



GEOGRAPHICAL DISTRIBUTION OF THE VINEYARDS AND WINE PRODUCTION IN RURAL AREAS OF BOSNIA AND HERZEGOVINA

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Abstract

Because of the climate and natural ecological conditions, Bosnia and Herzegovina produces premium wines. The geographical position of Bosnia and Herzegovina, especially of the Herzegovina region, has ideal conditions to promote Bosnia and Herzegovina as a significant producer of high-quality wines, as national brands. These potentials and advantages for wine production need to be well integrated, as a significant economic activity. Bosnia and Herzegovina is characterized by two major wine growing regions: Herzegovina and North Bosnia region. They differ in terms of climate and soil composition. The North Bosnia wine-growing region has a predominantly continental climate, and the vineyards are located on podzolic soil. The region of Herzegovina is characterized by Mediterranean climate, and the vineyards are mostly situated on lime marl soils. The vineyards of Herzegovina are located at an altitude of 10-500 meters above sea level.

Key words

Geographical distribution of vineyards, wine production, Bosnia and Herzegovina, tourism,

INTRODUCTION

The review paper aims at presenting development of viticulture and wine production as important parts of agricultural production in Bosnia and Herzegovina. Viticulture and wine in Bosnia and Herzegovina are known to go far back into the past. Grape growing areas offer a successful combination of wine, food and cultural events (Ackerman 1937). Where is, in this respect, Bosnia and Herzegovina as one of the largest wine growing areas in Southeast Europe, with more than 15,000 hectares of vineyards, which are exposed to the sun 220-270 days in a year? Bosnia and Herzegovina's geographical position, especially of Herzegovina, has ideal conditions to promote Bosnia and Herzegovina as a significant producer of high-quality wines as national brands. Can the wine and wine cellars in Bosnia and Herzegovina be part of diversified food products? Only with positioning of wine cellars in the regional and international markets, winemakers of Bosnia and Herzegovina can extensively be used in economic development in Bosnia and Herzegovina.

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In spite of the efforts that have been made in recent years, viticulture in Bosnia and Herzegovina has not reached the desired stage of wine and grapes production. This is caused by several factors, in the first place, by the age of vineyards, lack of agro-technical measures and the fact that plantation vineyards were planted late. Hence, there are fluctuations in the yields of grapes caused by climatic factors. According to the Farm survey in Uskopaljska valley (2014), most irrigation is done using tap water even 60.2% of farms use this way that significantly harm the reserves of drinking water serving households which causes the occurrence of frequent reduction of water in Uskopaljska valley. Even 33.7% of the respondents said that they do not irrigate their land, which is surprising. (Gekić and Bidžan, 2015). The vineyards are subjected to erosion so that their surface is reduced and converted to pastures. Thus, it can be concluded that more intensive revitalisation of vineyards in Bosnia and Herzegovina should be started. Uneven regional development is the general characteristic of viticulture, which is particularly evident in the polarization of economic activities, population and income at particular developmental stages. Consequently, there are less employees and generally less developed grape growing in Bosnia and Herzegovina.

METHODS AND DATA SOURCES

The methodological approach is imperatively adapted to the purpose of work, so that viticulture and winemaking have a strong impact on the local and rural development in Bosnia and Herzegovina. The research has covered local and rural development of the areas in Bosnia and Herzegovina. In assessing the economic contribution of viticulture and wine production development, quantitative methods, ranging from stochastic to deterministic, have been almost exclusively used.

Evaluation of a direct economic contribution of viticulture to local and rural economic development in Bosnia and Herzegovina, with respect to the contents and incorporation into national accounts system, is a good basis for the definition and application of models that enable assessing the total contribution of production of more wine varieties (Arlinghaus et al. 1990). Namely, with the direct contribution of viticulture, a fuller understanding of the impact of vineyards on the local and rural development implies an expansion analysis by observing the link between the sectors that directly sell services, the wine products, and those activities that serve these sectors (indirect effects of primary, secondary and tertiary sectors). This is necessary for considering the impact of an increase in income due to the consumption of grape and wine industry. Models based on input-output analysis and computable general equilibrium models stand out in many of these methods, which can be used for considering a total or partial impact of viticulture on the economy (Chopra, 2011). As a basic method of collecting primary data sources, test methods have been used, i.e. in-depth interview, where the main in-



strument was a reminder for an interview. About 30 economic activities in Bosnia and Herzegovina were surveyed. Research has also been supplemented by the contents analysis of secondary sources, interpretation and description of appropriate databases of the Agency for Statistics of Bosnia and Herzegovina.

IMPORTANCE OF VITICULTURE IN THE ECONOMY

Viticulture occupies an important place in the economy of Bosnia and Herzegovina, especially of the Mediterranean Herzegovina. Based on previous data obtained from the Institute for Spatial Planning of the City of Mostar for 1963, viticulture in Herzegovina accounts for 5% of the gross product of agriculture, and occupies 2.3% of arable land. Participation of viticulture in the national income is 1.7%. This participation will significantly increase in the coming years by raising plantation vineyards (Woods 2009). Considering the agrarian population in Bosnia and Herzegovina, where the number of residents per 1 ha was twice bigger than in grain-growing region of the Pannonian Plain, viticulture has a special importance. The vineyards in Bosnia and Herzegovina that are cultivated in the classical way employ about 250 workers per 1 hectare, annually. It should be noted that the grape vines in Herzegovina are grown in such areas where other crops cannot be bred. In dry years, vineyards produce satisfactory amounts of quality grape and wine (Nurković 2006). Despite the fact that the percentage share is not big, the quality of wines largely compensates the quality of our country. Popular wines Žilavka and Blatina can be considered our finest wines with prices above the average of some European countries.

The Publication "S vinom kroz vrijeme" (With wine through time) (2006) states that the cultivation of vines in Bosnia and Herzegovina is most common in the region of Herzegovina. In 2012, the total area of this region amounted approximately to 10,000 km². With its sub-Mediterranean and Mediterranean climate, Herzegovina is a region in which Mediterranean fruit and vegetables are grown. Grape vine, figs, peaches, tangerines, apples, pomegranate and other varieties can be grown here, as well as medicinal herbs such as sage, heather, immortelle, etc. Due to mild climate, Herzegovina is the biggest and the only producer of grapes and wine in Bosnia and Herzegovina. Two autochthonous varieties, Žilavka and Blatina, had acclimated here long ago, and they yield crops and provide the product quality like nowhere else (Stojanović 1954).

Herzegovina is an area where the sun heats intensely six months in a year, and its stone, its glades and vales are covered by low and high vegetation of thorn, oak, ash, field maple, spruce and pine. Bosnia and Herzegovina's heritage of viticulture and winemaking culture dates back to the Illyrian times. The first grapevine seedlings were introduced to the Balkans by the Thracians. Today, wine production is limited to the catchment areas of the rivers Neretva and Trebišnjica, i.e. the Herze-



govinian wine region with Mostar, Lištica and Jablanica vineyards (Figure 1). The areas that are important for wine production are found mainly in the southern part of Bosnia and Herzegovina. Regionalization of viticulture from the 1970s recognizes the two wine-growing regions in Bosnia and Herzegovina: North Bosnia and Herzegovina. The North Bosnia region remains a potentially growing area to this day. During the last decade, modest and sporadic efforts were made to launch industrial production of wine in this region, which has not resulted in significant results so far. In this way, the overall market-significant production of grapes and wine still takes place in Herzegovina. In Bosnia and Herzegovina, viticulture is characterized by the dominance of small vineyards with an area of 0.3-0.4ha, and a very few vineyards exceeding 10 ha. These small vineyards are mainly family-owned farms whose exact number is not known, since there is still no register of grape and wine producers.

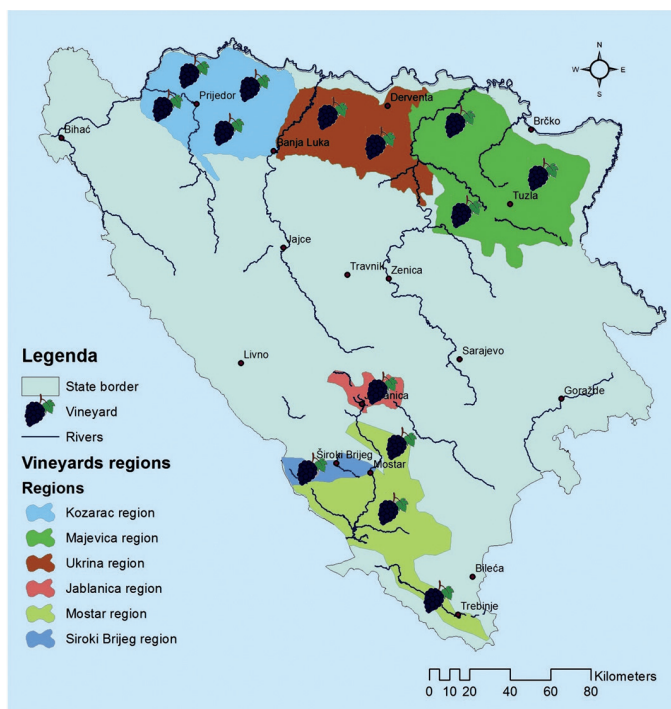


Figure 1 Wine growing areas in Bosnia and Herzegovina, 2012
Author: Nurković R.

By 1990, Bosnia and Herzegovina had 5,781 hectares of vineyards with 24.5 million of European vines grafted onto American rootstock. Of these, winegrowing region of Herzegovina covered 5.691 hectares of vineyards, or 98.4%, and the region of North Bosnia 90 ha or 1.6%. By 1990, the area under vines in Herzegovina



amounted to 5.691 ha. According to the 2007 statistics in Bosnia and Herzegovina there were 4,400 hectares of vines, of which 4,000 ha in the Federation of Bosnia and Herzegovina and 400 ha in Republic of Srpska. The official estimates of the OIV (International Organisation of Vine and Wine), which mention a total area of 4,000 hectares for the period 2002-2004, are similar. This is still a significantly lower vineyard area in relation to the period up to 1990, when Bosnia and Herzegovina had a total of 5,871 hectares of vineyards (Table 1 and Figure 2).

The most important grape varieties in Bosnia and Herzegovina are our domestic varieties Žilavka (white variety) and Blatina (black variety). In total production, Žilavka is represented with 70%, and Blatina with 30%. Recently, some producers have been planting the Montenegrin variety Vranac in their vineyards. The grape production in 2007 amounted to 21, 235 t with an average production of 1.9 kg per vine, which is almost equal to production from 2006 when 21,498 t of grapes were produced (Agency for Statistics of Bosnia and Herzegovina, 2012). Winemaking, along with the farming, becomes a significant source of income in Herzegovina. Today, Herzegovinian winemakers strive to be recognized by their Žilavka and Blatina wines, as unique varieties in the wine world, and to present themselves to the world through these wines that carry the smell of earth and harshness of the Herzegovinian sun.

Table 1 Area under vineyards in the leading municipalities in Bosnia and Herzegovina in 2012

Municipality	Total area in hectares	Vineyards in hectares	Vineyards from total area in percent
Mostar	115.764	600	0,52
Trebinje	85.963	300	0,35
Posušje	44.759	16,4	0,04
Široki Brijeg	37.958	101	0,27
Ravno	32.673	50	0,15
Ljubuški	29.798	372	1,25
Stolac	29.176	150	0,51
Čapljina	25.164	350	1,39
Neum	24.343	30	0,12
Grude	21.937	85,9	0,39
Čitluk	17.863	770	4,31
Total	495.590	2.825,3	0,77

Source: Agency for Statistics of Bosnia and Herzegovina, 2012

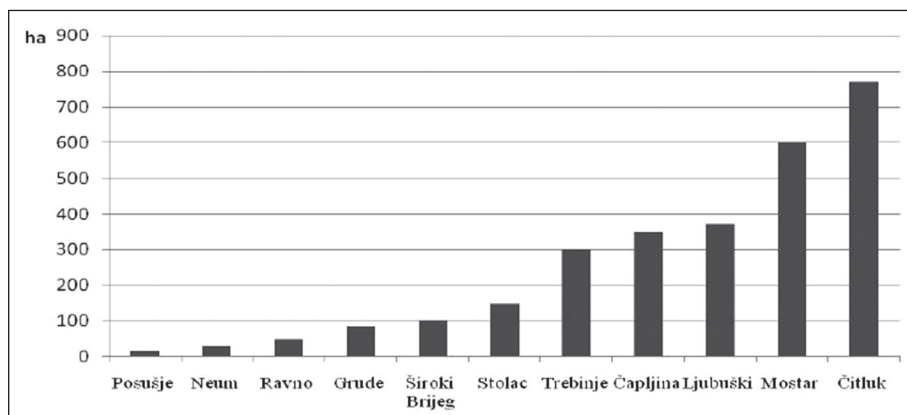


Figure 2 Area under vineyards in the leading municipalities in Bosnia and Herzegovina in 2012

WINEMAKING

In 2012, Bosnia and Herzegovina had a total wine production of about 254,613 tons of grapes. As it can be seen from the table 1, the year 2009 is below the level of the year 2000, both in number of hectares planted with vineyards, and in the yields of grapes. It is a result of the restructuring of the grape vines surfaces. (Agency for Statistics of Bosnia and Herzegovina, 2012). The Ministry of Agriculture of Bosnia and Herzegovina does not really facilitate the job of digging the old plantations and revitalisation of new plantations in a short or medium deadline. Around 20 wine cellars in Bosnia and Herzegovina produce high quality wines due to climate and ecological conditions. Wine production amounts to more than 27 million litres per year. Sixty per cent of that is exports. The wines of Bosnia and Herzegovina end up on the market of Western Europe and the United States. Half of these exports go to Germany, Croatia and Austria where it is bottled without a mark of country of origin. Wine producers in Bosnia and Herzegovina are increasingly focusing on the production of bottled wines. (Table 2 and Figure 3).

The infrastructure of wineries had mainly been developed during the past decade. In the foreground, the efforts of winemakers were mostly in the direction of expansion of vineyards, and an increase in the production and quality of wine (Nurković 2013). One cannot speak about the development of wineries in terms of a food product, because, until now, a more preferential objective has been to stand on one's own feet and to offer more of bottled, quality wine to the market, opposite to the practice of selling it in tanks.



Table 2 The production of wine in Bosnia and Herzegovina, 1971-2012

Year	Vineyards in hectares	Production of grapes in tones	Yield per vine in kilogrames
	Total		
1971	5.325	31.069	1.32
1981	4.993	38.327	1.25
1991	5.781	31.134	1.87
2001	6.989	13.873	2,08
2002	7.280	14.203	2,07
2003	10.772	19.158	1,85
2004	10.827	19.541	1,95
2005	11.035	20.813	2,08
2006	11.419	19.990	2,00
2007	11.810	18.735	1,80
2008	11.912	18.845	1,91
2009	11.918	19.321	1,92
2010	13.793	22.680	1,95
2012	16.869	25.734	1,34

Source: Agency for Statistics of Bosnia and Herzegovina, 1971-2012

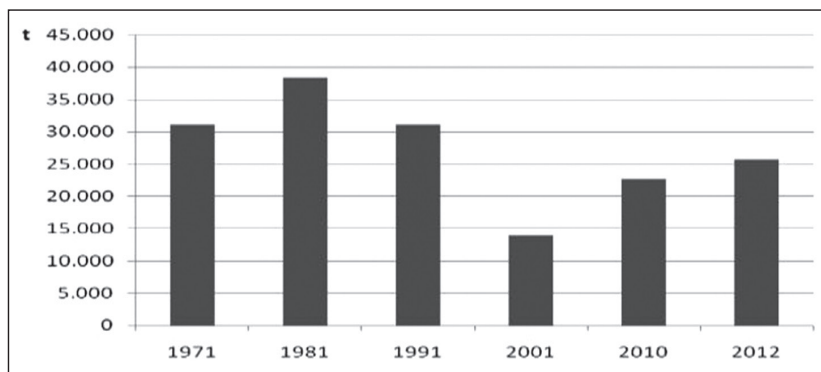


Figure 3 Production of grapes in Bosnia and Herzegovina, 1971-2012

In 2011, The Council of Ministers of Bosnia and Herzegovina accepted the plan on the development of wine regions, where industrial production of wine has a great significance for the development of the food industry. Herzegovina stands out as an area with great potential in organic agriculture and organic production of food and wine. If a very rich cultural and historical tradition is taken into con-



sideration, then it has a great potential for economic development of small and medium-sized enterprises through the food industry (Lorber, 2006).

Today, smaller wine producers in Bosnia and Herzegovina are thinking of connecting the wineries with tourism offer (Nurković, 2009). Similar to this Matlovičova and Husarova (2017) pointed to the existing and so far in tourism, little used cultural potential of the castles and their ruins as an important part of cultural heritage of Slovakia. Special attention has been paid to the example of the ruins of the castle Čičva. The rich history, unusual architecture and interesting natural environment advise the castle Čičva to monuments with a strong, but yet also considerably unused potential. Compared with other castles of the regions of eastern Slovakia has a number of flaws in the implementation of the cultural-historical events, in the width and variety of the offer and additional services, in the promotion of the activities of the association and also the castle itself, as the visitation worthy local tourist attraction.

Economic impacts of tourism have an influence on the economic situation of host community. They include features such as higher prices, employment, income and infrastructure development. Socio-cultural impact of tourism affects the social and cultural life of the population, such as quality of life, the quality of some services, cultural events, heritage, traditions, as well as crime and traffic jam (Sabolova, 2013).

According to Tej (2014) Tokaj wine in Slovakia is historically created brand that is well known in region, in country and in Europe. It is necessary to activate self-governing managements in the Tokaj region to intensify activities related to the promotion and communication in tourism local, national and international scale to attract more tourists, who may consume wine products and use many attractions in the form of festivals, hiking trails, bike routes and calm nature environment and rural environment.

Visiting the cellars and tasting of several types of wine by local and foreign tourists, all of which is certainly well-paid, ends with purchasing wine without intermediaries. The Herzegovinian wineries are already offering wine tasting and selling through their agencies for customers, i.e. the website Exploring Bosnia and Herzegovina. It seems that a real step towards the development of vineyards and wine production was done by investors from Bosnia and Herzegovina, the United States and France with the winery of 'Hepok' from Mostar.

Moreover, the local government became aware of the potential of wines and development of new vineyards (Arnold, 1985). Herzegovina has a project of exploiting comparative advantages of viticulture, wine production in a broader area of Mostar, Čapljina, Trebinje, Neum etc. The project was formed by the Agency for Sustainable Development and the Fund for support of small and medium enterprises; it designed new financial services and approved 48 loans to local entrepreneurs. This



contributes to restructuring of the local economy: the increase of vineyards, varietal plantation replacement and the increase of the quality of small wine cellars. The project supported 36 family businesses (29 individual and seven wineries) aiming at producing high quality wines, according to the European standards.

The development of viticulture in Bosnia and Herzegovina is going to be achieved through provision of new projects. In addition to the development of viticulture, Bosnia and Herzegovina has all the advantages needed for the development of wine tourism. However, in order to take advantage of this potential, development of viticulture must be approached with a plan; it should be systematically integrated into the overall economic product, which Bosnia and Herzegovina has started to build. Having in mind development factors, first of all natural-geographical, accomplished level of development, possibilities and needs in the aim of agriculture development, it is necessary to take concrete measures. Agriculture revitalization measures should be applied also to areas of husbandry and cattle breeding. One of the most important causes of decline is migration of the rural population towards towns, as well as insufficient investment in agriculture. Aggravation circumstance is that agrarian households are not provided with certain placement of products to the market. (Gekić, 2013).

CONCLUSION

The relationship of wine production and other industries is mutually beneficial. Integration of the wineries in Bosnia and Herzegovina into economic development can be of a twofold use: an increase in sales at the place of production, and marketing of their wines. In order to take advantage of this potential, the development of viticulture must be approached with a plan; so it should be systematically integrated into the overall economic product, which Bosnia and Herzegovina has started to build. It requires entrepreneurial spirit and willingness of winemakers to develop their wineries, as well as the quality of wines, but, on the other hand, it also requires a strong support by the state authorities responsible for the economic development of the wine business, and a strategic direction of this development.

In more recent years, especially after 2001, large spatial changes occurred in the rural communities of Bosnia and Herzegovina due to rapid development of new economic activities, which strongly affected the transformation of the rural settlements. Strong pressure from foreign and domestic investors leads to poor quality and the illegal construction of buildings in rural settlements, which have been spatially spreading along the vineyards and roads. The state has done little in terms of the wine brand-building in Bosnia and Herzegovina, as a recognizable wine destination. There is no informative, wine list offer whose function is to increase the customer interest; not to mention that there is no a registered "Wine Trail", or the atlas of wine regions.



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