

## DEVELOPMENT OF SOUR CHERRY PRODUCTION IN THE REPUBLIC OF MOLDOVA

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**Abstract.** *Sour cherries represent one of the most important Moldovan fruits grown in the Republic of Moldova, with a great potential for modernization and further development of production. There is noticed a slow grow in terms of surface, as well as production and average yield per hectare for sour cherries. At the same time, exports account for about 19% of the total production. Compared to world exports, sour cherry production in the Republic of Moldova possesses a very high Revealed Comparative Advantage index. Therefore, the purpose of this paper is to carry out an analysis of sour cherry production in the Republic of Moldova, to analyze the current situation, development trends as well as the degree of international competitiveness for the given product with respect to the world trade. Thus, the research methods selected and used for the given article refer to the analytical, descriptive, comparative method, as well as through the Revealed Comparative Advantage indicator. Although the demand for sour cherries is increasing, there are some existing issues in the field that need to be addressed in order to have a successful horticultural business. At the same time, the paper presents a specific argumentation for the existence of a development potential of this sub-sector in order to persuade farmers to get engaged in this specific activity.*

**Keywords:** *sour cherries, production, trade, Revealed Comparative Advantage, Republic of Moldova*

**JEL:** *Q10, Q17, Q1*

**UDC:** *338.439.5:334.234(478)*

**Introduction.** The agricultural sector of the Republic of Moldova is currently on the threshold of major transformations, which takes place due to a series of important factors such as: the nearby war, climate changes that are increasingly affecting the sector, migration, the economic and geopolitical precarious situation. Being one of the pillars of the national economy, it becomes very important to pay special attention to the development of this sector and the selection of directions for its modernization.

Bearing in mind that the structure of agricultural production is dominated by plant production, however, this being more susceptible to climate change than the livestock sector, investments in new agricultural businesses in the field must be well thought out and accompanied by elements of mitigating the impact of climate risks.

Horticulture represents an important strategic direction for the development of the agricultural sector, especially the establishment of fruit and wine plantations. At the moment, the fruit sector of the Republic of Moldova is currently going through a process of modernization and transformation that involves the modernization of the managerial process, more efficient management of agricultural land, financial resources, more detailed analysis and inclusion in networks of logistics. All these are meant to face the pressure imposed by economic changes and the need to be part of the value chain of the agri-food sector, both nationally and internationally. Of course, in order to be part of the value chain in the agri-food sector, it becomes necessary to focus on the final consumer, who, of course, will opt for a healthy nutritional consumption (Ceban & Lucasenco, 2021).

As a result, sour cherries represent one of the most valuable agricultural crops, especially due to their universal character, being consumed both fresh, dried, or processed.

**Literature review.** Approach on the development of sour cherries plantations in the Republic of Moldova have been noticed, mainly, from the technological point of view. Therefore, production and making of grafted sour cherry branches was presented by (Cernet, et al, 2018), other technological aspects were approached by (Donica, 2011), parameters of tree crowns of sour cherries have been analysed by (Ribintev, 2011), growth and development of sour cherry depending by age, variety and tree crown shape was synthetized by (Manziuc, 2011).

From the economic point of view, there are little research on the sour cherry in particular, most of the works being dedicated to development of horticulture or tree plantations in general (Donica & Donica, 2010), etc.

**Research methodology.** The purpose of this paper is to carry out an analysis of sour cherry production in the Republic of Moldova, to observe the current situation, development trends, as well as the degree of international competitiveness for the given product. Thus, the research methods selected and used for the given article refer to the analytical, descriptive, comparative method, as well as through the Revealed Comparative Advantage indicator. The use of all these methods allow to carry out a staged analysis and develop conclusions and sectoral recommendations.

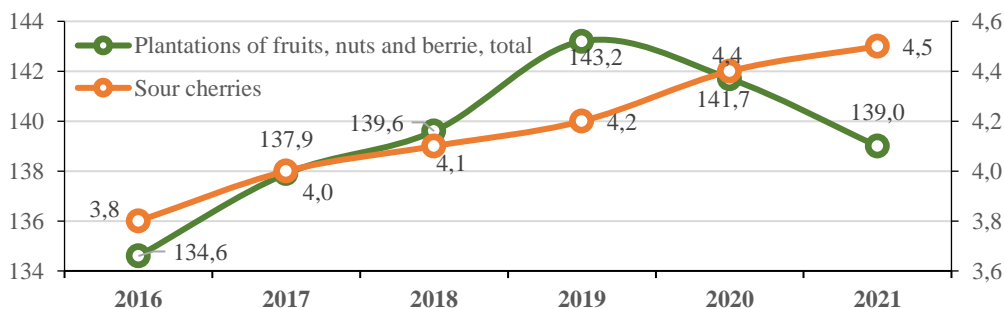
The Revealed Comparative Advantage (RCA) is a frequently used indicator in evaluating the level of specialization in trade, as well as the degree of competitiveness of a product or group of products (Ceban, 2022). The RCA formula most often used to evaluate the competitiveness of certain products or product categories is as follows:

$$RCA = \frac{\frac{X_{ij}}{X_{it}}}{\frac{X_{nj}}{X_{nt}}} = \frac{\frac{X_{ij}}{X_{nj}}}{\frac{X_{it}}{X_{nt}}}$$

where, X represents exports, i – a country, j – a product or a group of products, t – a set of products or a group of products, and n – a set of countries (Balassa, 1965).

Overall, if the RCA value is higher than 1, it means that there is a competitive advantage of a certain product or group of products with respect to a selected country or group of countries. Therefore, it can be stated that a country is specialized from the point of view of exports in a certain product or group of products (Moroz, 2011).

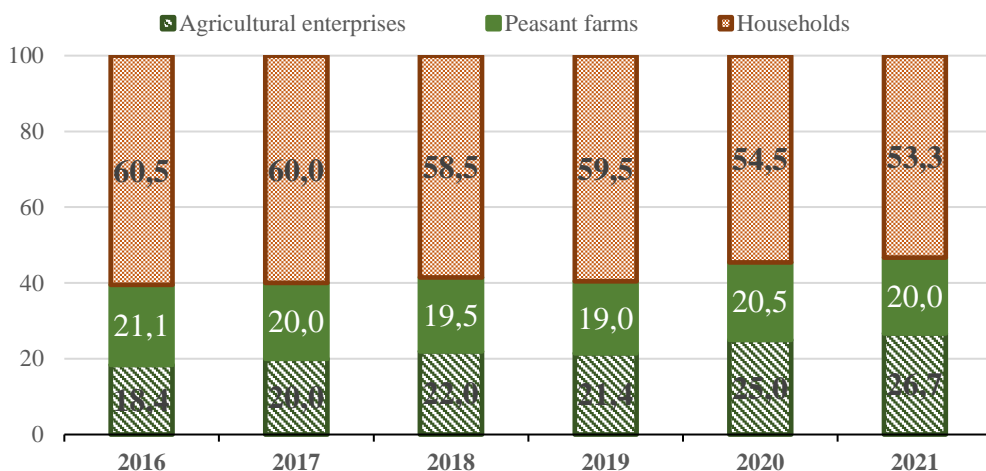
**Main results.** The increased interest of farmers in the growth of sour cherries can be seen by the gradual increase in the areas of sour cherry plantations between 2016 and 2021. Even in spite of the fact that during this period the plantations of fruit trees, nut trees and berries reached the maximum area in 2019, after which two consecutive years followed and reductions were recorded, sour cherry orchards registered growth during the entire analysed period.



**Figure 1. The total area of fruits, nuts and berries, as well as area of sour cherries 2016 – 2021, thousands of hectares**

Source: Authors' calculations based on National Bureau of Statistics data

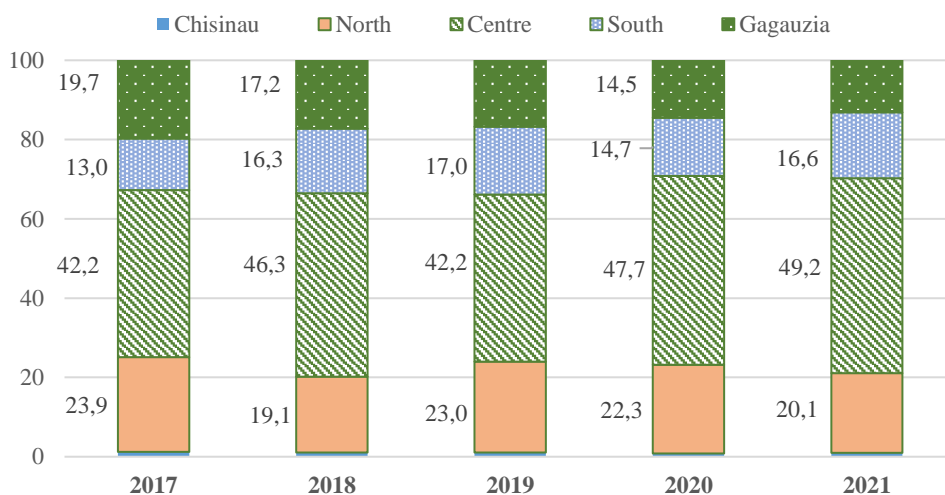
The increased demand for this crop is due to the interest from the agricultural enterprises that during the years 2016 - 2021 increased their share of sour cherry plantations from 18.4% to 26.7%, while in the same period there is a decrease in the areas of plantations in the households. Within the peasant farms (gospodarii taranesti), the share of plantations of the given culture from the total of sour cherry plantations during the analysed period, with the exception of some fluctuations, remained practically the same.



**Figure 2. The area of sour cherry plantations divided by category of households, %, 2016 – 2021**

*Source: Authors' calculations based on National Bureau of Statistics data*

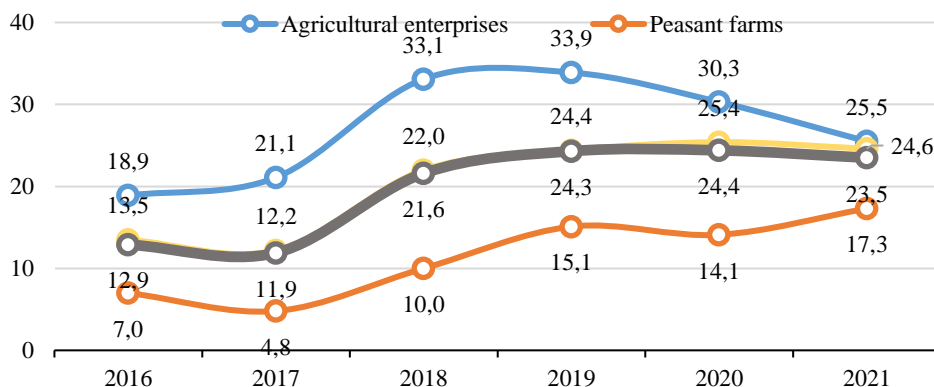
From a geographical point of view, the increased interest in the given culture during the years 2017-2021 is observed in the central and southern part of the country, fact explained by the geographical and climate conditions necessary for the successful growth of sour cherries. During these years, in the central part of the country (except the municipality of Chisinau) the area of sour cherry plantations increased by more than 2 times, thus reaching 49.2% of the total area planted with sour cherry. Likewise, in the southern part of the country, the area of sour cherry plantations increased by more than 2.5 times, but since in 2016 these areas were not so large, in 2021 they reached a share of 16.6% of the total areas of sour cherry plantations.



**Figure 3. The area of sour cherry plantations divided by geographical areas of the Republic of Moldova, %, 2017 – 2021**

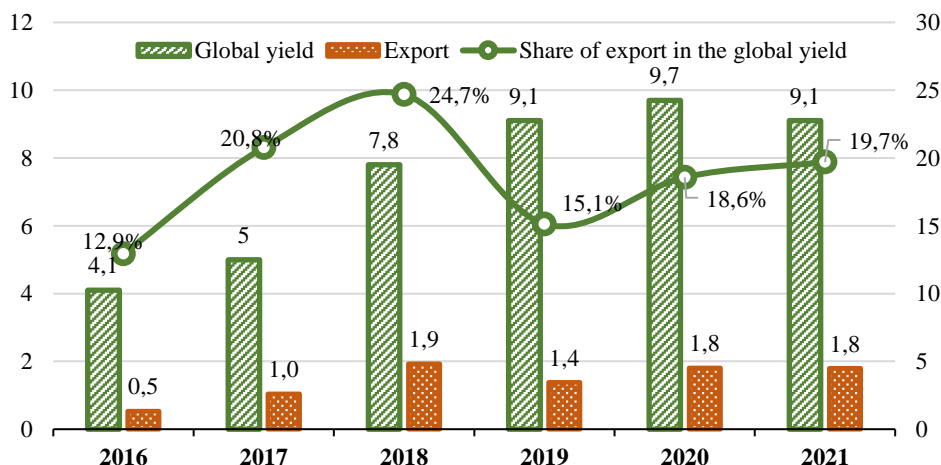
*Source: Authors' calculations based on National Bureau of Statistics data*

In addition to the increase in the area of sour cherry plantations during the analysed period, an increase in the average yield per hectare is also observed. Of course, there are fluctuations in the average yield depending on the year, but somewhat even in unfavourable climatic years, an increase in the average yield per hectare is observed. This growth is very well observed both within agricultural enterprises and within peasant farms. At the same time, within the population's households, although there is an increase in the average yield per hectare, it is significantly lower compared to the global average yield of the given crop.



**Figure 4. Average yield of sour cherry plantations within agricultural enterprises, peasant farms and households, 2016 – 2021, quintals/hectare**  
*Source: Authors' calculations based on National Bureau of Statistics data*

The increase in productivity as a result of both, the planting areas and the average yield per hectare also had a favourable influence on the increase in exports, which during the 2016-2021 period increased by 50% on average.



**Figure 5. Global yield, export and export share in the global sour cherry harvest, 2016 – 2021, thousand tonnes**  
*Source: Authors' calculations based on UNComtrade and National Bureau of Statistics data*

One of the motivational factors that help to stimulate the growth of exports of the given crop is the increase in the export price, which in the period of 2016-2021 increased by approximately 45%. At the same time, the average price on the domestic market, with the exception of some fluctuations that occurred in certain years, remained practically unchangeable.

**Table 1. Average sales price and average export price of sour cherries, 2016 – 2021**

	2016	2017	2018	2019	2020	2021
Average sour cherry export price, USD/Kg	0,35	0,55	0,43	0,50	0,69	0,51
The average price on the domestic market of sour cherries, MDL/Kg	8,67	9,65	8,49	8,01	10,70	8,62

*Source: Authors' calculations based on UNComtrade and National Bureau of Statistics data*

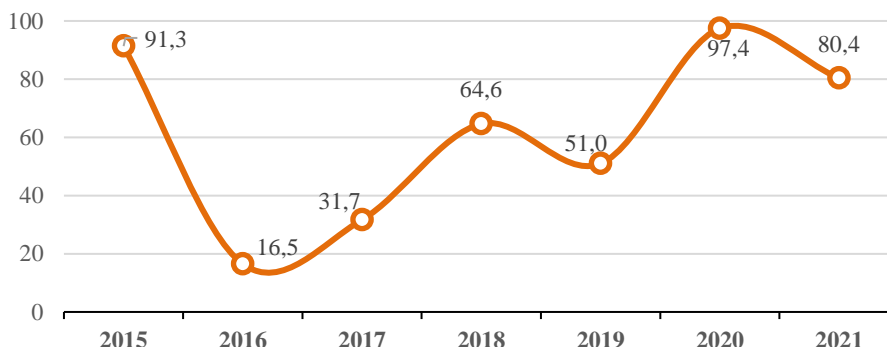
Although the trade balance of foreign trade has always been positive, where the Republic of Moldova has always positioned itself as an exporter of the given product, there were periods when this was not so obvious. For example, in 2015 the import of sour cherries was quite high and constituted approximately 75% of the export. But after the period of 2015 and the increase of interest in the culture and the given product, the import during the analysed period began to decrease significantly, finally reaching only 0.3% of the export in 2021.

**Table 2. Import and export of sour cherries during 2015-2021, Kg**

	2015	2016	2017	2018	2019	2020	2021
Import of sour cherries, kg	1 124 690	191 376	59 850	5 700	94 850	37 440	5 400
Export of sour cherries, kg	1 505 105	530 454	1 038 475	1 924 935	1 377 425	1 802 373	1 792 209

*Source: Authors' calculations based on UNComtrade database*

Also, compared to other countries, sour cherry production in the Republic of Moldova has a very high Revealed Comparative Advantage. Of course, there are flows during the analysed period, but this is more due to the increased risks of the given culture, which in recent years due to the development of technological progress have been significantly reduced. As a result, during the period of 2015 – 2021, the RCA values for sour cherries of Moldovan origin significantly exceed the minimum values, which signify the presence of a high competitive advantage.



**Figure 6. RCA of sour cherry production with respect to the all countries, 2015 – 2021**

Source: Authors' calculations based on <https://wits.worldbank.org/>

At the same time, a significant disadvantage in this context is presented by the narrow range of export partners of the Republic of Moldova for the given production. The main partners of sour cherry production originating in the Republic of Moldova during the entire analysed period are the Russian Federation and Belarus, where the Russian Federation holds an imposing share of over 90%. A positive note in this regard is that in the years 2020, 2021 there is also export to Romania, but these quantities are small and represent approximately 1.6% for 2021.

In order to present in a tabular form the current development of the sour cherry sub-sector, the authors developed a SWOT analysis.

**Table 3. SWOT analysis for the sour cherry sector in the Republic of Moldova**

<b>Strengths</b>	<b>Opportunities</b>
<ul style="list-style-type: none"> <li>- Special organoleptic qualities and high storage potential, adapted to the soil-climate conditions;</li> <li>- Orientation of agricultural producers to the planting of intensive and super-intensive orchards;</li> <li>- Free trade agreements with the main markets (EU, CIS, Turkey);</li> <li>- Recognized historical status - "Orchard of the USSR" with significant development possibilities;</li> <li>- Existence of demand on the international markets;</li> <li>- Significantly subsidized sector in recent years.</li> </ul>	<ul style="list-style-type: none"> <li>- Revision of the existing portfolio of sour cherries varieties;</li> <li>- Increasing the quality of production and reporting it to EU standards;</li> <li>- Development of the sour cherry sector for processing, drying, beverage industry, etc.;</li> <li>- Creating value chain integration centers;</li> <li>- Booming markets in Southeast Asia and India;</li> <li>- Nearby market of Romania who is in top 6 importers of sour cherries in the world (2021).</li> </ul>

<b>Weaknesses</b>	<b>Risks</b>
<ul style="list-style-type: none"> <li>- High input prices;</li> <li>- Lack of knowledge and experience in intensive and super-intensive production technologies;</li> <li>- High costs of harvesting, storage and packaging;</li> <li>- Limited varieties of sour cherries included in the Catalogue of varieties and plants of the Republic of Moldova;</li> <li>- High international competition, especially as a result of the reduced inaccessibility of the Russian market;</li> <li>- Lack of a price and market monitoring structure to inform producers of the most current trends.</li> </ul>	<ul style="list-style-type: none"> <li>- Uncertain and changing weather conditions;</li> <li>- Increasing the quality standards of foreign markets and increasing competition from other countries;</li> <li>- Fierce competition in the EU;</li> <li>- Lack of a risk management strategy;</li> <li>- Logistical difficulties in accessing the Russian and CIS market.</li> </ul>

*Source: developed by authors*

**Discussions and conclusions.** The increase in the areas of new sour cherry plantations through the establishment of new plantations within agricultural enterprises demonstrates the increased interest of agricultural economic agents for this crop.

Both the modernization of the orchards and the selection of new varieties have a positive impact on the minimization of climatic risks, as well as on the increase of the average yield per hectare, which during the analyzed period already shows its positive effect.

In the post-harvest period, agricultural entities that have access to and have refrigeration and storage facilities are advantaged by the fact that they have the opportunity to negotiate a better price and are exempted from the need to market the production in the open field immediately during the harvesting.

Within the exports of the given product, the small number of external partners presents a major risk factor, which increases the possibility of being subjected to negative consequences of geopolitical connotations.

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## REFERENCES

- Bajura, T., Zubco, E., & Turețchi, V. (2021). *Proiect investițional de tip model pentru sectorul agrar - înființarea fermei de producere a afinelor "Afine = Moldagroprim" SRL*. Institutul Național de Cercetări Economice. Chișinău: INCE.
- Balassa, B. (1965). Trade Liberalisation and `Revealed` Comparative Advantage. *The Manchester School*, 33, pp. 99-123.
- Biroul Național de Statistică al Republicii Moldova. (n.d.). *Baza de date privind comerțul exterior cu bunuri*. [www.statistica.gov.md](http://www.statistica.gov.md)
- Ceban, A. (2022, 15-16 octombrie 2021). Analiza comerțului exterior cu fructe al Republicii Moldova. In: *Creșterea economică în condițiile globalizării = Economic growth in the conditions of globalization: conferința internațională științifico-practică 2021* (Ediția a 15-a, Vol. 1, pp. 375-383. Institutul Național de Cercetări Economice. Chișinău: INCE. <https://doi.org/10.36004/nier.cecg.I.2021.15>
- Ceban, A., & Lucasenco, E. (2021). *Proiect investițional de tip model în domeniul agrar - înființarea unei livezi super intensive de mere*. Chișinău: INCE.
- Cernet, A., Calășean, I., Ceban, E., Prodaniuc, L., & Luchița, V. (2018, 1-2 octombrie ). Producerea și realizarea ramurilor altoi de vișin și cireș din plantația mamă de categoria "Baza". In: *Horticultură, Viticultură și vinificație, Silvicultură și grădini publice. Protecția plantelor: simpozionul științific internațional „Horticultura modernă – realizări și perspective”* (Vol. 47, pp. 31-34). Chișinău: Universitatea Agrară de Stat din Moldova,
- Donica, A., & Donica, N. (2010). Suportul științific și tehnologic în dezvoltarea durabilă a pomiculturii Republicii Moldova. In: *Horticultură, Viticultură și vinificație, Silvicultură și grădini publice, Protecția plantelor: simpozionul științific internațional „Horticultura modernă - realizări și perspective”* (Vol. 24(1), pp. 151-157). Chișinău: Universitatea Agrară de Stat din Moldova.
- Donica, I., Donica, N., & Donica, A. (2011, 21 iunie). Procedul de minimalizare a tăierii pomilor de cireș, vișin și cais în condițiile Republicii Moldova. In: *Genetica și fiziologia rezistenței plantelor: conferința științifică* (pp. 132). Chișinău.
- Manziuc, V. (2011). Creșterea pomilor de prun, cais și vișin în funcție de soi și forma de coroană. *Știința Agricolă*, 1, 22-27.
- Moroz, V., Ignat, A., & Lucașenco, E. (2011). Agri-food trade development opportunities at the regional level. *Economie și Sociologie*, 2, 68-73.
- Rîbințev, I. (2011, 30 septembrie). Parametrii coroanelor pomilor de prun, cais și vișin în funcție de soi și forma de coroană. In: *Agronomie* (Vol. 29, pp. 186-190. Chișinău: Centrul editorial UASM.
- Stratan, A., & Bajura, T. (2017). *Metodologia elaborării și evaluării proiectelor investiționale pentru sectorul agroalimentar*. Chișinău: INCE.
- UnComtrade. (2023).
- World Integrated Trade Solutions. (WITS). (2022). *World Bank*. <https://wits.worldbank.org/>