

SUSTAINABLE WINE AND GRAPE PRODUCTION, THE EXAMPLE OF HUNGARY

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Before analysing the economic situation of winegrape production, it is practical to mention some issues concerning the industry. Grape production in Hungary suffered a severe crisis in the 1990's regarding both production and sales. Its consequence is the decreasing area of grape production and the reducing number of grape producers. Lately, after our EU accession the grape and wine verticum has significantly improved. The situation is still grave today as the producers have to face the more and more intense competition in the market and cheap import products both on the national and international markets. Grape production is in a more disadvantaged situation than wine making and the risks are higher. We have to know the cost-profit situation of the well-discernible verticum parts to make recommendations. Despite the changes, the great fluctuation in income is typical for the industry. Grape is one of the plants where price often did not cover costs in the consecutive years. Costs of production cannot be assessed on their own. They can be judged in relation with the yield changes in real.

Keywords: sustainability, wine and grape production, cost of wine grape, selling price of wine

Introduction

The environmental resource scarcity issues are entirely real. As a result of climate changes, most agricultural patterns may become disrupted and the poorest countries are the most vulnerable to such disruptions (Magda, 2013).

The (over) exploitation of our entire ecosystem and the depletion of natural resources (the reserve-to-production ratio of oil reserves is rapidly declining) carry a price that must be paid today to compensate future generations for the losses (or costs of substitution) they will face tomorrow (Magda, 2012).

Hungary's natural and ecological endowments are favourable for producing wine grapes. The wine and grape industry could be an important part of agriculture from the point of view of employment and value creation. Due to its role in tourism and its opportunities for export, the industry can be regarded as one of the industries to be strategically developed (DUPCSÁK et al., 2011).

The present situation is not favourable because of the gradual decrease of vineyards although there has been a spectacular progress lately (Béládi and Szili, 2015). To date, the total area of vineyards hardly exceeds 80 thousand hectares and almost all the areas of the industry need to be reshaped. Agricultural policy, such as the reorganisation of wine communities, the making of the law on wine, the investment and production support as well as well-prepared specialists played a great role in changes.

Material and methods

In the following sessions, the paper focuses on the characteristics of the Hungarian wine production, which means different opportunities in production and consumption of the wine.

The methodological approach is mainly descriptive. The analysis will be based on relevant statistical data from secondary sources from national and international literature.

Results and discussion

Natural resources form part of the natural environment that meets human demands. The depletion of them both globally and locally – thus in case of

Hungary too – has become a realistic issue, therefore sustainable development has become the most complex challenge in the history of mankind for the next decades. It exists at macro-, micro- and individual levels and resulted in the intertwining of social, economic and ecological issues. It is advisable to follow a new paradigm in the course of natural resources management that is based on the trinity of sustainability – climate change – globalization. Sustainability can only be asserted in this harmony.

The local program of sustainable development (Local Agenda 21 – “LA 21”) aims to create harmony at local and micro-regional level in the natural environment-economy-society triangle in a way that it serves the long-term principles of sustainability.

The characteristics of Hungary's grape production

The total area of the vineyards has been decreasing significantly. As a result, yield will not be able to meet the minimum requirements of the wine industry, either. Such an amount of grapes should be grown that would ensure the production of 3.5–4 million hl wine. The efficiency of yield per hectare is low in Hungary and with an average yield of 5–7 t ha⁻¹ we cannot be competitive.

If Hungary would like to regain its market segment of mass-produced wines, the yield of the vineyards must be increased. Sidlovits and Kator (2015) state that the average yield of the vineyards in Hungary is 41 hl ha⁻¹ while in the case of GNM (geographically non-marked) wines it is 60 hl ha⁻¹. In contrast, in Italy it is 74 hl ha⁻¹ and 116 hl ha⁻¹ for the geographically non-marked types, respectively. The technology, mechanisation and production organisation of the Italian producers are better than the Hungarian ones and in many cases they irrigate. Where possible, irrigation is inevitable as it makes us competitive in the GNM segment.

According to Nagy, Kovács and Varga (2010) the Hungarian practice is not good. There is no balance of power among the grape producers, viticulturists and commercial units. Consequently, between the certain stages the share of profit is uneven. Grape producers may incur losses as they can be significant in weaker years. This would contribute to area loss and that is why many take part in felling programmes. The characteristics of grape production are presented by Table 1.

The Agricultural Economic Research Institute (AERI) runs a testing system to analyse the cost-income relations of the industries similarly to the

Table 1 The characteristics of grape production in Hungary

Name	2011	2012	2013
Harvested total grape yield, tonnes	449 870	356 363	451 115
Total grape producing area, hectare	81 001	82 274	80 193
Product yield, kg ha ⁻¹	5 960	4 930	6 510
Grapes for consumption, tonnes	14 634	12 563	15 196
Purchasing average price, Ft kg ⁻¹			
Dessert grape	149	198	159
Wine grape	85	100	112
Producer-market average price, Ft kg ⁻¹			
Dessert grape (for consumption)	315	428	355
Gross production value (dessert grape) million Ft			
Current value	2 568	2 319	2 319
Comparative price (last year)	3 479	2 203	2 319

Source: Central Statistical Office (CSO), Yearbook of Agricultural Statistics, 2013

Table 2 The cost and income situation of wine grape

Name	Measurement	Average yield of prominent farms		
		2011	2012	2013
Production cost	HUF ha ⁻¹	608 298	571 159	656 820
Average yield	t ha ⁻¹	7.28	5.38	8.31
First cost	HUF t ⁻¹	83 526	106 919	79 021
Selling price	HUF t ⁻¹	90 659	110 365	111 439
Specific income*	HUF t ⁻¹	7 133	3 446	32 418
Industrial revenue**	HUF ha ⁻¹	194 220	170 101	418 460
Industrial revenue per 100 Ft production cost	HUF	31.93	29.78	63.71

Source: Calculations made on the basis of the testing system by the Industrial Economic Department of AERI, In Béládi and Szili, 2015

Note: * without support, ** with support

Table 3 The cost and income situation of wine grape, 2013

Name	Measurement	First cost share		
		lower than the standard	production standard (average $\pm 10\%$)	higher than the standard
Production cost	HUF ha ⁻¹	448 710	630 527	896 710
Average yield	t ha ⁻¹	9.01	8.17	7.58
First cost	HUF t ⁻¹	49 818	77 148	118 319
Selling price	HUF t ⁻¹	101 579	109 305	125 162
Specific income*	HUF t ⁻¹	51 761	32 157	6 983
Industrial revenue**	HUF ha ⁻¹	590 263	412 106	229 903
Industrial revenue per 100 Ft production cost	HUF	131.55	65.36	25.52
Share per area	%	46.19	12.38	41.43
Share per yield	%	50.05	12.17	37.78

Source: Calculations made on the basis of the testing system by the Industrial Economic Department of AERI, In Béládi and Szili, 2015

Note: * without support, ** with support

European practice. Data are collected in a database and conclusions may be drawn from the figures collected this way (Béládi and Szili, 2015).

Wine grape production incurs significant costs. Two-thirds are made up by wages and salaries, pesticides and machinery. The revenue of the industry is appropriate only if support is given (Table 2).

From the point of view of the first cost the grape producing farms show significant differences. Farms that have a deviation of $\pm 10\%$ from the average of the total sample are the standard while the other farms are classified with lower or higher values than the average. It is illustrated by Table 3.

Table 4 Grape and wine production

Name	2001–2005 average	2006–2010 average	2011	2012	Of which		
					business organisation	private farms	N/A in business
Vineyard, thousand ha	92	82	81	82	13	55	14
– of which: production area	–	75	76	72	12	48	13
Grape yield, thousand t	632	496	450	356	65	233	58
– of which: dessert grape	27	16	15	13	0	12	1
Average yield on the production area, kg ha ⁻¹	7 080	6 570	5 960	4 930	5 440	4 870	4 660
Wine production, million l	420	298	282	224	–	–	–

Source: CSO, 2013

Grape production is significant in the Veszprém, Baranya and Tolna counties in Transdanubia, the Heves and Borsod-Abaúj-Zemplén counties in North Hungary, while the Bács-Kiskun county is the leading one in the Great Plain.

Regarding yield, 2010 marked the lowest point and since then there has been a slight increase.

Grape and wine production is typical for private farms as the area of business organisations has decreased. It is illustrated by Table 4. AERI classifies primary producers, private farmers, family farms and joint farms under the term private farm in line with the practice of the CSO. Joint farms are made up by several primary producers and private farms under common control in practice as if it were an enterprise with independent management. All the other business forms are listed as joint organisations.

Characteristics of wine production, export-import and processing selling prices

It is our most important task to preserve the dominance of the Hungarian wine in the domestic market. Today, the presence of import

wines is disturbing on the market (Farkas, 2010a).

In ten years' time wine and grape production has produced weak results-only the past few years are promising. Significant felling, change in technology and inadequate plantation resulted in its decreasing role in employment to a great extent (Barócsi et al., 2012). The regional characteristics of wine and grape production are presented by Table 5.

Our production does not even reach 3 million hl, which is necessary for domestic consumption. The regional characteristics are similar to the ones of the vineyards and most wines are produced in the Bács-Kiskun county.

In the case of wine the role of commerce is decisive for revenue. According to the classical commercial theories, the differences between productivity and production cost of countries induce trade. However, different forms of intervention in the trade of agricultural products (restrictions on quantity or price regulation) modify the prevalence of advantages in competitiveness (Bozsik, 2003).

The reasons for influencing the market differ (stabilising the market, ensuring decent income, satisfying consumers' demand) but

they should be considered in trade. Our country can consider and assess these factors due to their weight in wine trade and competitiveness (Bozsik, 2005).

Since Hungary's EU accession, importing wines has dramatically been increasing and basically it is the Italian wines that dominate. Import is partly loose wine. The price of the Hungarian wines which are geographically not marked is relatively high and similar to the price of the French wines. Other competitors sell this category cheaper (Italy, Spain).

To regain the competitiveness of the Hungarian wines, a more efficient production organisation is necessary. Such a complex subsidising and controlling system is necessary that embraced the entire product path from producing raw materials to marketing wines (Sidlovits et al., 2012).

The amount and value of export and import are presented by Table 6 and Table 7.

In the export Germany, Slovakia, the Czech Republic, the United Kingdom, Lithuania and Poland are the most important destinations while the Italian mass-produced wines lead in import. Regarding prices there is a continuous increase in all categories, which can result in even 10–15% price rise per year (Table 8).

Farkas (2010b.) examines the competitiveness of different wine categories. The Relative Trade Advantage (RTA) index takes both import and export into consideration.

Based on the examination, the RTA values showed positive results except for the red quality loose wine.

Bozsik (2008) also qualified quality white bottled wines competitiveness. The CMS method (Constant Market Share Analysis) used in his examination is suitable to define three structural components of market share (market size effect, market composition effect, competitiveness). A large part of Hungarian wineries still work without strategic objectives.

Table 5 The regional characteristics of wine and grape production in Hungary (2013)

Region	Grape			Wine production, hl
	yield, t		average, yield kg ha ⁻¹	
	total	of which: dessert grape		
Central Hungary	21 218	405	6 340	137 375
Central Transdanubia	52 788	913	5 890	330 769
West Transdanubia	26 370	645	4 700	174 052
South Transdanubia	80 008	3 992	7 140	524 855
North Hungary	116 761	4 606	7 030	768 856
North Great Plains	14 138	1 986	4 700	83 989
South Great Plains	139 833	2 650	6 800	924 261
Total	451 115	15 196	6 510	2 944 158

Source: CSO, Regional Yearbook of Statistics, 2013

Table 6 Hungary's foreign trade of wine in quantity

Type	Wine category	Amount of export			Amount of import		
		2013, thousand hl	2014, thousand hl	change, %	2013, thousand hl	2014, thousand hl	change, %
Bottled	white	111.11	154.26	138.84	16.64	14.87	89,34
	red and rosé	70.26	92.25	131.30	30.38	31.78	104,62
	total	181.37	246.51	135.92	47.02	46.65	99,21
Loose	white	269.97	299.44	110.92	165.01	82.42	49,95
	red and rosé	30.52	30.88	101.20	169.73	207.33	122,15
	total	300.49	330.33	109.93	334.73	289.75	86,56
Total of bottled and loose		481,86	576.84	119.71	381.76	336.40	88.12

Source: CSO, Agrimarket Reports, 2015. 5.

Table 7 Hungary's foreign trade of wine in value

Type	Wine category	Amount of export			Amount of import		
		2013, bn HUF	2014, bn HUF	change, %	2013, bn HUF	2014, bn HUF	change, %
Bottled	white	6.06	7.98	131.80	0.69	0.79	115,40
	red and rosé	3.42	4.17	121.91	1.70	2.09	122,58
	total	9.48	12.15	128.23	2.39	2.88	120,52
Loose	white	6.19	6.75	108.60	2.44	0.72	29,37
	red and rosé	0.81	0.79	96.74	2.47	1.90	76,89
	total	7.01	7.51	107.22	4.90	2.61	53,26
Total of bottled and loose		16.48	19.66	119.30	7.29	5.49	75.31

Source: CSO, Agrimarket Reports, 2015. 5.

Table 8 The processing selling price of wines in Hungary

Name		2013	2014	2014/2013 %	
White	geographically non-marked	amount, hl	211 576	220 052	104,01
		average price, HUF Ft ⁻¹ hl ⁻¹	21 001	20 055	95,50
	patented geographically marked	amount, hl	82 339	125 821	152,81
		average price, HUF Ft ⁻¹ hl ⁻¹	28 496	25 101	102,12
Total white	amount, hl	293 915	345 873	117,68	
	average price, HUF Ft ⁻¹ hl ⁻¹	23 114	23 346	101,00	
Red and rosé	geographically non-marked	amount, hl	183 159	193 818	105,82
		average price, HUF Ft ⁻¹ hl ⁻¹	22 868	22 063	96,48
	patented geographically marked	amount, hl	115 945	89 416	77,12
		average price, HUF Ft ⁻¹ hl ⁻¹	30 310	30 182	99,58
Total of red and rosé	amount, hl	299 104	283 234	94,69	
	average price, HUF Ft ⁻¹ hl ⁻¹	25 753	24 626	95,62	
Total of geographically non-marked wine	amount, hl	394 735	413 869	104,85	
	average price, HUF Ft ⁻¹ hl ⁻¹	21 871	20 995	95,99	
Total of patented geographically marked wine	amount, hl	198 284	215 237	108,55	
	average price, HUF Ft ⁻¹ hl ⁻¹	29 557	29 550	99,98	
Total of geographically non-marked wine and patented geographically marked wine	amount, hl	593 019	629 107	106,09	
	average price, HUF Ft ⁻¹ hl ⁻¹	24 449	23 922	97,84	

Source: AERI PÁIR 2015. 1.

Note: wines produced domestically

Lehota et al. (2004) state that corporate strategic groups tailored to industrial characteristics have slowly been forming. The authors discussed that the creation of a homogenous strategy is not practical; rather, a differentiated strategy tailored to different conditions would be successful. Social marketing is one of the decisive areas of differentiated industrial strategy.

The last 11 years did not fulfil the dreams of the differentiated strategy envisioned.

To date, a very powerful trend for strategy can be traced down in the wine region of Tokaj financed by the BOR-VIDÉK Tokaj Hegyalja National Programme.

The development of social wine marketing is not spectacular, more funds should be raised and more concerted activities would be required.

According to Gaál (2010), marketing is full of contradictions in the food industry. The conceptual activity organised by AMC can be praised, which, in fact, means the social marketing of MGC. It also has some visible impacts (on our principal partner's, Germany's market), i.e. the growing consumer demand for Hungarian products. In some product paths, industrial cooperation has helped creating high value product positioning (wine, brandy).

The idea of social marketing aroused in the USA after the global economic recession. Farmers made marketing orders and marketing agreements for controlling production and adapting to the market in qualitative and quantitative terms. These organisations were aimed at measuring collective and coordinated supply behaviour of specific products by marketing tools (Totth, 2007).

Summary

In the national food industry most players in the industry are able to perform limited marketing activities so that is why there is the need for social marketing. According to Totth (2006) social media is such a marketing activity that stretches beyond corporate marketing and performs marketing tasks for a certain industry or producer group together with its participants.

The joint financing of producers and that of state subsidies could lead to success and the activity of social agrimarketing as a part of industrial strategy based on the legally regulated structure and consensus can be successful. Two forms can be mentioned here:

- ❑ societal marketing in which the groups are deliberately formed based on contractual liabilities,
- ❑ social marketing in which group formation can be forced and the entire industry is a part of it.

As far as the international examples are concerned, forced formation is general.

Marketing is necessary for improving the market. Due to the fragmented wine industry, social marketing activities play a great role but the task is complicated. Wine marketing is the collection of marketing science and knowledge on wine, so it is a great challenge for the specialists (Molnár, 2007). The wine profession itself considers the role of marketing important but the intensification of the industrial marketing orientation can hardly be experienced.

Corporate marketing cannot be substituted for social marketing activities and marketing culture and attitude are still not well-established. There is no unified wine brand but the 2011 decree of the government shows the intention of developing wine tourism according to which Agrimarketing Centre that performs social agri- and wine marketing activities will be transferred under the control of Hungarian Tourism Zrt (Harsányi et al., 2014).

However, no significant increase in domestic consumption can be expected. A defensive strategy can be imagined that could try to offset the attacks of partly import wines and partly other national spirits.

It is typical that we can find only forecasts and estimations instead of definite strategies (we have been speaking about agricultural strategy for about 20 years). Without specific goals and definite strategies we will be hopeless, futureless and losers.

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