produkt wird unter Einhaltung hoher Qualitätsstandards hergestellt, mit strenger Kontrolle der landwirtschaftlichen Praktiken.

1.1.3. Label definition question : Demeter Suisse

8. Veuillez regarder l'image ci-dessus représentant un label de durabilité. Sélectionnez la phrase qui correspond le mieux à la signification de ce label.

- ◯ Certifie que le produit est issu de l'agriculture biodynamique sans aucune intervention chimique.
- ◯ Certifie que le produit est issu de l'agriculture biodynamique avec au moins 10% d'importation.
- ◯ Certifie que le produit est issu de l'agriculture biodynamique Suisse.
- ◯ Certifie que le produit est issu de l'agriculture biodynamique pratiquée dans la région européenne.

8. Bitte schauen Sie sich das obenstehende Bild eines Nachhaltigkeitsetiketts an. Wählen Sie den Satz aus, der für Sie die Produktgarantie am besten widerspiegelt.

- ◯ Das Produkt stammt aus biodynamischer Landwirtschaft ohne jegliche chemische Eingriffe.
- ◯ Das Produkt stammt aus biodynamischer Landwirtschaft mit mindestens 10 % Importanteilen.
- ◯ Das Produkt stammt aus biodynamischer Landwirtschaft in der Schweiz.
- ◯ Das Produkt stammt aus biodynamischer Landwirtschaft, die in der europäischen Region praktiziert wird.

9.1.7 Ecological Sensitivity question

9. A quel point êtes vous en accord avec les propos suivants...

	pas du tout en accord	totalement en accord
Les produits alimentaires devraient être produit dans le respect de la dignité des animaux.	◯ ◯ ◯ ◯ ◯	
Je me sens concerné•e par l'impact que ma consommation peut avoir sur l'environnement.	◯ ◯ ◯ ◯ ◯	
Les enjeux liés au changement climatique me préoccupe.	◯ ◯ ◯ ◯ ◯	
Je cherche à prioriser des produits minimisant l'impact environnemental.	◯ ◯ ◯ ◯ ◯	
Je pense qu'il est important d'adopter des comportements en faveur de l'environnement au quotidien.	◯ ◯ ◯ ◯ ◯	

9. Inwieweit stimmen Sie den folgenden Aussagen zu...

	stimme gar nicht zu	stimme total zu
Lebensmittelprodukte sollten im Einklang mit der Würde der Tiere produziert werden.	◯ ◯ ◯ ◯ ◯	
Ich fühle mich betroffen von den Auswirkungen, die mein Konsum auf die Umwelt haben kann.	◯ ◯ ◯ ◯ ◯	
Die mit dem Klimawandel verbundenen Probleme besorgen mich.	◯ ◯ ◯ ◯ ◯	
Ich versuche, Produkte zu priorisieren, die die Umweltbelastung minimieren.	◯ ◯ ◯ ◯ ◯	
Ich denke, dass es wichtig ist, im Alltag ein umweltfreundliches Verhalten zu zeigen.	◯ ◯ ◯ ◯ ◯	

9.1.8 Gender question

10. Quel est votre genre?

- ◯ Femme
- ◯ Homme

10. Was ist Ihr Geschlecht?

- ◯ weiblich
- ◯ männlich

9.1.9 Age question

11. Quel âge avez-vous?

J'ai ____ ans.

11. Wie alt sind Sie?

Ich bin ____ Jahre alt.

9.1.10 Educational question

12. Quel est le niveau d'étude le plus élevé que vous avez achevé?

- ◯ Primaire
- ◯ Secondaire 1 (Cycle d'orientation)
- ◯ Secondiare 2 (Maturité gymnasiale, professionnelle ou spécialisée)
- ◯ Tertiaire (Bachelor, Brevet ou Diplôme fédéral)
- ◯ Tertiaire (Master ou Doctorat)

12. Welchen höchsten Bildungsabschluss haben Sie?

- ◯ Primarschule
- ◯ Sekundär 1 (Orientierungsschule)
- ◯ Sekundär 2 (gymnasiale, professionnelle oder spezialisierte Matura/Lehre)
- ◯ Tertiär (Bachelor, eidgenössischer Fachausweis)
- ◯ Tertiär (Master, Doktorat)

9.1.11 End of questionnaire

Vielen Dank für Ihre Teilnahme!

Wir danken Ihnen herzlich für Ihre Zusammenarbeit.

Ihre Antworten wurden gespeichert. Sie können nun das Browserfenster schliessen.

Merci beaucoup pour votre participation!

Nous vous remercions sincèrement pour votre collaboration.

Vos réponses ont été enregistrées, vous pouvez maintenant fermer la fenêtre du navigateur.

9.2Previous studies over

Autor	Country	Food product	Method	Label or attribute
Sonntag et al. (2022)	Germany	Chicken breast, whole milk	Discrete choice experiment	Nutri-Score, Haltungsform, organic, CO2 emissions
Janssen & Langen (2017)	Germany	milk	Discrete choice experiment	Organic, Local, Animal welfare, CO2 emission, GMO-free
Delmas & Gernaud (2021)	Not given	French wine	Propensity Score Matching	not reported
Grunert et al. (2013)	UK, France, Germany, Spain, Sweden, and Poland	chocolate, coffee, ice cream, breakfast cereal, ready meals and soft drinks		Fair Trade, Animal Welfare, Rainforest Alliance, Carbon Footprint
Jürkenbeck (2023)	Germany	yogurt, muesli	Choice Experiment	Eco-Score, Nutri-Score, Bioland, EU Organic
Aprile & Punzo (2021)	Italy	tomato purée	Choice Experiment	EU organic, Per il Clima-Legambiente, Rainforest Alliance Certified
Duckworth et al. (2022)	UK	salmon	Forced-choice procedure	Local, CO2 emission, environmenta
de-Magistris & Gracia (2016)	Spain	almonds	Real choice experiment	Organic
Maya et al. (2018)	Belgium	Coffee	Discrete choice experiment	EU organic, fair trade
Tait et al. (2015)	China, India, UK	lamb	choice Experiment	not mentionned
Gracia & de-Magistris (2015)	Spain	multiple	Non forced choice method	Organic EU, Animal Welfare, Carbon Footprint, Local origin, PDO indication. Nutritional fact
Shaikh et al. (2024)	USA	cereal, bread	not mentioned	Eco-Score, Organic EU
Van Loo et al. (2015)	USA	coffee	CE	organic
Carley & Yangh (	USA	beer	online survey	organic
Van Loo et al. (2014)	Belgium	chicken breast	CE	animal welfare
Zander & Feucht (2018)	France	seafood	cvm	Not mentioned
Marchi et al. (2016)	USA	yogurt	HCE	USDA Organic, Carbon Trust
Caputo et al. (2013)	USA	Tomatoes	HCE	USDA Organic, Transportation, CO2 Emission
Schmit et al. (2013)	USA	wine	HCE	Shoot Thinning, Leaf Removal
Akaichi (2016)	Scotland, France, Netherlands	bananas	Online setting	Organic, Soil Association
Anakamah-Yeboa (2018)	Germany	trout	Interview	Organic EU, ASC
Güney & Giraldo (2019)	Turkey	egg	CE	not mentioned
Vecchio & Annunziata (2015)	Italy	almonds	BDM aution	Fair Trade, Rainforest Alliance and Carbon Footprint
Gao et al. (2016)	China	milk	CVM	not mentioned
Van Osch et al. (2017)	Ireland	salmon	CE	sustainbale
Aye et al. (2019)	Myanmar	tomatoes	CE	not mentioned
Gallenti et al. (2016)	Italy	coffee	CE	Organic, Fair Trade
Wang (2018)	China	pork	DCE	Organic
Denver and Jensen (2014)	Denmark	Apples	CE	organic
Loureiro (2003)	U.S. A	Wine	CV	environmental footprint
Vecchio (2013)	Italy	Wine	bid	Not
De-Magistris and Gracia (2016)	Spain	Almonds	Non-hypothetical	local
Vecchio and Annunziata (2015)	Italy	Chocolate	BDM auction	environmental footprint
Xu et al. (2012)	China	Seafood	interview	environmental footprint

Gao et al. (2016)	China	Milk	CV	environmental footprint
Forbes et al. (2009)	New Zealand	Wine	CE	environmental footprint
Olesen et al. (2010)	Norway	Salmon	Non-hypothetical	organic
Van Osch et al. (2017)	Ireland	Salmon	CE	environmental footprint
Aye et al. (2019)	Myanmar	Tomatoes	CE	environmental footprint
Vanhonacker et al. (2013)	Belgium	Meat	survey	environmental footprint
Van Loo et al. (2011)	U.S. A	Chicken	CE	organic
Skreli et al. (2017)	Albania	Tomatoes	CE	organic
Tait et al. (2016)	China, India,	Lamb meat	CE & CV	environmental footprint
Zander and Feucht (2018)	8 European	Seafood	CVM	environmental footprint
Van Loo et al. (2015)	U.S. A	Coffee	CE	environmental footprint
Isengildina-Massa (2009)	U.S. A	Meat	CV	local
Howard and Allen (2008)	U.S. A	Strawberry	CE	fair-trade
Akgüngör et al. (2010)	Turkey	Fruit &	CVM	organic
Miranda-de la Lama et al. (2017)	Mexico	Meat	interview	animal welfare
Chang et al. (2013)	U.S. A	Beef	CE	local
Darby, Batte, Ernst, & Roe (2006)	U.S. A	Strawberry	CE	local
Gallenti et al. (2016)	Italy	Coffee	CE	fair-trade
Makdisi & Marggraf (2011)	German	Broiler	CV	animal welfare
Sans and Sanjuan-Lopez (2015)	Spain, France	Beef	CV	animal welfare
Sarma and Raha (2016)	Bangladesh	Beef	survey	organic
Ogbeide et al. (2015)	Australia	Wine	CV	organic
S.H. Yang et al. (2012)	China	Coffee	interview	fair-trade
Van Loo et al. (2013)	Belgium	Yogurt	cross-sectional	organic
Yaowarat et al. (2015)	Thailand	Kale, rice,	CV	organic
Sellers-Rubio et al. (2016)	Spain	Wine	CV	environmental footprint
Carley and Yahng (2018)	U.S. A	Beer	survey	environmental footprint
Smed (2005)	Denmark	Dairy	panel study	organic
Wolf and Tonsor, 2017	U.S. A	Dairy	CE	animal welfare
Cicia et al. (2006)	Italy	Tomato	CE	organic
Napolitano et al. (2010)	Italy	Cheese	auction	organic
Hu et al. (2009)	U.S. A	Strawberry	CE	organic
Haghjou et al. (2013)	Iran	Food	CV	organic
Liu et al. (2019)	Taiwan, China	Coffee	CE	fair-trade
Schollenberg (2012)	Sweden	Coffee	panel study	fair-trade
Vitale et al. (2020)	Italy	Seafood	interview	environmental footprint
Schott & Bernard (2015)	U.S. A	Milk	survey	organic
Drichoutis et al. (2017)	Greece	Strawberry	CV	fair-trade
Salladarré et al. (2016)	France	Seafood	CV	environmental footprint
Yooyen et al. (2012)	Thailand	Pork	CV	organic
Haghiri, Hobbs, & McNamara (2009)	Canada	Fruit &	interview	organic
Amirnejad and Tonakbar (2015)	Iran	Milk	CV	organic
Hai et al. (2013)	Vietnam	Vegetables	CV	organic
Güney and Giraldo (2019)	Turkey	Egg	CE	organic
Uchida et al. (2014)	Japan	Salmon	auction	environmental footprint
Aryal et al. (2009)	Nepal	Food	survey	organic
Rousseau & Vranken (2011)	Belgium	Apple	CE	organic
Berghoef and Dodds, 2011	Canada	Wine	survey	environmental footprint
Kucher et al. (2019)	Ukraine	Product	survey	environmental footprint

Cagalj et al. (2016)	Croatia	Apples	auction	organic
Galati et al. (2019)	Italy	Wine	CE	environmental footprint
Yi (2019)	Korea	Aquaculture	CV	environmental footprint
Yip, Knowler, & Haider (2012)	Canada	Aquaculture	CE	environmental footprint
Xia and Zeng (2006)	China	Milk	CV	environmental footprint
Berg and Preston (2017)	New Zealand	Product	survey	local
Mugera et al. (2016)	Australia	Breast	CE	local
Everett, Jensen, Hughes, & Boyerd (2017)	U.S. A	Wine	CE	local
Fan et al. (2019)	U.S. A	Broccoli	BDM auction	local
Loureiro et al. (2002)	Portland	Apple	in-store survey	environmental footprint
Gil Roig, Gracia Royoz, & Sanchez García (2000)	Spain	Product	CV	organic
Solgaard and Yang (2011)	Denmark	Fish	CV	animal welfare
Carpio and Olga (2008)	U.S. A	Meat	CV	local
Brugarolas et al. (2005)	Spain	Wine	CV	organic
S. H. Yang et al. (2013)	China	Coffee	interview	fair-trade
Corsi and Novelli, 2002	Spain	Beef	CV	organic
Díaz et al. (2012)	Spain	Tomato	CV	organic
Piyasiri et al. (2002)	Sri Lanka	Vegetables	survey	organic
George (2010)	Dominica	Fruit & vegetable	CV	local & organic
Loureiro & Hine (2002)	U.S. A	Potato	CV	Colorado Grown, GMO-free, Organic

Notes : DCE = Discrete choice experiment, HCE =Hypothetical choice experiment, CE= Choice experiment, CV = Contingent valuation

Data has been retrieved from:

Bastounis, A., Buckell, J., Hartmann-Boyce, J., Cook, B., King, S., Potter, C., Bianchi, F., Rayner, M., & Jebb, S. A. (2021). The impact of environmental sustainability labels on willingness-to-pay for foods: A systematic review and meta-analysis of discrete choice experiments. Nutrients, 13(8), 2677. https://doi.org/10.3390/nu13082677

Li, C., Marette, S., Roosen, J., & Yue, C. (2023). Meta-analysis of consumers' willingness to pay for sustainable food products. Nature Communications, 14, 3921. https://doi.org/10.1038/s41467-023-39680-2

Yokessa, M., & Marette, S. (2019). A review of eco-labels and their economic impact. International Review of Environmental and Resource Economics, 13(1–2), 119–165. https://doi.org/10.1561/101.00000111

UNIVERSITÉ DE FRIBOURG
UNIVERSITÄT FREIBURG

Faculté des sciences économiques et sociales
Wirtschafts- und sozialwissenschaftliche Fakultät
Boulevard de Pérolles 90
CH-1700 Fribourg

D E C L A R A T I O N

Par ma signature, j'atteste avoir rédigé personnellement ce travail écrit et n'avoir utilisé que les sources et moyens autorisés, et mentionné comme telles les citations et paraphrases.

J'ai pris connaissance de la décision du Conseil de Faculté du 09.11.2004 l'autorisant à me retirer le titre conféré sur la base du présent travail dans le cas où ma déclaration ne correspondrait pas à la vérité.

De plus, je déclare que ce travail ou des parties qui le composent, n'ont encore jamais été soumis sous cette forme comme épreuve à valider, conformément à la décision du Conseil de Faculté du 18.11.2013.

Fribourg, le 26 mai 25

(signature)

UNI
FR

UNIVERSITÉ DE FRIBOURG
UNIVERSITÄT FREIBURG

MKTG
FR

UNIVERSITÉ DE FRIBOURG
CHAIRE DE MARKETING

Faculté des sciences économiques et sociales
Département de Gestion
Chaire de Marketing
Prof. Dr. Olivier Furrer
Bd. de Pérolles 90
CH-1700 Fribourg

DÉCLARATION : UTILISATION DE L'IA GÉNÉRATIVE

Par ma signature, j'atteste avoir déclaré toute utilisation d'outil d'Intelligence Artificielle (IA) générative dans ce travail écrit.

Je reconnais que l'utilisation non déclarée des IA génératives est une violation des règles de l'intégrité scientifique. J'ai pris connaissance que les suspicions d'usage non autorisé ou incorrectement déclaré des IA génératives seront traitées selon les directives existantes de l'Université de Fribourg.

Nom et Prénom Charel Perruchoud
Lieu Fribourg
Date 26.05.2025
Signature