

## Current state of the foreign trade of the Republic of Moldova with agri-food products

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DOI: 10.14595/CP/03/009

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**Abstract** The paper aims to discuss the latest developments in the foreign trade with agri-food products of the Republic of Moldova, as it represents an important pillar for the general trade in goods. Agri-food exports have a constant high share in the total trade of over 40%, thus confirming the high importance of the sector for the national economy. The trade values of the commodity groups 1-24 have been analyzed, also pointing to the most competitive groups of products on the international market by using the Revealed Comparative Advantage indicator. A quantitative and qualitative analysis has been performed while observing the trade data at the level of imports and exports for the period 2010 – 2021. As a result, a series of recommendations have been provided in order to increase the competitiveness of Moldovan agri-food products, like enhancing investments in added value sub-sectors, improvement of the quality of products, investments in post-harvest and processing infrastructure, etc.

**Key words:** agri-food trade, Revealed Comparative Advantage, Republic of Moldova, export, import

**JEL:** Q17, F13

### Introduction

Foreign trade is historically the oldest and still important part of the external economic relationships (Jenicek, Krepl, 2009). The general notion of international trade refers to as the transfer of goods and services which include capital goods from one country to another (Hassan et al, 2014). OECD defines the trade in goods and services as the transactions in goods and services between residents and non-residents. It is measured in million USD at 2015 constant prices and PPPs, as percentage of GDP for net trade, and also in annual growth for exports and imports (OECD, 2022). Economics Concepts (2012) indicates that, the difference between international trade and domestic trade is that, the foreign trade is costlier than the domestic one, as it is based on some additional costs, like logistics, transportation, tariffs, fees, etc. On the other hand, factors of production such as capital and labor typically move more freely within a country than across countries (Hassan et al, 2014).

Tracing back the evolution of what today is recognized as the standard theory of international trade, one goes back to the years between 1776 and 1826, which respectively mark the publications of Adam Smith's *Wealth of Nations* and David Ricardo's *Principles of Economics*. Free trade, as opposed to the Mercantilist policies of protection, was championed by both Smith and Ricardo as a route to achieve production efficiency at a global level (Sen, 2010). David Ricardo's theory of comparative advantage, developed at the beginning of the 19th century, has played a major role in modern thinking about trade (Helpman, 1999). It is worth mentioning that in the recent period, the role and importance of foreign trade has been constantly increasing, from the economic point of view, as well as social and political.

Currently, foreign trade is one of the most important components of international economic relations and is an important part of a country's economy, and what is more, globalization has intensified the actions of international trade in goods and services (Cucu, Panait, 2020). Trade with agri-food products is of main importance for countries with a developed agricultural sector or those who put a specific emphasis on agriculture.

The agricultural sector of the Republic of Moldova represents an important pillar for the national economy, playing a vital role in ensuring food security, employment, especially in rural areas, and the population's general wellbeing (Lucasenco, 2021). Therefore, the trade with agri-food products, especially exports, is becoming increasingly important for the national economy. Severe climatic conditions that occasionally affect the agricultural sector of Moldova are not contributing only to the diminishing of agriculture's share in GDP, but also to a negative impact on the GDP growth, creating severe consequences on exports.

Therefore, the aim of the paper is to analyze the latest developments in foreign trade with agri-food products of the Republic of Moldova, with an emphasis on the most competitive products on the external markets.

## **Theoretical premises and literature review**

Overall, there are many theories of international trade provided by different scholars. The Smith's theory called absolute advantage, is focused on the ability of a country to produce a good more efficiently than another nation. The Ricardian model is based on the theory of comparative advantage, according to which, countries involved in trade,

specialize in producing the products in which they have comparative advantage (Krugman et al, 2012). On the other hand, the Heckscher-Ohlin model is focused on endowments factors of production as the basis for international trade (Hassan et al, 2014). According to it, countries will be specialized in and export those products which make use of the domestically abundant factors of production more intensively than those factors which are not quite available in the home country (Blaug 2006). According to the model, economic sizes and distance between nations are the primary factors that determine the pattern of international trade (Hassan et al, 2014).

Therefore, one can note that international trade can play an important role in promoting economic growth through the specialization of each country in producing the products in which it has a comparative advantage and by transferring the resources among the different countries (Belloumi, Alshehry, 2020).

Foreign trade affects the level of a gross domestic product of the country as well as the performance of industries and enterprises. The foreign trade balance is used as a starting point in clarifying the competitive advantages especially at the level of industries and sectors within the economic structure of the country. Competitiveness on the world market is the basis for the theory of international trade and economic growth, while in comparison with classical and neoclassical economic theory of international trade, it highlights innovative, realistic sources of trade, and economic development (Bobáková, Hecková, 2007). The Moldovan international trade is rather comprising distinct elements from different theories, as is based both, on comparative advantage, as well as on sectors with more production factors.

The Moldovan international trade with agri-food has been analyzed by various scholars and from different points of view. Thus, foreign trade with agri-food products as a consequence of the DCFTA implementation was performed by (MIEPO, 2015; Savva, 2015). The perspective of competitiveness was approached by (Stratan, 2017, Lucasenco, Ceban, 2020), while the comparative advantages have been analyzed by (Cimpoies, Gherman, 2016).

Competitiveness of the external trade of the Republic of Moldova was analyzed by various researchers through a series of different methods, including Revealed Comparative Advantage (RCA), Revealed Symmetric Comparative Advantage (RSCA), Trade

Specialization Index (TSI) or Grubel-Lloyd index (GLi) (Lucasenco, 2021). Moreover, the Revealed Comparative Advantage of Moldovan agri-food products was approached the most recent in 2020 by (Cimpoies, Sarbu, 2020), but only with respect to EU countries.

The given paper, presents, first of all, the most recent, one decade, analysis of the agri-food trade of the Republic of Moldova, with the latest year of available data (2021) and also, gives an insight in the competitiveness of some commodity groups of agri-food products at the current stage of development of the Moldovan external trade.

## Methodology

In order to achieve the main aim of the paper, the following scientific methods have been approached by the authors: generalization of empirical and applied material, induction and deduction methods for making the paper conclusions, comparison method and analytical one.

During the development of the analysis, data on Moldovan general trade and, more specific, data on values of exports and imports of agri-food products have been analyzed. The covered period concerns the years 2010 – 2021. A quantitative and qualitative analysis was performed in order to identify the most competitive agri-food products on the external market by using the RCA indicator.

The Revealed Comparative Advantage (RCA) is the most common indicator used for the assessment of the level of specialisation in trade, but still has lots of inconsistencies, so it is performed in different forms (Drozd, 2018). The most commonly used RCA formula to assess the competitiveness of certain products or categories of products is the following:

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

where X represents exports, i – a country, j – a commodity or an industry, t – a set of commodities or industries, and n – a set of countries (Balassa, 1965). If  $RCA > 1$ , it denotes a comparative advantage, for example: the sector in which the country is relatively specialized in the terms of exports (Moroz et al, 2011).

The informational background and analytical support for the given paper is represented by data on international trade retrieved from the World Integrated Trade

Solutions database, based on UN Comtrade database, the data of the National Bureau of Statistics of the Republic of Moldova and other relevant data.

The character of the structural changes in international trade, and the possibility that these might impact countries differently depending on their pattern of specialisation, has been a matter of great concern for many observers from the 1950s onwards (Fagerberg, Srholec, 2004). Therefore, in order to perform an analysis of the agri-food trade, the current paper has been using the HS-07 classification (as the period subject to analysis starts with 2010), HS codes 1 to 24. Although FAO recommends the inclusion of some additional commodities to the main group, their share in the total agri-food trade of the Republic of Moldova is less than 0,1%, therefore, were not taken into account, the authors focusing on the HS codes 1 – 24.

## Results

Moldova is one of the countries with significant potential in agriculture, one of the largest areas and farmland as a share of total land, but is among the last places in Europe in terms of view of efficiency of agricultural production (Timofti et al, 2016). Agriculture is a key sector for the economic development in Moldova, however, the fiscal resources for its support are limited. There are positive trends in the agri-food sector development in Moldova in recent years. However, this sector's vulnerability to natural, economic and trade hazards, remains very high (Stratan et al, 2018).

The Gross Domestic Product of the Republic of Moldova between 2014 and 2021 marked an increase of almost 2 times, reaching 241,870.5 million MDL in 2021. At the same time, the gross added value of the agricultural sector increased from 18,568.6 million MDL in 2014 to 25,118.9 million MDL in 2021, thus contributing to a share in GDP varying from 14.1% in 2014 to 10.4% in 2021. The minimum value was reached in 2020, accounting for 9.4%.

On the other hand, the national economy is largely relying on the agricultural sector in terms of provision of employment for population, especially the one from rural areas. In the period 2014 – 2021, the number of the employed population in total per country decreased from 869.7 thousand people to 843.4 thousand people. At the same time, a downward trend is also observed for the agricultural sector, where the population

employed in agriculture decreased from 206.5 thousand people in 2014 to 181.2 thousand people in 2021. The share of the population employed in agriculture in the total employed population varies between 23.7% in 2014 and 21, 5% in 2021, with a slight increase in the last 3 years (from 21.0% in 2019 to 21.5% in 2021).

From an organizational perspective, the National Bureau of Statistics distinguishes three major categories of agricultural producers: agricultural enterprises, peasant farms, and rural households (FAO, 2020). While all agricultural enterprises are legally registered entities, the category of peasant farms consists of legally registered family farms as well as non-registered individual farms. Most recent statistics indicate that the number of peasant farms declined to less than 193 thousand and the number of non-registered rural households increased to 220.5 thousand in 2019 (National Bureau of Statistics of the Republic of Moldova, 2022). In comparison with 2010, the number of peasant farms declined by 36% and the number of households increased by 32%. Large scale agricultural companies produce mostly low value-added crops (such as cereals, oilseeds, sugar beet). About two thirds of agricultural land is cultivated by agricultural farms that cultivate more than 50 ha of land. These companies form the export potential of the agri-food sector (Shik et al, 2016).

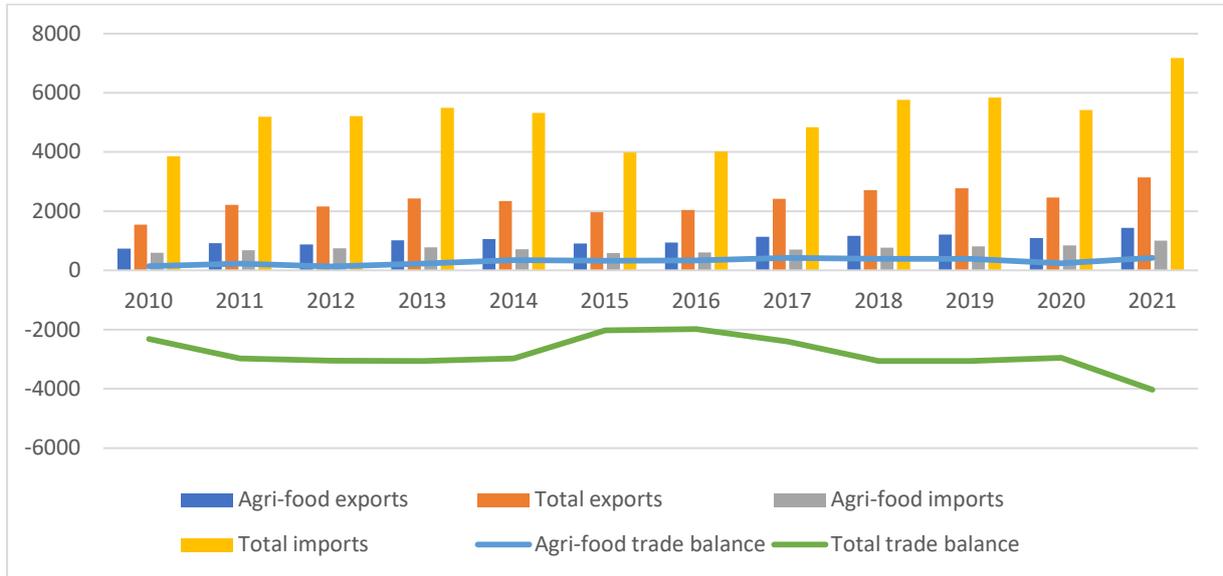
During 2010 – 2021, Moldovan trade in products experienced a constant increase in trade value, as the value of exported goods increased about 2 times (reaching 3144.48 mil. USD in 2021) and the value of imports –by about 86% (7176.84 mil. USD in 2021). Decreases in the growing trend of the total exports from 2012, 2015 and 2020 were due to various factors, like drought, which affected the agricultural sector capacities, devaluation of the national currency and the Covid-19 pandemic. The general trade balance of the Republic of Moldova has been negative all over the analyzed period, with a sharp declining value in 2021, when the maximum amount in the last years (-4032.36 mil. USD) was reached.

The trade with agri-food products is an intense one. The export values from 2010 almost doubled in 2021, while the import values – increased by about 71%. Decreases in the value of agri-food exports in 2012 and 2020 are due to the droughts that affected the sector, while in 2021 the maximum value of agri-food exports (1436 mil. USD) was due to the high agricultural yield registered in the country.

At the international level, as a result of the analysis of the agri-food products exported by the Republic of Moldova, one can note that the share of Moldovan agri-food

exports in the total world-wide exported agri-food products accounts for a value of 0.07% in 2021. With respect to agri-food imports, the share of Moldovan agri-food imports in the total world imported agri-food products account for a value of 0.05% in 2021.

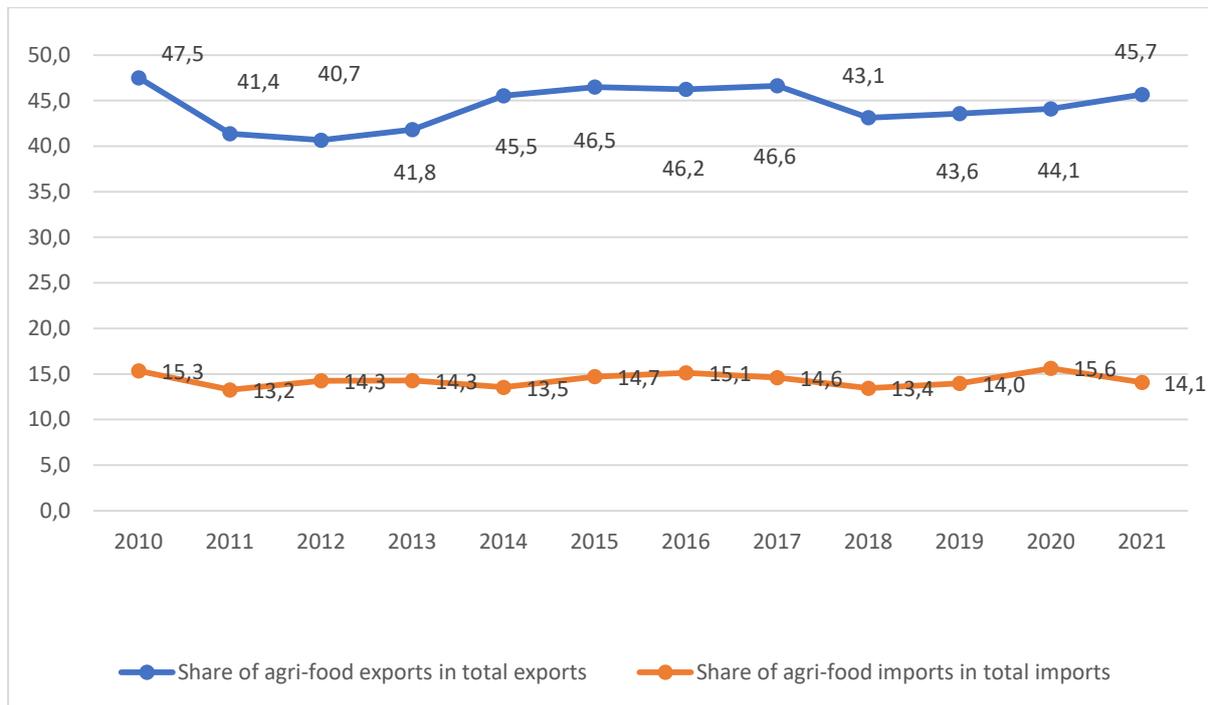
**Figure 1.** External trade of the Republic of Moldova, 2010 – 2021, mil. USD



Source: World Integrated Trade Solutions database, 2022

The agri-food trade plays an important role in the total trade of the Republic of Moldova. Agri-food products hold an impressive share in the total exported products (Ceban, 2022), which during the years 2010 - 2021 varied around 40% - 47%. In 2021, the share of agri-food exports in total exports of goods of the country accounted for 45.7%. On the other hand, being self-sufficient in most of the needs with respect to agri-food products, the share of agri-food imports in the total imports of the country accounts for values between 13.2% - 15.6% during 2010 – 2021. In 2021, the share of agri-food imports in total imports of goods amounted to 14.1%.

**Figure 2.** Shares of agri-food imports and exports in total trade of the Republic of Moldova,  
2010 – 2021, %

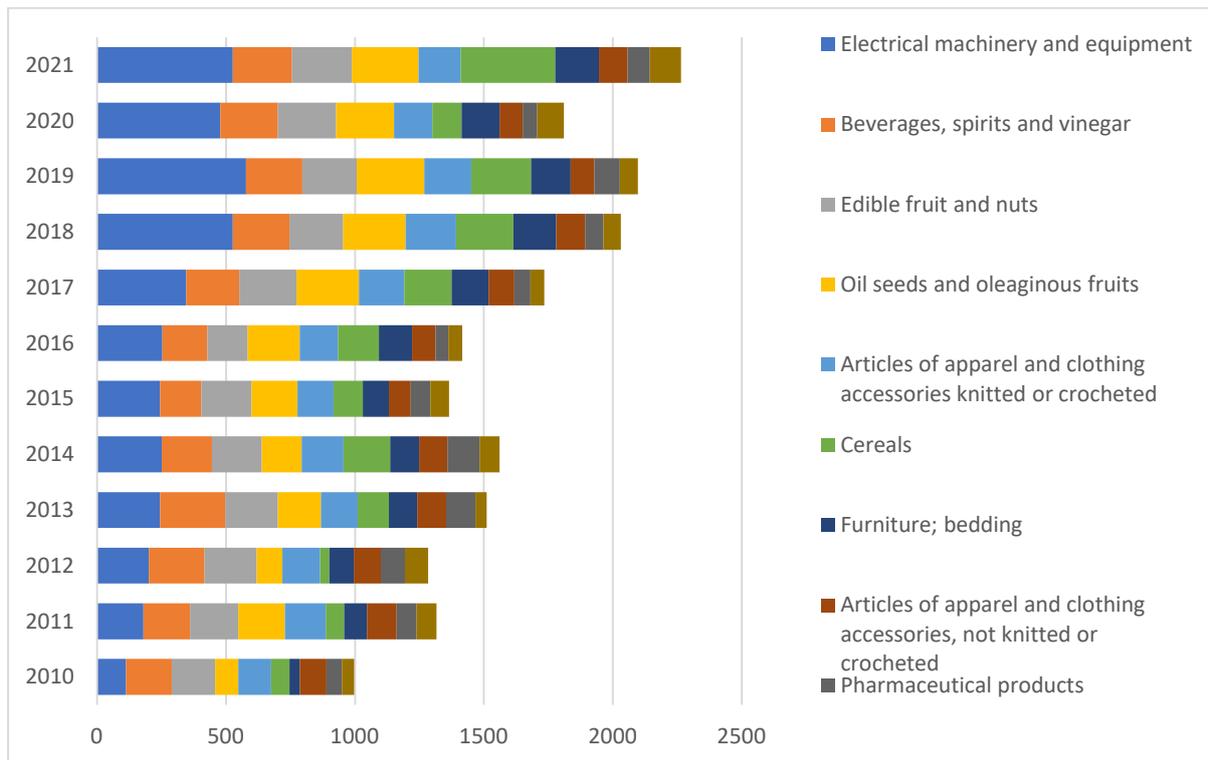


Source: World Integrated Trade Solutions database, 2022

### Analysis of Moldovan agri-food exports.

During the years 2010 – 2021, the most exported Moldovan products were represented by the following commodities groups: electrical machinery and equipment (with as total value of 3942.7 mil. USD and an average of 14% of total exported goods); beverages, spirits and vinegar (2451.5 mil. USD and 8.7%); edible fruit and nuts (2404.7 mil. USD and 8.5%); oil seeds and oleaginous fruits (2301.8 mil. USD and 8.2%); articles of apparel and clothing accessories, knitted or crocheted (1887.7 mil. USD and 6.7%); cereals (1871.9 mil. USD and 6.6%); furniture (1454.4 mil. USD and 5.2%); articles of apparel and clothing accessories, not knitted or crocheted (1224.5 mil. USD and 4.3%); pharmaceutical products (970.1 mil. USD and 3.4%) and animal or vegetable fats and oils (877.8 mil. USD and 3.1%). During 2010 – 2021, the top 10 exported products accounted for 68.7% of the value of all exported goods. It is worth noting that out of the top 10 exported commodity groups, 5 of them are represented by groups affiliated to the agri-food sector.

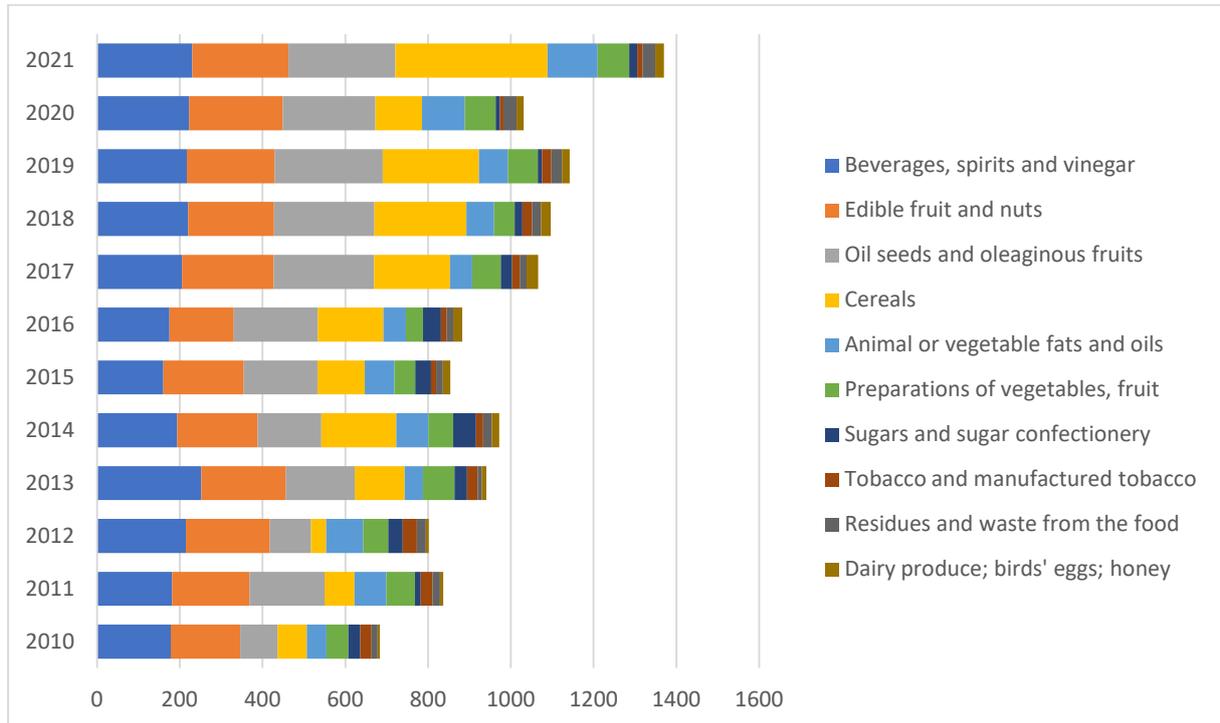
**Figure 3.** Top 10 exported Moldovan products, 2010 – 2021, mil. USD



Source: World Integrated Trade Solutions database, 2022

During the years 2010 – 2021, out of the commodity groups 1 – 24 affiliated to agri-food products, the top 10 exported goods were related to: beverages, spirits and vinegar (with a total value of 2451.5 mil. USD and an average of 19.6% share of the agri-food exports); edible fruits and nuts (2404.7 mil. USD and 19.2%); oil seeds and oleaginous fruits (2301.8 mil. USD and 18.4%); cereals (1871.9 mil. USD and 15%); animal or vegetable fats and oils (877.8 mil. USD and 7%); preparations of vegetables, fruit (751.3 mil. USD and 6%); sugars and sugar confectionery (333.2 mil. USD and 2.7%); tobacco and manufactured tobacco (243.7 mil. USD and 1.9%); residues and food waste (242.6 mil. USD and 1.9%) and dairy produce; birds' eggs; honey (198.3 mil. USD and 1.6%). The top 6 exported agri-food products account for an average share of 85% of the exported agri-food products.

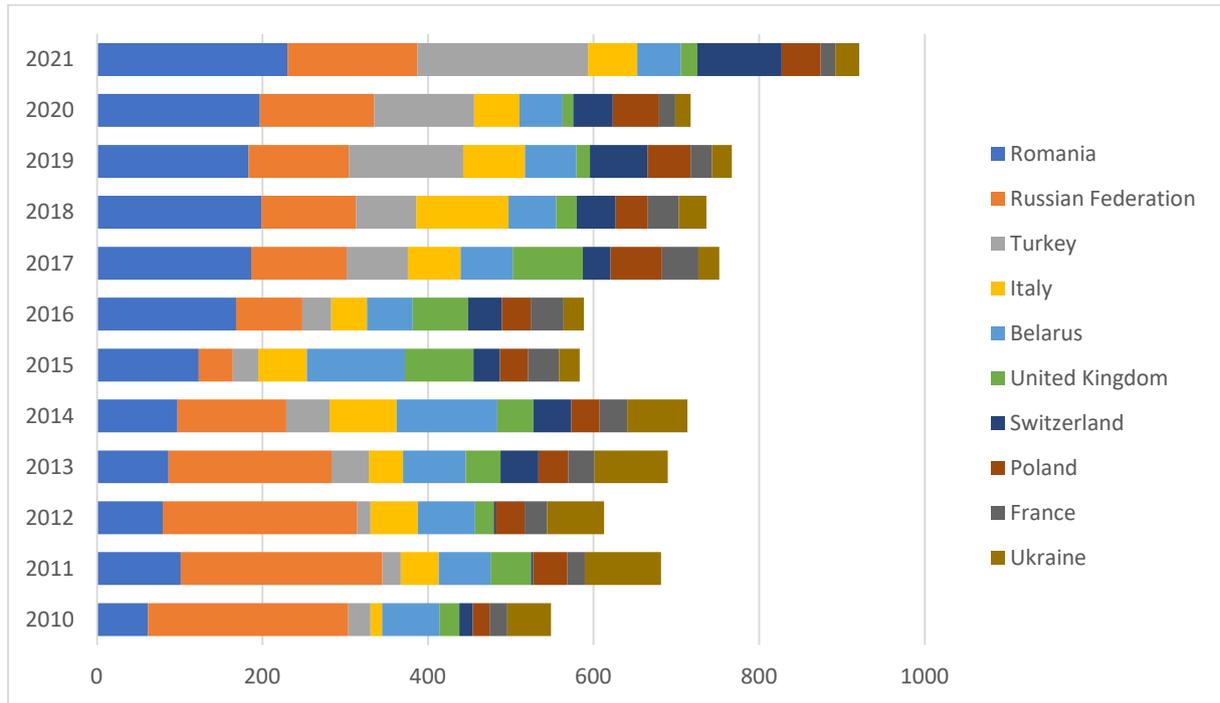
Figure 4. Top 10 exported Moldovan agri-food products, 2010 – 2021, mil. USD



Source: World Integrated Trade Solutions database, 2022

As for the trade patterns, during the years 2010 – 2021, some modifications have occurred in the exported volumes to certain countries. Thus, if in 2010 the Russian Federation represented the main destination of Moldovan agri-food products with a share of 33.1% of the agri-food exports, then in 2021 the leadership was taken by Romania, which experienced an increase in volumes and values, having the highest share of 16% of the total agri-food exports. Meanwhile, Moldovan exports experienced a diversification of partners. Embargos imposed by the Russian Federation on a series of Moldovan products (wine in 2006 and 2013; fruits like apples, peaches, cherries, etc. and canned fruits and vegetables in 2014), DCFTA agreement with the EU, as well as diversification of external markets have represented the main causes in trade patterns changes (Stratan et al, 2019). Other important export partners of the Republic of Moldova are Italy, Belarus, Turkey, United Kingdom, Poland, Ukraine, France and Switzerland. In 2021, about 64% of the exported agri-food products were directed towards these countries.

Figure 5. Top 10 agri-food export trade partners, 2010 – 2021, mil. USD



Source: World Integrated Trade Solutions database, 2022

External trade of Moldovan agri-food products is continuously increasing, both in terms of exports, as well as imports. Therefore, it is becoming necessary to analyze which commodities have a considerable competitive potential on foreign markets, and which ones are lacking in it or whose position may be significantly improved (Lucasenco, 2021).

Therefore, the RCA indicator has been used in order to assess the competitiveness of Moldovan exported products. Thus, during 2010 – 2021, the average RCA values have been divided into four specific groups, namely: high competitive degree (Oil seeds and oleaginous fruits; Edible fruits and nuts; Beverages, spirits and vinegar; Cereals; Preparations of vegetables and fruits), high to moderate competitive degree (Animal or vegetable fats and oils; Sugars and sugar confectionery; Vegetable plaiting materials; Tobacco and manufactured tobacco; Live animals; Animal products; Residues and food waste), moderate to low competitive degree (Preparations of cereals, flour; Dairy produce; Birds' eggs; honey; Edible vegetables and certain roots; Cocoa and cocoa preparations; Miscellaneous edible preparations; Meat and edible meat offal; Live trees and other plants; Products of the milling industry) and low competitive degree (Fish and crustaceans; Lac; Gums, resins; Preparations of meat, fish; Products of animal origin, not else specified; Coffee, tea, matt and spices).

**Table 1.** Competitiveness of the agri-food commodity groups based on the RCA indicator,  
average values for 2010 - 2021

<b>High competitiveness degree</b>	<b>High to moderate competitiveness degree</b>
(12) Oil seeds and oleaginous fruits – 14.9 (08) Edible fruits and nuts – 14.7 (22) Beverages, spirits and vinegar – 13.8 (10) Cereals – 9.8 (20) Preparations of vegetables and fruits – 8.0	(15) Animal or vegetable fats and oils – 5.6 (17) Sugars and sugar confectionery – 4.8 (14) Vegetable plaiting materials – 4.2 (24) Tobacco and manufactured tobacco – 3.9 (01) Live animals; animal products – 3.2 (23) Residues and food waste - 2
<b>Moderate to low competitiveness degree</b>	<b>Low competitiveness degree</b>
(19) Preparations of cereals, flour – 1.7 (04) Dairy produce; birds' eggs; honey – 1.4 (07) Edible vegetables and certain roots – 1.3 (18) Cocoa and cocoa preparations – 1.0 (21) Miscellaneous edible preparations – 0.9 (02) Meat and edible meat offal – 0.9 (06) Live trees and other plants – 0.7 (11) Products of the milling industry – 0.7	(03) Fish and crustaceans – 0.0 (13) Lac; gums, resins – 0.0 (16) Preparations of meat, fish – 0.0 (05) Products of animal origin, not else specified – 0.2 (09) Coffee, tea, matt and spices – 0.2

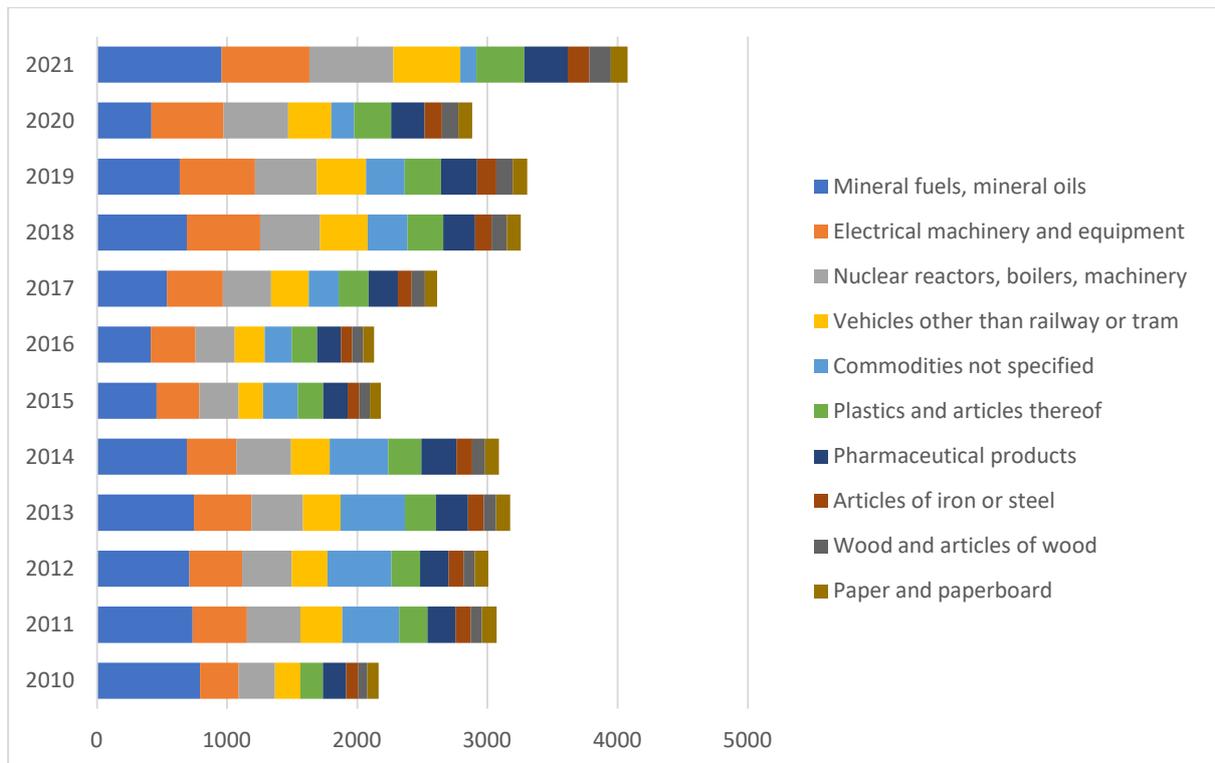
*Source: own work*

### **Analysis of Moldovan agri-food imports.**

During the years 2010 – 2021, the most imported products in the Republic of Moldova were represented by the following commodities groups: mineral fuels, mineral oils (with a total value of 7775.4 mil. USD and an average of 12.5% share of the total imports); electrical machinery and equipment (5421.0 mil. USD and 8.7%); boilers, machinery (4936.6 mil. USD and 8%); vehicles other than railway or tram (3674.6 mil. USD and 5.9%); commodities not specified (3478.4 mil. USD and 5.6%); plastics and articles thereof (2932.2 mil. USD and 4.7%); pharmaceutical products (2835.4 mil. USD and 4.6%); articles of iron or steel (1426.4 mil. USD and 2.3%); wood and articles of wood (1239.1 mil. USD and 2%) and paper and paperboard (1225 mil. USD and 2%). During 2010 – 2021, the top 10 imported products accounted for 56.3% of the value of all imported goods. Thus, one can note that among the first top 10 imported commodity groups, agri-food products are absent.

Figure 6. Top 10 imported commodity groups in the Republic of Moldovan, 2010 – 2021, mil.

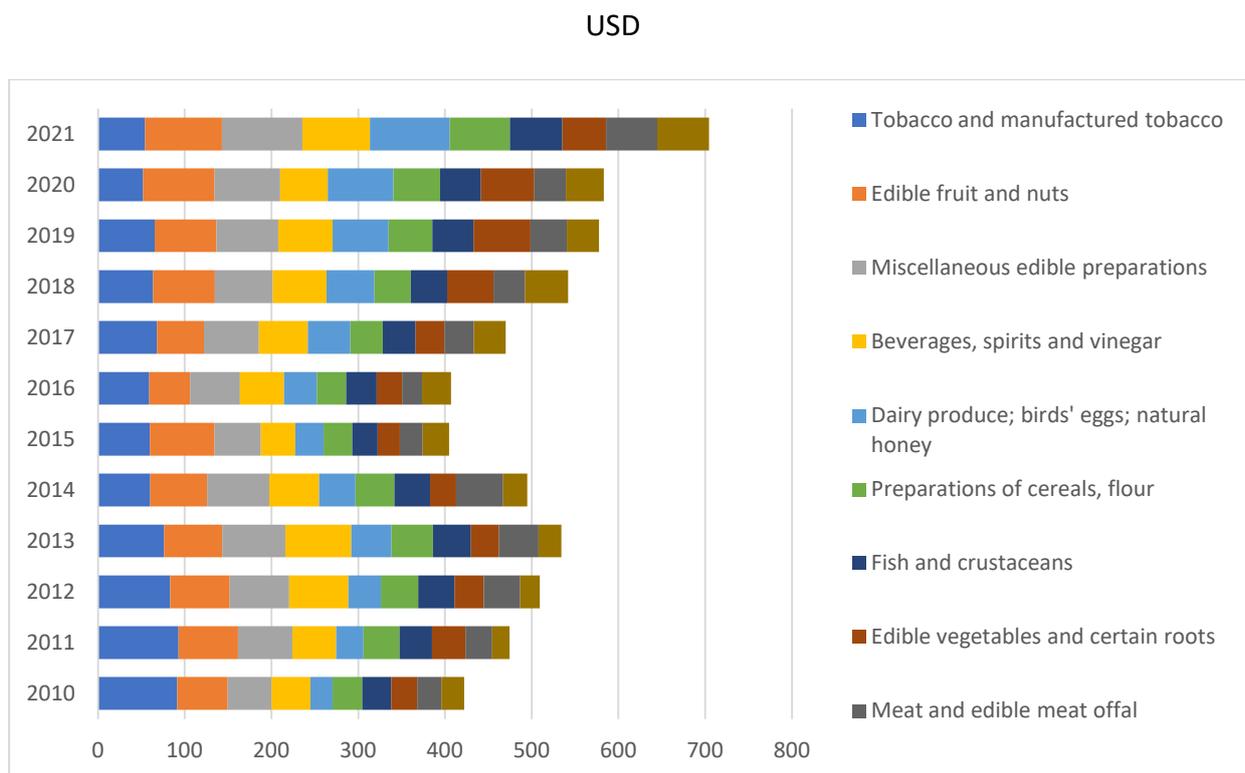
USD



Source: World Integrated Trade Solutions database, 2022

During the years 2010 – 2021, out of the commodity groups 1 – 24 affiliated to agri-food products, the top 10 imported goods were related to: tobacco and manufactured tobacco (with a total value of 825.2 mil. USD and an average of 9.3% share of the agri-food imports); edible fruits and nuts (817.6 mil. USD and 9.2%); miscellaneous edible preparations (806.4 mil. USD and 9.1%); beverages, spirits and vinegar (702.4 mil. USD and 7.9%); dairy produce; birds' eggs; natural honey (589.4 mil. USD and 6.6%); preparations of cereals, flour (531.7 mil. USD and 6%); fish and crustaceans (496.2 mil. USD and 5.6%); edible vegetables and certain roots (484.6 mil. USD and 5.5%); meat and edible meat offal (456.5 mil. USD and 5.1%) and oil seeds and oleaginous fruits (414.3 mil. USD and 4.7%). The top 10 imported agri-food products account for an average share of 69% of the imported agri-food products.

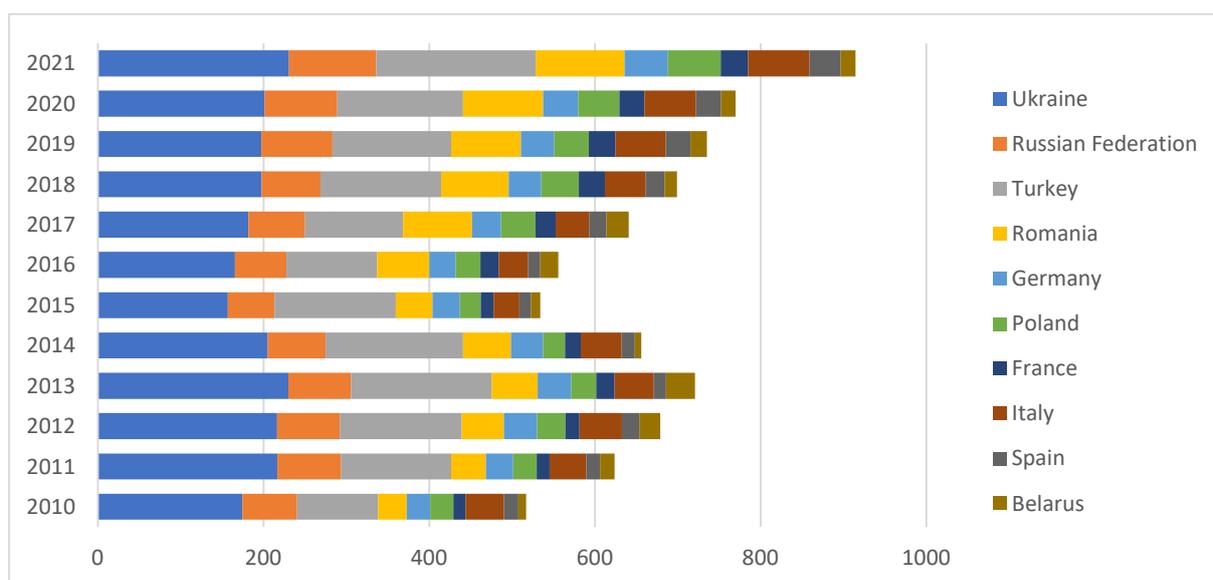
**Figure 7.** Top 10 imported agri-food products in the Republic of Moldova, 2010 – 2021, mil. USD



Source: World Integrated Trade Solutions database, 2022

As for agri-food import partners, the most important ones continue to be Ukraine, Romania, the Russian Federation, Turkey, Germany, Italy, etc. In 2021, the top 10 import partners accounted for 90% of the total imported agri-food products.

**Figure 8.** Top 10 agri-food import trade partners, 2010 – 2021, mil. USD



Source: World Integrated Trade Solutions database, 2022

## Summary, conclusions, recommendations

The Republic of Moldova is a country that is highly reliant on its agricultural sector, both in terms of its contribution to GDP and employment of population, as well as its generous contribution to foreign trade, especially exports. The foreign trade with agri-food products is constantly increasing, having a net positive trade balance during the period of 2010 – 2021. The Moldovan foreign trade with agri-food products is rather comprising distinct elements from different trade theories, being based on comparatives advantage, as well as on sectors with more production factors.

In 2021, the total value of agri-food exports amounted to 1436 mil. USD, which represents record value for the Moldovan economy. At the same time, the agri-food import values have for the first time overpassed the threshold of 1000 mil. USD, amounting to 1010.3 mil. USD. Nevertheless, being a small country, with a rather low productivity, the share of Moldovan agri-food exports in the total world-wide exported agri-food products accounted for a value of 0.07% in 2021, while with respect to agri-food imports, the share of Moldovan agri-food imports in the total world imported agri-food products accounted for a value of 0.05%.

Republic of Moldova has a focused export of agri-food products on several countries, as in 2021, about 64% of the exported agri-food products were directed towards only 10 countries, the main export partners being Romania, Russian Federation, Turkey, Italy, Belarus, United Kingdom, Poland, Ukraine, France and Switzerland. The recent evolutions on the world market, both, from the economic and geopolitical point of view, place Moldova in a rather dependent situation, with a low diversification of export partners, which contributes negatively to the further development of agricultural sector.

At the same time, the situation with agri-food import partners is even more static and undiversified, as the most important partners such as Ukraine, Romania, Russian Federation, Turkey, Germany, Italy, Poland, France, Spain and Belarus, in 2021, accounted for 90% of the total imported agri-food products.

With respect to the RCA, Moldovan companies are competitive on the foreign market namely with oil seeds and oleaginous fruits, edible fruits and nuts, beverages, spirits and vinegar; cereals, as well as preparations of vegetables and fruits. Among the above mentioned commodity groups there are present both, high value-added products and low

value-added. Therefore, the future focus of the foreign trade should be placed on increasing of exports of high value-added products, fact that will allow the enhancement of development of small and large value chains in the agricultural sector of the Republic of Moldova.

At the same time, special attention should be put to enhancing investments in value added sub-sectors, improvement of the quality of products, investments in post-harvest and processing infrastructure, information activities that will contribute to diversification of export partners, development of strong partnerships between private sector and academia, etc. These measures will mainly contribute to accessing new markets and satisfying the existing demands.

## Acknowledgements

The paper has been developed in the framework of the State Program "Development of new economic instruments for assessing and stimulating the competitiveness of agriculture in the Republic of Moldova for the years 2020 - 2023" (project code - 20.80009.0807.16), financed by the National Agency for Research and Development from the Republic of Moldova.

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**Proceedings of the 2022 IX International Scientific Conference Determinants  
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