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THE VITICULTURE AND WINE PRODUCTION IN THE FUNCTION OF MULTIFUNCTIONAL AND RURAL DEVELOPMENT OF AGRICULTURE

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Abstract

By using scientific methods applied in this scientific work such as: analytical method, quantitative analysis- costing calculation (the cost principal) and mathematical and statistical method (the dynamic analysis of trends), the authors have researched the economic efficiency and profitability of grape and wine varieties Žilavka and Blatina on the family estate in West Herzegovina. The research was conducted in the period 2006 – 2008. The results reached by the authors are following:

The economy of grape Žilavka production quoted by the economy coefficient was 1,12 in 2006 and 1,31 in 2008, and for Blatina 1,18 in 2006 and 1,34 in 2008.

The production rentability of grape Žilavka quoted by the rentability coefficient was in the range of 12,03 % in 2006 up to 31,15 % in 2008, and for grape Blatina from 15,95 % in 2006 up to 25,66 % in 2008.

The economy of wine Žilavka production quoted by the economy coefficient was in the range of 1,41 in 2006 up to 1,47 in 2008, and for wine Blatina 1,42 in 2006 up to 1,47 in 2008.

The rentability of wine Žilavka production quoted by the rentability coefficient was in the range of 29,06 % in 2006 up to 31,96 % in 2008, and for wine Blatina 29,81 % in 2006 up to 32,19 % in 2008.

Key words: *grape, žilavka, blatina, wine, economy, rentability, scientific methods.*

Introduction

In the last decade of development both viticulture and wine-production have made new successes in technology and economy of production.

There's no doubt that intensification of production process granted privileges for such

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fast success. The result of that are modern plantations and contemporary modern wine cellars on family estates in all over the Herzegovina.

The area of researched estate is 7 ha and all the 7 ha are planted with Žilavka and Blatina sorts. This estate owns modern and air-conditioned cellar with capacity of 35 000 liters. It is also equipped with modern machines for the first manufacture, ripen and bottling the wine.

This cellar is equipped with inox cisterns and vats for wine fermentation. Congruently to applied technology all the vessels have heating and colding systems for wine necessities. Elementary equipment on this estate are: John Deer 75 KS tractor, Fendt 209 tractor, cellar capacity of 35 000 litres, grape crusher of 2 000 kg/h capacity, wine-press of 2 000 kg/h capacity, filler and stoppler of 500 bottles/hour capacity, inox cisterns, wooden and barique barrels of 250 hl, pumps for rack wine 2 000 l/h, compressor and connectives.

Wine brands are of high-quality and are well-known Žilavka and Blatina wich are filled in bottles of 0,75 l and 0,25 l and loza brandy filled in bottles of 0,75 l.

More important organizational characteristics of the researched estate

Natural conditions for wine-production (position, climate and ground)

The vineyard is in a village Studenci near regional road Ljubuški – Čapljina. It is located on softly inclined ground with a lot of sunny days which is privilidge for the planted sorts.

The ground with the vineyard is a deep brown with satisfied water permeability and biologically active. Reaction of the ground is slightly sour.

The system of growing and wine sorts

In the researched family estate the growing sort of wine is two-sides cordon with planting distance 100x180 cm. It means that there are 5 000 grape-vine on 1 hectare. The vineyard is 9 years old. Žilavka and Blatina vines are planted together with accompanying sorts on area of 7 hectares.

There are: white sorts: Žilavka 80%, Bena 10% and Krkošija 10%; and red sorts: Blatina 80%, Trnjak 10% and Alikant 10%.

Tasks, aims and methods of the research

Task and aim of the research

The task of the research is to establish, investigate and analyse all the economical factors of grapes and wine production based on all relevant indicators (technical, market, organizational and economical). The task is also to calculate efficiency of the business, first of all economy and profitability of grape and wine production.

The aim is to research all important factors which directly and indirectly influence the economy of grape and wine production on the researched family estate. These factors are very important for the economy and profitability of the business.

The methods of the research

To establish the results in this research we use scientific methods which are used in agricultural and economical researches such as:

1. Analytic method
2. Quantitative analysis – accounting calculation (expenses)
3. Mathematical and statistical method – dynamic analysis of a trend.

Grapes and wine production and its expenses and incomes

Table 1. - Accounting calculation for 1 ha of a vineyard for Žilavka grape in 2006

Ordinal number	A. Machine work	Un.of measure (hour)	Quantity in hours	Price of an hour expressed in KM	Value in KM
1.	Manure	hour	10,00	12,00	120,00
2.	Drawing remains of grapevine	hour	3,30	12,00	39,60
3.	Throwing mineral dung	hour	3,30	12,00	39,60
4.	Ploughing and cultivation	hour	18,00	12,00	216,00
5.	Spraying and sprinkling	hour	52,00	12,00	624,00
6.	Grape transport	hour	6,00	12,00	72,00
7.	Other machine works	hour	10,00	12,00	120,00
Total		hour	102,60	12,00	1.231,20
	B. Handicraft				
1.	Cutting the vine and fixing the armature	hour	116,00	5,00	580,00
2.	Loading, unloading of reproduction material and protection means	hour	6,00	5,00	30,00
3.	Weeding vine	hour	42,00	5,00	210,00
4.	Vintage	hour	116,00	5,00	580,00
Total		hour	280,00	5,00	1.400,00
	C. Reproduction material				
1.	Mineral dung N:P:K 7:20:30 i KAN 27 %	kg	700,00	0,43	300,00
2.	Protection means Folpan 0,2%, Chromosul 0,3%, Mikal flash	kg	42,50	9,50	403,85
3.	Protection means Ronilan, Ronilan Gold, Antrakol, Folpen	ml	18,00	13,80	248,60
4.	Bordeau soup	kg	40,00	4,55	182,00
5.	Manure	t	3,00	300,00	900,00
Total					2.034,50
Total: A+B+C					4.665,70

Source: own research

Direct expenses in producing Žilavka grape on one hectre were as follows: 4.665,70 KM in 2006, 5.598,10 KM in 2007, and 7.045,50 KM in 2008.

Depreciation, gross salaries and other indirect expenses were as follows: 6.313,25 KM in 2006, 7.035,20 KM in 2007 and 7.799,64 KM in 2008.

Total expenses in producing Žilavka grape on one hectre of a vineyard were as follows: 10.978,95 KM in 2006, 12.633.30 KM in 2007, and 14.845,14 KM in 2008.

Total expenses in producing Blatina grape on one hectre of the vineyard, calculated by the same methods, were as follows: 10.992,81 KM in 2006, 12.656,90 KM in 2007, 14.945,58 KM in 2008.

Table 2. - Prices of Žilavka and Blatina grape in a period 2006. - 2008.

Year Žilavka	Production expenses in KM/ha	The number of grape-vines on one hectre	Agricultural produce of grape in kg / ha	Grape price in KM/kg
2006.	10.978,95	5.000,00	10.250,00	1,071
2007.	12.633,30	5.000,00	11.580,00	1,090
2008.	14.845,14	5.000,00	12.980,00	1,144
Year Blatina	Production expenses in KM/ha	The number of grape-vines on one hectre	Agricultural produce of grape in kg / ha	Grape price in KM/ kg
2006.	10.992,81	5.000,00	10.900,00	1,008
2007.	12.656,90	5.000,00	12.100,00	1,046
2008.	14.945,58	5.000,00	13.400,00	1,115

Source: own researc

The prices of Žilavka and Blatina grape have risen during the period of research. Reasons for that were rises of the prices of labour, reproduction material and machine work in grape production.

Table 3. Production value – total income of Žilavka and Blatina grape in period 2006 - 2008.

Žilavka	The number of grape-vines on one ha	Agricultural produce of grape in kg/ha	Grape selling price in KM/kg	Value of the produced grape in KM/ha
2006.	5.000,00	10.250,00	1,20	12.300,00
2007.	5.000,00	11.580,00	1,30	15.054,00
2008.	5.000,00	12.980,00	1,50	19.470,00
Blatina	The number of grape-vines on one ha	Agricultural produce of grape in kg/ha	Grape selling price in KM/kg	Value of the produced grape in KM/ha
2006.	5.000,00	10.900,00	1,20	13.080,00
2007.	5.000,00	12.100,00	1,30	15.730,00
2008.	5.000,00	13.400,00	1,50	20.100,00

Source: own research

Wine production, its expenses and incomes

During wine production, processes of grape production and manufacture represent intermediate stage in wine production.

Grape production and manufacture expenses will determine the price of wine production. Directly and indirectly they will influence the financial result of the business.

Table 4. Total expenses in Žilavka and Blatina wine production (0,75 l) in period 2006. – 2008.

Žilavka			
Kind of expense in KM	2006.	2007.	2008.
Raw material expenses (grape)	1,337	1,362	1,428
Manufacture bottle expenses (0.75l)	0,649	0,763	0,936
Bottle filling expenses (0.75l)	1,199	1,499	1,874
Total	3,185	3,624	4,238
Blatina			
Kind of expense in KM	2006.	2007.	2008.
Raw material expenses (grape)	1,260	1,307	1,393
Manufacture bottle expenses (0.75l)	0,664	0,783	0,922
Bottle filling expenses (0.75l)	1,237	1,599	1,924
Total	3,161	3,689	4,239

Source: own research

Table 5. Economy and profitability in grape and wine Žilavka and Blatina production in period 2006. – 2008.

Years	2006 in %	2007 in %	2008 in %	On an average in %
a) Žilavka grape				
Economy	1,12	1,19	1,31	1,21
Profitability	12,03	19,16	31,15	20,78
b) Žilavka wine				
Economy	1,41	1,43	1,47	1,43
Profitability	29,06	30,31	31,96	30,44
Years	2006 in %	2007 in %	2008 in %	On an average in %
a) Blatina grape				
Economy	1,18	1,24	1,34	1,25
Profitability	15,95	19,53	25,66	20,38
b) Blatina wine				
Economy	1,42	1,44	1,47	1,44
Profitability	29,81	30,78	32,19	30,92

Source: own research

Conclusions

On basis of the previous research of economy in grape and wine production on an estate, the authors have concluded the following:

1. The economy of Žilavka grape is in range from 1,12 to 1,31, and the highest was in 2008 (1,31). The three-year average coefficient of economy for Žilavka grape was 1,21. The economy of Blatina grape production is in range from 1,18 to 1,34. The three-year average coefficient of economy in Blatina grape production was 1,25.
2. Profitability of Žilavka grape production was the highest in 2008 (31,15 %), and it was the lowest in 2006 (12,03%). The three-year average coefficient of profitability for Žilavka grape production was 20,78 %. Profitability in Blatina grape production is presented by the profitability coefficient which was the highest in 2008 (25,66 %) and it was the lowest in 2006 (15,95 %). The three-year average profitability coefficient for Blatina grape was 20,38%.
3. The economy of Žilavka wine production was 1,41 in 2006, 1,43 in 2007 and 1,47 in 2008. The economy of Blatina wine production was 1,42 in 2006, 1,44 in 2007 and 1,47 in 2008.
4. The profitability of Žilavka wine production was 29,06 % in 2006, 30,31 % in 2007, and 31,96 % in 2008. The three-year average coefficient of profitability for Žilavka wine was 30,44 %. The profitability of Blatina wine production was 29,81 % in 2006, 30,78 % in 2007 and 32,19 % in 2008. The three-year average coefficient of profitability for Blatina wine was 30,92 %.
5. The agricultural produce of Žilavka grape expressed by dynamic analyses show positive tendency rise and an average rise of the agricultural produce was 1,365 t/ha. The agricultural produce of Blatina grape also shows positive tendency rise and an average rise was 1,250 t/ha.
6. Žilavka wine production expressed by dynamic analyses trend shows positive tendency rise and an average rise was 750 l/ha. An average middle aberration from trend line in Žilavka wine production was 2,500 %. Blatina wine production also shows positive tendency rise and an average rise was 750 l/ha.

Literature

1. Ivanković, M.; Expenses and calculations in agriculture, University of Mostar, Mostar 2007.
2. Ivanković, M.; Competitiveness of BandH wine production on world market (doctoral dissertation), University of Mostar, Mostar, 2003.
3. Matić, M.; Organisation and management of an agricultural estate, University of Mostar, Mostar 2003.
4. Matić, M.; Spužević, I.; Economy of Žilavka grape production on a family estate, Neum, October 17th and 18th, 2002.
5. Matić, M.; Ivanković, M.; Spužević, I.; Wine market and export possibilities of BandH, Collection of paper works, Mostar 2003.