

# Willingness of Wine Consumers in Croatia to Buy Wine in Alternative Packaging

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## ABSTRACT

Throughout history, as the production of wine has developed, wine has become more than just a drink, it has become a symbol of hedonism and enjoyment, power, and status. For these reasons, wine is associated with quality and special occasions, which means most consumers want to buy it in appropriate packaging. Most often it is glass packaging. It has been used for centuries as the main packaging for wine in which the wine matures and reaches the peak of quality. The connection between wine and glass bottles is engraved in culture. This research paper examined how customers of the Croatian market react to alternative packaging. The results of the survey showed that most respondents consider another packaging unsuitable for wine storage, which is the reason why 50% of the market buys wine exclusively in glass bottles. The rest of the market, on the other hand, has proven to be more open to other types of packaging. Furthermore, by informing the population about the adequacy of packaging, respondents who said they buy wine exclusively in glass bottles were willing to change their habits in as many as 60% of cases. The results of this survey can be a useful tool for Croatian winemakers when thinking about alternative wine packaging and can show insight about Croatian consumers buying decisions. But due to the fact that consumers and their habits, as well as the global market and lifestyle, are constantly changing, the consumers' intention to buy a product won't always be a clear measure for actual purchase behaviour.

**Keywords:** Sustainability, Packaging; Willingness to Buy, Wine; Bag-in-Box; Tetra Pak, PET Bottles, Croatia

## INTRODUCTION

Sustainable development is based on understanding the connections of its three fundamental components: society, the environment, and the economy. The balance between all three components and their operationalization in practice ensures the long-term development of human society in a preserved environment (Fulekar, Pathak & Kale, 2014). In the past decade, sustainable development has become an integral part of most industries. In addition, the incorporation of sustainable development principles into the design of various products is due to people's growing concern about climate change, the raise of environmental awareness and increased knowledge related to problems of waste disposal and its accumulation. The packaging industry, as an industry with a high rate of development and growth, has the main function of the requirements for the protection of the product during transportation, but it also serves as a

method of communication, between the product (brand) and consumers. In order to meet high competitiveness, the packaging should improve existing functions and include new ones to meet the economic, environmental, and legal requirements set by the target groups of consumers. Due to a packaging multisensory function and the influence on consumers, packaging design and materials have a major influence on marketing decisions (Dopico-Parada et al., 2021; Imiru, 2017; Theben et al., 2020).

Packaging nowadays, shows a wide range of progress in the development of sustainable packaging due to very high potential in the development of materials and packaging engineering, resulting in numerous environmentally friendly packaging options available on the market and numerous research related to design of environmentally friendly packaging solutions, its definitions and testing (Nguyen, Parker, Brennan & Lockrey, 2020; Steenis, van Herpen, van der Lans, Ligthart & van Trijp, 2017; Tamani et al., 2015; Vukoje, Bolanča Mirković, Bešlić

& Petković, 2020). Moreover, it is an area covered by many scientific research papers. In order to increase competitiveness, more and more brands are switching towards environmentally friendly packaging solutions. As the environmental awareness of consumers improves, the requirements for green packaging are also changing. Despite consumers' environmental awareness, attitudes and changes in behaviour, the adaption of sustainable packaging solutions into the business is also affected by the societal pressure derived from environmental laws and regulations (Wandosell, Parra-Meroño, Alcayde & Baños, 2021). Sustainable packaging is packaging that has a low environmental impact determined by life cycle assessment. It should be composed of non-toxic natural renewable materials, reusable, recyclable, biodegradable or compostable (Steenis et al., 2017). From a consumer-perspective sustainable packaging is more related to the properties of packaging materials and packaging design that evokes the environmental friendliness of the packaging products by a combination of structural (materials), visual and informational (graphical and verbal) elements (Nguyen et al., 2020; Steenis et al., 2017). Sustainable environmentally friendly packaging must have all the functionality of classic packaging products. Functionality can also be enhanced with new designs or by the incorporation of new materials. Most of the packaging products in the past have been made of polymeric materials, which are characterized by many desirable properties such as softness, low weight, and transparency. That in the end has led to their widespread use and resulted in creation of various environmental problems related to waste accumulation due to their non-biodegradability potential (Siracusa, Rocculi, Romani & Rosa, 2008). After polymers are exposed to various environmental factors, they are being fragmented into microplastics, which contributes to further negative effects on the environment and living beings (Zhang et al., 2021). Another problem related to polymeric materials is their production, that is, problems related to air pollution and the limitation of crude oil, the raw material used for its production whose price is influenced by geopolitical factors (Siracusa et al., 2008). Increased consumption of polymer materials leads to unsustainable development. Today, many packaging systems are available for beverages, considering glass packaging more sustainable than plastic or multilayer, due to the material used and end-of-life solution, but without taking into consideration the impacts of production and transport (Ferrara & De Feo, 2020). In addition, sustainable packaging supply chain management also plays an important role (Bag, 2016; Meherishi et al., 2019). The reduction of carbon

footprint throughout the whole supply chain should be the focus of interest (Verma et al., 2017).

Recent studies show that consumers' willingness to use and pay for sustainable packaging is influenced by social factors, personal norms, attitudes, environmental concerns, materials properties and recyclability, the origin of the products (Hao et al., 2019; Wandosell et al., 2021). Research conducted in China by Hao et al. (2019) analyse the influential factors of consumers' willingness to pay for green packaging and identified four principal factors affecting consumers' willingness to pay as a result: environment, green packaging quality, commodity, and packaging price. In addition, the research showed that consumers would like to attach greater importance to the practicality of green packaging, such as convenience, reusability, and protective capability in comparison to the price and appearance of green packaging (Hao et al., 2019). Ferrara and De Feo (2020) used the life cycle assessment (LCA) methodology to compare the environmental performance of the different wine packaging solutions (traditional single-use glass bottles and four packaging alternatives – aseptic carton, bag-in-box, refillable glass bottle and multilayer PET bottle) for the Italian market. The results showed that the most environmentally friendly alternative is the bag-in-box, which is slightly better than the aseptic carton. The analysis of alternative scenarios pointed out that refillable glass bottle reuse in Italy is a convenient alternative only when the distribution of products is at distance less than 100 km (Ferrara & De Feo, 2020).

Dopico-Parada et al., 2021 showed in their study that the relative importance of each of the functions of packaging (protection, convenience, portability & storage, information, branding, engagement, sustainability and economy) has an influence on consumers' evaluation of products and intention to purchase. Within their study, protection was described as the most relevant function of packaging, followed by sustainability, information on the packaging, convenience, portability and storage, economy, branding and engagement (Dopico-Parada et al., 2021). This findings of the research can be used as a useful tool for packaging developers as a marketing strategy (Dopico-Parada et al., 2021).

This paper will examine wine consumers' attitudes towards wine packaging and their beliefs about which packaging is most suitable for its storage. Also, the survey will question the openness of the respondents to alternative wine packaging. The aim of this research is to examine the opinions of the Croatian market on suitable

packaging for wine and the attitude of consumers towards more sustainable wine packaging. The results of this survey can be a useful tool for Croatian winemakers when thinking about the alternative wine packaging solutions and can show the willingness of Croatian consumers buying decisions.

The limitations of this study rely on the fact that both consumers and packaging are dynamic elements subject to change arising from changes in lifestyle and consumers habit, as well as market requirements. Although this approach is faster and cheaper than the traditional one, the disadvantage is that the respondents cannot be related to the entire general population. The collected results are related to Croatia, but it is likely that the results would be similar if the survey were conducted in similar socio-cultural countries. Moreover, the buying intention cannot be a measure of actual purchase behaviour. Taking all previously mentioned in mind, the studies based on surveys can be described by limitations concerning the reliability and generalization of the results.

## METHODS

The aim of the research is to examine the attitudes of Croatian consumers towards more sustainable wine packaging alternatives as adopted from the research by Ferrara et al. (2020) (Ferrara, Zigarelli & De Feo, 2020) one of the main causes of environmental impacts of the wine life cycle is the production of glass bottles due to the high incidence of its weight and the consequent huge consumption of energy for its production. Using lighter packaging alternatives (such as bag-in-box, aseptic carton or PET bottles. Following the example of the conducted research, a survey was conducted on the Croatian market. As presented in research (Ferrara et al., 2020) one of the main causes of environmental impacts of the wine life cycle is the production of glass bottles due to the high incidence of its weight and the consequent huge consumption of energy for its production. Using lighter packaging alternatives (such as bag-in-box, aseptic carton or PET bottles, bag-in-box, aseptic carton and PET bottles were chosen as the packaging alternatives to wine glass packaging (Table 1).

**Table 1: Types and Packaging Alternatives**

Type	Structure	Materials Used in Composition
Bag-in-box	Composite container placed in paper-board container	Welded double inner bag – low-density polyethylene (LDPE) or ethylene vinyl acetate (EVA) outer bag – plastic laminate including metallized polyester as the high barrier layer
Aseptic carton	Multilayer packaging composite	Paperboard, polyethylene and aluminium
Polyethylene terephthalate (PET) bottles	Single-layer or multi-layer structure	PET and gas barrier resin (ethylene-vinyl alcohol copolymer (EVOH) and MXD6 nylon)

Source: Ferrara et al., 2020.

The research respondents who are wine consumers and older than 18 were selected at random, regardless of gender or education. The survey was shared online, via social media and forums. The Croatian market was examined by the online data collection via Google form questionnaire and advertised through social networks. The questionnaire for the Croatian market was completed by 100 respondents from May 16<sup>th</sup> until May 24<sup>th</sup>, 2021. Although this approach is faster and cheaper than the traditional one, the disadvantage is that the respondents cannot be associated with the entire general population.

The questionnaire was composed of three parts, with the first part containing personal information about demographic characteristics (age, gender). The second part contains questions about the consumers' habit about wine consumption and purchasing, as well as their perception of wine quality and taste regarding packaging. The third

part of the questionnaire explores the respondent's wine packaging preferences, the possibility to buy wine in alternative packaging, such as bag-in-a-box, aseptic carton and PET bottle and their willingness to change habits when buying wine.

## RESULTS AND DISCUSSION

The population of 100 respondents from the Croatian market consisted of a higher share of women than men and a higher share of the population under 35 years. Detailed analysis of respondents by age, gender and education can be seen in Table 2. The difference in age and gender can potentially affect the results of the survey so that the younger population will be more susceptible to change and somewhat better accept the novelties while it is expected that the older population would resist.

**Table 2: Demographic Characteristics of the Respondents from Croatian Market Sample**

Attribute	Value	%
Age	18 – 25	71
	26 – 35	13
	36 – 45	4
	46 – 55	10
	> 56	2
Gender	Female	68
	Male	32

The next part of the survey was focused on the habits of the respondents when buying and consuming wine. The questionnaire examined how many glasses of wine individuals consume in one day, what type of wine they most often consume and how much they are willing to spend on a bottle of wine (Table 3).

**Table 3: Consumer Habits of the Croatian Market**

Question	Possible Answers	%
Wine Consumption	Less than 1 wine glass a day	68
	1 wine glass a day	11
	2 wine glasses a day	6
	More than 2 wine glasses a day	1
	I don't know	14
Type of wine	White	63
	Red	33
	Rosé	3
	Don't have preference	1
Price in HRK for 1 wine bottle	Less than 15 HRK	8
	15 – 35 HRK	33
	35 – 55 HRK	36
	55 – 100 HRK	20
	More than 100 HRK	3

Comparing the results, it can be seen that a larger share of respondents consumes less than one glass of wine per day on the Croatian market. In the Croatian market, we can see that white wine dominates, which is the favourite type for two-thirds of respondents, while red wine is consumed by one-third of respondents. A very small share is made of rosé wine with only 3% respondents who chose it as the primary type of wine. When comparing the amount of money that respondents are willing to spend on a bottle of wine, individuals are distributed approximately with the highest allocation of between HRK 15 and 55. A slightly smaller percentage of the population chooses cheaper or extremely expensive wine options. Such a price range was probably chosen because of the age group

of most respondents, for those who can be assumed that don't have access to a big purchasing budget. It must be emphasized that the most selected priced group of wines has an average to a lower average price.

In the Croatian market, it was examined which wine packaging contributes to the greatest pleasure and leaves the best impression on the consumer and which wine packaging the respondents believe that it contains the most expensive wine. The results showed that most respondents consider glass to be the packaging that contributes the most to the enjoyment, quality, and price of wine, while a very small population believes that packaging does not necessarily determine these properties (Table 4). None of the respondents chose any alternative packaging as an indicator of the desired tested characteristics. These results suggest that new types of packaging are underrepresented by consumers and that the design should be more innovative and appealing to customers.

**Table 4: Perception of Wine Quality and Taste Regarding Wine Packaging among Consumers on the Croatian Market**

Question	Possible Answers	%
In which packaging the most expensive wines are packed?	Glass	95
	The price does not depend on the type of packaging	5
Which packaging give greatest pleasure to consume wine and leaves the best impression on the consumer?	Glass	92
	The price does not depend on the type of packaging	8

The next part of the survey and the questions that followed depended on the respondents' answer to the question whether they buy wine exclusively in glass bottles. In the Croatian market, the respondents were equally divided with 50% answers "yes" and 50% answers "no".

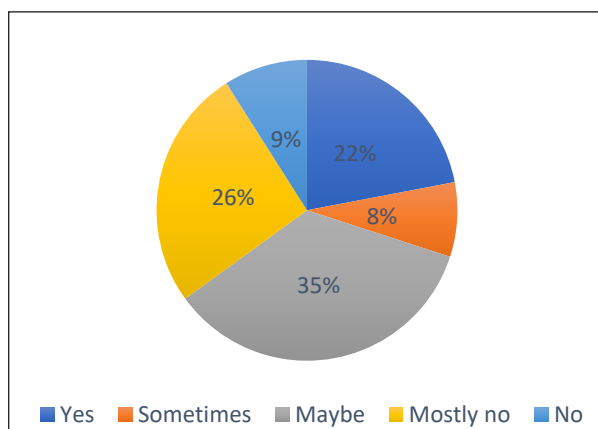
**Table 5: The Main Reason for Buying Exclusively Glass Wine Bottles on the Croatian Market**

Question	Possible Answers	
	Yes	No
Exclusively purchase of glass packaging	50 %	50%
Other packaging isn't adequate	52 %	
In store is only glass packaging available	4 %	
Wine is better quality	44%	

Respondents who answered that buy wine exclusively in glass packaging were examined in more detail regarding the reasons for buying exclusively glass packaging as

well as opportunities to change their habits if alternative packaging is available (Table 5). When asked what the main reason is why they decide to buy wine in a glass bottle, 52% of respondents said that they think that other packaging solutions are not suitable for wine storage, while 44% of them said that wine in glass bottles is of better quality, and that is the main reason for their wine packaging purchase decision. Such answers provide an opportunity to acquaint respondents with alternative packaging solutions for which oenologists and sommelier experts have identified good quality characteristics for wine storage. New solutions could break into the market with tastings, where the user will be convinced of the good quality of wine with packaging that is more environmentally friendly. Other respondents (4%) cite the lack of other packaging solutions on the market as the main reason. Unfortunately, the availability of alternative solutions in grocery stores is not great, so consumers are not well aware of the possibilities, with good marketing ideas and better availability, this problem can be easily solved (Table 5).

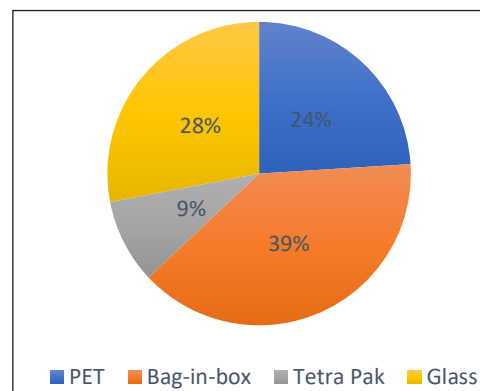
The next question (*“If you knew that the level of wine quality does not change if it is packaged into other types of packaging (such as bag-in-box, tetrapak or plastic bottles, and the influence of such packaging), would you change your decision during wine purchase?”*) given to the respondents examined their willingness to change habits about wine purchase, if they knew that other (alternative) packaging solutions do not affect the wine quality. The market research showed that 60% of respondents are willing to change their habits related to packaging and wine purchase (Fig. 1). The answers given confirmed the assumptions given in the previous question, where ways are offered that allow changing the habits of customers.



**Fig. 1: Consumers' Willingness to Change the Habit of Buying Exclusively Wine in Glass Packaging on the Croatian market**

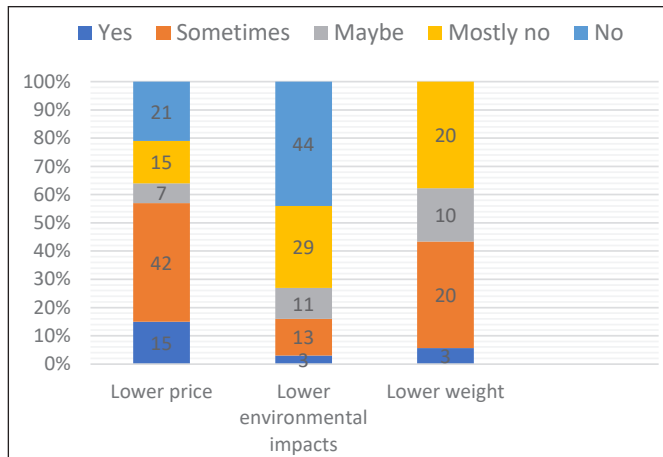
The respondents who have in the previous question answered that they do not buy exclusively glass packaging were examined in more detail about the reasons and preferences when buying alternative packaging.

When the respondents were asked what type of wine packaging do they prefer, 39% respondents from the Croatian market (Fig. 2) choose a bag in box packaging while 28% of people prefer glass packaging despite the fact that they do not buy exclusively glass bottles. The answer shows that exclusive packaging of wine in alternative packaging is not common on Croatian shelves of shops. Perhaps, in addition to educating customers, Croatian winemakers should also be educated. It must be emphasized that it is not known how many alternative packaging solutions are available on the Croatian market. Which could encourage new research on the production or import of these types of packaging products.



**Fig. 2: Consumers' Preferred Packaging on the Croatian Market**

Fig. 3 shows the reasons why some of the respondents choose alternative wine packaging, as well as how important a certain factor is for the respondents when buying alternative wine packaging. The analysis of the results shows that most respondents opt for alternative packaging due to the lower price. The answers given by the respondents could lead to the conclusion that customers in the Croatian market have low environmental awareness of alternative solutions for wine packaging since the lower impact of packaging on the environment is not one of the important reasons for buying. When the answers are compared with other previous research related to purchasing alternative packaging containing other types of products, it is evident that environmental awareness is present and that customers are willing to pay up to 15% more for a more environmentally friendly product. It can be assumed that such answers were given due to the small number of alternative solutions on the market wine.



**Fig. 3: Reasons for Purchasing Alternative Wine Packaging on the Croatian Market**

## DISCUSSION

### Contribution to Theory

Appropriate material selection is the most important step in the packaging-making process. However, the use of colors, prints, typography and design plays an important role in interacting with consumers, that is, the appropriate selection of several factors creates a sustainable solution. In addition to product protection, packaging also has the function of communicating with consumers through a recognizable design in the form of logos, graphics, images, colors and verbal information. Research on the Croatian market has shown that people's culture and habits significantly affect the perception of wine quality. Wine as a product has its place in the shopping habits of Croatian consumers, unfortunately, customers still generally do not take alternative packaging as an option when buying wine. Although the main advantage of glass packaging is the process of aging the wine, most purchased bottles of wine go directly into current consumption and there is no need for aging.

### Contribution to Practice

Educating customers and winemakers about the qualities and shortcomings of packaging could help to understand the quality of the wine itself and thus open the way to more sustainable wine production. The production process would have a lower carbon footprint due to energy savings in the production of materials and transportation of the finished product. Alternative solutions usually have less weight than glass packaging. Successful alternative

solutions emit less pollution. Research makes it easy to determine why producers, especially those involved in the production of better quality wines, do not want to switch to more environmentally friendly packaging. In most cases, people still simply cannot associate any packaging other than glass with the quality of wine. It is a good sign that on average more than 60% of people are ready to change their habits after learning that the packaging itself, if appropriate and quality does not have a negative impact on the quality of wine. With education and increasing the availability of wine in alternative packaging on store shelves, it is believed that consumers' habit can change and make the wine industry more sustainable. The results of this survey can be a useful tool for Croatian winemakers when thinking about alternative wine packaging solutions and can show the willingness of Croatian consumers buying decisions. In addition to that, additional education of consumers about sustainable packaging is needed.

### Limitations of the Study and Future Research Directions

The results of the study are derived from the survey of 100 respondents, consisted of a higher share of women than men and a higher share of the population under 35 years. In future, a survey should be focused on higher share of respondents differing in age and gender since it can potentially affect the results. In addition, both consumers and packaging are dynamic elements subject to change due to changes and consumers' lifestyle and market requirements, and thus a future study should take into consideration some other facts such as packaging design, materials selection, supply chain and consumers education.

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