

# Vegetal Agricultural Production in Romania - Trends and Structural Implications

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## **Abstract**

*The objective of the paper is to identify the current situation in Romania in terms of the vegetable agricultural sector, based on the data obtained from the National Institute of Statistics, the Ministry of Agriculture and Rural Development in Romania and the Food and Agriculture Organization of the United Nations.*

*The research question is: how the agricultural area has been modified in the period 1990-2020 and what are the implications on vegetal origin production? In pursuing this, statistical data on agricultural areas and the productions obtained are analysed.*

*The results of the research show that the agricultural area in Romania has decreased since 1990, as well as the agricultural production among certain products, which has implications for ensuring food security. Generally, Romania ensures its population's food security, even if in the last period the agricultural area decreased concomitantly with the production.*

**Keywords:** land fund, agriculture production, small farms, agriculture cooperative, food security

**JEL classification:** Q15

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## **1. Introduction**

Agriculture has an important role for a country's food security and must fulfill the following objectives: obtaining large agricultural productions, systematizing and consolidating the flow of agricultural products, providing the population with agro-food products simultaneously with ensuring the health of the population (Tarhini et al., 2022). Romania has a high potential in the agricultural field, obtaining a varied range of agricultural products that are intended for domestic consumption, but some of these products are also exported, especially cereals that record large productions. In this case, Romania secured its food needs (Istudor et al., 2014).

Thanks to the favorable climate and relief, in Romania the agricultural system can develop because significant quantities of agricultural products can be obtained. The agricultural output can be intended for human consumption, but it can also be used as fodder in livestock farms. In addition to providing food for the

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population, agriculture contributes to the development of the country from an economic point of view, more precisely the increase in exports of agricultural products, the establishment of factories for processing agricultural products, the increase in the consumption of local and national products, but also the creation of new places of work in rural areas. Moreover, agriculture is an important branch of the economy in Romania, according to INS data, in 2020 agriculture recorded a share of 4% of the Gross Domestic Product.

Romania occupies an important place in the agriculture of the European Union thanks to the cultivated agricultural area and the levels of production obtained. In 2019, Romania ranked first in the European Union in terms of cultivated area, as well as first place in corn and sunflower production. Romania has a remarkable agricultural potential, more precisely 7.2% of the agricultural surface of the European Union, which is similar to that of Poland (8.3%) and Germany (9.7%) (Eurostat, 2023).

This paper aims to answer the question: what is the dynamics of vegetable agricultural production in Romania and what are the resources that contribute to its achievement.

The premise from which the research starts is that the agricultural resources of Romania, mainly the land fund, are insufficiently exploited. The land fund includes all the lands with agricultural and forestry purposes, lands in the inner city, lands under water and with special purposes. Agricultural lands are used in agriculture, among them are: arable land, pastures, hayfields, vineyards and wine nurseries, orchards and fruit nurseries (Burja et al., 2020).

The agricultural land has been efficiently exploited before 1990, but after that, in Romania, the agricultural system registered a significant decrease due decapitalization, agricultural surfaces fragmentation, masive imports of agricultural and food products. Many farms have been closed, some of the agricultural lands near the cities have changed their destination to inner-city lands. The lack of investments in the plant agricultural system (mechanization, automation, irrigation systems) have led to a decrease in production per hectare, the abolition of jobs in rural areas, but also a decrease in the population in these areas.

This paper presents the current situation of the cultivated area in Romania and its agricultural production obtained. It is structured into four parts. After the introduction, the materials and methods of research are presented, the data referring to the land fund, cultivated area and vegetal production. The third part discusses the results, while the last one draws conclusions.

## **2. Material and Method**

In Romania, the agricultural area is approximately 14 million hectares (13,591,000 ha in 2020), which is classified into arable land, pastures, hayfields, vineyards and wine nurseries, orchards and fruit nurseries.

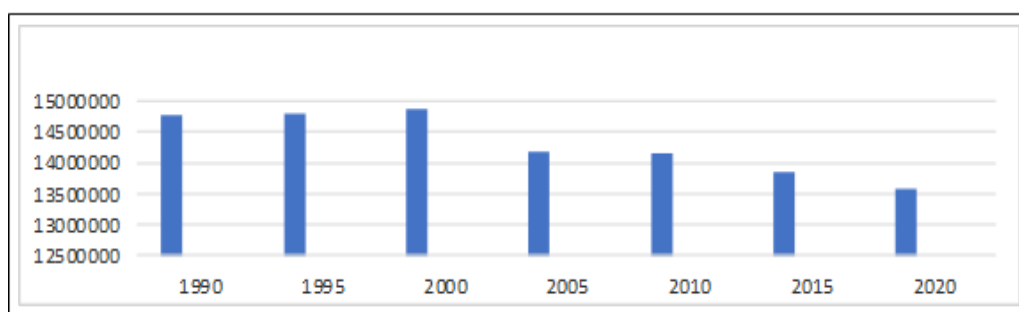
Arable lands occupy the main part, representing 51% of the country's agricultural area in 2020, permanent crops representing 24% and pastures and

meadows 25%. In the period 1990-2020, Romania recorded a 7.97% decrease in the agricultural area, from 14,769,000 to 13,591,000 ha (Table 1, Figure 1).

**Table 1. Dynamics of the surface of the land fund according to the its use, in Romania, 1990-2020 (ha)**

|  | <b>Agricultural area</b> | <b>Arable area</b> | <b>Permanent crops</b> | <b>Pastures and hayfields</b> |
|--|--------------------------|--------------------|------------------------|-------------------------------|
| <b>1990</b>  | 14,769,000               | 9,450,000          | 5,910,000              | 4,728,000                     |
| <b>1995</b>  | 14,797,000               | 9,337,000          | 5,700,000              | 4,890,000                     |
| <b>2000</b>  | 14,857,000               | 9,381,000          | 5,270,000              | 4,949,000                     |
| <b>2005</b>  | 14,180,000               | 8,985,000          | 5,100,000              | 4,685,000                     |
| <b>2010</b>  | 14,156,000               | 9,146,000          | 4,630,000              | 4,547,000                     |
| <b>2015</b>  | 13,858,000               | 8,778,000          | 4,250,000              | 4,655,000                     |
| <b>2020</b>  | 13,591,000               | 8,915,000          | 4,160,000              | 4,260,000                     |
| Share of use categories in the agricultural area in 2020 (%) | 100                      | 51                 | 24                     | 25                            |

Source: FAO



**Figure 1. Dynamics of the surface of the land fund according to the its use, in Romania, 1990-2020 (ha)**

Source: FAO

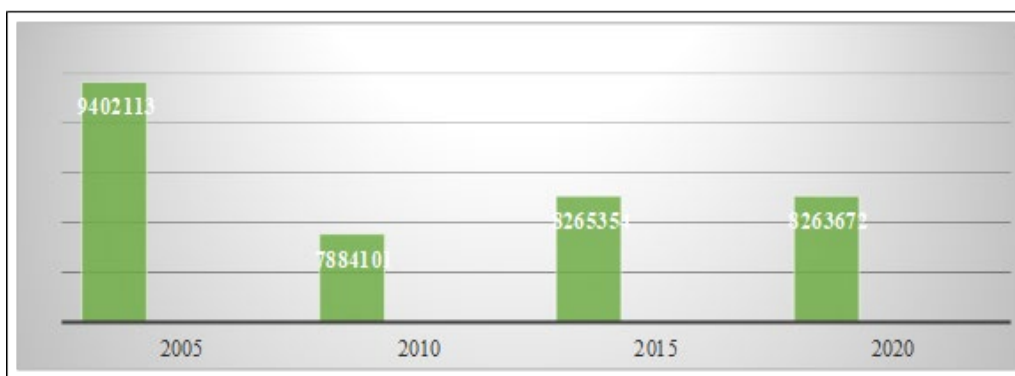
The arable land is cultivated mostly with cereals, therefore, the agricultural production is diversified, the largest production is found in the case of cereals. Grain ensures people food security, going to bakery products industry, and they are also intended for livestock farms as feed for animals. In addition to the cultivation of cereals, in Romania there are also areas of agricultural land where vegetables are grown, the most common crops being: tomatoes, eggplants, peppers and cucumbers. These agricultural products are obtained in greenhouses, solariums and in the open field.

The arable area cultivated with the main crops registered significant decreases in the period 2005-2020. In 2005, there were 9,402,113 cultivated ha, and in 2010, the cultivated area decreased to 7,884,101 ha. An increase is observed in 2020, more precisely 8,263,672 ha cultivated, but the value is lower than that recorded in 2005 (Table 2, Figure 2).

**Table 2. Dynamics of the arable area cultivated with the main crops, in Romania, in the period 2005-2020 (ha)**

|             |           |             |           |
|-------------|-----------|-------------|-----------|
| <b>2005</b> | 9,402,113 | <b>2013</b> | 8,166,824 |
| <b>2006</b> | 8,467,892 | <b>2014</b> | 8,234,437 |
| <b>2007</b> | 7,883,954 | <b>2015</b> | 8,265,354 |
| <b>2008</b> | 7,777,174 | <b>2016</b> | 8,409,242 |
| <b>2009</b> | 7,798,075 | <b>2017</b> | 8,307,344 |
| <b>2010</b> | 7,884,101 | <b>2018</b> | 8,466,658 |
| <b>2011</b> | 7,807,379 | <b>2019</b> | 8,737,275 |
| <b>2012</b> | 8,081,613 | <b>2020</b> | 8,263,672 |

Source: INS



**Figure 2. Dynamics of the arable surface cultivated with the main crops, in Romania, in the period 2005-2020 (ha)**

Source: INS

### **Vegetal agricultural production**

According to the data presented (Table 3), Romania registered significant increases in agricultural production in the period 2000-2020 for the following crops: cereals, grains, legumes for grains, but also in the case of fruit production. The biggest increase is recorded by grain cereals, from 10,477,506 tons in 2000 to 19,345,464 tons, followed by a slight decrease in 2020, with production reaching 18,153,714 tons.

The production of grain legumes in the period 2000-2020 had an upward trend, from 36,929 tons in 2000 to 121,978 tons in 2020. At the national level, the production of grain legumes in 2020 represented 1% of vegetable production of Romania.

Potato production registered a significant decrease, from 3,469,805 tons in 2000, to 1,601,239 tons in 2020. In Romania, potato cultivation is mainly found in the counties of Braşov, Sibiu, Covasna, Harghita and Suceava.

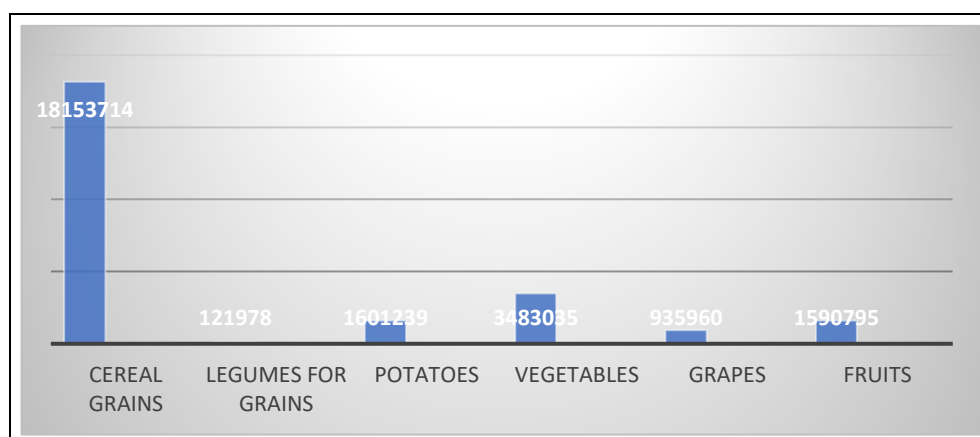
Vegetable production represents 13% of Romania's vegetal production, it ranks second, after cereal production. Vegetable production has an important role in the country's food and nutrition security. In 2010, the highest production of vegetables was recorded, 3,863,617 tons, higher production compared to the year 2000 (2,527,776 tons).

In the year 2000, the production of grapes recorded a value of 1,295,263 tons, followed by an overwhelming decrease in 2005, the production level being 505,849 tons. In 2020, it can be seen that grape production has stabilized, reaching 935,960 tons, a lower value compared to 2000.

**Table 3. Dynamics of vegetal agricultural production for the main crops, in the period 2000-2020 (t)**

| Year | Cereal grains | Legumes for grains | Potatoes  | Vegetables | Grapes    | Fruits    |
|------|---------------|--------------------|-----------|------------|-----------|-----------|
| 2000 | 10,477,506    | 36,929             | 3,469,805 | 2,527,776  | 1,295,263 | 1,301,040 |
| 2005 | 19,345,464    | 80,913             | 3,738,594 | 3,624,612  | 505,849   | 1,647,017 |
| 2010 | 16,712,883    | 61,344             | 3,283,866 | 3,863,617  | 740,118   | 1,419,618 |
| 2015 | 19,332,821    | 75,788             | 2,699,684 | 3,673,500  | 798,765   | 1,224,700 |
| 2020 | 18,153,714    | 121,978            | 1,601,239 | 3,483,035  | 935,960   | 1,590,795 |

Source:INS



**Figure 3. Vegetal agricultural production of the main crops in Romania, 2020 (t)**

Source: INS

The land is owned or rented by numerous farmers, organized in small and medium-sized economic entities. In many situations, small and medium-sized producers cannot enter the market with their goods, often they sell them to intermediaries at a price much lower than the market price. Thus, farmers records

significant losses and agricultural activities become inefficient. To avoid these risks, some of the farmers joined together, establishing agricultural cooperatives.

Considering the large number of small holdings of 2,887.000, in order to increase their economic power, the association of farms and the formation of cooperatives are recommended. This process is a difficult one, considering the perceptions of the Romanian farmers towards cooperatives and their forced formation in the old regime. Table 4 shows the dynamics of the number of cooperatives.

**Table 4. The number of agricultural cooperatives in Romania**

| <b>Year</b> | <b>Value</b> |
|-------------|--------------|
| 2018        | 1186         |
| 2019        | 1373         |
| 2020        | 1524         |
| 2021        | 2274         |

*Source:* Ministry of Agriculture and Rural Development in Romania

According to the data presented, it can be seen that the number of agricultural cooperatives in Romania is continuously increasing, but still insufficient. In 2021, there was an increase of approximately 100% (2,274 agricultural cooperatives) compared to 2018 (1,186 agricultural cooperatives). The growth of agricultural cooperatives in Romania brought many benefits, especially to small and medium-sized farmers who sold their agricultural products much more easily.

### **3. Results and discussions**

The vegetal agricultural sector represents the most important branch of the agricultural economy in Romania, which can be developed with the help of investments. In order for agriculture to have a high yield, the most important major investments require irrigation systems that help to obtain important productions, investments in machinery and agricultural machines that will lead to lower production costs regarding agricultural products.

Field crops represent 70% of vegetable agricultural production because cultivation processes are in most cases mechanized; agricultural machines are used (seeders, tractors, combines) that help farmers to cultivate a large number of hectares. Moreover, there is no need of a large number of employees (work force).

Vegetables represent 13% of agricultural production, in this case the cultivation system is different from field crops because not all processes can be carried out with the help of agricultural machinery; human labor is needed, which also leads to higher production costs.

Fruit production represents 6% of vegetable agricultural production, among the most important fruits are: plums, apples, cherries, walnuts and pears. Some of these fruits are intended for consumption in their natural state, but some of

them are processed, jams, compotes, prunes or alcoholic beverages (brandy, palinca) are obtained.

An important problem in Romania is the sale of agricultural products. There are farmers who cannot sell their agricultural products in large markets or shopping centers. Many times they sell their goods to intermediaries at a low price, and there are cases in which farmers record losses. Agricultural cooperatives represent a real solution from the selling point of view, for farmers who want to obtain as much profit as possible. According to the data presented, in Romania, the number of agricultural cooperatives in recent years is continuously increasing, from 1,186 to 2,274 cooperatives, in 2021.

In Romania, consumers are increasingly interested in local, traditional, organic agricultural products, that are sold directly from producers through local fairs organized, usually, at the end of the week. At the same time, thanks to the promotion of local farmers and processors, their sales in convenience stores increased.

The establishment of a local distribution system of agri-food products can bring benefits to local producers. These benefits come from the point of view of lower prices for consumers, like this they could purchase the products at the producer price, because no other costs will be added, more precisely the costs related to transport (Popa et al., 2021).

Another solution that may help farmers is the investment in storage spaces, storage of agricultural products in the medium and long term. Among field crops, the use of silos is recommended, where farmers can store the goods for a long time, selling the products throughout the year, obtaining a higher price than when they are harvested (Dumitru et al., 2014). For fruits and vegetables, specially designed storage spaces can be used, coolers where the products will be able to maintain their freshness and quality. These solutions can bring many benefits to the producers because they will no longer register losses and it will be easier for them to capitalize on the goods in the big stores (Samoggia et al., 2019).

#### **4. Conclusions**

Agriculture remains one of the most important element for the development of the Romanian economy, but also for the population, for ensuring food security. Even if after 1990 the agricultural areas and the production have registered some decreases, with the help of investments in this sector, important quantities of agricultural products have been obtained. Recently, the consumption of agricultural products from Romania has been encouraged, the large shopping centers are supplied from local agricultural producers, the latter obtaining a fair price for their goods, avoiding losses and consumers can purchase local, fresh and quality products from big stores. In addition, the population's interest in consuming domestic agricultural products can be observed, which will direct investments towards the development of local agricultural businesses and towards strengthening the powers of small and medium-sized farmers.

From the analysis of the data, it appears that Romania has a great potential in the field of vegetable agriculture, even if there are also some decreases in the agricultural area. This field can be developed with the help of investments, especially in agricultural machinery and irrigation systems, being able to obtain large quantities.

Moreover, the establishment of factories for processing agricultural products is needed, these factories bringing value to the products and helping, also, the national economy. Increasing the number of factories for processing agriculture output would bring benefits for food security, because some raw agricultural products would no longer take the export route for the processing process and return to the country as a finished product, due to the lack of domestic processing factories.

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