

Tasting Green – Do German Consumers Value Organic Wine?

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ABSTRACT

Due to the recent crisis in food production the so-called “green” consumer demands for healthier, safer, and better quality food – an indication that eco-friendly products have rapidly increased in popularity during the last decades. There is empirical evidence that the image of organic products has a strong effect on consumer perception because the so-called halo or blurring effect can modify the sensory perception of products in terms of a positive outcome for organic food. According to this background, the aim of the present study that applies a blind test as experimental design is twofold; first, to ascertain if the stimulus “organic food”, placed by storytelling, influences the perception of wine. Based on this, we try to discover wherein a positive perception of organic wine might be reflected (e.g, willingness to pay premium prices, better taste perception). This paper concludes with managerial implications and suggestions for further research in the fields of organic food production and wine marketing.

Keywords: *Wine Marketing, Organic Food Production, Blind Test, Experimental Design*

INTRODUCTION

Referable to the increasing attention of organic products by consumers in the last two decades (Bonti-Ankomah and Yiridoe, 2006; Cicia et al., 2002; Wier and Calverley, 2002), especially since the 1990s persists a multitude of studies concerning the determinants of organic food consumption (Aertsens et al., 2009; Gil et al., 2000). Particularly, two major trends in the agriculture industry may be causally for this development in consumers’ consumption behaviour: Primarily, an increase in food-related diseases such as mad-cow disease and bird flu and secondly, an increase in the use of genetically modified food (Hamzaoui Essouissi and Chryssohoidis, 2008; Siderera et al., 2005; Vindigni et al., 2002; Chen, 2007, 2009).

Against this background ‘organic production’ eliminates a number of concerns that consumers hold towards conventional production (Hamzaoui Essouissi and Chryssohoidis, 2008; Siderer et al., 2005). Consumers start integrating environmental considerations into daily purchases which leads to a higher demand by the so-called ‘green’ consumer for healthier, safer, and better quality food (Krystallis and Chryssohoidis, 2005). Focusing on attitudes

and behaviour towards organic food, existing studies have investigated the role of personal, health- and environmentally-friendly behaviour, risk or value perceptions in organic food behaviour, and demographic characteristics of organic food consumers (Chen, 2009; Magnusson et al., 2003; Lockie et al., 2002). As products inhibit extrinsic and intrinsic cues, consumer's quality perception relies on their product related knowledge (Veale, 2008).

In this context, there is empirical evidence that the image of organic products has a stronger effect on consumer perception than the intrinsic characteristics. The so-called halo or blurring effect can modify the sensory perception of products in terms of a positive halo effect for organic and origin labelled food products and a negative one for more conventional products. Consequently, many authors argue that most consumers are willing to pay premium prices for organic food products, especially for wine (Krystallis and Chryssohoidis, 2005; Forbes et al., 2009).

According to this background, the aim of the present study is twofold; first, to ascertain if the stimulus 'organic food', placed by storytelling, influences the perception of wine. Based on this, we try to discover wherein a positive perception of organic wine might be reflected (e.g, willingness to pay premium prices, better taste perception).

The paper is developed in the following way. Section two briefly reviews consumer perception on organic food and wine before introducing the research questions of the study. After providing an outline of the experimental design with detail on the applied blind test, the main empirical results are discussed. In section five, we conclude with managerial implications and starting points for further research in the fields of organic food production and wine marketing.

THEORETICAL BACKGROUND

Organic Food Production: Definition and Trends

The organic food market is a rapidly growing sector in developed agricultural economies around the world (Lockie et al., 2002; Chen, 2007). Thus the areas with the greatest land of organic agricultures are located in Australia/Oceania, Latin America, and the European Union (Siderer et al., 2005), whereby Europe with a 54 per cent share of global revenues currently holds a leading position in the organic food and beverage market (Stolz et al., 2010). Due to the regulation 2092/91 the meaning of organic production processes gained public

interest and in contrast to health food, organic or bio food underlies a much stricter and more clearly defined term.

“Organic food is a produce of organic farming, which is a type of farming that sets very strict limits on the amount of artificial synthetic inputs allowed. (...) These inputs include the ones used in production (fertilisers, pesticides, herbicides, antibiotics, etc.) and processing (food additives, including artificial flavourings, preservatives and colourings).” (First and Brozina, 2009, p. 186).

More confusion still exists as to what characterizes an organic wine and distinguishes it from wines produced with organic grapes (Fotopoulos et al., 2003). *“Wine made from organic grapes is wine made from grapes that have been grown without pesticides. Organic wine is also made with organic grapes but prohibits sulfite use in the wine-making process.”* (Delmas and Grant, 2010, p. 9). This differentiation is highly relevant because sulfites affect the wine quality by acting as a preservative what is of interest for organic oriented wine consumers as well as producers (Scampicchio et al., 2008).

Although there is no common legal definition of organic food production, it can be stated that the term organic refers to the production process and not to the product itself (Zakowska-Biemans, 2011). It becomes evident, that an organic label assures low or zero use of chemically synthesized inputs, constitutes a signal for the absence of pesticide and veterinary drug residues and indicates low nitrate content (Bougherara and Combris, 2009). Nevertheless, it does not automatically mean that the product is healthier or tastier than its conventionally produced counterpart – actually, the organic label is still only a guarantee of a specific process (Bougherara and Combris, 2009).

However, consumers often associate organic food with an environmentally friendly agricultural production as well as certain intrinsic quality and safety characteristics (Vindigni et al., 2002; Zakowska-Biemans, 2011; Brennan and Kuri, 2002). Looking for healthier food and being suspicious of conventional produced products, the new consumer orientation leads to a high demand for organic products so that even discounters offer organic products in large quantities and exceptionally low prices (Stolz et al., 2010).

In this context, forecasts of annual growth rates for organic sales across the EU within the next years underline the increasing importance as such growth rates range from 1.5 per cent in Denmark to 11 per cent in the United Kingdom. Also the US retail sales of organic products increased rapidly in the 1990s, averaging 20 per cent per year and are predicted to grow 9-16 percent in the near future (Dimitri and Oberholtzer, 2005). With regard to the wine industry it seems quite difficult to estimate such a trend; however, there are all around the

world more and more wineries which can be certified as organic (Remaud et al., 2008). Hence 90,696 vineyards worldwide were under organic management in 2004 whereby Italy and Austria, each with 3.4%, hold the highest share of total vineyards in a country (Geier, 2006).

Consumer Perception of Organic Food

Since the organic food market started its rapid growing trend over the past decade, a vast amount of research has emerged on topics towards organic food consumption. Focusing on consumer demand for organic products, existing studies have investigated the role of personal values (i.e. Chryssohoidis and Krystallis, 2005; Baker et al., 2004), attitudes and behaviour (i.e. Kim and Chung, 2011; Aertens et al., 2009; Tsakiridou et al., 2008; de Magistris and Garcia, 2008; Padel and Foster, 2005; Beharrell and MacFie, 1991) health- and environmentally-friendly behaviour (i.e. Chen, 2009; Magnusson et al., 2003), risk and benefit perceptions in organic food behaviour (i.e. Saba and Messina, 2003), and demographic characteristics of organic food consumers (i.e. Lockie et al., 2002; Thompson, 1998), cultural influences (i.e. First and Brozina, 2009) as well as price characteristics (i.e. Krystallis and Chryssohoidis, 2005; Soler et al., 2002; Brennan and Kuri, 2002; Gil et al., 2000).

Regarding the intention to buy organic food Hamzaoui Essoussi and Zahaf (2008) point out that consumers purchase organic food mainly for the following reasons: organic food is seen as healthier, more nutritious, fresher, and safer. As well, organic production implicates that no chemicals are used, and moreover, organic farming is kinder to the environment, and implies animal welfare. These motives for buying organic food are primarily related to quality aspects.

Concerning the taste of organic food Fillion and Arazi (2002) conducted a study which focused on the question if organic food tastes different and even better. Conventional and organic produced milk and orange juice were blind tasted, with the result that consumers adjudged organic orange juice a different and even better taste, whereas consumers were not able to make a difference with regard to milk. Nevertheless, even if the results of Fillion and Arazi (2002) showed that a better taste of organic food can't invariably be approved, interestingly various studies identified taste as one of the main reasons for choosing organic food (Stolz et al., 2010).

Even though the sensory perception plays a significant role in the acceptance of food Brennan and Kuri (2002) indicate that consumer's choice is strongly influenced by the perceived value for money. As mentioned in several studies many consumers denote that they have a preference for and an interest in organically produced products (Tsakiridou et al.,

2008) and therefore may be willing to pay premium prices for organic food. Gil et al. (2000) empirically confirmed this assumption and revealed no willingness to pay a premium for organic food products concerning unlikely consumers, whereas likely and actual organic food consumers were willing to pay a premium especially for meat, fruits, and vegetables.

Consumer Perception of Organic Wine

More closely related to wine consumption, the literature provides a plethora of articles that aim to assume information about customers' characteristics and needs by investigating product attributes which are comprised in choice processes (Casini et al., 2009). While typical marketing mix variables such as price or product quality are still of crucial interest, there has been little research on the impact of organic production although that aspect gains in importance for scientists as well as for practitioners (Balestrini and Gamble, 2006; Forbes et al., 2009).

With the attempt to offer more insights into the organic wine market, Fotopoulos et al. (2003) compared Greek buyers versus non-buyers of organic wine by using a qualitative sample and applying means-end chains analysis. Across all consumer groups healthiness, quality, information, attractiveness and good health are the main motivational benefits of wine purchases. Fotopoulos et al. (2003) also show that buyers and non-buyers of organic wines mainly differ in the evaluation of the said motivational benefits but not in the motives themselves. Most recently Barber et al. (2009) investigated in the US market to what extent environmental knowledge and attitudes influence the willingness to purchase organic wine. Among other aspects they found that consumers' positive evaluation of organic wine is mainly associated with their involvement in environmental issues. Moreover Barber et al. (2009) confirmed that Americans were willing to pay more for environmentally friendly wine though many consumers did not have the skills to value the more complex sensory quality.

In this context Forbes et al. (2009) showed by means of their in New Zealand conducted study that rate the quality of 'green wine' equal or better than conventionally produced wine. Furthermore Forbes et al (2009) discovered that consumers are willing to pay a higher price for organic produced wine whereby they confirmed previous findings. Thus Brugarolas Mollá-Bauzá et al. (2005) discovered four years earlier that consumers are willing to pay higher prices for organic wine (between 16.29% and 16.92%). To obtain more detailed results Brugarolas Mollá-Bauzá et al. (2005) carried out a survey on 400 wine consumers from Alicante (Spain) and used a contingent valuation to determine that especially health oriented respondents' price premium is between 20.9% and a 22.55%.

Based on the presented literature which focuses the organic food and beverage market in general and the wine market in particular, the focal research questions of this study are as follows:

- (1) *Does the stimulus 'organic food' influence the perception of a given wine?*
- (2) *Is the positive perception of organic wine reflected in the sensory evaluation?*
- (3) *Does the cue 'organic' lead to the willingness to pay a price premium?*
- (4) *Is there any association between positive attitudes towards organic foods in general and the perception and evaluation of the given wines?*

METHODOLOGY AND RESEARCH DESIGN

Experimental Design

For the purposes of our study focusing on the consumer perception and evaluation of conventional versus organic wine, we decided to use an experimental design with a blind taste test procedure. Our prediction was that subjects would rank a wine described as organic higher than a conventional wine – even if there is no objective difference. Consumer perceptions and attitudes toward the wines were assessed using a questionnaire including *wine preference*, *buying and recommendation intention*, and *willingness to pay*. Besides, *consumer wine knowledge* and *consumer personal environmental orientation* were measured as individual constructs.

Given that blind tasting is a typical methodological approach in the context of food and beverage marketing, our experimental design relies on existing studies in the field of wine marketing as presented in *Table 1*.

– *Table 1 about here* –

Particularly, our blind tests were designed to measure the extent to which the 'organic' status brings bias into the sensory perception and evaluation of the given wines. In accordance with well-established procedures in the field of blind experiments in wine marketing research like e.g. Masson et al. (2008), our experimental design comprises three stages as illustrated in *Figure 1*.

– *Figure 1 about here* –

In stage 1, we started with the blind test of the red wine presented as ‘conventional’. Based on the sensory information, the participants rated this wine. In stage 2, in a storytelling approach, we presented some cues referring to organic wines. Next, in stage 3, the participants tasted and evaluated in a blind test the second wine presented as ‘organic’.

Blind Test Procedure

The wine tested was a *Cimarosa Shiraz 2009* (South Eastern Australia). Samples were allocated in small odour-free glasses with appropriate and constant temperature. The experiment was carried out in Germany in April 2011. After fully disclosing the aim of the experiment – to evaluate the taste of conventional and organic wine – 66 subjects volunteered. Participants were male and female adults between the ages of 21 and 58 and are regular wine consumers but cannot be considered as wine experts. The wines were presented to the participants with bread and table water. The identity of the samples was as follows: Blind Testing A: red wine presented as conventional. Blind Testing B: red wine presented using a storytelling approach as organic. All participants were asked to evaluate the wines separately on our questionnaire.

RESULTS AND DISCUSSION

With reference to consumer perceptions and attitudes towards organic foods in general (cf. *Figure 2*), our results reveal that 74.3% of the participants in our study believed that organic food is healthier than conventional products. Besides, 71.2% thought that growing food organically is better for the environment, relating to the use of pesticides and chemicals in food, 59.1% state that they do not believe that the use of pesticides and chemicals in food are necessary. Even if 48.5% of the consumers are undecided if organic products have a better taste than non-organic products, another 40.9% clearly state that they can distinguish organic food by taste. Referring to the appearance of conventional versus organic products, the consumers in our study are undecided (42.4%).

– *Figure 2 about here* –

As illustrated in *Table 2* and *Figure 3*, the results of the respondents’ evaluation of the red wine presented as conventional differed significantly from the evaluation of the red wine presented as organic referring to a wide variety of factors. Even if they were given similar

wine samples, in all aspects, the participants rated the ‘organic wine’ significantly higher than the ‘conventional one’. The highest mean differences were shown in the context of taste, recommendation behaviour and the willingness to pay a higher price.

– *Table 2 about here* –

– *Figure 3 about here* –

In a paired comparison as presented in *Table 3* and *Figure 4*, there was no significant association between a positive attitude towards organic foods in general and the perception and evaluation of the given wines. Hence, even if they do differ in their general evaluation of organic food products, all respondents rated the ‘organic wine’ more favourably. Even if not significant, the highest difference in the comparison between the mean ratings was revealed in the willingness to pay: For the ‘organic wine’, respondents who have no general positive perception of organic foods were willing to pay on average more than 1 EUR per bottle than those participants who have a general positive perception of organic foods. Thus, the cue ‘organic’ seems to be highly associated with higher costs but also higher quality in the eyes of this customer group.

– *Table 3 about here* –

– *Figure 4 about here* –

In sum, in accordance with existing research insights, consumers tend to prefer organic products over conventional ones. In this context, our experiment shows that adding information on the product’s process during a blind test leads consumers to increase their ratings in favour of the ‘organic wine’. Interesting is, that consumers even give a better rating for ‘conventional wine’ just labelled as being ‘organic’ indicating that the appearance and taste are perceived to be better and the price intention is higher – thus, we have a pure label effect.

CONCLUSION

Existing research shows that the image of organic products has a strong effect on consumer attitudes and product perception: The so-called halo or blurring effect can modify the sensory perception of products in terms of a positive outcome for organic food. To test this phenomenon in a wine experiment setting, the aim of the present study was to apply a blind

test with these main research goals: first, to ascertain if the stimulus ‘organic food’, placed by storytelling, influences the perception of a wine. Second, we tried to discover wherein a positive perception of organic wine might be reflected (e.g, willingness to pay, better taste perception). Third, we assessed if there is a significant association between positive attitudes towards organic foods in general and the perception and evaluation of the given wines.

The key finding of our survey was that even if they tasted the identical product, our respondents ascribe a significantly better taste to the organic-labelled wine compared to the conventional alternative. Besides, the willingness to recommend the organic wine as well as the willingness to pay a higher price differed significantly from the evaluation of the red wine presented as ‘conventional’. With reference to a possible relation between a positive attitude towards organic foods in general and the perception and evaluation of the given wines, our results revealed no significant differences. Consequently, regardless of their knowledge and attitude towards organic products in general, all respondents rated the so-called organic wine higher in all given attributes. This strong effect might be moderated by the fact that in all European countries, Germans are currently the heaviest consumers of organic food. The rising awareness and interest in organic products has been stimulated by a growing interest in the environment, individual health and the rise in the number of food scandals. In accordance with existing research insights, our study gives evidence that especially when consumers’ objective knowledge in a certain product category like wine is low, extrinsic cues like the label indicating organic production are more influential.

The results of our study clearly need to be considered in the light of its research limitations. Apart from the size of the sample group of respondents, the dynamics of our three-stage experimental design may have created a bias explaining a more favourable score with regard to the wine presented as organic based on our storytelling approach. This may have created stronger expectations than the mere ‘conventional wine’ cue. Further research needs to be carried out in tests using a double-blind laboratory experimental design with a conventional and a ‘real’ organic brand as a reference wine and different groups of consumers (e.g., different countries and levels of wine expertise). However, the main focus of our study was on the assessment of the pure label effect, not the obvious difference in the products. Our insights highlight the overwhelming effect of the presentation of the wine as organic on all attributes of perceived quality, recommendation behaviour, and the willingness to pay a price premium. Consequently, the production of wine plays an important role in overall consumer perception. Hence, winegrowers and wine retailers should highlight this factor in their marketing strategies as the consumer demand for eco-friendly products has rapidly increased.

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TABLES AND FIGURES

Author	Type of Wine	Experimental Design	Sample	Main Results
Ballester, J. et al. (2005)	48 white wines (29 made from Chardonnay, 19 made from other grape varieties)	<u>Experiment A</u> Assessment of the “Chardonnay wine concept” (48 wines)	<u>Experiment A</u> 28 Chardonnay wine experts	<u>Experiment A</u> <ul style="list-style-type: none"> ▪ Globally, scores were higher for Chardonnay wines than for non-Chardonnay ones ▪ Consensus among experts demonstrate the existence of a shared Chardonnay wine sensory concept
		<u>Experiment B</u> Sorting task (18 wines)	<u>Experiment B</u> 20 consumers	<u>Experiment B</u> <ul style="list-style-type: none"> ▪ No clear separation of wines according to a Chardonnay wine concept was observed ▪ The Chardonnay wine concept seems to be an experts’ construct
Lecocq, S. et al. (2005)	4 wines, no declaration of colour	<ul style="list-style-type: none"> ▪ Participants were randomly assigned to three rooms. ▪ In each room four wines had to be evaluated, but the level of information the participants had access to, was different. 	32 consumers	Consumers’ willingness to pay for wine is more closely related to the information reported on the label of the bottle and in wine guides than to the taste of the wine.
Masson et al. (2008)	3 regular wines and 3 low alcohol wines (2 white wines, 2 red wines, 2 rosé wines)	The experiment comprised three stages: <ol style="list-style-type: none"> 1. Blind tasting 2. Semi-directed group discussion 3. Tasting with provided cues (standard/ low alcohol content) 	73 consumers	<ul style="list-style-type: none"> ▪ There exists no significant difference between low alcohol wine and regular wine when comparing hedonic scores at blind level. ▪ Expectations of low alcohol cues have a significant negative impact on overall evaluation ▪ Individual characteristics have almost no effect on wine evaluation ▪ Only economic status, group and frequency of consumption have a moderating role

Author	Type of Wine	Experimental Design	Sample	Main Results
Parr et al. (2003)	2 commercial table wines (One white and one red wine)	<p><u>Experiment 1</u> Colour-induced olfactory bias, investigated in wine experts</p> <p><u>Experiment 2</u> Colour-induced olfactory bias, investigated in social drinkers</p>	<p><u>Experiment 1</u> 29 wine experts (18 males and 11 females)</p> <p><u>Experiment 2</u> 23 social drinkers (10 males and 13 females)</p>	<ul style="list-style-type: none"> Experts are able to discriminate white wines that have been masked with colour to stimulate an aged white wine and a red wine Social drinkers demonstrate indiscriminate behaviour in some situations Wine experts differ cognitively from novices in their approach to evaluating wine aroma
Solomon, G. (1997)	10 moderately priced white wines	<p><u>Experiment 1</u> How can differences between expert, intermediate, and novice tasters' understandings of the wine world be manifested in their descriptions of wines</p> <p><u>Experiment 2</u> The tasters had to sort the wines such that the more similar wines were to be placed in the same groups</p>	<p><u>Experiment 1</u> 28 volunteer participants (11 novices, 9 intermediates and 8 experts)</p> <p><u>Experiment 2</u> 28 volunteer participants (11 novices, 9 intermediates and 8 experts)</p>	<p><u>Experiment 1</u></p> <ul style="list-style-type: none"> Experts described wines using more specific features than intermediates Intermediates used more specific features than novices <p><u>Experiment 2</u></p> <ul style="list-style-type: none"> Experts, unlike non-experts tended to sort the wines explicitly by grape type The acquisition of wine expertise entailed not only a greater differentiation of features but also a restructuring of the explicit schemes of classification
Wansink, B. (2006)	Various wines	Introduction of three wine promotions during a twelve-week field experiment at two Rockfish Seafood Grill restaurants	Restaurant visitors	<ul style="list-style-type: none"> Selected wine recommendations increased sales by 12 percent Food-wine pairing recommendations increased sales by 7.6 percent Wine tastings increased sales by 48 percent.

Figure 1: The three-stage experimental design

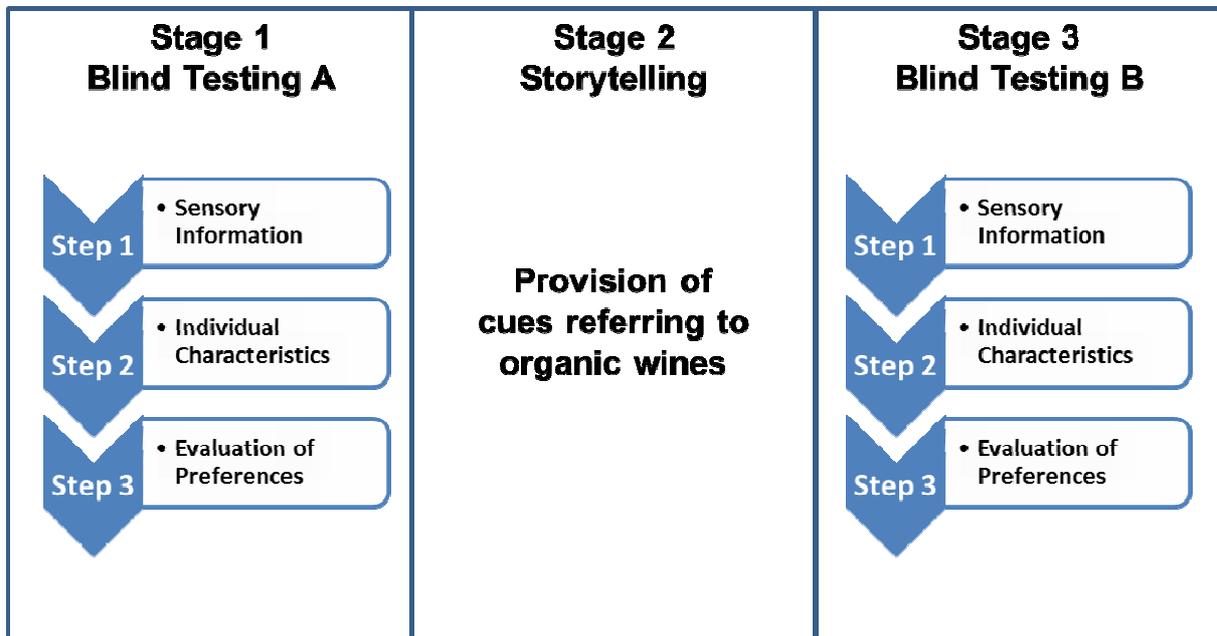


Figure 2: Consumer perceptions and attitudes towards organic foods

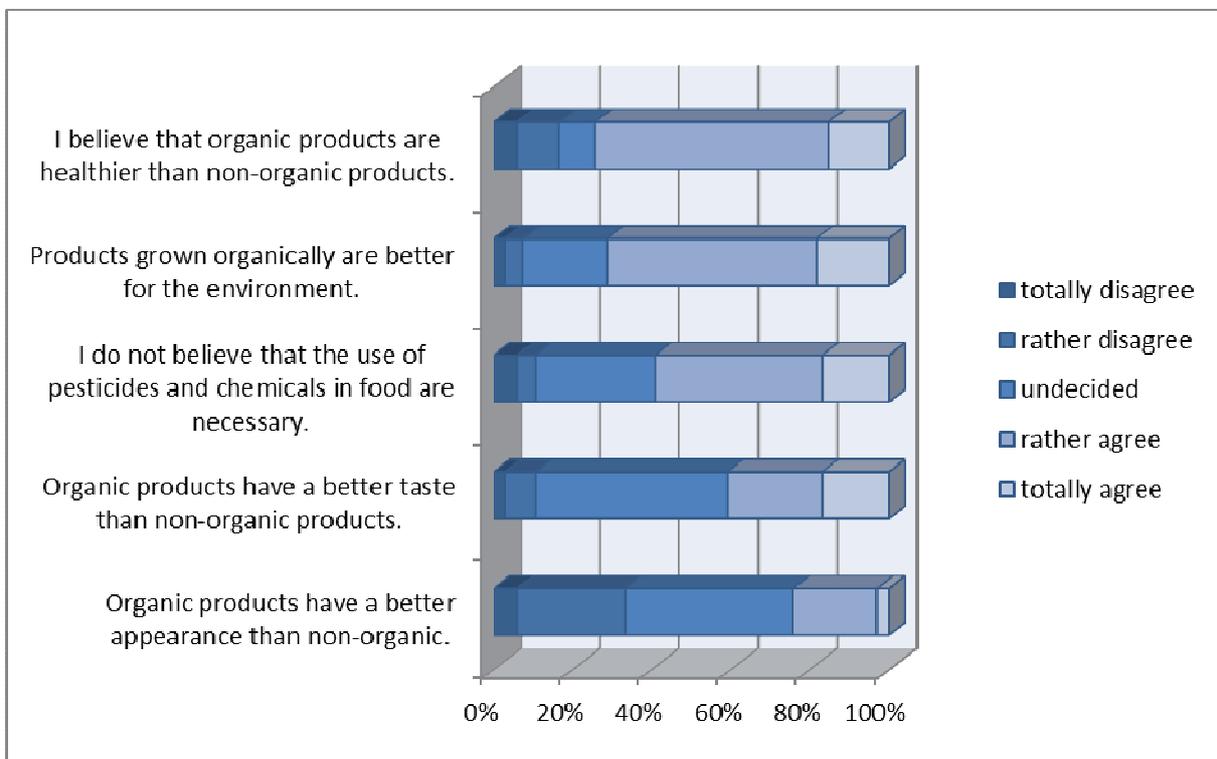


Table 2: Comparison of means and standard deviation

	Mean 'Conventional'	Std. Deviation	Mean 'Organic'	Std. Deviation	F	Sig.
How do you rate the taste of this wine (1=dislike very much; 10=like very much)?	3.61	2.47	5.12	2.64	11.30	.00
I really like this wine (1=totally disagree; 5=totally agree).	2.17	1.18	2.86	1.20	11.02	.00
The quality of this wine is very good (1=totally disagree; 5=totally agree).	2.48	1.00	3.25	1.05	18.33	.00
This wine is likable (1=totally disagree; 5=totally agree).	2.41	1.04	3.09	1.11	13.15	.00
I am really satisfied with this wine (1=totally disagree; 5=totally agree).	2.12	1.14	2.97	1.20	16.94	.00
How likely is it that you would recommend this wine to your friends and/or family members (1=very unlikely; 10=very likely)?	3.00	2.61	4.78	2.66	14.94	.00
I am willing to pay __ EUR for a bottle of this wine.	2.88	1.91	4.37	2.58	12.90	.00

Figure 3: Comparison of the evaluation of the conventional and the organic wine

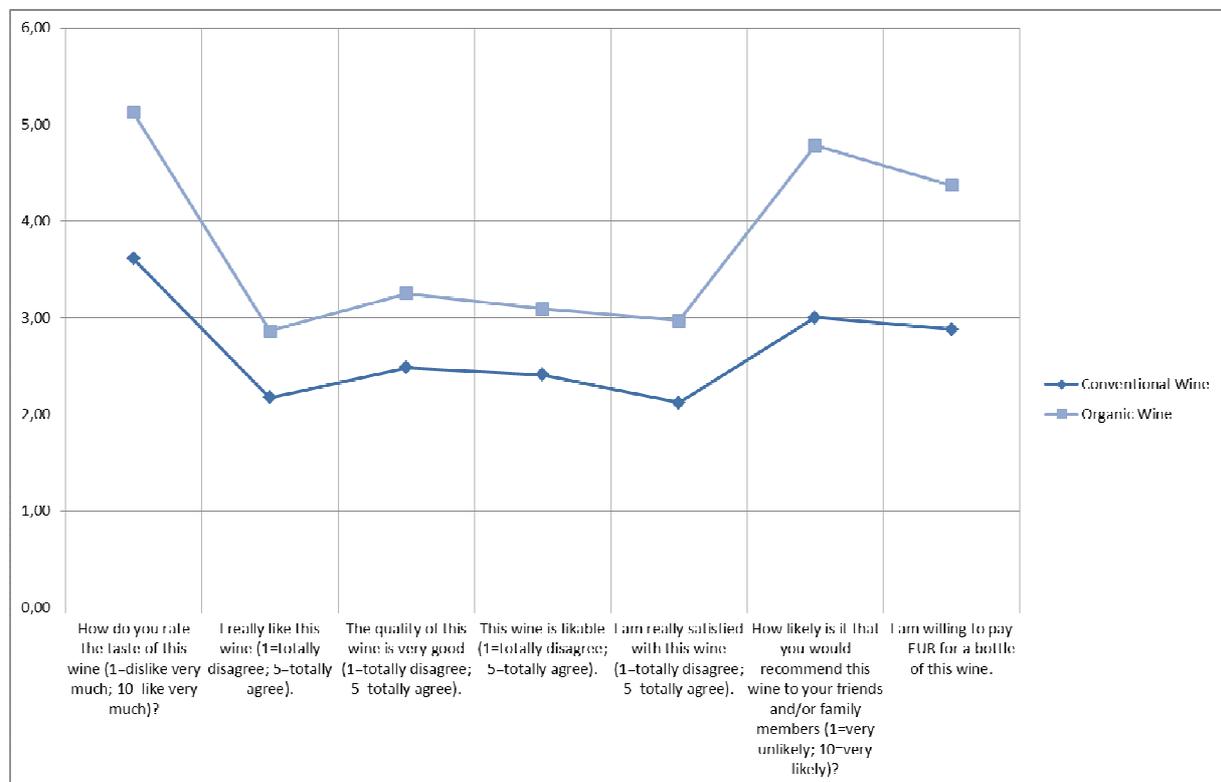


Table 3: Paired Comparison of means and standard deviation

	Conventional Wine						Organic Wine					
	No positive perception towards organic food		Positive perception towards organic food		ANOVA		No positive perception towards organic food		Positive perception towards organic food		ANOVA	
	Mean	Std. Deviation	Mean	Std. Deviation	F	Sig.	Mean	Std. Deviation	Mean	Std. Deviation	F	Sig.
How do you rate the taste of this wine (1=dislike very much; 10=like very much)?	3.70	2.70	3.54	2.32	0.07	0.80	5.22	2.47	5.05	2.79	0.06	0.80
I really like this wine (1=totally disagree; 5=totally agree).	2.26	1.23	2.11	1.16	0.27	0.61	2.96	1.19	2.79	1.21	0.33	0.57
The quality of this wine is very good (1=totally disagree; 5=totally agree).	2.63	1.04	2.37	0.97	1.08	0.30	3.37	1.04	3.16	1.05	0.65	0.42
This wine is likable (1=totally disagree; 5=totally agree).	2.69	1.09	2.21	0.96	3.48	0.07	3.15	0.93	3.05	1.23	0.13	0.72
I am really satisfied with this wine (1=totally disagree; 5=totally agree).	2.30	1.20	2.00	1.09	1.07	0.31	3.08	1.13	2.89	1.25	0.36	0.55
How likely is it that you would recommend this wine to your friends and/or family members (1=very unlikely; 10=very likely)?	3.26	2.89	2.82	2.42	0.45	0.50	5.00	2.47	4.63	2.80	0.30	0.59
I am willing to pay __ EUR for a bottle of this wine.	2.92	2.28	2.85	1.59	0.02	0.89	4.98	3.19	3.88	1.87	2.82	0.10

Figure 4: Paired Comparison of the evaluation of the conventional and the organic wine

