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## Article

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# The effects of mandatory ingredient and nutrition labelling for wine consumers – A qualitative study

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## Abstract

**Purpose:** The purpose of this study is to examine how wine consumers react to ingredient and nutrition labelling. It examines how important this information is to consumers, how it affects their attitudes to wine as a natural product and whether it influences consumer demand for wine.

**Methodology:** A qualitative approach with focus group discussions and an observation of back label usage was utilised to assess consumers' reactions to this new information. Bias from artificial attention to back label information was thereby reduced compared to that found in direct quantitative research. Three focus groups, consisting of twenty-one wine-involved participants, were run in three different cities in Germany in September 2017.

**Findings:** Only one-third of consumers who looked at the back label detected new-to-them nutrition or ingredient information. Most consumers overestimated the caloric value of wine, and nutritional information was largely not perceived as useful. Consumers' first reaction was to be insecure and confused about ingredient information. Ingredient lists negatively affected the degree to which consumers perceived wine as a natural product. Even though some consumers preferred wines with shorter ingredient lists, most would not exclude a wine when shopping because of labelling that gave nutritional values and ingredients.

**Practical implications:** Nutrition labelling will likely not affect consumers' wine choices, except when it competes for space with more meaningful back label information such as food pairings and sensory descriptions. There is a niche for wine producers to offer wine with short or no ingredient lists to concerned, high-involved wine consumers. Average or low-involved wine consumers are expected to be less concerned. The industry should inform consumers about typical production procedures before ingredient lists are introduced.

**Limitations:** Although the observational qualitative study has high external validity, its results cannot be generalised due to the small non-representative sample involved. Thus, further validation is required.

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**Keywords:** Nutrition labelling; Nutritional value; Ingredient list; Focus groups; Consumer observation; Wine

## 1. Introduction

Labelling on packaged food informs consumers about what they eat and drink. It is only when consumers have all the information related to a product that they can make informed

purchasing choices and a high level of consumer protection is guaranteed (European Commission, 2017). This is why most pre-packed foods have to be labelled with both the nutritional values (energy, fats, saturated fatty acids, carbohydrates, sugar, protein and salt) and a list of ingredients according to the EU's Food Information to Consumers (FIC) regulation 1169/2011. With the exception of ingredients that may have an allergenic effect, article 16 of the FIC regulation 1169/2011 exempts alcoholic beverages above 1.2% alcohol by volume from

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mandatory ingredient and nutrition labelling. However, this is about to change.

In a report published in March 2017, the European Commission examined the abolition of this special regulation and concluded that a further exemption could not be justified. Consumer representatives and public health organisations have long supported the mandatory ingredient and nutrition labelling of alcoholic beverages. In their view, the inconsistency between the labelling of alcoholic beverages and other foods is unacceptable. Consumers have the right to access complete information about the content and composition of the alcoholic beverages they drink for the protection of both their health and other interests (European Commission, 2017). Instead of proposing a regulation, the European Commission called on alcohol producers to come up with a self-regulatory proposal within a year (European Commission, 2017). The self-regulatory industry proposal submitted in March 2018 outlines general principles the different alcohol sectors could agree. In addition, each sector developed its own implementation plans. For wine, this suggests the labelling of calorific content only, and providing ingredient information off-label online (USDA Foreign Agricultural Service, 2018). The EC have yet to react but regardless of the outcome, experts expect that mandatory nutrition and ingredient labelling for wine will eventually follow the current regulations on food labelling. This will not only affect all wine-growing member states of the EU, but also every country worldwide that exports wine to an EU member state.

The consequences of the mandatory ingredient and nutrition labelling of alcoholic beverages remain unknown. While many studies have investigated how consumers behave in relation to nutrition labelling and ingredient listings for food in general (Cowburn and Stockley, 2005; Drichoutis et al., 2005), few have considered alcoholic beverages and wine specifically (Annunziata et al., 2016a; Annunziata et al., 2016b; Grunert et al., 2018). All existing studies of wine (Annunziata et al., 2016a; Annunziata et al., 2016b; Bui et al., 2008; Grunert et al., 2018) use quantitative approaches to focus on consumers' interest in and motivation regarding ingredient and nutrition information, as well as their ability to process this information, while utilising the direct elicitation of stated preferences. However, it is well known in consumer food research that attitudes and stated preferences are poor predictors of consumers' real behaviour (Cardello, 2005; Garber et al., 2003; Grunert, 2003; Martínez-Carrasco et al., 2015). In particular, when it comes to the stated versus observed use of information, the stated methods usually strongly over-predict consumers' real information usage (Garber et al., 2003; Jacoby et al., 1977). Even more indirect research methods, such as choice experiments that generally have higher external validity (Chang et al., 2009; Farsky et al., 2017; Mueller et al., 2010b; Norwood and Lusk, 2011), artificially increase the attention consumers pay to new labelling attributes and overestimate their effect on consumer demand when they only involve back label information (Annunziata et al., 2016b; Mueller et al., 2010a).

What is missing from the few existing studies of wine labelling is the observation of consumers' realistic behaviour

and their spontaneous reaction when confronted with ingredient and nutrition information. Therefore, this study uses a qualitative and observational approach to analyse the effects that mandatory ingredient and nutrition labelling will have on the wine industry from a consumers' point of view, and the consequences for wine demand. Although only a small sample is utilised, we can expect to gather results with more validity related to the realistic effects on consumer demand.

## 2. Literature review and problem studied

### 2.1. Consumers' relationship with general food labelling

Consumers' relationship with food labelling giving nutritional values and ingredients has been investigated extensively. Thus, their interest in ingredient and nutrition information, their motivation to read it, their ability to process this information and their information utilisation are well-known (Grunert et al., 2018). Most studies using stated preference approaches and attitude elicitation conclude that consumers have a general interest in receiving ingredient and nutrition information about the products they consume (Grunert and Wills, 2007; Viola et al., 2016). The two main factors motivating this are mistrust in the food industry (Sander et al., 2016) and a desire to follow a healthy diet (Drichoutis et al., 2008). However, several studies show that most consumers are not able to fully understand the ingredient and nutrition information provided (Cowburn and Stockley, 2005; Hieke and Taylor, 2012; Shim et al., 2011), and that ingredient and nutrition labelling seems to be ineffective (Cowburn and Stockley, 2005). Consumer interest in this type of information depends on situational, behavioural and attitudinal factors, product class involvement factors such as taste or price, individual characteristics such as gender or age and knowledge of nutrition (Drichoutis et al., 2005; Ghvanidze et al., 2017).

With few exceptions, all food-based consumer studies use the direct approaches of measuring attitudes, label preferences and recalled behaviour. The few studies measuring the actual utilisation and effect of nutrition label formats in natural retail environments using indirect measures such as eye tracking or choices taken from shelves reveal the very low or insignificant effects of food labelling on product choice (Cecchini and Warin, 2016; Jacoby et al., 1977; Koenigstorfer et al., 2014; Wąsowicz-Kiryło and Styśko-Kunkowska, 2011).

### 2.2. Consumers' relationship with the labelling of alcoholic beverages and wine

The use of food labels and the effect of food-related claims have been found to depend on the food product in question, and particularly whether it can be categorised as a healthy or unhealthy food (Graham and Jeffery, 2012; van Doorn and Verhoef, 2011). Consumers make a strong and implicit association between a food being tasty and it being perceived as unhealthy (Raghunathan et al., 2006). The inferred relationship for tasty food to be unhealthy is also seen as being responsible for the weak effect of food claims (such as

organic) for unhealthy food categories (van Doorn and Verhoef, 2011). Because of its alcohol content, wine is largely perceived as an unhealthy product, although wine consumers view it as a healthier choice than other alcoholic beverages (Higgins and Llanos, 2015; Wright et al., 2008a) and even health-conscious consumers claim that health considerations do not affect their choice of beverages (Wright et al., 2008b). Alcoholic drinks are typically considered to be luxury and vice foods, for which taste is far more important to consumers than health aspects (Drichoutis et al., 2005; Wright et al., 2008a). Therefore, we could expect consumer behaviour related to the labelling of alcoholic beverages and wine to differ from their relationship with food labelling in general, and particularly with that of non-vice foods.

Because of the current legal exemption for alcoholic beverages above 1.2% volume, there is a lack of recent studies analysing consumers' relationship with ingredient and nutrition labelling on these beverages, and on wine specifically. All of the existing studies are based on direct research approaches that involved either asking consumers about their attitudes and recalled behaviour (Grunert et al., 2018; Himmelsbach et al., 2014) or analysing the choices they make when nutrition information is displayed prominently on the front label (Annunziata et al., 2016b).

When asked directly, consumers report that they are interested in receiving ingredient and nutrition information about alcoholic beverages (Annunziata et al., 2016a; Grunert et al., 2018; Kypri et al., 2007; Thomson et al., 2012), but their knowledge of the nutritional values and ingredients of these beverages is extremely limited (Annunziata et al., 2016b; Grunert et al., 2018). Consumers find it difficult to indicate the correct energy, carbohydrate or fat levels of wine, even when they claim to have previous knowledge about *nutritional values* (Annunziata et al., 2016a; Annunziata et al., 2016b; Bui et al., 2008; Grunert et al., 2018). Interestingly, those who generally have more problems with fully comprehending nutrition information on food labels want less detailed but easier to understand nutrition labelling for wine (Annunziata et al., 2016b).

Consumers also have little knowledge of the *ingredients* used in the production of wine (Grunert et al., 2018). Many consumers view it as a highly natural product, and often assume it only includes grapes (Battaglene, 2014; Grunert et al., 2018). When directly confronted with a list of the ingredients in wine, Australian consumers reacted adversely (Mueller et al., 2010a). In general, the inclusion of chemical terms on food labels can lead consumers to stop buying these foods, as they view them as being too risky (Yeung and Morris, 2001). At the same time, consumers over the past two decades have become used to seeing ingredient lists on food products in general (Cowburn and Stockley, 2005).

Certain factors have been identified as influencing consumers' stated motivation to search for ingredient and nutrition information on wine. Grunert et al. (2018) identify product knowledge and product involvement as the most important motivational factors; while they correlate positively with interest in receiving information about nutritional values, they surprisingly correlate

negatively with interest in receiving ingredient information about wine (Grunert et al., 2018). With regard to sociodemographic factors, women are generally more interested in receiving nutrition information about wine than men (Grunert et al., 2018). In addition, consumers suffering from allergies were found to have a special interest in receiving ingredient information, given the risk that they could be allergic to substances in the wine (Martin-Moreno et al., 2013).

Will receiving nutrition information affect the amount of alcohol consumed? Some consumers claimed they would consider reducing their alcohol consumption when confronted with nutrition information (Himmelsbach et al., 2014). However, Maynard et al. (2018) found that displaying the energy values of alcoholic beverages on the labels would instead lead to a reduction in food consumption prior to the consumption of alcohol, rather than reducing actual alcohol consumption. This is very much in opposition to the aim of introducing mandatory nutrition labelling for alcoholic beverages.

In the case of mandatory ingredient and nutrition labelling for wine, it is very likely that this information will be provided on the back label. Due to the different requirements and interests of consumers, legislators and producers, the battle for space on the label will be intense (Battaglene, 2014). Currently, the back label is mainly used to display legal and technical information about the wine, with some producers also using it to provide food-matching recommendations (Rocchi and Stefani, 2006). While many consumers claim to read general label information when choosing a bottle of wine, considerably fewer consumers state that they read the back label specifically (Annunziata et al., 2016b). Some producers already offer ingredient and nutrition information on their wines on a voluntary basis, often doing so using off-label systems where information about the wine is digitally available and accessible through a link or QR code. While many consumers claim to have an interest in this information, very few use the existing offerings (Grunert et al., 2018; Tafel, 2017).

Market research into the effect of a new labelling system suffers from hypothetical research bias. Existing consumer studies on the labelling of nutrition and ingredient information for wine are limited to measuring attitudes, stated behaviour or choices in artificial environments when this information is displayed prominently on the front label. Because of these methodological limitations, the external validity of the existing findings related to consumers' actual reactions when such labels are introduced in retail environments has to be questioned. There is a lack of indirect observational studies in more realistic settings analysing the degree to which consumers use back label information and their emotional and verbal reaction when confronted with ingredient and nutrition information on a bottle of wine. Therefore, this study aims to analyse consumers' reaction when confronted with ingredient and nutrition information to assess the implications this reaction will have for the wine industry. The aim is to answer the following five research questions:

- 1) What is the likelihood that consumers access back label information and detect new-to-them nutrition and ingredient

information in a scenario when wine is assessed and selected at home prior to consumption?

- 2) How do consumers react emotionally and verbally when they detect new-to-them nutrition and ingredient information?
- 3) What knowledge do consumers have about the nutritional values of wine? How do they rate the importance of providing nutrition information on wine labels?
- 4) How do consumers react to an ingredient list on wine, and how does this affect their perception of wine?
- 5) How does ingredient information affect the stated intention to purchase wine?

### 3. Research methodology

#### 3.1. Wine choice observation and focus group discussion

An indirect research approach combining a focus group and the observation of choices made from a selection of manipulated products was utilised to analyse consumers' reactions to mandatory ingredient and nutrition labelling on wine. Observational studies allow for a valid assessment of consumer reactions to different stimuli without creating artificial interest in and attention to less obvious attributes such as nutrition and ingredient labels. Consumer focus groups allow for discussions between the participants in order to gather insightful information on consumers' feelings and thought processes. To guarantee unbiased opinions, the participants were only introduced to the topic of the study during the focus groups. This meant it was possible to observe whether they discovered this new information, and whether and how they reacted to it.

In September 2017, three focus groups were run in different German cities, Köln, Mainz and Tübingen. The cities were chosen in order to represent both cities within (Mainz and Tübingen) and outside of (Köln) wine-growing regions. In addition, they represent cities of different sizes with (Köln > 1 million, Mainz > 100 thousand and Tübingen < 100 thousand inhabitants). Each event lasted approximately ninety minutes and included between six and eight participants recruited using convenience sampling that tapped into various non-wine-related private and professional networks. The group size of six to eight participants is recommended because it allows interaction and discussion in the group but still gives each participant enough time to state his opinions (Folch-Lyon and Trost, 1981). A private setting was chosen to provide an inviting atmosphere that would make participants feel more comfortable and that therefore would lead to them behaving in a way comparable to how they would at a wine-drinking event with friends or family. The participants knew they were to take part in a discussion regarding their general wine purchasing behaviour, but were not informed beforehand about the particular topic of wine labelling, thus avoiding bias in their use of information, choice reactions and stated opinions. To ensure that all relevant aspects were covered in the focus groups, a moderator with extensive knowledge of the topic led the discussions.

A brief introduction served to familiarise the participants with each other and the setting. As a warm-up task, and to measure consumers' unprompted views on the importance of wine labels, participants were asked to talk about their main decision factors when deciding which wine to buy. The participants were then asked to choose between three different wine bottles presented on the table in front of them. The choice scenario did not completely represent a retail setting, but rather an evaluation of wines before consumption when most consumers were found to have more time to study label information than during a busy shopping trip (Tafel, 2017). All three bottles contained Germany's most important grape variety, Riesling, from various wine regions. The front labels differed in order to simulate a real situation, while the back labels were controlled and manipulated. They all included legally mandatory elements such as the producer, alcohol content and volume, but they differed in the additional information provided (see versions 1, 2, and 3 in Fig. 1). The back label information was given in German, with the English translations shown here.

Version 1 represents a currently available wine label including the already legally required information on allergenic substances ("contains sulphites"), alcohol content, bottler, volume and tasting notes. Version 2 gives detailed nutrition information instead of the tasting notes. The so-called 'big seven' nutritional values according to the FIC regulations for other foods are presented. Version 3 includes both nutrition information and a list of ingredients. Versions 2 and 3 represent labels as they might appear when nutrition information and ingredient lists become mandatory for the wine industry. All back labels were developed specifically for this study and retrofitted to the bottles prior to the focus groups. Video observation was utilised to determine whether the participants turned the bottles around to look at the back labels.

After participants made their individual choices, their decision strategy and the results were discussed. If participants did not mention or did not become aware of the nutrition and ingredient information on the back label, they were asked directly about the importance of back label information.

As a next step, a 100 ml sample of German Riesling from the Rheingau area was poured into participants' glasses. After tasting the wines, they were asked to estimate the amount of calories in the sample and to write down their estimate for wine and other alcoholic beverages on individual response sheets. The results were then discussed in the groups; participants were asked whether they had previously looked up nutrition or caloric information for wine, and whether they would change their wine consumption behaviour if nutrition information became obligatory.

A fourth wine label with an extensive ingredient list (version 4 in Fig. 1) was shown to participants and their reaction observed. They were asked whether they knew and understood the ingredients listed, and whether they would buy wine with such a back label. It was also discussed whether wine was perceived as a natural product. Finally, the importance of the labelling of allergens and nutrition and ingredient information was discussed.



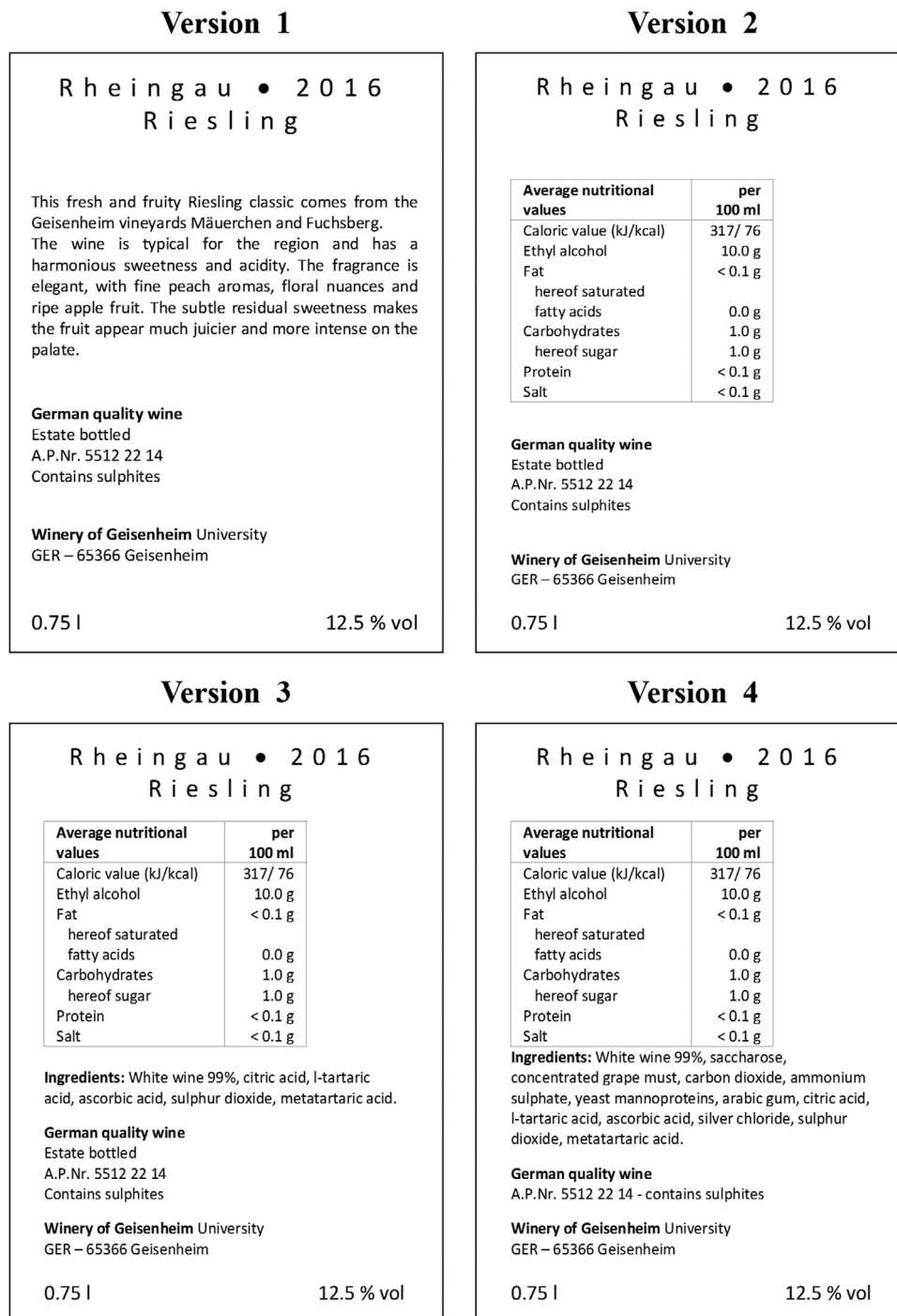


Fig. 1. The back labels presented to the participants.

### 3.2. Participants

In order to take part in the focus groups, participants had to drink wine at least twice a month but not be seen as wine experts. Wine experts were defined as those who work within the wine or beverage industry. The study aimed to recruit participants with a wide range of sociodemographic characteristics while not being representative of all wine drinkers in Germany (see Table 1).

Compared to the general wine consumer population (Szolnoki et al., 2018), our participants were younger and showed higher-than-average values for education, wine consumption frequency, purchase share at specialty retailers and cellar doors, and wine involvement (see Table 1). Wine involvement was elicited using a 5-point Likert scale ranging from “I have a very low interest in wine” to “I have a very high interest in wine”. Only those who reached at least three out of five points were invited to participate in the study. Infrequent

Table 1  
Sociodemographic and wine-related behavioural characteristics of participants.

Variable	Number of participants (n=21)	Share of participants in % (n=21)	German wine population in % (n=1181) <sup>a</sup>
<b>Gender</b>			
Female	10	48	55
Male	11	52	45
<b>Age</b>			
18–29	7	33	13
30–39	2	10	14
40–49	4	19	17
50–59	7	33	20
60+	1	5	37
<b>Region</b>			
Baden-Wuerttemberg	6	29	17
North Rhine-Westphalia	8	33	20
Rhineland-Palatinate	7	38	5
Other regions	0	0	58
<b>Education</b>			
Apprenticeship or lower	2	10	72
High school diploma	3	14	15
University degree	16	76	13
<b>Consumption frequency</b>			
More than once a week	10	46	11
Once a week	5	25	15
2–3 times a month	6	29	23
Once a month	0	0	16
Less frequent	0	0	36
<b>Share of purchase channels in % (vertical sum = 100%)</b>			
Specialist retailers	–	29	10
Supermarkets	–	25	36
Cellar door	–	18	12
Discount stores	–	14	38
Online	–	9	2
Others	–	5	3
<b>Wine involvement</b>			
Very high	5	24	11
High	9	43	25
Medium	7	33	34
Low	0	0	9
Very low	0	0	22

Note: <sup>a</sup>German wine population characteristics as based on a representative consumer survey (Szolnoki et al., 2018).

and low-involved consumers that mainly buy wine at discount stores or supermarkets were underrepresented in this study. The participants therefore generally represented a particular segment of the German wine consumer population. However, this segment plays a particularly important role for the wine industry, as these high-involved frequent wine consumers represent a large share of the volume and value of the German wine market (Szolnoki and Hoffmann, 2014).

Because product knowledge and product involvement influences consumers' interest in receiving nutrition information (Grunert et al., 2018), it can be expected that the findings of this study are not representative for all German wine consumers but rather reflect those consumers with a high interest in labelling information (Grunert et al., 2018). It is likely that reactions to any new mandatory labelling will be less severe for less frequent and low-involved wine consumers. Therefore, the reaction of this segment of higher-than-average-involved consumers is of particular interest for researchers and the industry as it represents the views of the most sensitive group.

### 3.3. Analysis

To gather the base material required to analyse the discussions, all focus groups were filmed and voice records subsequently transcribed. From the observations of choice behaviour and the later discussion, frequencies were recorded for participants that a) looked at the back label, b) took note of the new nutrition or ingredient information and c) were willing to buy a certain wine.

Transcripts were analysed using a summarising content analysis, including the inductive creation of categories (Mayring, 2015). Therefore, as a first step, the base material was reduced to its main components, which were then paraphrased and generalised. This was followed by the inductive creation of categories derived from the generalisation process, rather than them being pre-defined. Inductive category creation enabled us to gain a neutral reflection of the base material that was not biased by our hypotheses. The final step was the interpretation and analysis of the data.

## 4. Results and findings

### 4.1. RQ1 – Observed consumer scan of back label during wine choice

When consumers had to choose from the three bottles in front of them, video analysis revealed that 81% (17 of 21) of participants at least quickly scanned the back label information. This share is expected to be lower in a retail environment and for less-involved wine consumers. Only around one-third of those scanning the back label (6 of 17) later conveyed that they had detected nutrition or ingredient information (see Fig. 2). When not specifically brought to their attention, only 29% (6 of 21) detected new nutrition or ingredient labelling information. Again, this value is likely to be lower for less-involved consumers or in a retail setting.

### 4.2. RQ2 – Reaction to nutrition and ingredient information on back labels

Those who recognised the nutrition labelling and ingredient list initially displayed insecurity, confusion and incomprehension when reacting to this information: “Why is that on the bottle now? (...) With that wine, I now even think there's so much weird stuff in there, they have to declare it.” Others were insecure about

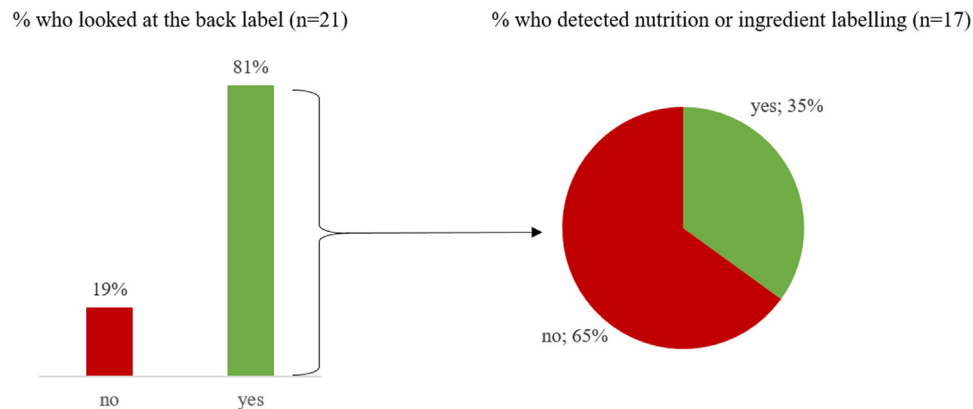


Fig. 2. Percentage of participants who looked at the back label and who detected nutrition or ingredient labelling.

the meaning and relevance of this information: “Well, I realised that there are ingredients and caloric information. I am not used to this for wine. At this stage, I am still uncertain myself whether I am alarmed or interested in this.” One participant had a vague feeling of dismay when judging the bottles, but did not understand the reason for it. “I must admit that nothing stood out to me when viewing the bottle. But I realised that I did not really like something, without knowing what specifically.” Obviously, this information was only processed unconsciously, meaning it did not reach the conscious attention of that participant. Another participant who consciously read the nutrition information judged it irrelevant. “(...) it takes up half the space, but it is not that important to me that this one has less than 0.1 g of proteins. I do not care about this for wine.” At this point, the participants had no knowledge of the research objective of this study, meaning their reactions were unbiased and therefore have high external validity.

When participants were asked directly if they usually look at back label information, most (13 out of 21) of them answered in the negative; back label information played no or only an unimportant role. “I do not know how often I look at the back label; rarely – very rarely.” Some (5 out of 21) participants used it depending on the purchase occasion: “For special occasions, I sometimes look at the back label to search for food pairing recommendations.” Few (3 out of 21) participants frequently read back label information when searching for food pairings or information about the winery: “I just like to read it out of interest; (...) I always find it quite nice when it says what [the wine] tastes like and what it fits to.” With the exception of the alcohol content, legally required information was not mentioned as a choice cue. A few participants stated their dislike of some of the legally required information that from their point of view did not add any value. Statements like “I’m not even reading [this information]” summarised participants’ reaction to the legally required information.

#### 4.3. RQ3 – Consumer knowledge about nutrition information and its perceived importance

The participants generally admitted to having little previous knowledge about nutrition information on wine, and all participants stated that they never looked at the energy values

of alcoholic beverages. Assessment of the calorie content of wine and other alcoholic beverages was extremely difficult for the participants. When asked to write down the energy values of white wine (100 ml), red wine (100 ml), beer (300 ml) and gin and tonic (200 ml), most (76%) of the answers were wrong. Most (16 out of 21) participants estimated that wine and alcoholic beverages in general have high energy values, and therefore overestimated these values: “I estimate 500 [calories] for a beer. I have no idea about the values, I just guessed that.” “If you do not have to count calories then you do not pay attention to this.” Many participants only had a vague feeling that alcohol was an energy-rich food component: “I only know that alcohol has many calories.”

When informed about the actual energy values of the different alcoholic beverages, many participants were surprised. “My expectation was different; I expected that wine had many more calories.” Some participants stated that learning of the lower-than-expected energy value of wine on the label might actually lead to greater consumption. Overall, all 21 participants agreed that labelling an energy value on wine would not result in less wine consumption, mainly because they consider wine to be a special treat rather than some sort of staple or basic food: “The [energy] value must be very high and my desire has to be very low. If I want to have a glass of wine, I do not care about the calories.” “It is like buying cheese. The [low-fat version] tastes different to the one with fat. Either you buy because you want to enjoy the taste (...) or you don’t buy at all.” This is in line with similar findings for vice food, where consumers view the taste as the most important attribute.

The focus groups also discussed the importance of providing information about nutritional values and allergenic substances on wine labels. Although many of the participants did not notice the mandatory declaration of allergenic substances on wine labels prior to taking part in the focus groups, all those who commented on this topic viewed it as sensible and important for those in need of this information. When asked directly, about half of the participants (10 of 21) did not support including nutrition information on wine labels. “This is not interesting to me; I do not know what I should do with it.” “I find it hard to interpret and assess nutritional values.” “I cannot see an added value in this information.” Few



participants (3 of 21) supported declaring nutritional values in order to respect legal consistency, given that this information is mandatory for other foods. *“Why should this information not be provided? All other food has to label it too. Then it is only fair when it is also stated for wine.”* *“It is not important to me personally, but I find it fair to provide it for those who want to know. Then they at least have the option [to know].”* Overall, participants agreed in concluding that energy value information is only relevant for consumers with weight or health problems.

#### 4.4. RQ4 – Consumer reaction to the ingredient list

When confronted with the rather short ingredient list on version 3 of the back label, the majority (16 out of 21) of participants gave rather negative statements (see also Table 3). *“This must mean that the harvest was not good enough.”* *“This indicates how much they used to adulterate the wine.”* *“Meta-wine-acid is mega daunting.”* However, some consumers reacted less negatively: *“...99% white wine, that is okay, that is safe.”* *“I am not daunted by this.”* Those participants either focused on the more positive aspects or referred to consumers' ability to adapt. Table 2 summarises the different types of participant reaction when confronted with an ingredient list for wine. Overall, the discussion showed that listing the ingredients confused the participants and led to uncertainty about the product.

The participants' confusion is hardly surprising when their knowledge of the ingredients in wine is taken into account. The discussion showed that two out of three consumers did not know or understand the indicated ingredients on back label version 3. Only six of the participants partly knew or understood some of the ingredients given on label 3, and none completely understood the ingredients. Most (16 out of 21)

consumers did not expect wine to have any ingredients other than wine, while common wine ingredients caused confusion among the participants: *“Can you really evaluate that? Are you a food chemist?”* Others implicitly stressed their expectation that the wine would consist solely of grapes: *“...white wine, citric acid, L-tartaric acid, ascorbic acid, sulphur dioxide, meta-tartaric acid. That rather confuses me; I can't do anything with this. What is it doing in my grape juice?”*

The majority (13 out of 21) of participants stated that they generally view wine as a very natural product and have high levels of trust in the wine industry. *“There are only two industries where I have unconditional trust. These are the beer brewers and winemakers, because I believe that they have known their products for ages (...) they do not suddenly start to adulterate.”* High-involved wine consumers view wine as a natural and cultural product and a special luxury food.

When presented with the extensive ingredient list on back label version 4, participants' view of wine as a natural product changed. Two-thirds of the participants now doubted that the product was natural (see Table 3). They questioned the purpose of each ingredient, and whether they were necessary for wine production. However, one-third of participants, despite the long ingredient list, still viewed the product as natural, mainly due to the 99% wine content.

How did participants assess the importance of ingredient lists? While most did not see any benefit in receiving the nutritional values of wine, many (8 of 21) supported mandatory labelling with an ingredient list for fairness and transparency reasons. *“Transparency has never hurt. [...] I find it important to be able to read whether any cheap wine might have been adulterated.”* *“To me, it is a consequent utilisation of law. I find it only fair if wine has to provide certain information like any other food too.”* Nevertheless, almost a quarter (5 of 21) of participants regarded this information as unnecessary and instead wanted other additional information to be displayed on the labels, such as information on the winery or tasting notes.

#### 4.5. RQ5 – Effect of ingredient information on stated purchase intent

The participants were asked whether they would buy wines with any of the four back labels (Fig. 1). Two-thirds said they would not exclude any of the wines due to the nutrition information or ingredients listed: *“I wouldn't rule one out right*

Table 2  
Participants' reactions when confronted with a detailed ingredient list for wine.

Positive	Negative
<ul style="list-style-type: none"> <li>Justified by the production process (2)</li> <li>High percentage of wine (99%) is positive (2)</li> <li>Ingredients do not sound daunting</li> <li>Consumers will get used to this information</li> </ul>	<ul style="list-style-type: none"> <li>No ingredients expected (6)</li> <li>Irritated; makes you insecure (4)</li> <li>Ingredients are incomprehensible; more information is needed (2)</li> <li>Ingredients are daunting</li> <li>Indication of added acid will deter acid-sensible people</li> <li>Implies that wine is adulterated</li> </ul>

Note: Numbers in brackets indicate number of unprompted mentions (n=21).

Table 3  
Participants' views on whether wine is a natural product after viewing an extensive ingredient list (back label version 4).

Positive (about 1/3)	Negative (about 2/3)
<ul style="list-style-type: none"> <li>99% is wine, which means there's actually only 1% left for all these remaining ingredients</li> <li>Chemical is not necessarily not natural. Artificial is not natural</li> <li>There's still 99% white wine here. This shows that the wine is not adulterated 50%</li> </ul>	<ul style="list-style-type: none"> <li>It doesn't look like [a natural product] anymore. Well, I find that a bit daunting. The longer the list, the more I think, just tell me what is in there. Does it have to be in there?</li> <li>Especially 'concentrated grape must'; that's when I think they adulterated the wine</li> <li>Concentrated is never a good word</li> <li>For me, this implies that the harvest was not good enough and that they did not manage to do anything good solely with the grapes</li> </ul>

now. That also depends on how it is offered to me; if this was a hot recommendation from a friend whose opinion I appreciate, then I would buy it.” “I feel positive if everything is indicated. That means to me that the producer does not have to hide anything.” However, one-third would prefer to buy the wine with the shorter ingredient list: “Regarding the ingredients (...) I would rather buy the wine that has fewer.” Overall, participants did not intend or want to decrease their wine consumption because of the new labelling law. “Just because there are now ingredients and nutritional values, I will not buy less wine.” Since many of the participants were initially deterred and irritated by the nutrition and ingredient labelling, the low level of rejection is surprising, and demonstrates a first level of adaptation to the new and unknown information. The discussion also made clear that other factors, such as recommendations or the occasion, are more important than ingredients when choosing wine.

## 5. Discussion and practical implications

When first confronted with ingredient and nutrition information, the wine consumers displayed insecurity, confusion and incomprehension. This was hardly surprising considering their limited knowledge about both the nutritional values and ingredients of wine (Cowburn and Stockley, 2005; Hieke and Taylor, 2012; Shim et al., 2011). The wine industry should increase consumer knowledge of actual wine production processes and avoid further exploitation of the often-used association that wine is still produced in small wooden vats by “stamping grapes with the feet”.

While several quantitative studies have stated that consumers are actually interested in receiving nutrition information about wine, the results from this qualitative study contradict this. The non-representative group discussions revealed that many consumers are not interested in receiving such nutrition information, as they do not believe it adds any value to the product and therefore view it as unnecessary. The consumers surveyed here would prefer access to more insightful information, such as information about the winery or tasting notes. However, because space on back labels is limited, it is likely that this information may have to be discarded. Some consumers supported nutrition labelling for reasons of fairness and legal consistency with general food labelling.

The results from the non-representative focus groups also contradict a study by Himmelsbach et al. (2014) in which consumers stated they would reduce their alcohol intake due to learning about nutrition information. All participants from this qualitative study agreed that they would not change their drinking behaviour due to there being nutrition information on the label. In agreement with other research on vice or luxury food, the consumers considered wine to be a special treat rather than a staple food, which is why they did not care about its energy value. In addition, this study shows, similar to Maynard et al. (2018), that at least for consumers who overestimate the energy value of wine, nutrition information (including the energy value) might actually lead to more wine

consumption. As mentioned, this is contradictory to consumer representatives’ aim for mandatory nutrition labelling for wine.

The main impact that ingredient listings will presumably have is that wine will become less likely to be viewed by consumers as a very natural product. Due to the widely held perception of wine as a single-ingredient product, many consumers will have difficulties understanding the reasoning behind listing additives on a wine label. Therefore, at least some consumers are likely to compare different ingredient lists to look for the wine with fewest ingredients and ensure their buying decisions are in line with their interests. As this sort of information actually adds value by ensuring the transparency of the production process, many consumers surveyed here supported ingredient listings for wine. Small wineries can use this consumer interest to differentiate their products by using no or few ingredients or to divert attention to other oenological practices with physical treatments (Pabst et al., 2019).

Overall, the non-representative qualitative study suggests that many consumers are unlikely to change their buying behaviour due to nutrition labelling and ingredient listings on wine. While consumers’ first reactions are likely to be insecurity and confusion, the study showed that they would get used to this information rather quickly. There might be a short-term dent in sales due to media attention, but demand will likely revert as it did for other products affected by food scares (Beardsworth, 1990; Böcker and Hanf, 2000). Overall, the back label plays a minor role in the buying decision, and other factors, such as bottle design, price, recommendations or the occasion, are more important to consumers. Even though some consumers are likely to prefer wines with shorter ingredient lists, the results suggest that many or even most consumers would not exclude any wines from their buying decision due to ingredient and nutrition labelling.

The study suggests that, without additional guidance, few consumers would independently detect nutritional values and ingredients on the back label. It has to be expected though that the media will highlight the change when a new labelling law is introduced for wine. There will almost certainly be some sort of media coverage on wine not being a natural product, which will attract consumers’ attention to ingredient information. The wine industry should therefore prepare by compiling information campaigns and educational advertising. Even if the European Commission should decide that ingredient labelling is not to become a legal requirement at this stage, the industry should prepare for the very likely case of nutrition and ingredient labelling becoming mandatory in the long term, as is the case for other food.

## 6. Limitations and future research

The participants in this qualitative observational research were not representative of general wine consumers. Furthermore, as a first observational and qualitative study, the findings are limited to German wine consumers with above-average wine consumption and wine involvement. Future research is required to study behaviour and reactions in other markets and of occasional consumers with less wine involvement and

knowledge. The study is also limited to observation and discussion in a social consumption setting. Observational research in a retail setting is recommended to provide insights into back label usage at the shelf. It is unknown how consumers will react to various media strategies to inform and prepare consumers for any new food labelling law. A discrete choice experiment with different information treatments prior to the choice task could assess the impact of different information strategies.

## 7. Conclusion

This study aimed to analyse consumers' reaction to nutrition information and ingredient listings for wine, and the implications this reaction will have for the wine industry. The qualitative approach allowed for a deeper understanding of consumers' reactions when confronted with this nutrition information and these ingredient lists. Overall, the small-scale study revealed that few consumers detected the new information provided on the back label. While they were initially shocked when confronted with nutrition information and ingredient lists, most consumers stated that they would not change their buying behaviour in the long term. Some participants' dislike of detailed ingredient lists suggests that the use of fewer ingredients could represent a niche of differentiation for some wine producers.

## Declarations of interest

None.

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