

PROFITABILITY OF PRODUCTION OF TABLE GRAPES IN REPUBLIC OF MOLDOVA

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Abstract

Viticulture for table grapes is a branch of the agro-industrial complex, which possesses high adaptability to environmental conditions, relatively simple care and high economic efficiency, etc. For each economic agent, economic efficiency expresses the need for existing factors of production to be used under conditions of economic rationality, which means that unlimited needs are satisfied with increasingly limited resources throughout the economy. This paper presents the economic efficiency of table grape production. We can state that any economic activity must produce useful and qualitatively superior effects, satisfying the principle of rationality applied to the present time and to the future, thus ensuring the prerequisites for future efficiency. The research was carried out on the basis of data from the National Bureau of Statistics and reports from the Ministry of Agriculture and Food Industry, using methods of analysis, synthesis, tabulation and graphics. The vitivinicultural sector is and will remain an important one for the Republic of Moldova. High-quality grapes and wine are the calling card of our country, recognized internationally. Dynamically, in the years 2010-2018, the viticultural sector registered an average annual increase of 6.2% - the productivity of the vineyard per fruiting; 8.4% - the harvest of table grapes; 7.1% - export of table grapes.

Key words: viticulture, table grapes, return, economic efficiency, Republic of Moldova.

INTRODUCTION

At the base of any economic activity is a fundamental economic principle – *the principle of efficiency*. The general meaning of the concept of efficiency, which can refer to an activity, person or object, is to have the quality of producing the intended useful effect. This means that, the effect obtained from carrying out some economic activities, represented by income, must exceed the effort represented by expenses so that it is possible to obtain a profit [6].

Economic efficiency is an economic category, which expresses, in a broad sense, the ratio between the efforts made and the results obtained. In agriculture, economic efficiency takes on a complex character, because agricultural production is characterized by a wide variety of resources, which can be put to use in various combinations, but with different results. Increasing economic efficiency in agriculture, being an objective necessity, represents, in fact, the main lever through which this branch of material

production can increase its contribution to increasing national income [2; 6; 20; 10].

In the conditions of the market economy, the producer organizes his production activity based on the principles of the law of value, demand and supply, competition, and takes into account, first of all, the interests of the buyer, bears responsibility for the quality and quantity of production. All activities are based on *economic efficiency*.

The authors V. Svobodin and M. Svobodina (1999) highlighted the following types of efficiency, technological, economic and social, noting that the technological one characterizes the use of production resources, the economic one characterizes the level of realization of production relations and the social one characterizes the development of the rural and social-territorial community [18].

All the innumerable categories of efficiency are interrelated in the Fig. 1.

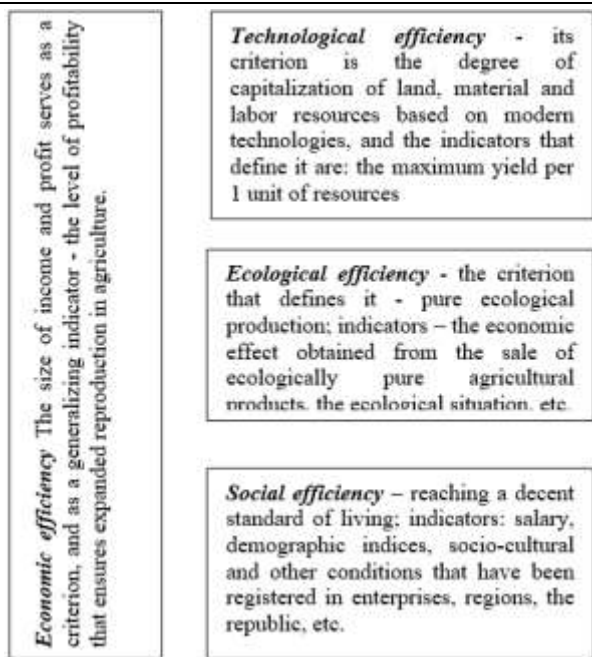


Fig. 1. The model of the structural components of agricultural production efficiency

Source: [18].

In this context, the purpose of the paper is to determine the profitability of grape production. Because, the productivity of viticultural plantations and the sustainability of their exploitation depends on the biological value of the planting material, the correctness of the establishment of the plantation and the level of care in the first 3-4 years after planting. According to the Law of Vine and Wine no. 57-XVII of March 10, 2006 (article 8, paragraph 3) the establishment of viticultural plantations is carried out with the virus-free viticultural planting material of the authorized biological category and not only of the "standard" category [12].

MATERIALS AND METHODS

In this article we will focus on the determination and argumentation of economic calculations, regarding the economic efficiency of the production of table grapes in the Republic of Moldova.

The informational support of the research is the scientific literature devoted to the agricultural sector, the materials of the National Bureau of Statistics of the Republic of Moldova, the data collected from the Statistical Yearbook of the RepublicMoldova;

The reports of the National Vine and Wine Office, specialized literature.

This problem was addressed in the works of foreign and domestic scholars such as: Babii L. (2005), Timofti E. (2009), Nicolaescu Gh. et al (2015), Zbancă, A., Morei, V., Stratan, A. (2010), Timofti and Popa (2009), Bajura T., Stratan A. et al. (2021), Timus A., Luchian, I.(2010) [1; 3; 14; 20; 21].

The following research methods were used: monographic analysis method; statistical observation; grouping method; graphic method; comparison etc.

RESULTS AND DISCUSSIONS

For the Republic of Moldova, viticulture and wine are a visiting card, and winemaking has a rich history, which has deep roots in human history. One of the profitable branches of the agro-industrial complex is the viticulture of table grapes. Despite all the economic crises that have occurred in the economy of the Republic of Moldova, the vine growing sector and, in particular, the production of table grapes, remains a pillar sector of phytotechnics within the entrepreneurial and individual economic activity in the country (Fig. 2) [11].

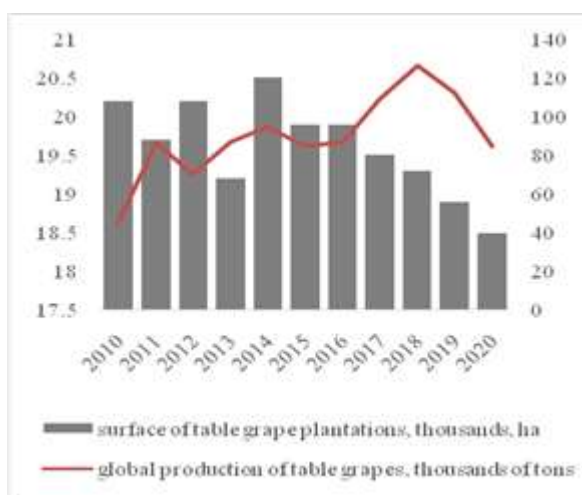


Fig. 2. Trends in table grape vine cultivation

Source: Elaborated by the author, according to data from the National Bureau of Statistics [13;17].

Viticultural plantations with table varieties have a share of about 15% in the structure of viticultural plantations in the Republic of Moldova. In the last 10 years, the dynamics of

the establishment of viticultural plantations has decreased, but that trend does not refer to plantations with table grapes, due to the growing demand of consumption on the domestic and foreign markets. The share of table varieties in 2017 represented approximately 70% of the structure of newly established plantations, or approximately 16 thousand ha of viticultural plantations of table varieties on fruit [19].

According to estimates, the dynamics of export and import of table grapes, the share of retail trade networks in total fruit and vegetable sales in the Republic of Moldova has reached the level of about 30%, at the same time registering an annual increase in sales of approx. 5-7% [9; 10].

For the analyzed period 2010-2017, the balance of international trade in grapes varied from 24,624.1 thousand tons in 2010 to 79,325.2 thousand tons in 2017. In all the analyzed periods it is found a positive trade balance. Grape exports, according to the data, in the period 2010-2017 varied from 26,737.6 thousand tons (2010) to 80,238.7 thousand tons (2017), and in financial terms - from 12,989.7 thousand USD (2010) to 38,625.9 thousand USD (2017). The import of grapes ranked in the range of 2,113.5 thousand tons (2010) to 913.4 thousand tons (2017), and in financial terms - from 2,715.4 thousand USD (2010) to 1,605.7 thousand USD (2017).

In recent years, there has been an important increase in the consumption of fresh grapes, due to the general trend towards a healthy diet, increasingly rich in plant resources [16]. Millions of people consume fresh grapes, because they are universal in taste and healing properties, they contain the most necessary and easily assimilable sugars (glucose and fructose) [1; 14; 8].

Grapes, having curative-therapeutic qualities, through their ability to eliminate heavy metals from the human body, are welcome to exist in the human diet all year round. Producers face the need to extend the consumption period of fresh grapes, which can be ensured in two ways: *by cultivating varieties with a semi-late or late ripening period*, and *by adjusting agrotechnical procedures and technologies for growing and storing table grapes* [10].

Varieties of table grapes are distinguished by different characteristics (flavor, color, grain shape/size and ripening period), which allows the organization of plantations in conveyor belts [14].

Since the ripening of table grape varieties is carried out in stages, we can provide consumers with fresh production for a period of 3-4 months [8; 9]. At the same time, the delivery of table grape production can be done over a longer period of time and involves a more balanced spread of income. Depending on the market demand for table grapes, grape cultivation differs and is profitable, and it largely depends on several factors, such as: maturation period; the quality of the grapes; the production cost.

The development of table grape varieties at the level of current requirements and in the future, cannot be conceived without knowing their agrobiological and productive potential and how they react to different climatic factors and agrotechnical procedures (driving system, cutting length, load of stumps, green operations, etc.). Therefore, studying the existing autochthonous varieties and the new ones is a current problem [14; 16].

Compared to the cultivation of varieties for wine, the cultivation of table varieties is given much lower attention as mentioned by Nicolaescu, Gh. et al. [14]. This state is observed in several countries of the world, including the Republic of Moldova. This phenomenon is explained by the economic interest not yet realized by the potential producers, as well as by the difficulties dictated by the specifics of the technology of cultivating table varieties – a lot of manual work in the care, harvesting, sorting, transporting, storing and marketing of grapes. Table varieties are more sensitive to adverse factors (winter frosts) and require a special technological infrastructure compared to wine grapes. For these reasons, the culture of table varieties has not yet developed progressively [4].

Găină (2002) [5] mentioned that the horticultural branch, including the vitivinicultural complex, can ensure the growing demands of the domestic and foreign market with high quality, competitive and

economically effective production. Starting from 2006, in the Republic of Moldova, greater attention is paid to the development of viticulture for table grapes. The *GD on the restoration and development of viticulture and winemaking in the years 2002-2020* was developed [7].

In the general assessment of the efficiency of the economic activity, the "profitability" category is very useful. Profitability represents an essential aspect of economic efficiency and constitutes a fundamental element of determining the yield value of an agricultural unit [21]. An agricultural

enterprise is profitable when it covers its production costs on account of its own income and obtains a certain profit. Profitability is one of the essential aspects of the economic efficiency of agricultural units; therefore, a condition essential of production is that they must be not only useful but also profitable [15].

In the following, a practical example of a technological data sheet for the cultivation of table grapes in full fruit is proposed from the 4th year, the harvest per hectare is 12 tons. Grape production is sold directly from the field at an average price of 9 lei/kg [8].

Table 1. Operational expenses and forecast revenues in grapes ;production (harvest 12t/ha, area 10 ha), lei

	Planting/ I year of vegetation	Total costs/year II lei	Total costs/year III lei	Total costs/year IV lei
a. Investments	3,386,900.00	215,000		
b. Material expenses	908,975	438,950.5	24284.1	67679.5
c. Cost of mechanized technological operations	28,108	37,428.5	36386	52144.2
d. Cost of manual techno-logical operations	10,887.5	5,095.94	8485.6	8536.7
e. Constant costs: taxes and duties	7,954.02	7954.02	7954.02	7954.02
f. Direct expenses	4,342,824.52	704,428.96	77,109.72	136,314.42
g. Indirect expenses	868,564.90	140,885.79	15,421.94	27,262.88
h. Total operating expenses	5,211,389.42	845,314.75	92,531.66	163,577.30
TOTAL GROSS INCOME				1,075,635.00
GROSS PROFIT				912,057.7
Profitability rate (%)				57.56

Source: Calculations made by the author.

Both the market prices of the planting material used and their number were analyzed and taken into account, the prices of phytosanitary products that were taken from the price lists of phytosanitary product traders, the technological data sheets on grape cultivation were consulted. The rest of the information regarding the establishment of costs (normative expenses of agricultural production) was taken from the periodical edition "Cost rates and norms of net income in agriculture" [3]. Resulting from the calculations presented in the table in year IV

(full fruit entry), the amount of sales revenue amounts to approximately 1,075,635 lei and the total cost of vineyard maintenance expenses amounts to 163,577.30 lei. Following the calculations, the annual profit obtained is 912,057.7 lei [8; 9]. And in order to highlight the efficiency of the production of table grapes from an economic point of view, the following indicators were calculated:

(i) *the recovery period* is a static indicator for evaluating economic efficiency, as well as a risk indicator. It is calculated by dividing the total investment to the average annual "net"

flow of money ensured by the exploitation of the respective investment object, lei/year.

$$Tp.p. = \frac{IC}{P.m.a.} \quad (years). \dots\dots\dots(1),$$

where:

IC – the initial cost of the investment (Initial Cost – IC), lei;

P.m.a. - the average annual "net" flow of money, ensured by the exploitation of the respective investment object, lei/year.

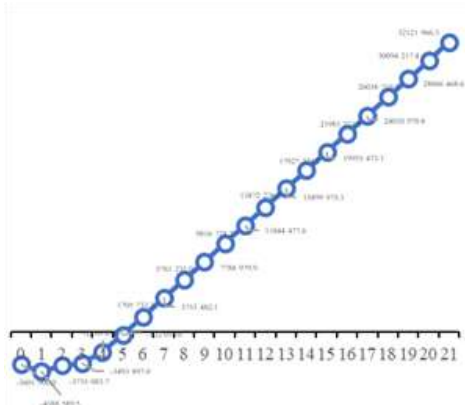


Fig. 3 Investment recovery period presented in years, lei
 Source: Elaborated by the author.

Thus, we note that the cost of the investment will be reimbursed and even exceeded by the amount of 1723592 lei in the 6th year of activity.

(ii) *The coefficient of investment effectiveness* which is calculated according to the formula:

$$ARR = \frac{AAP}{IC} \times 100\% \dots\dots\dots(2),$$

where,

AAP- average annual profit

IC – investments

$$APP = \frac{\text{Total profit}}{\text{the total duration of the investments}} = 17,861,931$$

Thus, it follows that

$$ARR = \frac{17,861,931}{3,601,900} * 100\% = 49.6\%$$

(iii) *Profitability* – from the point of view of economic content, it reflects the effectiveness of the sales activity of production enterprises.

The rate of return on production is calculated as the ratio of the gross profit from the sale of production to the cost of agricultural production sold.

$$R = \frac{Pb}{Vv} * 100\% \dots\dots\dots 3,$$

where,

Pb- gross profit;

Vv- sales revenue

$$R = 118\%$$

is positive, a fact that demonstrates the profitable capacity of the project, which is obviously feasible.

CONCLUSIONS

For the Republic of Moldova, the vitivinicultural sector is a strategic one, and grapes and wine are the calling card of our country.

In the analyzed period 2010-2018, we observe an average annual increase in the productivity of the vineyard per fruit by 6.2; table grape harvest - by 8.4%; export of table grapes - by 7.1%. For entrepreneurs to register performance in the vitivinicultural sector, it is necessary to establish viticultural plantations with competitive varieties. In order to produce quality grapes and increase the harvest, it is necessary to use modern technologies. And in order to sell grapes in the cold period and obtain an advantageous price, it is necessary to invest in the processing infrastructure and post-harvest operations by creating cold storages. From the point of view of making the expenses, the greatest pressure is recorded in the period (year I-II), only for the planting of vines on an area of 10 ha, the expenses represent 955,924.52 lei. The investment recovery period in our case was 6 years, the cost of the investment will be reimbursed and even exceeded by the amount of 1,723,592.0 lei. The coefficient of investment effectiveness was 49.6%. According to the data obtained from the calculation of the *profitability index (R)*, the production and

realization of table grapes constituted almost 118%.

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