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WINE COMPLEX OF THE REPUBLIC OF MOLDOVA AND SOME ASPECTS OF THE COVID-19 PANDEMIC

FEDORCHUKOVA SVETLANA¹, GAINA BORIS², KOBIRMAN GALINA³

Abstract: *The coronavirus pandemic has made its own adjustments in all sectors of the national economy and in the social sphere. This year's drought has also negatively impacted the agricultural sector. Viticulture and winemaking, being strategic sectors of the national economy, suffered heavy losses. The aim of this work is to study the changes in the wine-making complex of the Republic of Moldova under the influence of the pandemic and other related factors. As information sources we used the information obtained from the National Office of Vine and Wine, Ministry of Agriculture, Regional Development and Environment, National Statistics Center of the Republic of Moldova, Academy of Sciences of Moldova, the daily "Logos press". As working methods were used: systemic data analysis; their mathematical-statistical processing; determining the multiple socio-economic indices that characterize the actuality of the wine complex of RM. The main results of the researches: The COVID-19 pandemic has closed practically all social entities, which sell tangible quantities of domestic wines and spirits on the domestic market; The reserves-stocks of 18 million dal of quality wines from the 2019 harvest, currently existing in the country, will satisfy the export demand in the amount of 100%; Among the existing reserves in the increase of sales of high quality wines, remarkable is the online trade, both on the domestic market, but especially on the international one.*

Key-words: *wine, vine, harvest, consumption, winery, local market, profit*

Clasificare JEL: *Q13*

INTRODUCTION

The coronavirus pandemic is the defining global health crisis of our times and one of the biggest challenges since World War II. However, COVID-19 is more than a health crisis, with unprecedented socio-economic implications. The pandemic has disrupted every country it has affected, with the power to generate devastating social, economic and political effects that will leave deep marks. [7]

Even until the beginning of the COVID-19 pandemic period, the pace of economic growth in the Republic of Moldova slowed sharply in the last quarter of 2019. The 3.6% economic growth recorded in 2019 was supported by strong domestic demand, driven by rising wages, remittances, credit expansion and rising public spending. Thus, the pace of economic growth decreased sharply, amounting to 0.2% in the last quarter. At the same time, there was a decrease in production in agriculture and electricity, a decrease in exports and investment. The data shows a recovery to February 2020, mainly due to industry (+ 6.3% year-on-year), transport of goods (+ 9.7%), retail trade (+ 16%) and export of goods (+ 2.3%). Starting with March, with the introduction of the state of emergency and isolation measures related to COVID-19, a significant decrease in economic activities was triggered.

RESEARCH MATERIALS AND METHODS

As information sources we used the information obtained from the National Office of Vine and Wine (ONVV), Ministry of Agriculture, Regional Development and Environment (MADRM), National Statistics Center of the Republic of Moldova (CNS), Academy of Sciences of Moldova (ASM), the daily "Logos press" (logos.press.md), the publications from 2020. As working methods were used: systemic data analysis; their mathematical-statistical processing; determining the multiple socio-economic indices that characterize the actuality of the wine complex of the Republic of Moldova.

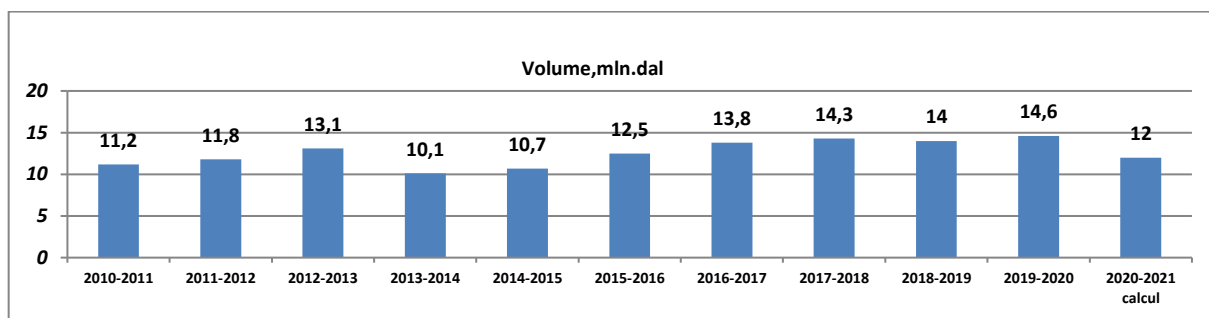
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RESULTS AND DISCUSSIONS

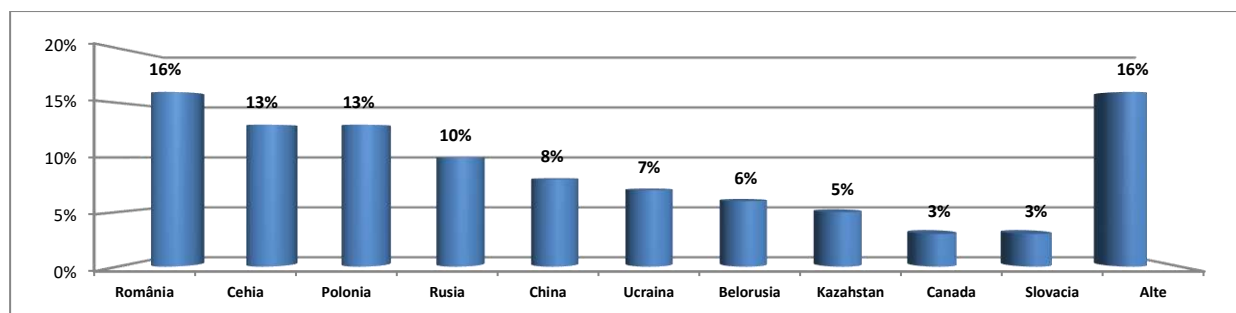
One of the key sectors of the Moldovan economy is viticulture, where a progressive trend has prevailed in recent years. In 2019, despite the overproduction of wine in the world, Moldova achieved good results in wine exports and received a significant number of international awards. The total volume of wine sold on foreign markets increased by 10% in 2019 compared to 2018. Winemakers were able to sell 80% of wine produced in about 71 countries. Incomes, that were obtained from the export of distillates, also increased by 20%. [5] (Fig.1.)



Source: [2]

Figure 1. Evolution of wine exports from the Republic of Moldova

In 2019, Moldova exported bottled wines worth 80 million US dollars, with an annual increase of 9%. The volume of bulk wine that was exported, reached the value of 58 million US dollars, which represents an increase of 3% compared to 2018. The main destinations of exports of bottled wine from Moldova were: Romania, Poland and Russia. The main destinations for bulk wine exports were: Belarus, Georgia, Russia, the United Kingdom, the Czech Republic, Romania, Germany, Ukraine, China and Italy. (Fig.2.)



Source: [8]

Figure 2. Share of exports to the top 10 countries by volume (liters)

In April 2020, Moldova delivered a wide range of wines, cognacs and distillates worth \$ 183.7 million. lei, or 4 million lei less (-17.9%) than in April 2019. In general, in the first four months, compared to the same period last year, exports for all categories of products in physical terms decreased by only 4%, and in terms of value - the same by 4%. The profit was lower by 37.1 million. lei. In April 2020, the most significant deliveries of wine products were made in the following countries, Table 1.

Even in this situation in some countries the demand was more satisfied compared to last year. During this period it is important to take into account the changes in the export of wine products every month. The results for June were palpable with the positive changes highlighted, despite the gloomy forecasts of an even greater reduction in deliveries abroad. According to ONVV, in the first month of summer, Moldovan producers delivered 12.6 million. liters of all types of wine products. This is comparatively considerably more than in each of the last three months and coincides with the previous year, 2019.

Table 1.

The value of wine exports in April 2020 compared to April 2019,

County	April 2020, Mln.lei	April 2019, %
Belarus	47,3	-5,5
Romania	17,7	-27,6
Russian Federation	12,5	-47,1
Ukraine	11,9	+12,7
Czech	11,5	-5,7
Holland	10,8	+891,6
China	10,7	-65,3
Great Britain	8,3	-16,6
Germany	8,3	+221,2
Canada	7,0	+83,6

Source: [8]

The value of exports was influenced by the downward trend in world prices due to the total crisis. Therefore, with the same physical volume, the value of sales in June 2020 proved to be lower than in June 2019: correspondingly -223.8 million. lei compared to 238.1 million. lei in 2019. However, during the COVID-19 restrictions compared to May 2020, the value of exports in June of the same year increased by 16.3%.

However, only in the first half of this year, compared to the same period of the previous year, the volume of deliveries for all types of wine products decreased by 3.4% in volume and by 5.7% in value. So it was not disastrous. In the geography of supplies, it managed to cover 56 countries on all continents.

The share of divines (cognac) and distillates of different types in the total volume of transport is only 2.2% in liters, but in financial value - 14.5%. The rest comes from the sale of various types of wines, including sparkling wines and vermouth. It was considered that more wines were exported in June 2020 compared to June.

Viticulture and wine production in the Republic of Moldova play an important role in job creation in rural areas. [1] According to the register of wine producers, in Moldova there are officially registered 36,500 vine owners and 199 wine producers. About 70% of them have their own vineyards. The total area of vineyards in Moldova in mid-2020 is 125,000 hectares. At the moment, in the Register of wine and vines of the Republic of Moldova, 50,200 hectares are registered. Table 2.

Table 2.

Estimated area of vineyards in 2020

1	Area of vineyards in all categories of households (including those auxiliary to the population), Total	125,5 thousand ha
	Including on fruit	118,0 thousand ha
2.	Total area of plantations in commodity production households, total	78,9 thousand ha
	Including on fruit, of all groups of varieties	74,4 thousand ha
	from them:	
	European varieties for wine	55,2 thousand ha
	"Isabella" type varieties	7,0 thousand ha
	table varieties	12,2 thousand ha

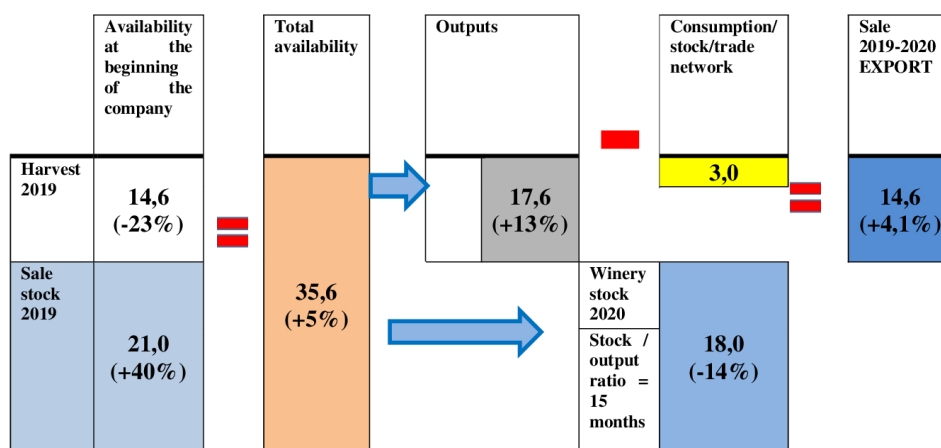
Source: [3]

In 2019, more than 31 million US dollars were invested in the cultivation of vines and wine production. Nearly 20% of these investments were covered by the state from the State Grants Fund, of which \$ 1.4 million was invested in modernizing wineries and \$ 13.5 million in planting new vineyards and deforesting old vineyards. (with gaps, affected by diseases, unprofitable, etc.). [2]. In recent years, the production of wines with a protected geographical indication (PGI) has increased. There was a sharp increase of 40% in 2019 in the sparkling wine sector, with this geographical indication.

According to the National Office of Vine and Wine (ONVV), in 2019 the bottled wines produced in Moldova were awarded with 842 prizes at 43 international specialized competitions. Thus, 61 Moldovan wines received prestigious awards from foreign juries. The leader in the number of awards remains "Fautor" winery, known throughout Europe, with a record number of 124 medals received. This entity was consulted by the academician-winemaker Boris Gaina (2000-2007). Then follow the wineries "Purcari" and "Chateau Vartely" and "Cricova", which kept their position. Among the winners there were new wineries, such as: "Imperial Vin", "Aurelius Winery", "Chateau Cristi", "Suvorov Vin", "Vinăria din Vale" and "Winery Poiana".

The COVID-19 pandemic has significantly affected the global wine industry, including one in the Republic of Moldova. According to the National Office of Vine and Wine and the Policy Service in the Wine Sector of the Ministry of Agriculture, Regional Development and Environment (MADRM) [3], at the end of 2019 it was forecast that Moldovan wine exports in 2020 may decrease by 30-50% compared to 2019. According to statistics, exports of wine products from Moldova decreased by 9% in March 2020 compared to the same period in 2019. The main reasons for the expected decline include logistical constraints due to quarantine measures, reducing demand in traditional markets and postponing or even canceling promotional actions of wine (presentations, openings, launches, etc.). Unfortunately, the pandemic came at a time when Moldovan viticulture was slowly emerging from the systemic crisis, caused in particular by several Russian embargo on imports of Moldovan wine products in previous years.

The new year of industrial grape processing and wine production began on 1 August. The fruit of 2020 is already fueling the country's wine stocks, while there is still an "unsold harvest" in the stock of wineries and wineries. (Fig.3.) [2]



Source:[2]

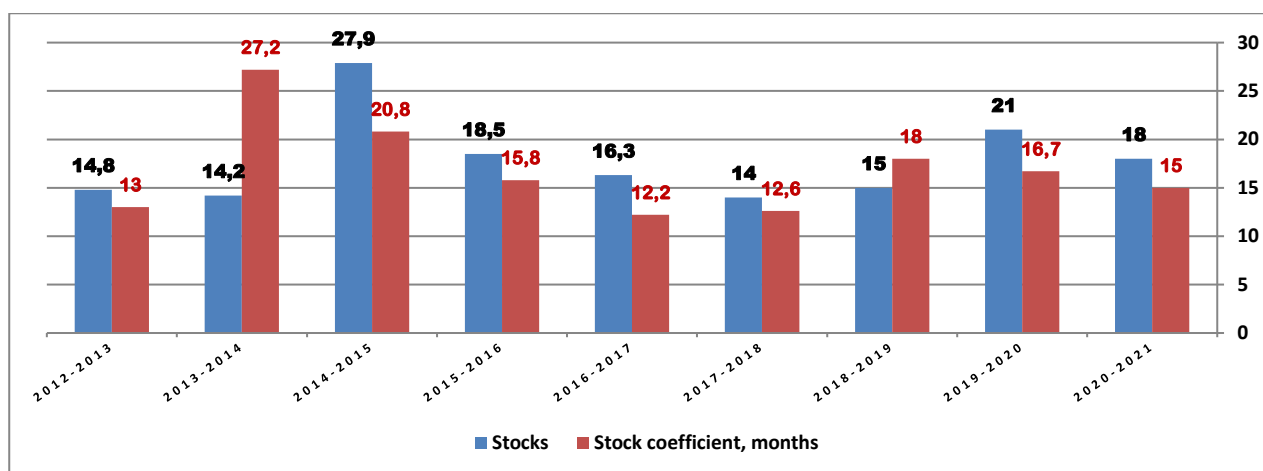
Figure 3. Organization chart of stocks and sales, of the stock / output ratio of Moldovan wines

According to the statements of the National Office of Vine and Wine, in the Republic of Moldova, the wine stocks deposited on July 31, 2020, amounted to 18 million decalitres - 14% less than in the previous year. This quantity is equal to the volume of wine produced from the 2019 grape harvest [2]. The available stock is sufficient for trading for 15 months (this is the stock ratio), while the producers in the country are worried about these figures. (Fig.4)

The winemakers experienced an equally difficult situation in the wine year 2017-2018, when the coefficient of wine stocks was 18 months and in 2013-2014 up to 27.2 months.

The next factor that influenced the quantity and quality of raw material for the wine industry is the drought of the last two years (2019-2020). This period of strong hydrological stress did not pass without leaving a deep and degrading mark on the Moldovan vineyards.

The drought was one of the main factors, which affected the quality of the grape harvest in 2020. The amount of raw material was also much lower (-30%), in the situation when exports and wine stocks decreased. But these factors for winemakers is not the greatest evil. [3].



Stocks at wineries: 18 mln.dal; 219 Statements (73%); 75% V.U.; 25% Warehouses; 52 - On zero
Source: [2]

Figure 4. Evolution of wineries stocks in July 2020 as a whole

They will have more difficulties in processing the grapes they constitute - the raw material for all types of wines. Water stress has negatively influenced the quality of the must through: low titratable acidity; high pH; low yield in must; low malic acid content; higher polyphenol content (red varieties); low degree of seed maturation; blocking or retaining alcoholic fermentation; the phenomena of more pronounced oxidation of the must are amplified, causing the lower potential of the quality and structure of the wine.

The grape harvest this year has suffered a lot. Snowless winters have increased the water deficit. Due to the drought, for the first time in all the years of vineyard observation, there was no traditional weeping vine (at the end of March). Although spring started early, in April the growth of inflorescences and shoots was stopped for about 25-35 days due to spring frosts, drought and low temperatures.

The improvement in the weather in the second half of June did not allow the plants to regain their pace of development. As a result, the grape growing phase and the beginning of ripening began later than last year. In most vineyards, severe water stress continued. For this reason, there are fewer grapes on the stems. Grapes are rarer and berries are 30-50% smaller in volume. The yield in must has also decreased. Grape ripening started 10-15 days later, compared to 2019 [4].
Table 3.

Table 3.

Evaluation of weather indicators 01.08.2019 ... 31.07.2020

Nr	Indicators	Annual averages	01.08.2019...31.07.2020
1	Average annual temperature, °C	+0,9...+9,9	11,9...13,3
2	Absolute minimum temperature, °C	-25,3...-31,4	-5,5...-8,8
3	Maximum absolute temperature, °C	+39,8...+41,1	+34,3...+39,4
4	The sum of the actual temperatures, °C	1413...1807	1574...2063
5	The first frost of autumn, the date	17.09.52...28.09.77	08.10.19...31.10.19
6	Last spring frost, date	25.04.88...21.05.52	01.04.20...03.04.20
7	Annual amount of precipitation, mm	479...613	294...426
8	Rainfall 2020 / multiannual,%	100	48,1...80,8
9	Calculated number of months without	12	2,3...6,2

Source: [4]

Due to the severe drought of the last 18-24 months, spring frosts and low temperatures in the second half of spring, they damaged the grape harvest by 20-80%, compared to 2019, depending on varieties and viticultural microzones. The yield in must is lower, mainly in the southern regions, as well as in the vineyards of red varieties located in areas unfavorable for the cultivation of grapes over 12-15 years old. The amount of harvest is influenced and depends on the area of the vineyard, the soil moisture, its mechanical structure, the soil maintenance system in the vineyard, the

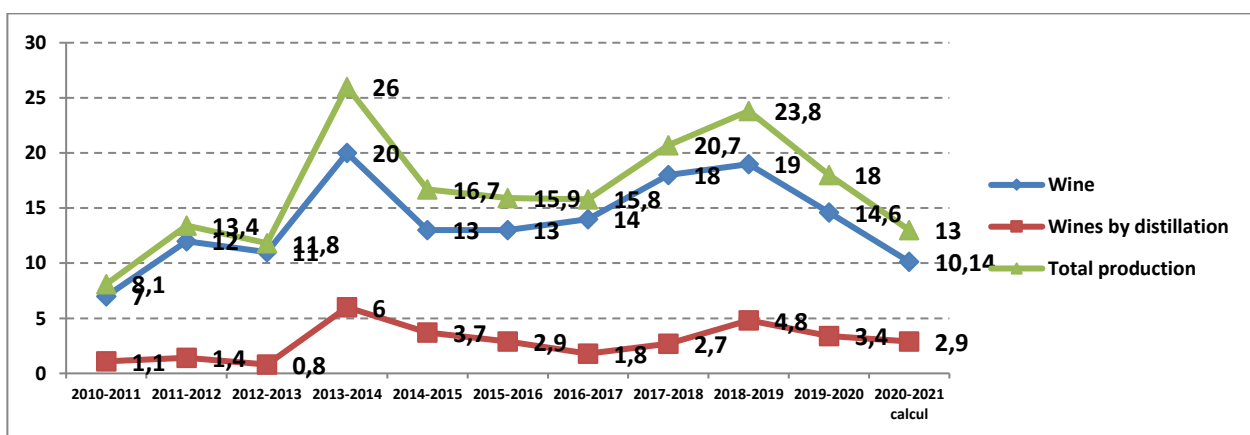
fertilization of the vines, the graft-rootstock combination, the form of management logs, cutting length, loading with shoots from the previous year, etc. Independence from the meteorological factor, if the sum of annual rainfall is less than 400 mm, can be achieved only with the support of large investments in the restoration and expansion of irrigation systems (underground, drip, etc.).

Protection against adverse climatic factors is required to be in the hands of farmers, insurance companies and the state. Only by working together within the cluster it will be possible to overcome the unpleasant surprises (hazards) for which nature has been so generous lately. The Government of the Republic of Moldova has approved the “Law on Subsidized Agricultural Risk Insurance”, recently amended, proposes to strengthen unnatural defense [6].

The country's agriculture suffers losses of millions of dollars every year. Also, every year, the authorities ask farmers to be careful and insure against losses. Recourse to agricultural insurance is often necessary when insurance opens up the possibility of obtaining subsidies for a variety of assistance programs. Now, only 1-1.5% of the area is insured against risks, and this represents only 300 agricultural producers across the country. The need for financing at company level are very important for:

- Modernization of production lines 57%
- Planting vines 50%
- 50% loan repayment
- Investment projects in tourism 43%
- Penetration of new sales markets 79%
- Turnover increase 64%
- Price increase for wine 43%
- Keeping business 36%
- Staff retention 21% [6]

The next factor is the quality of the raw material. According to the Ministry of Agriculture, Regional Development and Environment of the Republic of Moldova, approximately 200 thousand tons of grapes will be offered for processing, including 175 thousand tons of European technical varieties, 17 thousand tons of Isabella and 8 thousand tons of varieties table [3]. Out of the total raw material, over 80 thousand tons of grapes are cultivated by wine companies, which deliver them for industrial processing to wineries in the country and abroad. (Fig.5)



Harvest 2020 (calculated): 150-200 thousand tones (-25...40%)

Source: [2]

Figure 5. Evolution of the harvest in 2020, mln. dal

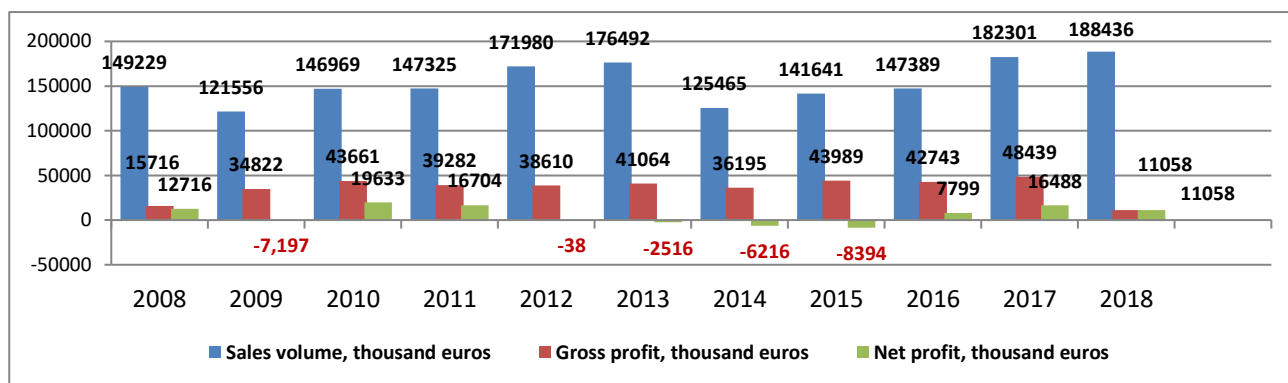
ONVV specialists evaluated the quality of grapes grown in all three regions with geographical indication in the Republic of Moldova. There was a decrease in grape mass, titratable acidity, pH increase and K⁺ ion concentrations. The harvest has decreased considerably. It is known that if the acidity is above the required level, the wine becomes aggressive in taste. When the pH

level is below normal (for white wines - 3.2-3.3, red - 3.5), the wine has an aggressive taste. In the case of high pH, there is a high bacterial risk.

Another factor that influences the efficiency of the wine business is the discrepancy between supply and demand. Every resident of Moldova consumes 15 liters of ethyl alcohol annually, calculated on the consumption of pure alcohol. Of this volume, the amount of industrial wine is only 5%. Also 5% is homemade wine. The rest, unfortunately, is supplemented by beer, brandy and other alcoholic beverages (vodka, whiskey, energy drinks, etc.) [2,6].

For these reasons, the insignificant percentage of wine consumption on the domestic market doesn't worry wine producers too much. Wine is not mainly consumed in Moldova. Therefore, the demand in the country is lower. Consequently, there is a lack of fair competition with other alcoholic beverages and prices for all types of beverages, including alcoholic beverages, are high.

At a sales volume of 188436 thousand euros (year 2018) 51347 thousand euros gross profit were obtained; the net one reached the figure of 11.0 thousand euros. This statistic shows us a relative level of sales, when our reserves exceed 18.0 million dal in stocks. On the other hand, there is a high potential for production-goods for the near future. Fig. 6.

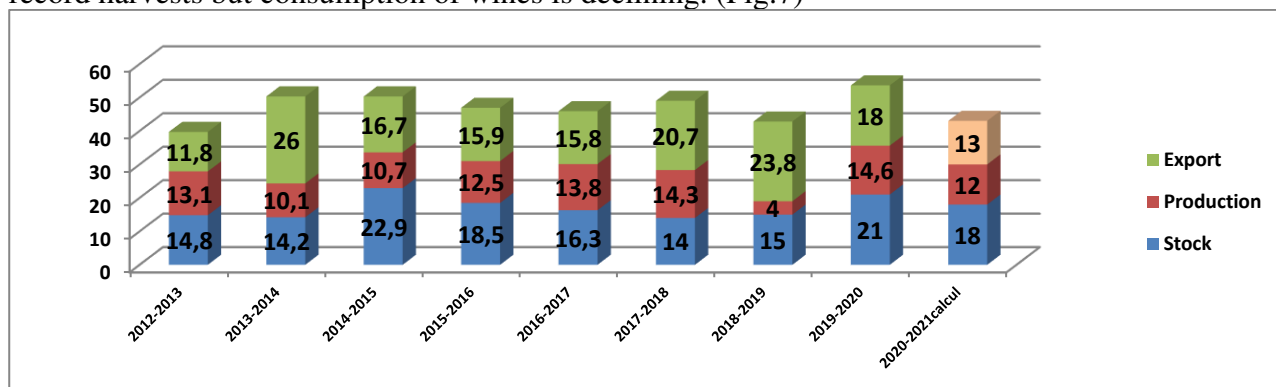


Source: [6]

Figure 6. Wine sales and profit, thousand Euros

The volume of Moldovan wine production is higher than the demand. According to the National Office of Vine and Wine, despite the increase in demand for Moldovan wine products by 10% in the last seven years, wine production in the same period increased by 40%.

Currently, out of every four liters of wine produced, only one manages to be exported. According to estimates for 2020, demand will not exceed one and a half liters. At the same time, the imbalance between supply and demand was caused by several factors, including record harvests in 2017-2018 - 35% more compared to the 15-year average. In addition, the region has been facing low prices for grapes and wine for several years. Wine-producing countries have inregistered record harvests but consumption of wines is declining. (Fig.7)



Source: [2]

Figure 7. The evolution of the balance between supply and demand

According to experts, in order to remedy the situation, it is necessary to review the subsidy policy of the wine sector in order to finance high quality plantations. There is also a need to improve communication between farmers and producers.

Coronavirus has severely affected the country's public food (HoReCa et al.). According to the Association of Restaurants and Entertainment Units "MAR", after the introduction of quarantine, sales in restaurants and cafes fell from 40% to 60%.

All the restaurants with banquet services canceled the events planned for an indefinite period. Wine and distillate depots were returned to customers, but new time hasn't been set for the start of activities yet. Institutions specializing in various actions (tastings, exhibitions, presentations, launches, conferences, etc.) also canceled the planned events.

It would seem that during this period online sales should increase, that unfortunately didn't happen. Physical sales fell by half and very few of the sales were made online. Most customers of online sales until the pandemic crisis came from other countries. Due to the restrictions imposed at the border it wasn't able to meet the demand of foreign consumers. Very few wines were sold through the online store and the local market. There have been some changes in consumer preferences: in the top of the preferences of local customers, wines from small wineries predominated, as opposed to wines from large wineries that had a lower demand.

CONCLUSIONS

1. The drought of the last two years has severely affected the wine complex of the Republic of Moldova, causing a considerable decrease in the volume of production of wine;
2. The COVID-19 pandemic has closed practically all social entities, which sell tangible quantities of domestic wines and spirits on the domestic market;
3. The reserves-stocks of 18 million dal of quality wines from the 2019 harvest, currently existing in the country, will satisfy the export demand in the amount of 100%.
4. Among the existing reserves in the increase of sales of high quality wines, remarkable is the online trade, both on the domestic market, but especially on the international one.

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