

State of and Conditions for Viticulture Development in Bosnia and Herzegovina

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Abstract

This paper presents the state-of-the-art of viticulture development in BiH. Research is based on the extensive literature review. A number of secondary data sources have been consulted. Viticulture in BiH is characterized by the dominance of small family owned vineyards (up to 2 ha). In older plantations there are mainly autochthonous cultivars while in new vineyards there is a modern cultivar assortment. Although BiH has a good potential and excellent conditions for viticulture, wine imports are almost five times higher than exports. Therefore, there is a need for better cooperation of professional, scientific and government institutions with grapevine growers and wineries in order to modernize production process. This cooperation is essential especially in organizing the production of virus-free propagation material, during the introduction of new cultivars and for preserving autochthonous varieties in the vineyards of BiH.

Key words: autochthonous varieties, cooperation, vineyard area, development

Introduction

Viticulture and enology represent significant industries in most countries of Europe and the world. In 2012, world vineyards covered a total area of 7,528 thousand of hectares while wine production reached 252 million of hectoliters (OIV, 2013). Based on the Food and Agriculture Organization (FAO) database, during the period 2001-2009 the average production of wine in the Central European Free Trade Agreement (CEFTA) region amounted to 610 million liters, while the average wine export amounted to 243.5 million liters (Vlahovic et al., 2008).

Viticulture is an important branch of agriculture in BiH. Referring to the surface of vineyards, BiH took 63rd position out of 91 countries of the world in which vine is grown (FAOSTAT, 2012). However, the total surface of unused agricultural land, especially in Herzegovina region, could move up BiH on the producers' scale and bring economic benefits to the country's wine producers.

The structure of the vineyard and the wine sector in BiH has significantly changed in the post-civil war period. After going through a very difficult period during the Bosnian civil war, transition period and the collapse of the great wine-growing and wine-producing complexes, BiH is deploying huge efforts to revitalize its viticulture.

Viticulture in BiH is characterized by the dominance of small vineyard areas of 0.001 to 2 ha, and there is a small number of vineyards with more than 10 hectares in one plot (FAO-ROECA, 2012). Vineyards are mostly family owned and of which there are no exact data since there is still no register of grape and wine. According to the BiH Agency of Statistics, the number of Bosnian households and farms dealing with viticulture is around 11,000. Most of these are very small producers who are only producing for self-consumption or for the local market.

Out of these, only less than 200 farms produce grapes on more than two hectares of land (FAO-ROECA, 2012). The area with vineyards has been constantly growing, especially since 2005; in 2005 in BiH, 2,100 ha of land were used for wine grape production while this figure had increased to 3,240 ha by 2011 (FAO-ROECA, 2012).

This review paper aims at presenting the current conditions of viticulture in BiH and providing some recommendations for fostering the development of this sector.

Conditions for viticulture production

BiH is located between latitudes 42°26' and 45°15' north and longitudes 15°45' and 19°41' east. In BiH vineyards are mainly distributed at elevations of 150 to 600 m. Temperatures during the growing season do not represent a limiting factor for successful wine growing. The land on which vine is grown is very heterogeneous in terms of physical, chemical and biological properties.

Based on data from the Agency for Statistics of BiH (Agricultural reports of BiH for 2009, 2010, 2011, 2012 and 2013) for the period 2007-2011, an extreme variability can be seen in the production of grape yield per vine and number of fertile vines yield due to high dependence on weather conditions (Table 1).

Tab. 1. Indicators of wine production in Bosnia and Herzegovina
Индикатори производње вина у Босни и Херцеговини

Indicator / <i>Индикатор</i>	Year / <i>Година</i>				
	2009	2010	2011	2012	2013
Productive vines No. (in 1000) <i>Број приносних вина (у 1000)</i>	10.828	11.303	11.570	13.662	13.525
Total Production (tons) <i>Укупна производња (тоне)</i>	25.617	23.163	21.601	25.931	31.800
Yield per vine (kg) <i>Принос по вину (kg)</i>	2.4	2.0	1.9	1.9	2.4

Source: Agency for Statistics of Bosnia and Herzegovina (www.bhas.ba)

According to the Institute for Statistics of Federation of BiH (www.fzs.ba), following a ten-year period (1999-2009) there was an increase in vineyard area of 66.67%. Thus, the 2009 vineyard area was 77.52% higher than in 1999. According to FAO-ROECA (2012), new vineyards were planted in BiH mainly in 2006, 2007 and 2008 while over the period 2010-2011 there has been stagnation in the establishment of new vineyards.

Anyway, this clearly shows that there were new investments in viticulture and a significant planting of new vineyards in BiH. However, further investments are still needed relating to the quality and the capacity of the existing vineyards, the wineries and their technologies and capacities, marketing and promotion as well as wine tourism (FAO-ROECA, 2012).

Cultivar Assortment and the Basic Characteristics of a Viticulture Production in B&H

A great importance in modern viticulture is given to the selection of appropriate grape varieties (Kerridge & Antiliff, 2004). A variety, as a quality factor, with its specificity is crucial in the production of wine, especially when it comes to producing high quality wines (Jovanovic-Cvetkovic et al., 2008).

The old traditional autochthonous varieties are mainly represented in older plantations. In recently established plantations there is a modern assortment. Above all, there is a presence of primarily leading cultivars that make the basis of assortment in all viticulture countries such as: Cabernet Sauvignon, Cabernet Franc, Merlot, Pinot Noir, Sauvignon Blanc, Traminer, Burgundy (white and grey) and Chardonnay. In Herzegovina region, native Montenegrin variety Vranac has been planted in many vineyards in the last decade and yields very good results.

As far as older plantations of the Herzegovina region are concerned, the dominant varieties are native Žilavka and Blatina. Variety Blatina due to its specific characteristics is associated with the most commonly grown varieties such as Vranac, Merlot and Trnjak that are good pollinators. BiH is an area that used to have a large number of native varieties. After the grape pest phylloxera destroyed the vineyards in the whole country, grafting on American rootstocks began. On this occasion, some varieties that were of less economic importance simply were not grafted; consequently they were not restored and thus lost forever. Local varieties are a natural heritage. They are important for the maintenance of biodiversity. Some of these varieties may be used in breeding programs and for the creation of new varieties (Beljo et al., 2011). A level of threat to certain native varieties in BiH can be seen in Table 2. There are two groups of autochthonous varieties in BiH. One group is grown on a commercial scale as Žilavka and its accompanying varieties Bena, Krkošija and Dobrogostina among white grape varieties and Blatina with additional varieties Trnjkom and Plavka as black grape varieties. Others are less important and nowadays are rare. Some of them can be found only as single bunches of old vineyards and the trellis even over a 100 years old.

Development of Viticulture

In order to develop any area of agriculture it is essential to have a good cooperation, interaction and synergy between science and practice.

In the last decade there has been a tendency to boost the number of plants per unit of area in BiH, as this allows achieving a desired yield with lower load on individual vines.

One of the prerequisites for achieving the above mentioned is to use clonal planting material and preferably certified. Of utmost importance for prospects and improvement of BiH vineyards should be the establishment of stem plants, which have a high genetic potential and which are healthy *i.e.* not infected with viruses and other dangerous diseases transmitted by vegetative propagation.

Tab. 2. The level of vulnerability of autochthonous varieties in BiH
Степен осјетљивости аутохтоних сорти у БиХ

No <i>Бр.</i>	Variety <i>Сорта</i>	Level of threat <i>Ниво претње</i>	No <i>Бр.</i>	Variety <i>Сорта</i>	Level of threat <i>Ниво претње</i>	No <i>Бр.</i>	Variety <i>Сорта</i>	Level of threat <i>Ниво претње</i>
1	Žilavka	-	14	Šljiva bijela	+	26	Ružica	++
2	Krkošija	-	15	Šljiva crna	+	27	Uzbrdnjača	++
3	Bena	-	16	Menigovka	+	28	Lianjka	++
4	Blatina	-	17	Toboluša	++	29	Dugulja	++
5	Trnjak	-	18	Surac	++	30	Šilja	++
6	Dobrogostina	-	19	Žestac	++	31	Žuičar	++
7	Mala blatina	+	20	Zlatka	++	32	Suščevka	++
8	Plavka	+	21	Medenka	++	33	Rstuša	++
9	Prošip bijela	+	22	Razlaguša	++	34	Sretnikuša	++
10	Prošip crna	+	23	Ramka	++	35	Markovo	++
11	Nadidar	+	24	Čevruša	++	36	Ikinica	++
12	Zloždar	+	25	Ruža	++	37	Crno	++
13	Podbjel	+						

Source (извор): Beljo et al. (2011)

Legend (легенда): - not threatened (*није угрожено*); + partially threatened (*ојелимично угрожено*); ++ threatened (*угрожено*)

Parent plants should be planted with seedlings of base category. This will give high-quality and healthy material which will be used for the production of certified seedlings with which modern vineyards should be established. Until the moment parent plants of base category are formed it is essential to import ready-made plant material and to use standard planting material as well, provided that it passes an adequate control. In addition to forming parent plants for organizing a modern and efficient nursery production, it is necessary to organize laboratories that can competently and regularly perform highly complex sanitary controls.

Wine imports into BiH are almost five times higher than exports, although the country has a significant capacity and excellent conditions for the production and processing of grapes. According to the FBiH Chamber of Commerce (www.kfbih.com), for the first 10 months of 2014 more than 1800 tons of wine, which valued around four million BAM, were exported from BiH while during the same period, import exceeded 4500 tons of wine worth over 15 million BAM. The fact that there is a large quantity of imported wine on the Bosnian market - that seriously endangers local production and the competitiveness of local grape and wine producers - is also a consequence of the lack of authorized institutions and laboratories for quality control of imported wine (FPI-BH, 2011).

Wine growers state as the biggest problem the lack of reference laboratories and weak governmental support, *e.g.* incentives for export. As a possible solution and answer to the problem of exports, the association of wine producers is a must for joint performance on the world wine market stage. At this point it seems that the most appropriate form of producer aggregation would be cluster because it protects the interests of all wine producers. Wine cluster should contribute to making BiH recognized as a wine-growing region firstly at the regional and then at the European and world level. Cluster would guide vineyards in improving the quality of grapes and thus the wine and publishing specialized publications on wine. These publications will raise the culture of wine consumption in the country and contribute to the promotion of local wines. The service offer of wine cluster can also include wine roads and other tourist offers.

One of the problems related to grape production in BiH is also the lack of a vineyard cadastre. Activities to develop wine cadastre of BiH started in early 2008, but have never been completed. Making wine cadastre is one of the conditions for joining the EU. The existence of vineyard cadastre would simplify management, promotion and preservation of viticulture practices in BiH. As a matter of fact, the lack of an official database or a register relating to grapevine and wine producers is an important systemic short coming, as due to this disadvantage there are very limited possibilities to systematically and continuously monitor and analyze the situation in this field. This also significantly reduces the possibility for the definition of a state-wide policy which would enable a solution of identified problems relating to development, support, promotion and protection of the viticulture and oenology sector in BiH (FPI-BH, 2011).

Unlike for some other branches of agriculture, the market for viticulture products is relatively safe and production is profitable. High-quality raw materials reached a price that can guarantee a certain profit to grape producers even without having a high manufacturing capacity.

Current assortment especially used for new plantations, with balanced yield per unit area and per vine, make safe income for grape producers. However, in order to improve viticulture it is necessary to have the support of the state. Provided subsidies for planting new trees are significantly less than the actual vineyard establishment cost, and there are no incentives for annual vineyard management and running costs. Producers receive subsidies amounted to 35% of their invested money. That subsidy cannot exceed 8000 BAM per hectare or 80000 BAM per user.

Taking into account a number of factors - the favorable climate, unused farmland, the possibility of growing vines on poor terrain, large unemployment among the population - viticulture becomes one of the most important sectors for employment in rural areas that can reduce rural poverty and improve rural livelihoods. This is particularly true for those rural areas where most of grape production is concentrated such as some municipalities in the western and southern (*e.g.* Herzegovina) parts of the country (FAO-ROECA, 2012).

Conclusion

Viticulture in BiH faces many problems, but despite that there is an increase in the vineyard area year by year. For the modernization of technological processes on old and newly established vineyards, the following measures should be taken into consideration:

- To modernize vine assortment by introducing the new clones of standard and autochthonous varieties into production as well as introducing new and domestic varieties.
- To tighten criteria for the quality production and virus-free seedling material and to subsidize them.
- To further develop a vineyard cadastre.
- To establish clusters or apply some other ways of association in order to better place the product on the market.
- To select and prescribe appropriate growing systems and accordingly spacing of planting and number of plants per unit area.
- Enhance cooperation between professional advisory services and producers.
- To allocate funds from entity agricultural budgets for viticulture development.

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Стање и услови развоја виноградарства у Босни и Херцеговини

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Сажетак

У раду је приказано тренутно стање и услови за развој виноградарства у Босни и Херцеговини. За виноградарство у Босни и Херцеговини карактеристична је доминација малих винограда (до 2 ha). У старијим виноградима углавном преовладавају аутохтоне сорте, док је у новијим засадима заступљен савремени сортимент. Иако Босна и Херцеговина има добар потенцијал и одличне услове за виноградарство, увоз вина је пет пута већи од извоза. Због тога, јавља се потреба за интензивнијом сарадњом стручних, научних и државних институција са произвођачима, како би се модернизовао и технолошки осавременио процес производње, а све у циљу постизања бољег квалитета грожђа и производа од грожђа. Ова сарадња је неопходна и при организацији производње безвирусног садног материјала винове лозе, приликом увођења нових и очувања аутохтоних сорти у виноградима Босне и Херцеговине.

Кључне ријечи: аутохтоне сорте, сарадња, површина под виноградима, развој

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