

Perceptions and behaviors of wine consumers towards organic wine: a case study in central Greece

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Abstract

This study investigates the perceptions and behaviors of wine consumers towards organic wine in Central Greece. A survey was conducted among 75 participants across various age groups and regions, encompassing diverse socio-demographic backgrounds such as gender, age, profession, and education. Surprisingly, no significant differences were observed in attitudes towards organic wine across these demographics, except for variations related to place of residence and income. The majority of participants perceived organic wine as a premium product, with urban residents exhibiting a heightened inclination toward its purchase. Despite

concerns regarding its high cost, participants expressed a willingness to continue purchasing organic wine owing to its perceived benefits. Based on the fact that there is a lack of relevant studies, this survey sheds light on the evolving consumer preferences and attitudes towards organic wine in the region, providing valuable insights for producers and marketers in the wine industry.

Introduction

In recent decades, there has been a growing consumer trend in favor of organic foods, such as fruits, vegetables, olive oil, meat, legumes, cereals, and more. This interest is driven by perceptions of increased safety, health benefits, and environmental friendliness compared to conventional options. Consumers are particularly drawn to the superior characteristics such as quality, flavor, freshness, and visual appeal associated with organic products.^{1,2}

European Regulation No. 834/2007, as amended by 848/2018 and consolidated on 21/02/2023, stipulates that certified organic foods adhere strictly to natural biological cycles, eschewing the use of synthetic fertilizers, pesticides, animal growth hormones, antibiotics, genetically modified organisms, and irradiation.^{3,4} Organic food production, as defined by these regulations, signifies a sustainable agricultural paradigm that respects environmental and animal welfare considerations across the entire food supply chain. By contrast, a different picture is presented in the case of organic wine. Consumers still show a preference for conventional wines,^{5,6} even though the wine industry tries to follow this new organic trend^{7,8} based on the European Union (EU) policies and regulations regarding organic wine production.⁴ Specifically, consumers believe that organic wines are less tasty⁹ and less valued¹⁰ with the same impact on health and the environment as the conventional ones. Consumer acceptance of organic wine remains limited, largely because of wine's status as a traditional product.⁸ In general, wine has been highly related to the place of origin,^{11,12} wine type,¹³ the price,^{11,14} awards,¹⁵ and the label design.¹⁵ According to a previous study, consumers who frequently purchase wine exhibit a greater inclination toward buying organic varieties.¹⁶ Despite consumer hesitation regarding organic wine, discernible progress exists in this sector, with 73% of global organic vineyards situated in Spain, Italy, and France, with expectations of continued growth in the forthcoming years.^{17,18} Although Greece is not a leading producer of organic wine, there has been a notable surge in cultivation, with an estimated 4,423.92 hectares of organic vineyards under management in 2018¹⁹ and 10.3% growth in 2020.²⁰ The aim of this research was to elucidate the perception and attitude of Greek consumers towards organic wines, without delineating preferences for either Greek or international varieties. This was achieved by using a comprehensive sample representative of the regions of Thessaly, Central Greece, motivated by the paucity of relevant research evaluating the stance of Greek consumers on organic wines.

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Materials and Methods

Consumer sample

We performed a quantitative online survey based on primary data from a standardized questionnaire in January 2020. A random sampling of seventy-five (75) participants living in Larissa, Karditsa, Trikala, and Magnesia (Thessaly area, Central Greece) completed the process.

Questionnaire

A standardized questionnaire comprising a total of twenty-nine (29) aspects/questions was administered, categorized into three sections: socio-demographic characteristics (*Supplementary Table 1*), knowledge levels regarding organic wines, and the behavior of organic wine consumers (Tables 1 and 2; Figures 1-3). The survey primarily featured closed-ended questions, multiple-choice questions, and filter questions. Before distribution, a pilot test was conducted involving ten individuals to identify potential weaknesses and shortcomings and assess the completion time required.

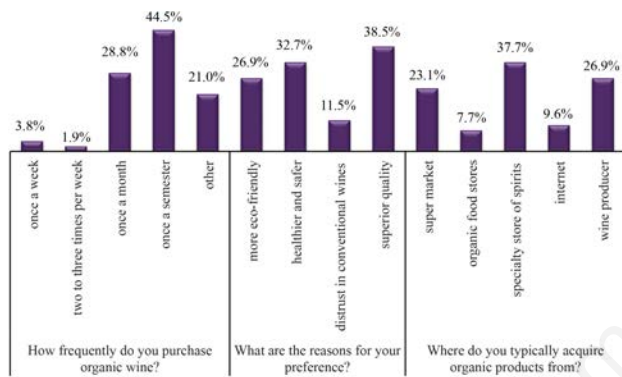


Figure 2. Organic wine consumers' patterns and preferences.

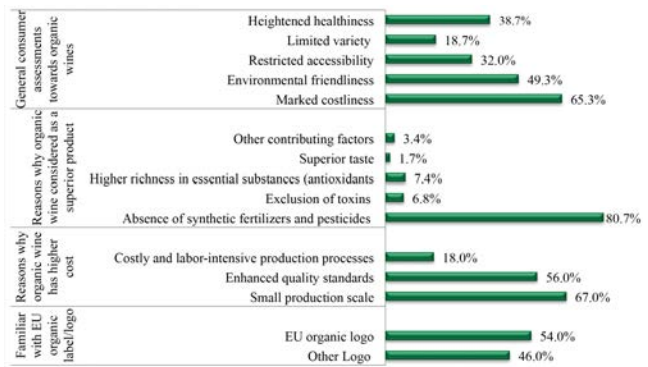


Figure 1. Perceptions of all participants regarding organic wines.

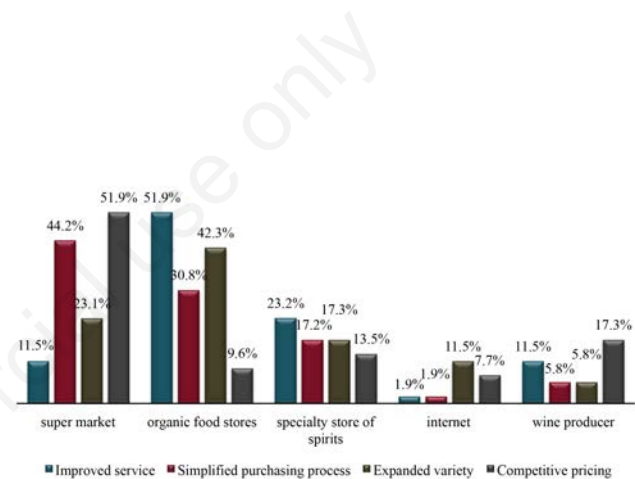


Figure 3. Factors influencing consumers' preferences with organic wine purchasing channels.

Table 1. Closed-ended questions related to organic wines and their distribution.

| | Yes (%) | No (%) | I do not know (%) |
|---|---------|--------|-------------------|
| - Do you consider organic wine to be a superior product compared to its conventional one? | 76.0 | 24.0 | 0.0 |
| - In your opinion, are organic wines generally more expensive than conventional wines?? | 89.3 | 10.7 | 0.0 |
| - Are you aware that organic wines have a special label? | 66.7 | 33.3 | 0.0 |
| - Do you believe that the regulatory controls governing organic wine production are satisfactory? | 18.7 | 28.0 | 53.3 |
| - Have you ever experienced the taste of organic wine? | 69.3 | 30.7 | 0.0 |

Table 2. Closed-ended questions concerning the behaviors of organic wines consumers, along with the corresponding percentage distributions of responses.

| | Yes (%) | No (%) |
|---|---------|--------|
| - Do you consistently/regularly incorporate organic wines into your consumption habits? | 23.0 | 77.0 |
| - Have you been consistently consuming organic wines for over a year now? | 63.0 | 37.0 |
| - Do you prefer to consume white organic wine? | 63.5 | 36.5 |
| - Do you prefer to consume rose organic wine? | 34.6 | 65.4 |
| - Do you prefer to consume red organic wine? | 57.7 | 42.3 |
| - Despite their high cost, do you intend to persist in purchasing organic wines? | 81.0 | 19.0 |

Statistical analysis

Data were analyzed using SPSS 20.0 (IBM SPSS Inc., Armonk, USA) with reference to descriptive statistics (frequencies and percentages) and univariate analysis (Chi-square test) to explore any statistically significant (p -value <0.05) associations between variables.

Results

Socio-demographic characteristics of the sample

An online survey was administered to a randomly selected cohort of 75 wine consumers, aged 18 to over 65, residing in the geographic regions of Trikala, Karditsa, Larissa, and Magnesia (Thessaly, Central Greece). Most participants were between the age stratum of 41 and 50 years; 56% were men and primarily living in Larissa (*Supplementary Table 1*). Regarding educational attainment and occupational pursuits, a significant proportion of respondents possessed a minimum university-level education and occupied positions within the private or public sectors. The participants demonstrated a monthly income mainly ranging from 800 to 2500 €, as delineated in *Supplementary Table 1*.

Participants' responses regarding their knowledge of organic wines

All participants were called upon to respond to a series of close-ended and multiple-choice questions regarding their knowledge and opinion on organic wines. Notably, when participants were queried about their general knowledge regarding organic wine, the majority predominantly characterized it as expensive, environmentally friendly, and healthful. Moreover, when they were asked whether they consider organic wine to be of higher quality than conventional wine, 76% responded affirmatively, citing various reasons, primarily because of the absence of synthetic fertilizers and pesticides. Furthermore, 89.3% perceived organic wine as more expensive, mainly due to its high quality and limited production. Remarkably, the majority of respondents had tasted at least one organic wine.

Concerning awareness of the obligatory EU organic logo, approximately two-thirds of the participants indicated familiarity with its existence, but only approximately half correctly identified it. Intriguingly, a minority (18.7%) expressed confidence in the adequacy of controls on organic wines, suggesting a certain level of skepticism or lack of trust in the regulatory measures governing this sector.

Organic wine consumers' responses

Even though 69.3% of the participants had experienced the taste of organic wine at least once, a mere 23.0% engaged in systematic consumption, with a majority of this subgroup preferring to incorporate it into their diet once every six months, as illustrated in *Table 2* and *Figures 2* and *3*. Most (63.0%) had been consistently consuming it for over one year, and they mainly preferred an organic white wine, followed by red and rosé varieties. Despite the perceived high cost, their sustained purchase of organic wine stems from the recognized benefits associated with organic wine, including superior quality, enhanced safety and health attributes, increased environmental friendliness, and reduced trust in conventional wines, respectively.

Participants' responses depending on their socio-demographic status

Further analysis was conducted based on participants' socio-demographic characteristics to draw conclusions regarding potential differences among consumers owing to these attributes. To give greater detail, certain observations within the sample are emphasized.

Gender

No statistically significant differences ($p>0.05$) were observed between genders regarding organic wine perceptions, except women exhibited higher awareness regarding health aspects and a preference for white organic wine. Men exhibited a stronger inclination towards red wines. In particular, both genders demonstrated a strong belief in the superior quality of organic wine, a perception likely shaped by the awareness that it is free from synthetic fertilizers and pesticides. Furthermore, a significant majority of women, (87.9%) and men (90.5%) highlighted organic wine's premium status, indicating a willingness to persist in purchasing it despite its high price. However, women mainly focused on its health attributes, men on its eco-friendliness.

Age

No statistically significant statistical differences ($p>0.05$) were noticed among the different age groups. However, focusing on the age group of 31-65 years old, which constituted the majority of study participants, the consumer profile was as follows: $>70\%$ perceived organic wines as qualitatively superior to conventional counterparts owing to the absence of synthetic fertilizers and pesticides. Additionally, respondents acknowledged the high premium pricing of organic wines, positing this phenomenon as a consequence of the limited production scale. Moreover, regular consumers in this age group expressed a commitment to continued organic wine purchases despite its perceived premium pricing. Ultimately, participants over 31 years old demonstrated greater awareness of the organic label's existence ($p=0.025$) than the younger ones and reported easier access, especially from specialty spirits stores ($p=0.001$).

Region

In this case, statistically significant differences ($p=0.028$) were noted between urban and rural residents concerning reasons for considering organic wine a superior product. Nevertheless, a predominant sentiment in both urban (75.4%) and rural (77.8%) settings characterized organic wine as a premium product. Hence, only 37.5% of rural residents expressed a willingness to continue purchasing organic wine, compared to 83% of urban dwellers. Urban inhabitants predominantly bought organic wines from supermarkets (41.5%) and specialty spirits stores (34.1%), whereas rural participants favored such purchases at 54.5% and 18.2%, respectively.

Area

Notably, in the reasons why organic wine is considered a higher-quality product and in the recognition of the organic logo, differences were noted ($p=0.086$ and $p=0.090$, respectively). Karditsa residents, at 71%, exhibited higher awareness and were more familiar with the EU label. In contrast, among Trikala residents, 75% selected an incorrect logo. Furthermore, the EU logo was recognized by 55% of the population in Larissa and 65% in Magnesia. Substantial variability existed in responses related to frequency of organic wine purchases, reasons for preference, preferred purchase locations, and favorite wine types ($p<0.05$). As an illustration, 47%

of residents in Larissa reported consuming organic wine monthly, while 50% of respondents in Trikala opted for organic wines owing to perceived safety and health benefits. Notably, all respondents in Karditsa expressed a preference for consuming organic white wine.

Monthly income

Monthly income did not significantly influence opinions and behaviors, except for a notable difference in the willingness to continue purchasing organic wines based on income levels ($p=0.080$). Participants with lower incomes expressed hesitancy, with 75% indicating they would not continue purchasing, whereas those with higher incomes (>3500 €), all expressed an intent to continue.

Profession and Education

Regarding the professional occupation and education, no statistical differences ($p>0.05$) were noticed among the responses.

Discussion

In response to the escalating demand for healthier, eco-friendly foodstuffs free from pesticides and toxins, the Greek agricultural sector has redirected its focus towards the production of organic products, including wines. The historical significance of wine production in Greece, coupled with the global surge in organic vineyard cultivation, underscores the imperative for the Greek wine industry to align with this paradigm shift to remain competitive in the organic market. Italy and Spain have historically dominated the international ranking in terms of organic vineyard area, whereas Greece occupies a relatively minor position on the global scale. Given the robust growth in organic wine consumption observed in countries like France, the United Kingdom, Germany, Switzerland, Canada, the Netherlands, Finland, the United States, and Brazil, there is an evident opportunity for Greece to enhance its organic wine production and tap into this expanding market.²¹

The regions under study - Larissa, Karditsa, Trikala, and Magnesia - are recognized as agricultural areas where residents exhibit a preference for local products. Indeed, local residents have a proclivity for producing their own wine and *tsipouro*, a local spirit. Therefore, despite the consistent global trend towards increased production and consumption of organic foods, the complexity of wine as a product introduces a multitude of factors influencing consumer choices, including region of origin,^{11,12} variety,^{13,22} brand name,²² price,^{11,14,23} packaging, label design,¹⁵ awards,¹⁵ and occasion-specific considerations. Such complexity brings challenges, with consumers expressing difficulty in making informed choices and potential apprehensions about purchasing organic wine,²⁴ as articulated also by participants in this study. Notably, in the investigation conducted by Hauck and Szolnki (2020), a female participant stated: "I hate purchasing a bottle of wine. You have to consider so many factors. I am always afraid of making the wrong choice".²⁴ Consequently, pivotal questions arise regarding the consumption habits of inhabitants in the studied regions concerning organic wines such as: "Are the residents accustomed to consuming organic wines?"; "To what degree do they express positivity towards purchasing organic wines?"; "What prevailing opinions and attitudes exist regarding organic wines among the populace?"; "Is the transition from conventional to organic cultivation considered worthwhile for farmers?". Such questions should be taken under consideration by winemakers and the local community.

According to our findings, despite approximately 70% of participants having tasted organic wine, only around 21% systemati-

cally continue to consume it. This discrepancy suggests that while participants may hold positive attitudes towards organic wine, this sentiment does not consistently translate into frequent/systematic purchase. This finding aligns with other studies related to organic food, where positive opinions did not consistently correlate with regular consumption.²⁴⁻²⁷ While curiosity may drive initial trials of organic wines, it is deemed insufficient motivation for sustained consumption.²⁷ The primary determinant of organic wine purchase is typically its price, which is often considered prohibitive. For instance, in the study by Janssen *et al.* (2020) it was revealed that a quarter of the participants who usually consumed organic food opted against purchasing organic wine unless their favorite wine was organic and at a comparable quality and price to the conventional one.²⁸ Similarly, Spanish respondents, expressed a willingness to pay a modest premium, contingent upon organic prices being 10-30% higher than conventional counterparts.²⁹

In contrast, Zander and Janssen's research (2012) showed that frequent wine drinkers were more likely to choose organic wine.¹⁶ Furthermore, when customers who acquired information about the benefits of organic products and organic certification logos, during wine tastings not only manifested a shift in their purchasing behavior but also demonstrated a pronounced intention to advocate for organic wine.^{30,31} After a wine tasting, a female participant emphatically declared: "Now, I will be sure to buy only organic wine".²⁴ In addition, consumers prioritizing health considerations exhibit a stronger inclination toward selecting organic wine, particularly white varieties without sulfites.³⁰ However, this factor warrants careful consideration by the wine industry, as wines without sulfites may pose risks. Sulfites are traditionally added during wine production to prevent oxidation and stabilize color and flavor. Wines lacking sulfites may be susceptible to lower quality, particularly red varieties, as they undergo longer storage periods prior to consumption. Consequently, a brand's credibility and prestige could be jeopardized.

In addition, people who demonstrate environmental awareness exhibited an increased willingness to pay a premium.³¹⁻³³ Nevertheless, there exists a segment of consumers who perceive wine as a natural product, and further as organic, attributing minimal significance to its environmental impact. Subsequently, factors such as the wine's region of origin, brand reputation, and awards hold greater sway in their decision-making process. Participants across multiple studies expressed queries and assertions, including: "Isn't wine a natural product in general?"; "I consider wine as already organic"; "I am growing old and I am healthy without consuming organic products. Why start now?" and "It is just marketing".²⁴ These perspectives may also apply in our case, for those who were negative towards organic wine, as residents of Thessaly are accustomed to producing their own wine and may perceive wine as a natural product, thus questioning the need for purchasing organic varieties.

According to findings from numerous surveys, the typical profile of the organic wine consumer is often described as female,^{11,31,33} with a higher income level,^{34,35} residing in urban areas,^{10,31} and possessing a higher level of education.²⁹ In contrast, a local wine drinker is typically male,³⁴ with lower to medium income and residing in a rural area.^{36,37}

In fact, according to our study, no significant differences were observed among the individuals in the sample regarding their opinions and purchasing behavior towards organic wine, neither in terms of gender, age, education, or profession. The only notable distinction was found among urban and rural residents, concerning their consumer habits, as well as the inclination of the more economically affluent individuals to continue purchasing organic wines. It is generally accepted that women display greater positiv-

ity towards paying a premium for other organic products such as vegetables, fruits, meat, and eggs than wine, particularly when they have children.^{6,26}

Studies have explored the impact of age on consumers' decisions to purchase organic products. The findings regarding age are inconclusive, with some studies suggesting that younger generations are more environmentally conscious and eco-friendly, albeit constrained by limited financial resources for purchasing organic wine.^{29,31} It is posited that as younger consumers gain greater financial independence in the future, they may be more inclined to pay extra for organic products. By contrast, surveys have indicated that older individuals, with their higher income levels, are more capable of spending on organic wines.^{33,38} Consistent with our findings, Mann *et al.* (2010)¹⁰ observed no significant correlation among different age groups.

Income also emerges as a significant factor influencing attitudes toward organic products, with a positive relationship established between higher income and a willingness to purchase organic foods, as supported by our study, Malissiova *et al.* (2022)²⁶, and Schaufele and Hann (2017).³⁸ While previous research suggested that consumers with higher educational levels tend to show a more positive attitude toward organic wines owing to heightened ecological concerns,³⁹ this correlation was not observed here.

Conclusions

The study surveyed 75 wine consumers across different age groups and regions in Central Greece to analyze their perceptions and behaviors toward organic wine. Despite socio-demographic diversity, including gender, age, profession, and education, no significant differences were found in attitudes towards organic wine, except for variations regarding place of residence and income. Notably, most perceived organic wine as a premium product, with urban dwellers showing a stronger inclination towards its purchase. While participants expressed concerns about its high cost, they stated a willingness to continue to purchase owing to its benefits. A general assumption exists that consumers' trust in organic wine production, knowledge acquisition, openness to new technologies, and participation in wine tastings could potentially act as factors that positively influence consumers' preference for organic wines.

As the current survey, conducted within a specific timeframe and geographical context in Greece, without delineating the preferences of Greek organic wines over those originating from other countries, this may present a potential limitation. Nevertheless, due to the scarcity of published data regarding Greek consumers' perceptions of organic wines, the gathered data remains valuable for drawing conclusions and identifying trends. However, achieving a thorough comprehension of consumer attitudes toward organic wines necessitates regular and ongoing studies. Therefore, future research endeavors could explore consumer preferences between Greek organic wine and counterparts from diverse regions like the Mediterranean, driven by various consumer motivations, with the aim of incentivizing growth within the Greek wine industry.

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Online supplementary material:

Supplementary Table 1. Socio-demographic characteristics of participants (N=75).