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## **Research on the Agro-Food Trade Balance of Romania**

Gabriela-Dalila STOICA<sup>1\*</sup>, Mirela STOIAN<sup>2</sup>,  
Ionuț-Cătălin NICA<sup>3</sup>, Marko JELOCNIK<sup>4</sup>

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### **Abstract**

*One of the founding principles of the European Union was free trade between all member states. In Romania, an EU member since 2007, the trade deficit for agro-food products has grown rapidly in recent years, reaching €8.3 billion in 2020, €1.08 billion higher than in the previous year. The aim of the paper is to highlight the evolution of trade and trade balance with the main categories of agro-food products in Romania. In order to achieve this aim, indicators contributing to the trade balance were analysed. The analysed indicators are import, export and trade balance for cereals, vegetables, and meat, at the Romanian level, in the period 2010-2020. In addition, the SPSS software was used to estimate the trade balance for the next decade. Cereals show a positive medium-term outlook driven by strong demand, thus in 2020 Romania's trade balance with cereals recorded a surplus of 7.8 million tons, equivalent to 1.4 billion euros, while the trade balance with vegetables and meat recorded a trade deficit of 625 thousand tons, and 381 thousand tons respectively.*

**Keywords:** import, export, trade balance, Romania, forecasting, SPSS.

**JEL Classification:** Q10, Q17.

### **1. Introduction**

Trade is an economic concept involving the buying and selling of products, goods, or services, which includes a payment made by a buyer to a seller or involves the exchange of products, goods, or services between two parties (Sanghoon, 2002). The exchange of goods, services, or even the exchange of capital across the borders of a country or across international territories represents the foreign trade. In most

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<sup>1</sup> Bucharest University of Economic Studies, Bucharest, Romania, dalila.stoica@eam.ase.ro, Research Institute of Agriculture and Rural Development, Romania, stoica.gabriela@iceadr.ro.

<sup>2</sup> Bucharest University of Economic Studies, Bucharest, Romania, mirela.stoian@eam.ase.ro.

<sup>3</sup> Bucharest University of Economic Studies, Bucharest, Romania, nicaionut20@stud.ase.ro.

<sup>4</sup> Institute of Agricultural Economics, Belgrade, Serbia, marko\_j@iep.bg.ac.rs.

\* Corresponding author.

countries, foreign trade accounts for a significant share of the gross domestic product (GDP). Industrialisation, the advanced development of transport, globalisation, the emergence of multinational corporations, etc. have a major impact on trade. Foreign trade includes: imports - the purchase of goods (goods or services) from another country, e.g. the import of exotic fruit (bananas, oranges, etc.) from Greece, Turkey, etc. for sale in Romania and exports - the sale of goods or services to another country: for example, the export of cereals (wheat, maize, sunflower) from Romania to other countries such as Egypt, Turkey, Spain, etc. In 2020, Romania was the world's largest exporter of sunflower (€622 million) and sheep and goats (€264 million) at the European Union level (Guvernul României, 2021).

The difference between the value of exported goods or services and the value of imported goods or services represents the trade balance. The trade balance can be positive when exports exceed imports or negative when imports exceed exports (AmosWEB LLC, 2000-2022). Although the trade balance represents the net level of trade over a given period, it reflects past actions or expectations and future actions in the presence of adjustment costs. To better understand the concept of the trade balance, Victor A. Canto and Andy Wiese, in their study "Trade Balance - A deteriorating trade balance means that the future looks brighter", explained that a simple way to understand this, is to correlate a country, a household, or a public trade company, noting that for each case there are ongoing concerns that focus not only on the present situation but also on estimates. Also, in the same study, it is argued that excessive consumption, reflected by the trade deficit for goods or services, is financed by households through borrowing; more specifically, it is supported by the flow of capital that finances investment in human capital (Canto, Weise, 2018).

Overall, Romania's agro-food trade balance has the potential to be a systemic risk. One reason for triggering this risk is related to the relationship between the current account deficit and financial crises. The account deficit is the central element that contributed to the unfavourable evolution of the trade balance, and the deterioration of the current account deficit is also an element that led to the outbreak of financial crises. Other reasons that contributed to the triggering of systemic risk are related to food security and low productivity in agriculture (CNSM, 2020). In terms of importance for economic growth, deterioration of the trade balance has been found to have a negative impact on economic growth and vice versa (Abbas et al., 2013; Cetintas 2008; Matthias, Jens, 2012). The results of a multivariate regression were obtained in the paper "Trade Balance Effects on Economic Growth: Evidence from European Union Countries", confirms the statistically significant negative impact of trade balance on economic growth (Deimante et al., 2020).

## **2. Problem Statement**

Since 1990, when imports resumed, and until now, Romania's trade in agro-food products has always been in deficit, except for two years, 2013 and 2014. The main factors contributing to the dismantling of agro-food chains have been the change in the agricultural land regime and land ownership. Additionally, the return of

agricultural land to its former owners had serious effects on the productivity and efficiency of agricultural production (Gavrilescu, 2018; Albert, 2018).

According to a study conducted in 2018 by Flanders Investment & Trade, based on European Commission data, a forecast of the Romanian economy for the next period was made, and at that time, it was expected that the main growth engine of the Romanian economy would be private consumption. In the same study, it was mentioned that "imports will continue to grow at a higher rate than exports in the period 2019-2020", which has happened, with exports making a negative contribution to real GDP growth (Flanders Investment & Trade (2018).

The literature in Romania on national competitiveness, crop production, trade balance, and the links between the three indicators is not so extensive. Romania has the potential to be competitive in the global agro-food chain by processing raw materials and exporting processed food, but the economic reality shows the opposite (Constantin et al. 2022). In another study, Andrei et al. argue that in order for agriculture to be efficient and have a high level of competitiveness, there is a need for a polyvalence of both intra- and extra-EU trade. In agriculture, as in any other economic sector or area, trade should make a significant contribution to the creation of real added value for stakeholders (Andrei et al., 2020). The export of agricultural products is a key element for a viable and sustainable agriculture, as well as for the development of rural areas in Romania (Ciutacu et al., 2015). Starting from the assumption that agriculture is the main activity carried out in rural areas in Romania, stimulating and activating the export of agricultural products and activating trade links within this sector can be an important tool in the development of agricultural productivity and rural space (Ciupagea, 2004).

At the European level, the sharp rise in prices for agricultural products, a consequence of events and trade disruptions closely linked to the rise in energy and input prices, has led to the stimulation and activation of trade. Thus, agro-food trade at the EU level reached €32801 billion, representing an annual increase of 7.2%, while agro-food exports increased by €198 billion, representing an annual increase of 7.3% (European Commission, 2022).

### **3. Research Questions / Aims of the Research**

The research hypothesis starts with the premise that Romania's agro-food trade faces a number of problems and focuses on answering the question of how viable it is. The objectives of the research are to identify the results reflecting the situation of Romania's agro-food trade balance, to analyse the trade in cereals, vegetables, and animal products (meat), and to forecast the trade balance, looking forward to 2030. To achieve these objectives, a qualitative and quantitative research of data on the import and export of the aforementioned agricultural products is carried out.

### **4. Research Methods**

The paper is based on statistical data provided by the International Trade Centre on Romania's imports, exports, and trade balance for cereals, vegetables, and meat

for the period 2010-2020. The research method used consisted of a quantitative and qualitative analysis of the statistical data in order to highlight the evolution of trade and trade balance with the main categories of agro-food products in Romania. Also, by means of SPSS software, the trade balance was forecast for the next period, to 2030, using the Forecasting method.

## 5. Findings

At the national level, agriculture is the most important branch of the economy in relation to the size of the rural population and employment. In Romania, 46.2% of the population lives in rural areas (Romania in figures, NSI, 2019). Approximately 30% of the country's population is employed in agriculture, so the social role of agriculture must also be taken into account, which, according to the provisions of the Common Agricultural Policy, is at the same time the space where most farmers live, the natural environment under their care, and the cultural heritage inherited from one generation to the next. Compared to other EU countries, the agricultural sector in Romania accounts for a high percentage of gross value added (Figure 1).

**Figure 1. Agriculture, forestry and fishing, value added (% of GDP)**



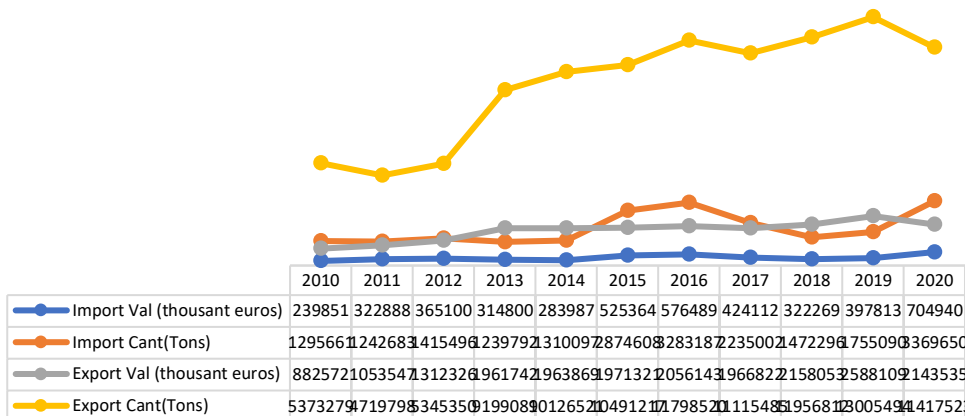
Source: World Bank.

Due to the emergence of new global challenges with long-term implications, the world is undergoing a process of structural transformation, which requires the development of a strategic vision and the implementation of concrete actions by national authorities. Demand for food is expected to increase by 70% by 2050 due to population and income growth, and for the agro-food sector this represents both an opportunity and a challenge. These trends have a strong impact on the demand for agricultural products, as the European market is expected to offer limited opportunities for expansion (Strategy for the Development of the Agrifood Sector in the Medium and Long Term Horizon 2020-2030, 2015).

Cereal exports show an upward trend, so in 2020 the total amount of cereals exported was 11.4 million tons, equivalent to €2.14 billion, approximately 13.6% less compared to 2019. In terms of value, the highest exports were recorded in 2019,

approximately € 2.15 billion, 20.7% more than in 2020 (Figure 2). Romania, in the period 2010-2020, exported an average of 9.5 million tons of cereals to EU countries and third countries, with the largest quantity exported to Egypt, Spain, and Jordan.

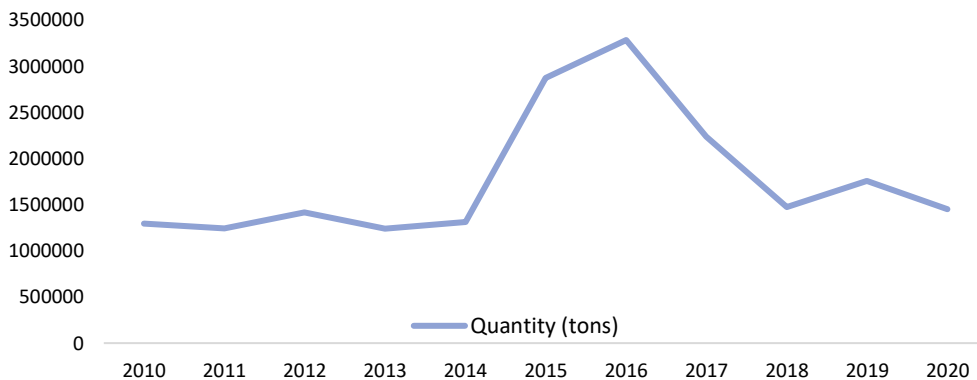
**Figure 2. Evolution of cereals exports and imports, 2010-2020**



Source: www.intracen.org.

At the same time, there were also cereal imports, which in 2020 were of around 3.3 million tons, or €704 million, 92% more than in 2019. It can be noted that the value of cereal imports in 2020 is approximately 3 times higher than in 2010 (Figure 2). Romania is a transit country; imports do not remain in the country but exit as exports, through the Constanța terminal (MADR, 2020).

**Figure 3. Evolution of the trade balance for cereals in Romania, 2010-2020 (tons)**

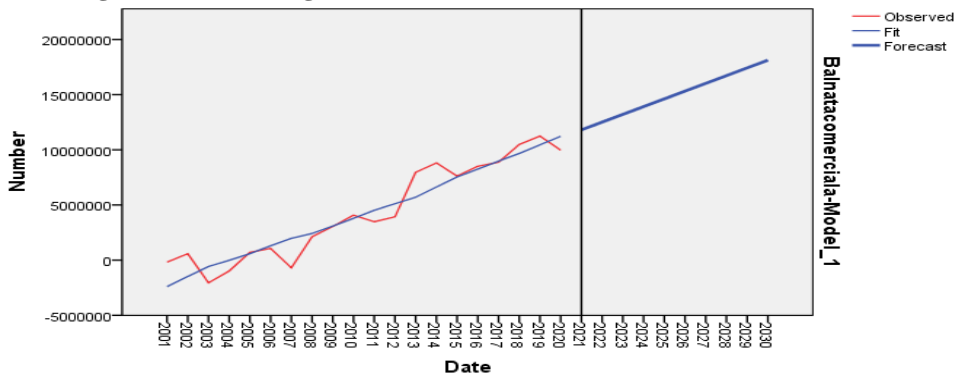


Source: Processing based on ITC data.

The main sales markets for cereals in 2020 were Bulgaria and Hungary for wheat, France and Bulgaria for maize, Hungary and France for barley, etc. The value of cereal exports far exceeds the value of imports, resulting in a trade surplus. In 2020, Romania's trade balance recorded a surplus of 7.8 million tons, equivalent to €1.4 billion. Among the EU-27 countries, Romania ranks 3<sup>rd</sup> in terms of the amount

of cereals exported, with a value of €2.14 million (Figure 3). Based on the estimate of a decrease in domestic cereal production coupled with an increase in imported quantities, it is possible to forecast Romania's cereal trade balance for the next 10 years. Therefore, the presence of factors with a positive impact, such as: favourable weather and climate conditions for a good development of the cereals sector, the presence of soils of a high quality for the normal development of cereals, the production in favorable conditions of raw materials for processing, the level of subsidies under the Common Agricultural Policy of the European Union, as well as the existence of possibilities for the development of innovative technologies, are elements that can contribute to a further increase in domestic production implicit in exports.

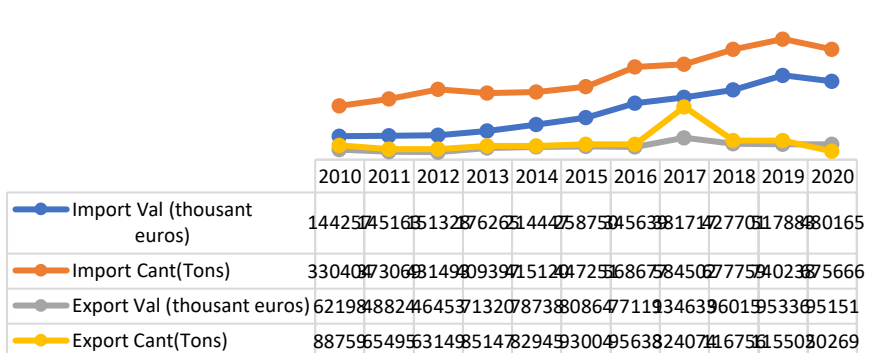
**Figure 4. Forecasting the trade balance for cereals, horizon 2030 (tons)**



Source: Processing based on ITC data.

In 2001 the trade balance for cereals was negative (-178 thousand tons). Therefore, by observing the upward trend of the trade balance, a model was created in which the evolution of the trade balance in the following period, until 2030, was forecast. According to the model, in 2030, Romania could have a surplus of 18.1 million tons (Figure 4).

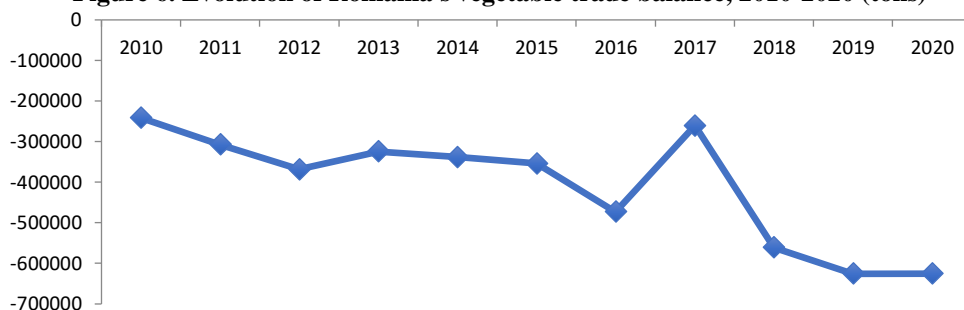
**Figure 5. Vegetable export and import trends, 2010-2020**



Source: www.intracen.org.

Imports of vegetables show an overall upward trend, with a slight decrease in 2020 when the value of imports was €480 million, 7.2% less than 2019. It can be seen that the value of vegetable imports in 2020 is 3 times higher than in 2010 (Figure 5). The import values are higher compared to the values recorded for vegetable exports, therefore strategies need to be developed for each vegetable group, to identify solutions to balance the trade balance. From a quantitative point of view, the highest value of vegetable imports was recorded in 2019, around 740 thousand tons, 9.6% higher than in 2020. The decrease in imported quantities imported in 2020 could be attributed to export COVID-19 pandemic and the limitations by some countries. Due to restrictions in terms of shop, market, or restaurant closures, producers have not been able to make use of the production obtained (Figure 5). Therefore, there has been a decrease in demand throughout the period of the emergency and beyond, leading farmers to reduce areas or switch to other crops. It is noted that for the whole period analyzed, 2010-2020, Romania's trade balance for vegetables shows a deficit, reaching 625 thousand tons in 2020, equivalent to 423 million euro (Figure 6). In the vegetable category, tomatoes, cucumbers, potatoes, beans, and garlic are in the top positions in terms of deficit. The main EU countries from which Romania imports vegetables are Greece, Germany, the Netherlands, Poland, and Spain.

**Figure 6. Evolution of Romania's vegetable trade balance, 2010-2020 (tons)**



Source: Processing based on ITC data.

Due to massive imports, the vegetable sector is the most affected. One way to correct the trade balance may be to improve yields per hectare, which could help solve the problems of vegetable availability. At the same time, it should be noted that there are a number of public policies that are aimed at vegetable producers. For example, since 2017, support programs have been approved for vegetable producers who grow tomatoes in protected areas, in order to obtain off-season crops. Another program is dedicated to garlic production, as this vegetable accounts for a large share of the trade deficit due to its high marketing price per unit volume. In addition to these national measures, there are also European subsidies for the vegetable sector. However, the beneficial effects, i.e. an increase in the area under cultivation, the development of vegetable growing in protected areas, and, consequently, a reduction in imports, are slow to materialize. The primary aim must be to maintain the quality

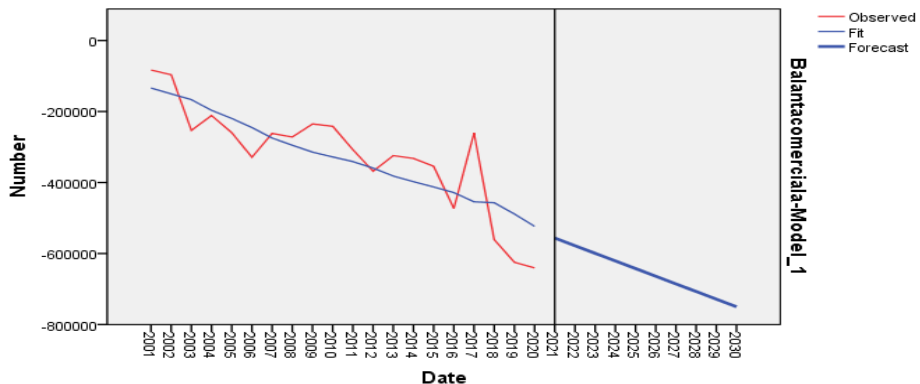
of food, taking into account people's health, and taking measures to maintain and improve the sustainability of soil and energy resources.

Furthermore, in order to correct and improve the trade deficit in the vegetable sector and beyond, measures should also be taken to inventory agricultural areas, to consolidate land and holdings, and to provide vocational training and education for the existing workforce, with a view to ensuring that agricultural activities are carried out properly, thereby helping to increase the competitiveness of agricultural sectors. Another factor influencing the trade balance deficit in the vegetable sector is an indirect one, i.e. the market share held by the large agro-food retail chains, which in 2021 exceeded the 70% threshold, with the trend continuing upward. The lack of organization in the production area leads vegetable buyers to ensure the continuity of the flow of fresh vegetables with the help of imports. The evolution of the vegetable trade balance shows that in Romania there is a need to develop associative forms of cooperation on product supply chains, leading to the concentration of vegetable supply, the establishment of warehouses with modern technologies to ensure the conditioning and preservation of products for periods that allow constant deliveries regardless of the season. At the same time, since the supply of vegetables is seasonal and the demand for vegetables is continuous, it is recommended that they be produced throughout the year.

The perishability of vegetables also plays a very important role in their valorization, as the supply on the market must meet certain standards and meet existing requirements, with the introduction of commercially valuable varieties playing an important role. Often the vegetable varieties grown in Romania have very good organoleptic properties but are deficient in terms of commercial quality.

In terms of geographical location and climate, Romania is at a great disadvantage in terms of winter vegetable production compared to southern countries such as Spain, Greece, and Italy. Due to the lack of modern technologies and, more recently, to the increase in the price of energy and fuels, the cultivation of vegetables in protected areas, whether in solariums or greenhouses, is carried out in small areas, which leads to the import of significant quantities of vegetables.

**Figure 7. Forecasting the vegetable trade balance, horizon 2030 (tons)**



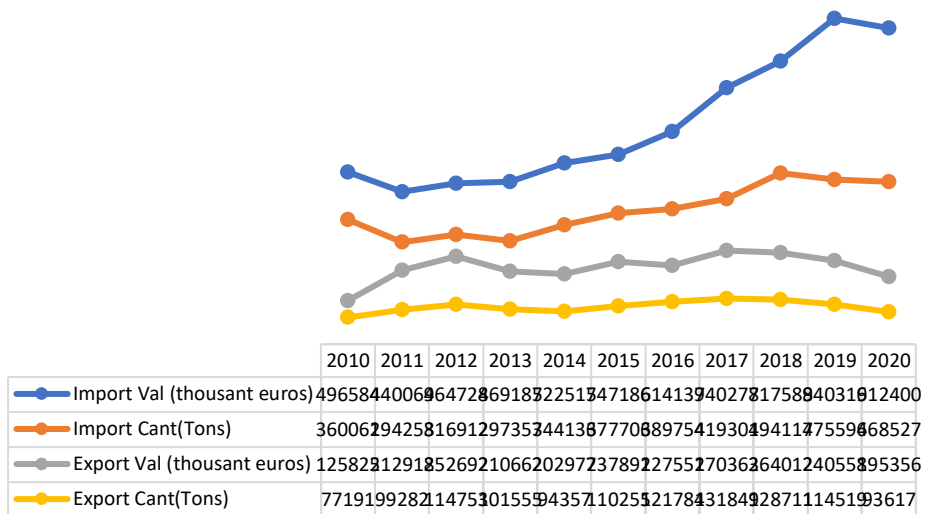
Source: Processing based on ITC data.



Observing the downward trend of the trade balance of vegetables, a model was created to forecast its evolution in the following period, until 2030. According to the model, in 2030 Romania would have a deficit of 750 thousand tons, which means that the trade deficit increases 9 times compared to 2001. The value of meat exports to Romania showed an oscillating trend in the period 2010-2020; therefore, in 2020 the export value reached 195 million euros, an increase of more than 55% compared to 2010, when a value of 125 million euros was recorded. Romania exports mainly poultry meat, and in 2020 it exported to countries such as England and Hungary (29182 tons and 27585 tons, respectively) and pork to Belgium, Italy, Sweden, etc.

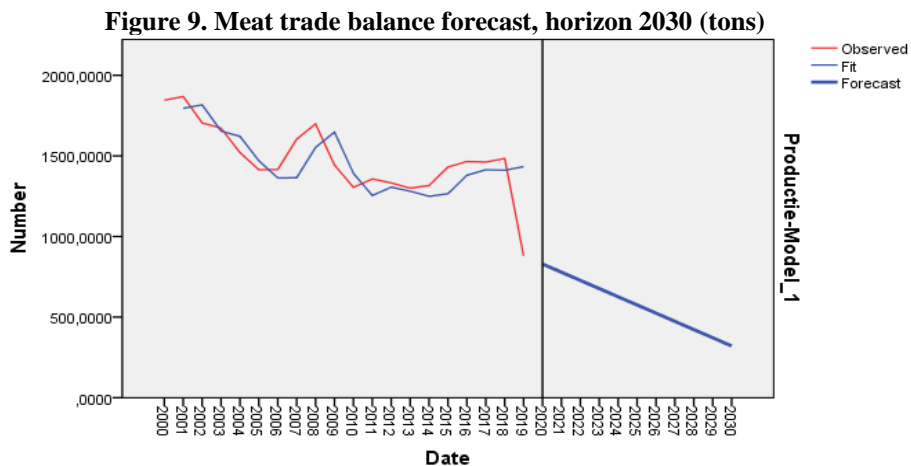
Meat imports show an overall upward trend registering a slight decrease in 2020, when the value of imports was €912 million, 2.96% less than in 2019. It can be seen that the value of meat imports in 2020 is about 2 times higher than in 2010. The total quantity of meat that Romania imported in 2020 was 468.5 thousand tons, 30.12% more than 2010 (Figure 8). Romania imports mostly pork, the main countries of origin being Spain (272630 tons) and Germany (60371 tons). In addition to pork, significant quantities of poultry meat (Poland and Hungary), beef (Germany and Poland), and sheep and goat meat are also imported.

**Figure 8. Evolution of meat exports and imports, 2010-2020**



Source: [www.intracen.org](http://www.intracen.org).

It should be noted that meat imports were also influenced by other factors such as the embargo imposed on Russia after the annexation of Crimea in 2014, but especially by the spread of African Swine Fever (ASF) since the same year, which decimated the pig farming sector in Romania. Under these conditions, the level of pork imports has reached a very high level of more than 70% of the Romanian market's consumption needs.



Source: processing based on ITC data.

Observing the downward trend of the trade balance for meat, the model developed in SPSS shows its evolution in the next period, until 2030. According to the model, in 2030 Romania would have a deficit of 785 thousand tons, which means that the trade deficit increases by about 3 times compared to 2001. The ageing population and demographic decline will limit the development of the domestic agro-food market. With a similar trend expected for the whole European continent, it is expected that Romania will have to increasingly expand its influence on markets outside the EU. The growth in food consumption currently exceeds production, leading to massive food imports. Pork and poultry consumption is growing the most while beef and dairy production hold the majority of agricultural resources (Kolleen et al., 2011).

Now, Romania needs to effectively manage the existing constraints and how best to address them. In Romania's Development Strategy for the next 20 years, a document drawn up in 2015, it was mentioned that by 2020 Romania should have ensured its food security, but according to the current data it can be seen that the forecasts mentioned in the Strategy will not be confirmed, which leads to the need for the authorities to intervene in order to correct the existing deficiencies. The intervention of the authorities, together with the associations of the sector, is focused on the development and implementation of strategies for the agro-food sector. This strategy considers it necessary to develop a development policy focused on the production sector, the main aim being to recover domestic markets and increase external markets based on competitiveness.

Following the high degree of fragmentation of holdings, the proposed measures relate to amending and improving the legislation on land consolidation and completing the land registration process. Other measures proposed to alleviate the shortcomings that have accumulated in recent years concern the theoretical training and education of agricultural workers and research institutions. According to an NBR report, Romania ranks last in Europe in terms of the graduation of specialized

schools by employees working in the field (CNSM, 2021). In addition, a set of recommendations is proposed on: stimulating exports of products, increasing added value (for cereals and large crops, vegetables, fruit, and for the livestock sector), proposals on innovation, quality, and financing. The recommendations for stimulating and increasing exports provide measures to finance the program to enhance the value of organic food products, including for export, financing of trade fairs and foreign economic missions for the agro-food sector, as well as measures to increase the number of exporting agro-food SMEs, the development of clusters and regional agro-food export networks to manage geographical indications, development of the e-commerce system, etc. (Dăianu, 2001).

To increase added value, the aim is to implement measures, in particular, to encourage associations within agricultural cooperatives in order to benefit from high-performance and intelligent technologies that can ensure a high level of competitiveness for agricultural products. In addition, measures have been proposed to define the value chain for all agro-food products.

## **6. Conclusions**

Romania has an overall trade deficit for all sectors except cereals, where there is a trade surplus of 7.8 million tons, equivalent to €1.4 billion, in 2020. The development of the processing sector for raw materials obtained from the processing of cereals such as flour, corn flour and vegetable fats could, through their export, reduce the trade deficit. The processing of raw materials from primary crop production into higher value-added products such as bakery products, pasta, biscuits, frozen doughs, puff pastries, confectionery, and pastry products could be other solutions to make better use of Romania's cereal production.

Regarding foreign trade, the balance of trade in vegetables shows a deficit of 625 thousand tons, equivalent to €423 million, one of the most affected sectors. One way of correcting the trade balance may be to improve yields per hectare, which could help to solve problems related to the availability of vegetables, such as the current problems of low access to food. The trade balance in animal products is in deficit. In the context of ensuring animal production that meets current consumption requirements and availability for export, livestock farming in Romania also requires the existence of adequate livestock numbers and a breed structure with high genetic value. This situation of continually shrinking livestock numbers and the excessive fragmentation of livestock farms is having an impact on farmers' investment capacity and therefore on the yields obtained, with sectoral production also being affected by insufficient collection, storage, and transport facilities. Thus, the inability to deliver goods to the upper links of the production chain in accordance with their quantitative and qualitative requirements characterizes not only the plant sector but also the livestock sector. Following on from the previous statements on exports of cereals, especially wheat, maize, and sunflowers, a link should be made with the development of the livestock sector, especially pig farming, but also poultry farming, which could influence the level of imports of high value-added products such as meat, meat products, dairy products, and eggs.

According to forecasts, using the SPSS software, Romania is expected to have a surplus of 181 million tons of cereals by 2030, while the trade deficit for vegetables and meat could reach 750 thousand tons and 785 thousand tons, respectively. The continuation and deepening of current trends is undesirable for the agro-food sector in Romania, as the economic consequences could be negative, jeopardizing the existence of crops in the case of the vegetable sector, generating excessive specialization of large cereal farms, which could have social consequences, but especially on the environment and biodiversity.

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