THE ATTITUDE OF LITHUANIAN WINE CONSUMERS TOWARDS SUSTAINABLY PRODUCED WINE

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ABSTRACT
In order to ensure long-term stability and viability, it is advisable for every economic sector to embrace sustainable practices, and the wine industry is no exception. Sustainable vine and wine management encompasses a range of crucial elements aimed at enhancing vine and wine quality, promoting consumer health, and safeguarding the environment in the long run. The success of a sustainable wine industry generally depends on several factors: governmental policies and financial support, the willingness of wine producers to adapt their operations towards sustainability, and the support of modern wine enthusiasts who are willing to pay a premium for sustainable products. We conducted research to determine the attitudes of modern Lithuanian wine consumers towards sustainably produced wine. The findings revealed an increasing interest among Lithuanian wine enthusiasts in sustainable vineyard management, wine production and distribution. However, despite this growing awareness, the key factors influencing Lithuanian wine consumers' wine choices tend to be more traditional, and unrelated to sustainable wine making principles. These include the country of origin, grape variety, and recommendations from friends or (and) wine experts.
KEY WORDS: *sustainable wine industry, sustainable vitiviniculture, modern consumer, Lithuanian wine connoisseur*.

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Introduction

Wine is a natural product, derived from the fermentation of fresh grapes or grape must. It undergoes constant changes in structure, taste and flavour throughout its production and ageing in a bottle. As one of the oldest products in the world (Valenzuela et al., 2022), wine remains as an integral component of the European culinary tradition, particularly in the Mediterranean region. As detailed by Bortoluzzi et al. (2015), over the 8,000 years of its history (Guseva, 2021), the wine industry has experienced a renaissance in the last three decades, turning from the 'wine as (just) food' to the 'wine as a discovery' concept, i.e. as a source of emotion, pleasure and learning.

Sustainability has become a prevalent concept across various economic sectors, including the wine industry. Over the last two decades there has been a notable shift towards sustainable practices within the sector (de Steur et al., 2013; Pinilla, 2014; Mariani, Vastola, 2015; Luzzani et al., 2021), driven by growing consumer interest in the environmentally and socially responsible methods wine producers were adopting to

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vineyard management, wine production and distribution processes (Pomarici, 2016). The collective efforts of the contemporary wine industry towards environmentally friendly wine-making reflect a commitment to building a sustainable future, while also contributing positively to local communities, particularly in regions with limited economic opportunities (CEEV, 2022). Such initiatives serve as exemplary models for other industries to follow (Guseva, 2021).

In recent years, there has been a noticeable increase in vineyards embracing sustainable practices, especially organic and biodynamic methods. Despite studies showing no significant quality differences between sustainable and conventional wines (Baiano, 2021), consumers generally show a willingness to pay more for sustainably produced wines. This has led to an increase in the production of sustainable wines across both established and emerging wine-producing regions.

Various research (for instance, Brugarolas Molla-Bauza et al., 2005; Vermeir, Verbeke, 2006; Forbes, 2009; Mann et al., 2012; Santini et al., 2013; Teng, Wang, 2015; Gustafson, 2015; Sogari et al., 2015; Wongprawmas et al., 2016; Capitello, Sirieix, 2019; Li, Jaharuddin, 2020; Curtis et al., 2021; Alonso Ugaglia et al., 2021; Moscovici et al., 2022; Valenzuela et al., 2022; etc) endeavours have aimed to characterise consumers who prefer wine produced under organic or (and) sustainable principles, with studies conducted across various countries and continents. However, there has not been similar research conducted in Lithuania. Therefore, the focus of this scientific article is to assess the perspectives of Lithuanian wine enthusiasts towards wine produced according to sustainable principles, acknowledging that this category encompasses organic, biodynamic, natural, sustainable and fair-trade wine (Capitello, Sirieix, 2019; Baiano, 2021) production.

This scientific paper combines *theoretical* and *quantitative research methods* to explore sustainable vitiviniculture and consumer preferences. The theoretical method focuses on secondary data collection, systematisation, analysis, comparison and generalisation to examine the differences between conventional and sustainable vine and wine management algorithms, and identify the profile of modern consumers who prefer sustainable wine. Complementing this, a quantitative method employs a standardised online questionnaire to investigate the attitudes of Lithuanian wine consumers towards wines produced under sustainable principles.

1. Literature overview: sustainability in the modern wine industry

1.1. The principles of sustainable wine-making

The term ‘sustainability’ is frequently used nowadays, and a variety of definitions are available (Purvis et al., 2019; Ascione et al., 2020; Baiano, 2021). The ‘sustainability’ concept is probably integrated into every modern economic industry, and the wine industry is no exception. The word ‘sustainable’ comes from the Latin word ‘sustinere’, meaning ‘long-term stability and existence’ (Rigby, Cacere, 1997).

The earliest signs of sustainable agriculture, according to Francis and Youngberg (1990), date back to the 1920s. Over the last three decades, there has been a significant surge in interest in sustainable agricultural practices, in academia, politics and the farms themselves (Ohmart, 2008). Discussions persist regarding the definition of ‘sustainable agriculture’. Reflecting on the philosophy of sustainable agriculture, Francis and Youngberg (1990) underscore the significance of long-term, resource-conserving, integrated and equitable farming principles in land maintenance, product production and distribution (Forbes et al., 2009). Ikerd (1990) emphasises the importance of the rational and efficient utilisation of non-renewable resources, while the researchers Pretty, Thompson and Hinchcliffe (1996) highlight the significance of renewable ones.

However, according to Baiano (2021), concepts of ‘sustainability’ become less clear when applied to *viticulture* and *viniculture*. The lack of an initially shared definition for sustainable viticulture and wine-making, coupled with the absence of a unified vision of methods to attain sustainability, leads to confusion among both wine companies and consumers.

According to Gilinsky et al. (2016), the primary focus for professionals in the wine sector is to ensure that the land is passed on to the next generation in an improved condition compared to the present state. The researchers Valenzuela et al. (2022) largely share this opinion, asserting that from the perspective of the

vitiviniculture industry, sustainability can be defined as wine production that seeks to conserve or improve natural resources (such as air, water and soil) for future generations. According to Sogari et al. (2015), the philosophy of sustainable vine and wine management encompasses a broader concept. It not only considers *environmental aspects* but also includes *social and economic dimensions*.

The International Organisation of Vine and Wine (OIV, 2008) defined *sustainable vitiviniculture as a global strategy applied to grape production and processing systems. This strategy simultaneously incorporates economic sustainability, the production of high-quality products, and precision in sustainable viticulture. It also considers environmental risks, product safety, consumer health and the preservation of the heritage, including historical, cultural, ecological and landscape aspects*. This comprehensive approach can include: (i) responsible management of soil, water, waste and energy sources through rational use, consumption, regeneration or recycling (Gilinsky et al., 2016; Valenzuela et al., 2022); (ii) minimising natural resource use and eliminating artificial additives in vine cultivation and wine production; (iii) utilising electric vehicles or low-CO_2 emission transport; *(iv)* adopting innovations such as 'carbon capture' technology to become a carbon-negative industry (Guseva, 2021) or designing wine bottles/labels from lighter glass/recycled materials; (v) fostering conscientious relationships with employees, the community and customers (Dodds et al., 2013); (vi) implementing rational sales and marketing strategies (Casini et al., 2010), among other practices, thereby contributing to a sustainable future.

1.2. The impact of sustainable initiatives on modern consumers' purchasing decisions

Wine production embodies both artistry and scientific precision (Bisson et al., 2002). However, achieving success as a wine producer entails the flexibility to cater to the evolving preferences of contemporary consumers (Curtis et al., 2021), while maintaining production quality. Today's consumers are characterised as individualistic, discerning and well-informed about global environmental issues (Bisson et al., 2002). They are increasingly concerned about the health impact of food and beverage choices (Brugarolas Molla-Bauza et al., 2005; Vermeir, Verbeke, 2006; Forbes et al., 2009; Valenzuela et al., 2022), and are willing to pay a premium for products and services that prioritise health, environmental sustainability and corporate social responsibility (Curtis et al., 2021). The rising demand for eco-friendly and socially responsible companies is driving a transformation in the strategies and values of modern businesses (Rigby, Cacere, 1997; D'Souza et al., 2006).

As is outlined by Mariani and Vastola (2015), the process of purchasing wine involves a variety of factors that consumers consider when making their decisions. Typically, consumers rely on either *intrinsic factors* (such as wine type, colour, flavour and taste) or *extrinsic factors* (including brand, price, labelling information, package design, and other features) when evaluating wine (Lockshin, Corsi, 2012). Attributes associated with sustainable wine-making or environmental preservation, however, are elements of trust that are not easily discernible during the wine purchasing process (Mariani, Vastola, 2015), and thus they have had a limited impact so far.

Zucca et al. (2009) observed that *many consumers lack a clear understanding of sustainability and sustainable practices.* According to Baiano (2021), various theoretical approaches have been utilised to comprehend 'green' purchasing behaviour, but only psychological criteria demonstrated strong correlations with such behaviour and proved being highly effective in profiling environmentally conscious individuals.

The researcher Remaud et al. (2008) examined *the significance of the organic attribute* among Australian wine consumers in relation to three other attributes: *price, region of origin, and another eco-friendly claim*. The study focused on Shiraz variety wines. The findings revealed that *price held the highest importance (65%), followed by region (17%), environmentally responsible claims (14%)*, and the organic attribute (3%). Consequently, organic wines were less esteemed (9%) compared to wines with environmental claims (30%). Moreover, only a minority of Australian wine consumers (14%) placed a value on organic wines. Consumers in this category were willing to pay a premium of $4.99 (i.e. 22% higher than for a conventional wine) for organic wine, specifically for special occasions. On the other hand, the average Australian wine consumer would only pay a premium of $0.25 (i.e. a 1% increase) for an organic wine.

Tait et al. (2019) conducted a study similar to Remaud and his colleagues (2008), utilising a discrete choice experiment with California Sauvignon Blanc consumers to evaluate *the significance of various sustainability attributes (i.e. symbols, logos, labels*, *etc*) in wine selection compared to the influence on choice of other widely recognised factors, such as *country of origin, price, and quality* (rated on a scale of 100). Their findings revealed that a *score of 95/100 ranked first in the willingness-to-pay hierarchy*, followed by attributes like 'Made in USA' (second position) and 'Made in New Zealand' (third position). *The attributes '100% organic' and 'Made with organic grapes' occupied the fourth and fifth positions respectively*. Following these were attributes like 'Made in France', 'Pest and Disease Management', 'Water Management', 'Made in Chile', 'By-product Management', 'Social Responsibility', 'Made in South Africa', 'Greenhouse Gas Management', 'Energy Management', and 'Biodiversity Management', in successive order.

Numerous studies have sought to characterise consumers who prefer sustainably produced wines (i.e. organic, biodynamic, natural, sustainable) through research conducted across various countries and continents. These consumers exhibit diverse traits, typically possessing *higher levels of education* (Forbes et al., 2009; Mann et al., 2012, Li, Jaharuddin, 2020) and *specific knowledge about vitiviniculture, wine culture* (Gustafson, 2015; Moscovici et al., 2022). They tend to be *younger individuals* (Vermeir, Verbeke, 2006; Sogari et al., 2015; Moscovici et al., 2022) who are supportive of organic and/or sustainable vineyards and are *willing to pay a premium* for environmentally friendly wine production (Brugarolas Molla-Bauza et al., 2005; Forbes et al., 2009; Mann et al., 2012; Santini et al., 2013; Teng, Wang, 2015; Wongprawmas et al., 2016; Curtis et al., 2021; Alonso Ugaglia et al., 2021; Moscovici et al., 2022; Valenzuela et al., 2022). Furthermore, they place an *importance on eco-labelling, seals and certifications* displayed on wine bottles or packages when making their purchasing decisions (Brugarolas Molla-Bauza et al., 2005; Forbes et al., 2009; Sogari et al., 2015; Moscovici et al., 2022; Valenzuela et al., 2022).

1.3. The development of wine culture in Lithuania

Wine production in Lithuania has a rich history dating back to the 12th century when it primarily involved the fermentation of wild apples. Historical records, notably an atlas published in Amsterdam in 1640, indicate that the Lithuanians also made wine from honey and cherries during that period (Jasinskas, Zagorskis, 1984). During the era of the Grand Duchy of Lithuania, grape wine and berry wine were already known. Historical records indicate that grape wine was used in religious ceremonies in churches and monasteries. According to Pilvelis (2014), by the 18th century, Lithuania had 23 monasteries, with a total of 339 vineyards. Many of these monasteries cultivated their own vines and produced wine, highlighting the early development of viticulture in the region.

In recent years, Lithuania has gained recognition in Europe for its production and export of high-quality beer. However, the development and expansion of a '*traditional*' *grape wine culture* in the country commenced after it joined the European Union in May 2004. This period saw the emergence of various thematic associations and organisations dedicated to promoting grape wine culture and knowledge within Lithuania:

- Wine Journal [in Lithuanian *Vyno žurnalas*]. Established in 2005. This thematic magazine caters to wine connoisseurs and professionals.
- The Lithuanian Sommelier Association [Lietuvos Someljė asociacija]. Established in 2005 to promote sommelier expertise.
- The Lithuanian Somelier Private School [Lietuvos Someljė privati mokykla]. A leading private non-formal educational facility. Established in 2006 through collaboration between the Lithuanian Sommelier Association and the Wine Club.
- The Lithuanian National Association of Wine-Makers [Lietuvos nacionalinė vyndarių asociacija]. Founded in 2006, and uniting Lithuanian small-scale wine producers and winemakers-enthusiasts (51 members in 2024).

- The Association of Lithuanian Wine Growers [Lietuvos vynuogininkų asociacija]. Established in 2009. The association aims to promote the traditional Lithuanian cultural heritage and ethnic traditions while revitalising ancient viticultural practices.
- Wine Days [Vyno paroda 'Vyno dienos']. An annual exhibition of wine producers and sellers from Lithuania and other countries, organised since 2005.

The wine market in Lithuania aligns with global trends, driven by curious and increasingly engaged consumers. Wine courses and tastings are gaining popularity, and the consumption of inexpensive wines is on the decline. Organic, biodynamic and natural wines are experiencing a rise in popularity, and an increasing number of smaller specialised wine importers are contributing to the local wine market's diversity.

As Lithuanian wine enthusiasts journey to various places and participate in wine tastings, they are expanding their knowledge of grape wine. However, their *understanding and stance regarding sustainable wine remain largely unexplored from a scientific perspective.*

2. Methodology

To gauge the perspective of contemporary Lithuanian wine consumers on wines produced using sustainable practices (including *organic, biodynamic, natural*, *sustainable*, and *fair trade* wines (as defined by Capitello, Sirieix, 2019; Baiano, 2021), an online survey was conducted from 27 October 2022 to 28 November 2022. A total of 117 participants took part voluntarily in the survey, having been informed about compliance with the General Data Protection Regulation (GDPR). The online questionnaire was translated into Lithuanian and administered using Google Forms. The standardised online questionnaire was anonymous, and contained 13 multiple-choice and single-choice detailed closed questions. All the questions in the online questionnaire were marked as required (*) and needed to be answered for submission via Google Forms.

Within the framework of our survey, we conducted interviews with wine consumers in Lithuania who were at least 20 years old and legally permitted to purchase wine and other alcoholic beverages in accordance with Lithuanian law (Seimas of the Republic of Lithuania, 1995; updated version from 1 January 2018). The structured online questionnaire was distributed directly to *associations* and *organisations* that promote wine culture and knowledge in Lithuania, including *the Lithuanian National Association of Wine-makers, the Lithuanian Sommelier Association, the Lithuanian Sommelier private school, 'Wine Journal',* and '*Wine Days'*. Additionally, it was sent to representatives of *specialised wine shops* in Lithuania, such as *Vyno Uoga, Vyno Klubas, Vynoteka, Vyno Kambarys, Vyno Guru, Vyno Meka, Burbulio Vyninė, Bottlery, Zenoteca, Wine & Smile,* and *Vynas ir Konjakas.* We requested them to complete the questionnaire or assist in distributing the Google Forms link among Lithuanian wine enthusiasts. Furthermore, the same Google Forms link was distributed via *LinkedIn and Facebook (online) platforms* to reach out to wine enthusiasts with profiles there, encouraging their participation in our survey.

The empirical research data underwent processing using MS Excel software, wherein absolute quantitative data were converted into relative measurements (i.e. percentages) using the descriptive statistics data processing method.

There might be several limitations associated with the conducted survey:

- Due to the online nature of the survey, respondents may have interpreted the concept of 'sustainable wine' differently, despite the detailed explanation provided in the preamble to the questionnaire (in the Lithuanian-language version) before the questions.
- Given the online format, some single or multiple-choice questions may have been misunderstood and answered incorrectly.
- The trends observed in the online survey reflect the perspectives of a relatively small subset of knowledgeable and wine-loving respondents residing in Lithuania.

3. Empirical results and discussion

The majority of those who took part in the online survey were female, comprising 65% of respondents, while male respondents accounted for 33%, and 'other' genders only 2%.

All age brackets specified in Question 12 of the online questionnaire were represented in the study. The largest cohort consisted of individuals aged 36 to 45, constituting 51% of participants, while those aged 26 to 35 and 46 to 55 comprised 16% and 19% respectively, showing nearly equal representation. Additionally, 7% of the respondents fell within the 56 to 65 age range, 5% were over 66 years old, and only 2% were aged 20 to 25.

In terms of Question 13 concerning educational background, the data indicated that a significant majority (84%) of the participants were highly educated specialists, whereas 12% had higher non-university degrees. *These findings align with existing research suggesting that individuals who prefer (or are interested in) organic or (and) sustainable wine tend to have higher levels of education* (Forbes et al., 2009; Mann et al., 2012; Li, Jaharuddin, 2020). Participants with vocational school degrees and secondary education each comprised 2% of the sample, representing a minority in the online survey.

In order to gain a better understanding of the participants in our study, respondents were asked to indicate their level of expertise in wine (Fig. 1), categorising their specific standing within the wine community, afterwards (Fig. 2). The majority of respondents (63%) identified themselves as 'Good wine connoisseurs', indicating a comprehensive knowledge of wine. A total of 7% of the respondents classified themselves as 'Great wine connoisseurs, experts', demonstrating a thorough understanding of wine culture, traditions and production specifics. Approximately a fifth of the respondents (21%) had a limited knowledge of wine, while 9% claimed to have none (Fig. 1).

A significant part of the respondents (54%) were not employed in or otherwise associated with the wine industry (Fig. 2). Among those who were, 16% worked directly in wine-related roles, while 7% were involved in teaching, and in studying wine culture, traditions and production specifics (also 7%). The survey also included participants such as wine-related business owners (5%), owners of wine shops (5%), sommeliers (5%), a wine journalist (2%), and a wine producer (2%). Question 2 in the questionnaire allowed respondents to select multiple roles related to the wine industry, resulting in instances where individuals held various positions simultaneously, such as a sommelier, who also served as a wine teacher and owned a wine shop.

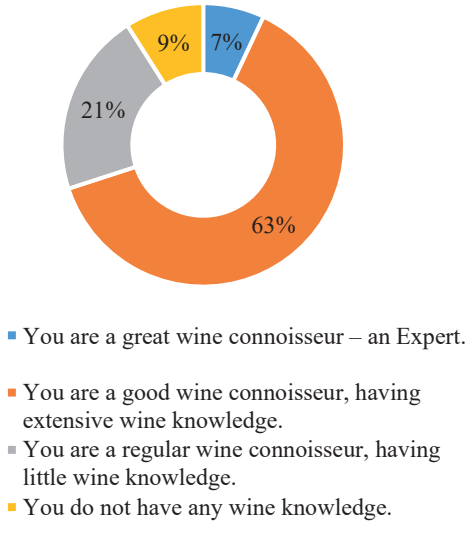

Figure 1. The distribution of respondents according to their knowledge of wine

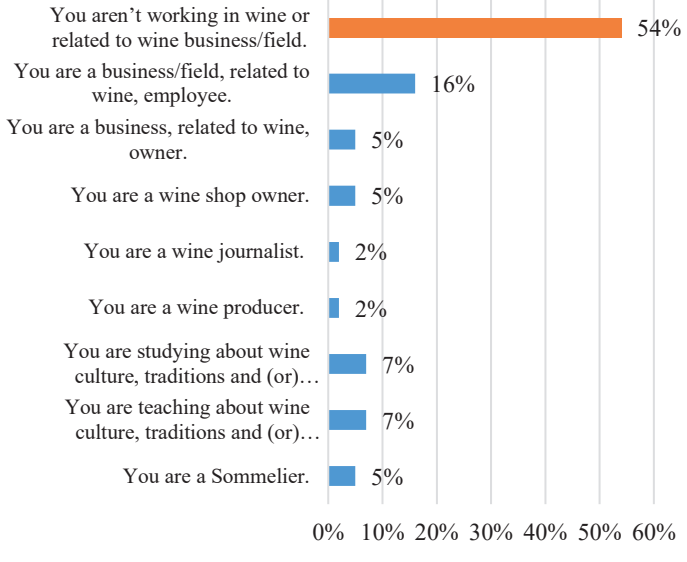

Figure 2. The distribution of respondents according to their status in the field of wine

Summarising the key findings mentioned above, it becomes evident that the overwhelming majority of participants in our online survey were *well-educated individuals aged 36 to 45 with a relatively deep understanding of wine culture, traditions and production nuances*. Additionally, most of these respondents *were not actively involved in the wine industry or associated fields.*

Wine enthusiasts in Lithuania typically base their wine selection on *the country of origin (84%)* and *the grape variety (74%)* used in production (Fig. 3). They rely heavily on *recommendations from friends (58%) and wine experts*, such as sommeliers (47%), when making their choices. While eco-labelling and certification highlighting sustainable vineyard and wine-making practices are important to only 18% of respondents, they do not hold significant sway over the majority's wine-purchasing decisions. These findings are largely consistent with the results of the research conducted by Remaud et al. (2018) and Tait et al. (2019). Remaud et al. (2018) investigated the significance Australian wine consumers placed on the organic attribute when selecting wine, focusing particularly on Shiraz variety wines. Their study revealed that the price was the most critical factor, followed by the country of origin. Interestingly, only 3% of respondents participating in the survey considered organic (environmental) attributes to be important. Similarly, Tait et al. (2019) conducted a study using a discrete choice experiment involving consumers of Californian Sauvignon Blanc. They sought to evaluate the importance of various sustainability attributes in wine choice compared to other factors like country of origin, price and quality (expressed as a score out of 100). The researchers discovered that a score of 95/100 ranked first in the willingness-to-pay hierarchy (i.e. price), followed by country of origin. Attributes associated with 'organic viticulture' were among the least significant factors in the study.

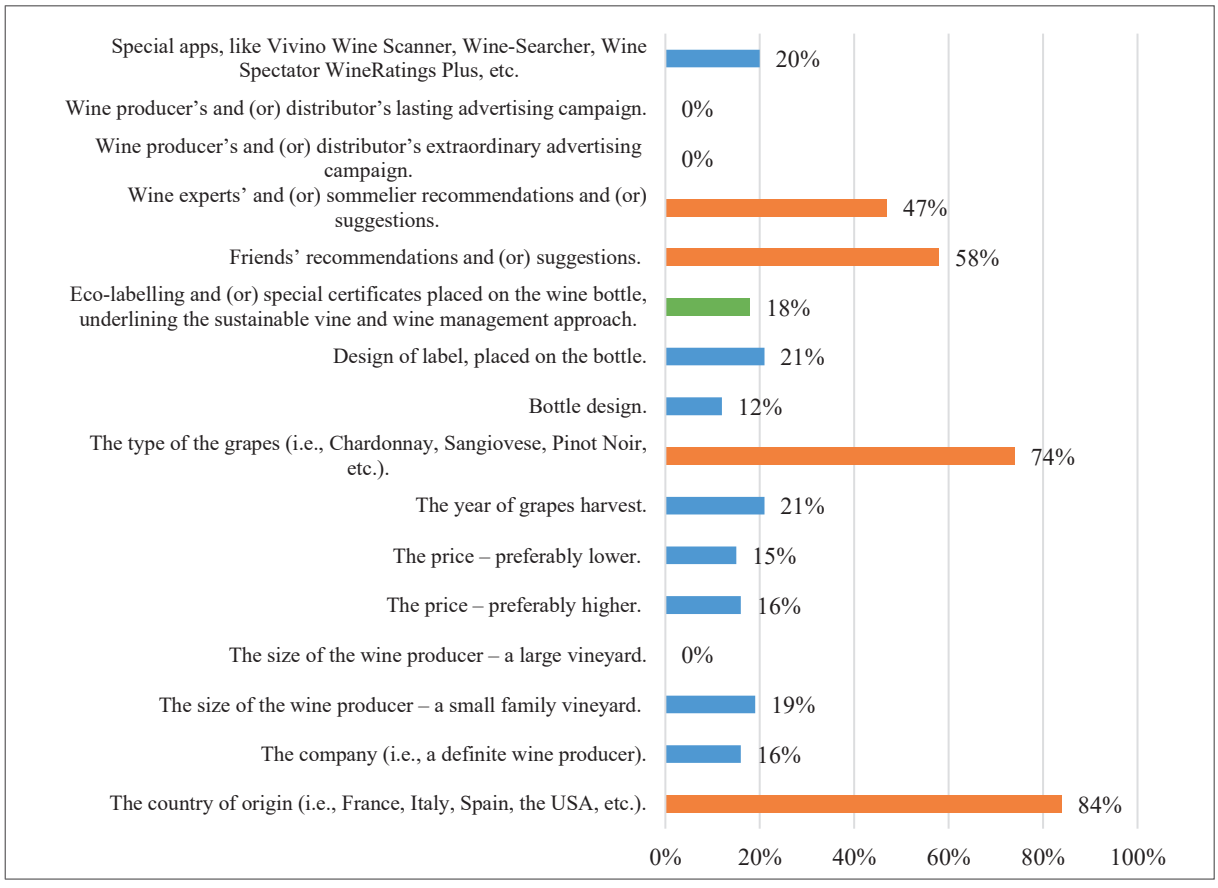

Figure 3. The distribution of respondents according to what most influences their decision in choosing wine

Similarly, specialised wine apps (20%), label design (21%), grape harvest year (21%), and the scale of the wine producer (e.g. small family vineyard preferred by 19% of respondents) are not primary factors in the respondents' decision-making process. Extensive or persistent advertising campaigns by wine producers or distributors have no influence (0%) on Lithuanian consumers' wine preferences. This trend can be attributed to Lithuania's stringent alcohol advertising regulations (Seimas of the Republic of Lithuania, 1995; *an updated version from 1 January 2018*), which prohibit any form of alcohol promotion in the media, even if it serves an educational purpose.

Based on Fig. 4, wine connoisseurs in Lithuania primarily favour *Italian* (70%), *French* (56%) and *Spanish* (39%) wines. Question 4 in the questionnaire allowed respondents to select multiple preferred wine-producing countries, leading up to a fifth of participants also expressing their enjoyment of Portuguese (23%) and Chilean (18%) wines. The attraction of the selected countries, as indicated in Fig. 4 (question 4), lies in their *longstanding and proven wine-making traditions* (71%). Additionally, recommendations from friends (37%) and/or wine experts/sommeliers (32%) play a significant role in respondents' choices (Question 5). Moreover, 18% of respondents noted a preference for certain wine-producing countries due to their adoption of sustainable vineyard management and/or wine-making practices. This includes initiatives such as planting vineyards and harvesting grapes sustainably, prioritising employee welfare, utilising renewable energy sources, employing low-emission transport, and emphasising the responsible use and conservation of natural resources (e.g. soil, water, air).

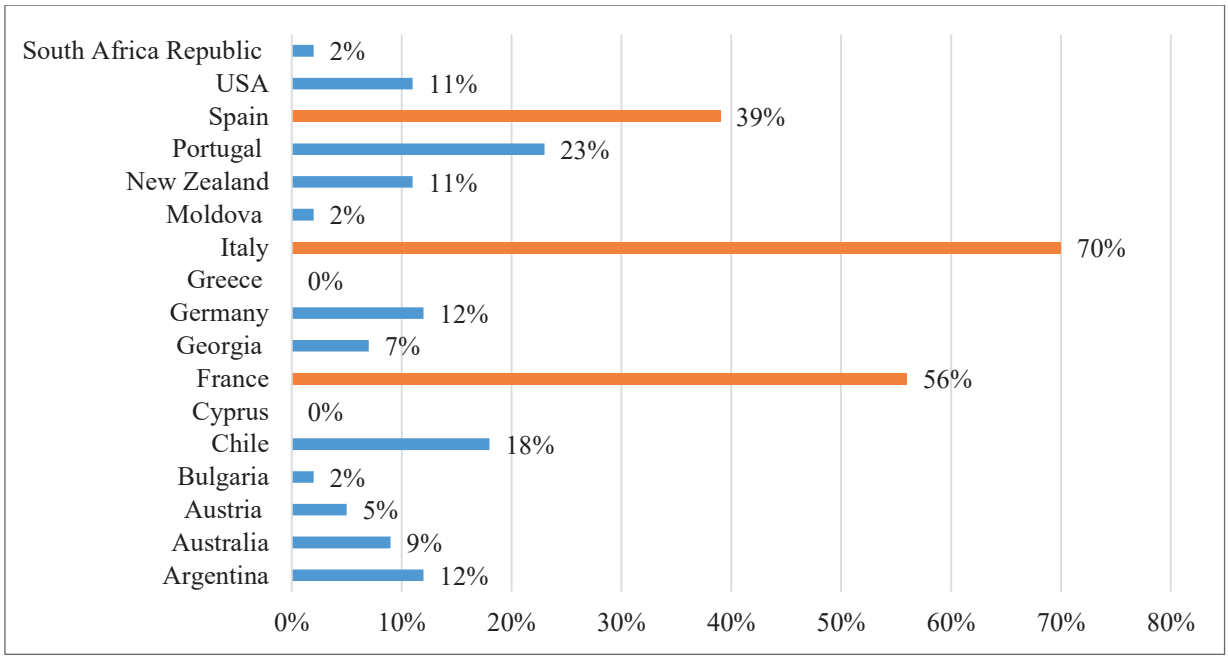

Figure 4. The distribution of respondents according to the wine country they prefer the most

In Question 6 (Fig. 5) and Question 7 (Fig. 6) in the survey, participants were asked to choose between *conventional and sustainable wines* when they were *equally* (Fig. 5) or *differed in price* (Fig. 6).

When presented with wines of *equal price* from the same producer, one made conventionally and the other incorporating sustainable practices, Lithuanian wine enthusiasts showed *a strong preference for sustainable options.* Specifically, 51% indicated they would 'prefer' sustainable wine, with an additional 19% stating that they would 'definitely buy' it, while 23% leaned towards 'preferring more' conventional wine, and 7% would 'definitely purchase' it (Fig. 5).

However, if the sustainable wine was priced approximately 25% to 30% *higher* (as identified in research implemented by Sellers (2016) than the conventional option, the preferences shifted. In this scenario (Fig. 6),

44% of respondents said they would 'prefer' *conventional wine*, and 14% stated that they would 'definitely buy' it. This distribution could be attributed to several factors, including a lack of knowledge of wine, awareness of sustainable wine production practices, and the economic challenges the country faced during the period when the survey was conducted. The Covid-19 pandemic and the ongoing conflict in Ukraine have led to economic instability, with rising inflation affecting the affordability of goods, including wine. As a result, consumers may be more inclined to opt for less expensive options, particularly when facing financial constraints.

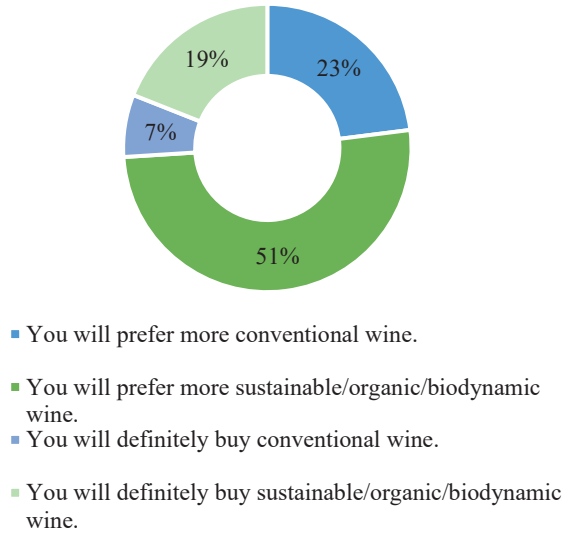

Figure 5. The distribution of respondents according to whether they prefer conventional or sustainable wine when both types of wine are equally priced

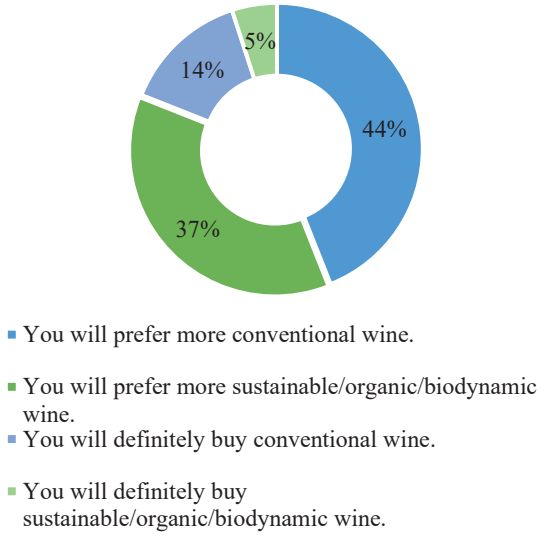

Figure 6. The distribution of respondents according to whether they prefer conventional or sustainable wine when the prices of sustainable wine is are on average 25% to 30% more than the conventional one

When asked about their *willingness to pay a premium* for sustainable wine (Question 8), respondents fell into two nearly equal-sized groups. A total of 28% expressed a willingness to pay up to 10% more for wine produced under sustainable principles, while 26% were open to paying up to 20% extra. On the other hand, 11% of respondents stated they were prepared to pay whatever necessary, while 20% were not inclined to pay a premium for sustainable wine (Fig. 7).

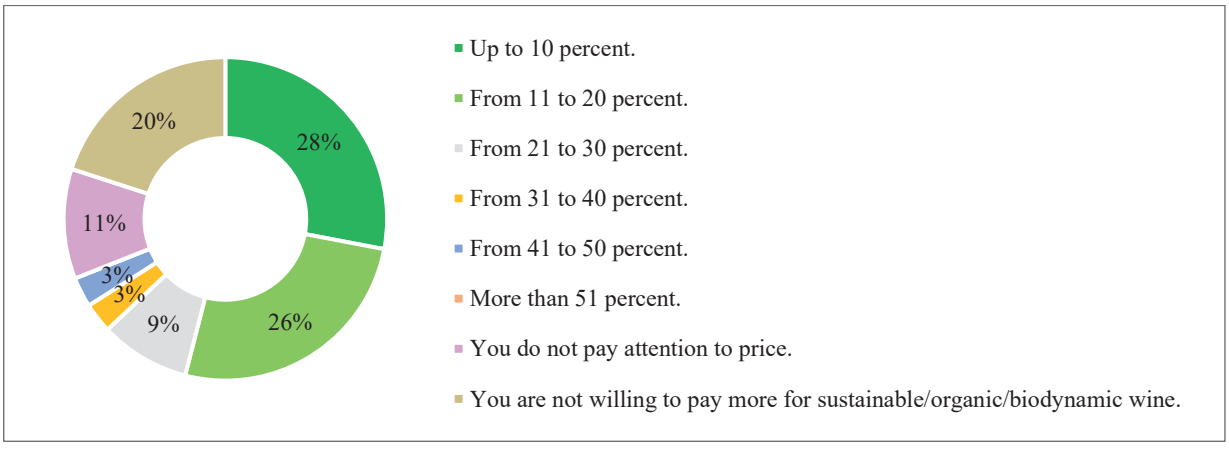

Figure 7. The distribution of respondents according to how much they are willing to pay more for sustainable wine

In summary, the data in Figs. 5, 6 and 7 reveal that Lithuanian wine enthusiasts prioritise sustainable vine management and wine production practices, but they also *consider the price* of the product. A significant majority (up to 80% of the respondents willing to pay more, excluding the 20% who are not) are willing to pay up to 10% extra; and a slightly smaller but solid group of respondents (up to 52% of all the respondents, excluding the 28% willing to pay up to 10% more and the 20% unwilling to pay extra) are willing to pay up to 20% more for sustainable wine, thus supporting the advancement of sustainable wine-making.

Global analysis conducted by Moscovici et al. (2022), comparing traditional/old-world wine regions (TPC) such as *France, Italy* and *the Netherlands*, with new-world wine regions (NPC) like *Australia, Chile, South Africa* and *the USA*, revealed that the majority of respondents *were generally willing to pay a premium (up to $5) for environmentally friendly wine* (i.e. organic, biodynamic, sustainable). Similar trends (i.e. the willingness to pay a premium of up to $5) were observed in locally conducted research in *Chile* (Valenzuela et al., 2022), *Italy* (Troiano et al., 2016), *France* (Alonso Ugaglia et al., 2021), *the USA* (Moscovici et al., 2021) and *Australia* (Remaud et al., 2008; Gow et al., 2022). However, these surveys also indicated that only a relatively small proportion of respondents (averaging around 15% to 20%) were willing to pay a significantly higher price for sustainable wine compared to conventional options.

For 42% of respondents, *the integration of sustainability principles across all aspects of vine management, wine production and distribution* is crucial without exception. This includes practices such as using natural fertilisers and additives (e.g. sulphites), relying on renewable energy sources and low-emission transport or electric vehicles, and preserving natural resources (e.g. soil, water, air), as well as showing respect towards employees and the local community (Fig. 8). As Question 10 allowed respondents to select multiple answers regarding the importance of eco-labels and certificates, the other respondents indicated a strong emphasis on the rational use of natural fertilisers (35%) and/or natural additives like sulphites (33%), along with the importance of preserving natural resources (e.g. soil, water, air) (23%). Meanwhile, the use of renewable energy sources (5%), and low-emission transport or electric vehicles in vine and wine management and distribution (0%), received the least attention from respondents. *Only 5% of respondents expressed indifference towards sustainable vitiviniculture.*

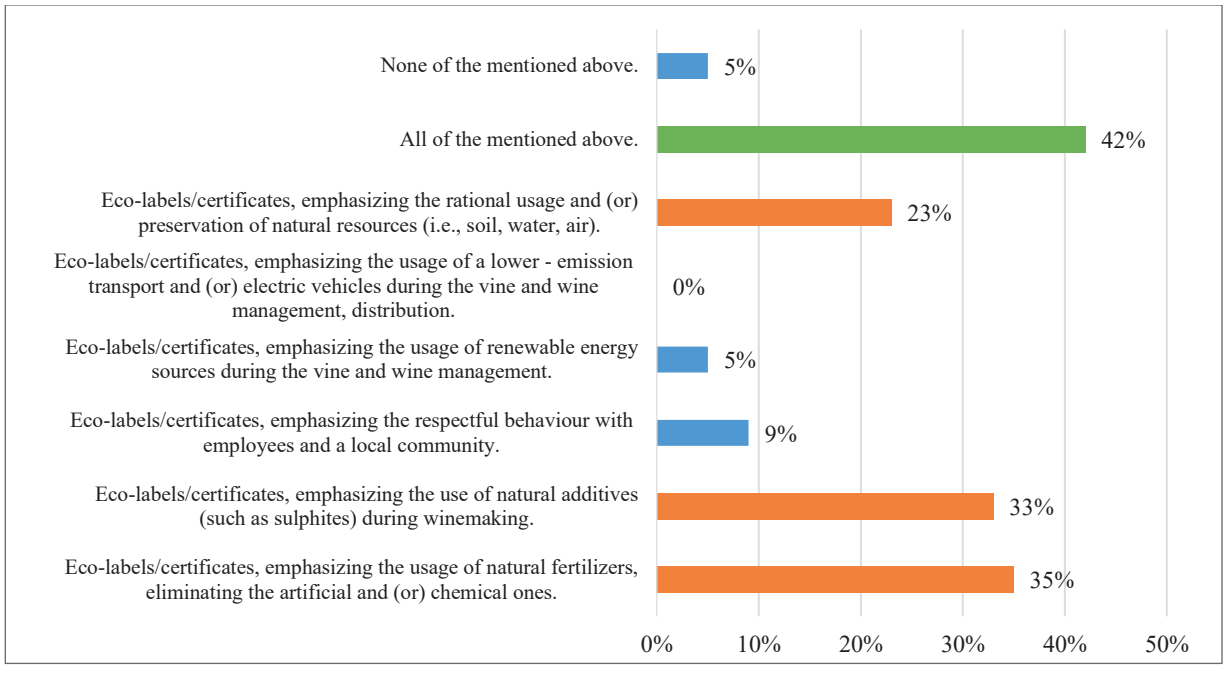

Figure 8. The distribution of respondents according to the importance of eco-labels on wine bottles

Conclusions

While the concept of sustainability has various definitions and is increasingly being integrated into economic sectors, its essence lies in *qualitative* and *value* aspects in the realms of environmental protection, social equity and fair economic well-being. Many scientists commonly categorise *organic, biodynamic, natural* and *fairtrade wines* as part of sustainable wine practices.

Certain countries exhibit varying degrees of sustainability. This classification could hinge on the quantity and/or efforts of specific organisations and associations devoted to disseminating the idea and educating stakeholders about the significance of sustainable principles among producers, consumers and public institutions. Regarding the formation and development of a conventional (and sustainable) wine culture in Lithuania, the first and most important steps were taken since the 2000s, when specific thematic associations and organisations, and specialised wine shops, promoting wine culture and knowledge, began to be established in the country.

Lithuanian wine consumers exhibit a growing interest in sustainability; however, their wine purchasing habits remain unaffected by whether the wine is produced under sustainable principles. Lithuanians primarily prefer selecting wine based on the county of origin, especially when the country has old and well-established wine-making traditions. Other influential factors in the decision-making process include the type of grape, recommendations from friends, and advice from wine experts. Also, our research revealed that when sustainable wine was priced higher than conventional wine the respondents tended to opt for the latter. These findings underscore the importance of education about wine culture and production specifics for Lithuanian wine enthusiasts in making choices that prioritise quality and sustainability.

We expect that the findings and tendencies revealed in our study will drive beneficial transformations in the wine sector in Lithuania. We hope to see Lithuanian wine producers adopting sustainable methods in their wine production processes, whether partially or entirely. We also urge wine suppliers in Lithuania to educate their clientele, highlighting the importance of small wine producers, and explaining not just the health advantages of high-quality wine but also the factors influencing pricing. Additionally, with the rise in discussions (since 2018) surrounding an updated version of Lithuania's alcohol control law currently prohibiting alcohol education and advertising on media platforms, we encourage the responsible authorities in Lithuania to reassess and potentially revise this legislation, recognising the importance of providing informative content to consumers through the media. Effective educational outreach is crucial in the wine industry, requiring significant efforts to enhance communication with consumers. This involves not only promoting responsible wine consumption and proper food pairings but also educating consumers about the intricacies of grape cultivation and the wine production process.

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LIETUVOS VYNO MĖGĖJŲ POŽIŪRIS Į VYNĄ, GAMINAMĄ LAIKANTIS TVARUMO PRINCIPŲ

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Santrauka

Siekiant ilgalaikio stabilumo ir atsparumo pokyčiams, kiekvienam ekonomikos sektoriui rekomenduojama laikytis tvarumo principų – vyno pramonė ne išimtis. Per pastaruosius du dešimtmečius *tvarumas* vyno sektoriuje tapo vyraujančia sąvoka ir šis pokytis siejamas su augančiu šiuolaikinių vyno entuziastų susidomėjimu aplinka tausojančiais ir socialiai atsakingais principais, kuriuos vyno gamintojai taiko vynuogynų priežiūros, vyno gamybos ir platinimo procesuose. Tvarus vynmedžio priežiūros ir vyno gamybos principas – tai prasmingų komponentų kompleksas, siekiant geresnės vynmedžių ir vyno kokybės, vyno mėgėjų sveikatos bei ilgalaikės aplinkos gerovės. Tvarios vyno pramonės sėkmė ypač priklauso nuo: 1) politinių sprendimų ir finansinės paramos; 2) vyno gamintojo, pasirengusio savo vykdomą veiklą visiškai ar iš dalies restruktūrizuoti ir transformuoti tvarios veiklos link, ir 3) šiuolaikinio vyno mėgėjo, pasiruošusio už tvarius produktus mokėti daugiau.

Pirmieji žingsniai formuojant tiek tradicinę, tiek tvarią šiuolaikinę vyno kultūrą Lietuvoje žengti 2000-taisiais, kai šalyje pradėjo kurtis asociacijos ir organizacijos, specializuotos vyno krautuvėlės, skleidžiančios žinią apie vynuogininkystę, vyndarystę, vyno istoriją ir jo vartojimo kultūrą, be to, pradėta organizuoti vyno parodas ir degustacijas.

Daugelis mokslininkų, atlikdami tyrimus įvairiose šalyse ir žemynuose, siekė apibūdinti vyno vartotojų, teikiančių pirmenybę organiniam ar (ir) biodinaminiam, ar (ir) natūraliam, ar (ir) „sąžiningos prekybos"

logotipu paženklintam vynui, profilį, tiek ir požiūrį į visiškai ar iš dalies laikantis tvarumo principų pagamintą vyną. Tačiau Lietuvoje panašių tyrimų neaptikta. Todėl, siekdami įvertinti ir susisteminti šiuolaikinių Lietuvos vyno mėgėjų požiūrį į vyną, gaminamą laikantis tvarumo principų, atlikome mokslinį tyrimą ir nustatėme, kad Lietuvos vyno entuziastai domisi tvaria vynuogininkyste bei vyndaryste ir didžiąja dalimi yra pasiruošę mokėti papildomą kainą už tvarų vyną. Tačiau dominuojantys vyno pasirinkimą lemiantys komponentai – labiau klasikiniai ir su tvarios vyndarystės principais nesusiję. Lietuviai vyną renkasi pagal kilmės šalį, ypač kai ji turi senas ir nusistovėjusias vyndarystės tradicijas. Kiti įtakingi veiksniai sprendimų priėmimo procese yra vynuogių rūšis, draugų rekomendacijos ir vyno ekspertų patarimai.

PAGRINDINIAI ŽODŽIAI: *tvari vyno pramonė, tvari vynuogininkystė, tvari vyndarystė, šiuolaikinis vartotojas, Lietuvos vyno mėgėjas.*

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