

# Food security at the level of Romania and the European Union

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## Abstract

To achieve the proposed goal, the following objective were established: studying the notions of food security; analysis of the main indicators of food security; highlighting and delimiting the concept of nutrition and food policies; performing the food waste analysis; improving the methodology for determining the causes and effects of food losses and waste.

The methodological approach was drawn up according to the analysis of a set of tools that creates a harmonious combination between fundamental research, quantitative research and modern methods with classical methods. In another sense, the specialized literature represents an important pillar in the empirical analysis presented in this article.

Food security is a factor of major importance in the economic, social, and political stability of a country, region and/or globally. Having different dimensions of approach, the category of food security, in the sense of relatively free economic and physical access of consumers to these products (in a necessary volume and a rich assortment), can be presented as a basic treatment.

The applicative value of the work consists in the use of the main scientific results by the governing bodies of the state to develop policies to support agricultural producers of vegetables and fruits from the point of view of providing them with the necessary resources to achieve a high-quality level of horticultural production, conquering of new outlets and ensuring the satisfaction of consumers of horticultural products.

## Keywords

Europe Union, food security, food waste, population, Romania.

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## Introduction

Globally, the essence of the problem of food security lies in the increase in the number of the population (from 7.2 billion people in 2015 to almost 9 billion people in 2050), accompanied by the simultaneous improvement of well-being and living standards, consecutively, with the quantitative increase and the improvement of the qualitative structure of the daily consumption ration (Rădulescu et al., 2020). At the same time, we highlight the problem of limited resources both regionally and globally, but also that of increasing production volumes, not to mention the radical improvement of the minimum consumption basket (Gâf-Deac et al., 2022).

The problem of food security, of supplying the 112opulationn with basic agri-food products of appropriate quality, is a major concern faced, to a greater or lesser extent, by all countries of the world, but primarily the underdeveloped or developing ones. Paradoxically, in the current period, in full development of a computerized society, many states are facing this problem (Alabi and Ngwenyama, 2023).

Food security is part of the security of every state in the world, and this in turn is part of global security. Ensuring the food security of a state's population is primarily its obligation. A state must manage its resources efficiently and rationally, otherwise the very existence of the state and the respective people is endangered (Basso and Antle, 2020).

That is why today the food problem is a factor that can lead to instability on a global level. Ensuring food security for all individuals contributes to social tranquility in each country, to stability and prosperity (Rădulescu et al., 2022). Food security is a complex and general problem of humanity for which all the countries of the world are responsible. This has been demonstrated by various studies regarding the nutrition of the population, the evolution of agricultural production, the evolution of the population as well as the use of resources (Sarbu et al, 2020).

### **Review of the scientific literature**

FAO defines food security as: “the immediate access of all people to the food they need” to satisfy their vital functions and to lead a healthy and active life. A synthetic, narrow understanding of food security, scientifically recognized at the international level, is the following: “access for everyone and at any time to the food necessary for a healthy life”.

A series of studies consider that: “access in secure conditions at all times to sufficient food for each person” characterizes food security (Bolfe et al., 2020).

Food security is a particularly dynamic concept that has evolved over time. Thus, in developed countries, food security was achieved by creating a viable agricultural system through the practice of long and expensive policies to support agriculture. Today in these countries the concept has acquired other meanings. Due to the fact that in these countries it was possible to ensure food in sufficient quantities, quality, food safety and social protection are put in the foreground, so they are concerned with the protection of consumers' health.

USAID (US Agency for International Development) defines food security as when all individuals have permanent access- economically and physically – to enough food for an active and healthy life. In order to achieve food security at the household and individual level, it is necessary to meet requirements related to the availability of food, access to food and the ability to use it completely after consumption.

Food security has two meanings: it is once the research of the quantitative and qualitative coverage of the basic needs of food and water (for countries where their lack and malnutrition reign) and once (especially in developed countries) the sanitary security of products intended for human consumption (Wijerathna-Yapa and Pathirana, 2022).

Food security in developing countries is more difficult to achieve and under unfavorable conditions. In these countries, food consumption is very low both in terms of quantity and quality, being characterized by a structure in which products of animal origin have a very small share, and this situation is found in many countries of the world. It is very important for these countries to ensure their food from their own resources, to strengthen their agri-food markets in order to gain independence from the developed countries that produce large food products (Garcia, Osburn and Jay-Russell, 2020).

Rabbi et al. (2023) believes that hunger is the most degrading of all misfortunes, it proves the inability of current civilizations to satisfy the most basic human needs, and it always occurs due to the fault of society.

According to Martin-Shields and Stojetz (2019), the problem of food security, of solving the problem of hunger is a dual problem, it belongs both to food production and to its distribution within countries, as well as to international exchanges and the same population to food goods.

Solving the food security problem involves, among other things, the modeling of demographic and economic growth, which are dependent on each other. In the analysis of the problems of providing the population with food products, the food resources and the purchasing power of the population must be taken into account first of all (Buzoianu et al., 2020).

Pathak, Aggarwal and Singh (2012) believe that a country's population and its energy policy can have a greater effect on food security than its agricultural policy, because most of the 3 billion people who will add to the world's population by 2050 will be born in countries facing with water scarcity, thus demographic decisions can have a greater effect on food security than those regarding agricultural crops.

It is estimated that the events that will lead to food crises in the near future will be: water shortages and very high temperatures that will greatly compromise harvests in all major agricultural producing regions (Paul, Shukla and Trianni, 2023).

### **Research methodology**

In order to effectively study economic phenomena, it is necessary to employ suitable methodological tools, such as setting clear objectives, defining directions, formulating hypotheses, and selecting appropriate methods. Without these tools, the research may not yield successful results. In the field of social sciences, knowledge is obtained through the observation and analysis of actual phenomena. This process involves the researcher interacting with the environment, much like the chemical reactions that occur between different substances. It is important to note that no single individual possesses the ultimate truth, which is why the presence of diverse ideas and perspectives is crucial.

The present research is guided by a creed that acknowledges the fallibility inherent in the scientific approach. However, it relies on a combination of theoretical and empirical methods to address specific research questions.

In order to measure Romania's progress in the field of food security in a global and European context, the Global Food Security Index (IGSA) 2023 was observed and researched, a composite index, which has as criteria for ranking countries: dynamics food systems in several countries; and the effects of global environmental changes on them.

The index is a quantitative dynamic model built on the basis of 28 indicators that measure the influencing factors of food security in each country. Having the Global Food Security Index as the main working tool. Our article examines: the constituent elements of security, food and risk factors for the European Union; Romania's progress in ensuring food security and influencing factors in the current year identifying the strengths and weaknesses of Romania's comparative advantages and disadvantages in ensuring food security.

In this article, the research was carried out through the empirical study of some data provided both by Eurostat and the National Institute of Statistics. Based on them, a series of graphs were drawn up to identify certain gaps, certain key elements in this agricultural field. In this sense, the results and subsequent discussions had as their starting point the main hypothesis launched according to which there is a problem of agricultural security at the European and Romanian level, with deep implications for society in the medium and long term.

This research belongs to the systematic and evolutionary approach in economic sciences, as well as a positive constructivist epistemological stance. It focuses on studying the economic phenomenon and the use of quantitative modeling to explain its evolution. This research employs a simultaneous mixed methods approach to information seeking. It combines qualitative research, focused on narrative exploration, with quantitative research that emphasizes experimental methods to determine the influences of specific factors.

### **Results and discussion**

Ensuring the highest standard of food safety in the European Union is a key priority of the European Commission's policy reflected in the White Paper on Food Safety. It launches proposals in order to transform the European Union's food policy into an active, dynamic and coherent instrument, which ensures a high level of consumer health protection. Fixing a complex program of legislative action, the book indicates the main elements of a preventive policy: modernizing legislation to obtain a set of coherent and transparent rules, strengthening control along the entire food chain in order to guarantee a high level of protection of human health and consumers

#### ***Food safety in the European Union***

In the European Union as a whole, the structure of food consumption reflects a healthy diet. Milk and dairy products are the most important components of the food ration, followed by vegetables, meat and preparations, oils, cereals and sugary foods. Food safety, animal and plant health and welfare can be said to be covered at the Union level. The high level of food saturation no longer justifies the increase in

agricultural production for domestic consumption, which is why the restructuring of the agri-food sector and the increase in exports are being promoted (Haji, Kerbache and Al-Ansari, 2022).

Aided by consolidated legislation, the traceability of food products from farm to consumer is ensured, regardless of national borders. Under these conditions, trade is free, and consumers benefit from a very varied offer. On the other hand, the high safety standards applied to food produced in the Union and imported also confirm the food safety of the citizens of the European Union (Table no. 1).

**Table no. 1. Availability of the main agricultural products in the EU (1000 t)**

	2018	2019	2020	2021	2022
<b>Whole grains</b>	280109	199906	253786	311655	295669
<b>Wheat</b>	96284	86475	114841	139448	128679
<b>Vegetables</b>	73993	19023	19707	65865	69424
<b>Meat (beef, pork)</b>	29232	29879	29082	29083	29740
<b>Milk</b>	145828	148069	143719	143889	146231
<b>Oils</b>	9437	9928	15259	18976	19263
<b>Sugar</b>	16557	14506	16762	13973	16673

Source: Eurostat data

In the period chosen for the study of the evolution of the availability of the main agricultural products, namely 2018-2022, according to the data in the table, there is an increase in the supply capacity of the European Union for cereals and oils on the one hand and a stagnation in high-calorie foods, on the other side. We thus have an obvious increase in cereals of 35.96%, in wheat of 36.48%, in oils an increase of almost one hundred percent, respectively 99.87%. The evolution of the available resources of meat, milk and sugar was quite stable, showing a minor fluctuation between 1% and 2% (Table no. 2).

**Table no. 2. Availability of the main agricultural products in Romania (1000 t)**

	2018	2019	2020	2021	2022
<b>Whole grains</b>	18786	17516	17300	14670	13136
<b>Wheat</b>	7193	5531	6240	5187	6079
<b>Vegetables</b>	5394	4346	4339	4192	4213
<b>Meat (beef, pork)</b>	971	591	920	887	906
<b>Milk</b>	5760	5039	5800	6391	6136
<b>Oils</b>	583	440	700	510	451
<b>Sugar</b>	839	612	706	666	655

Source: National Institute of Statistics, Romania

In Romania, the supply of agricultural products has experienced a special evolution during the studied time period, thus, for cereals, an upward trend can be observed until 2018, then a sudden and continuous decrease until 2022, the percentage of decrease in availability during the period studied being -24.74%. A less dramatic decrease is recorded for wheat, of -2.39%, and for vegetables, of -4.81%. Obvious increases in availability are noted for meat, 17.5%, milk, 28.90%, sugars, 21.82% and oils, 59.56%. This increase in quality products in terms of energy and calories seems to be the direct consequence of the integration into the Union (Table no. 3).

**Table no. 3. Availability for food consumption in the EU (1000t)**

	2018	2019	2020	2021	2022
<b>Whole grains</b>	156425	168433	169763	178131	218203
<b>Wheat</b>	47650	56770	58979	56048	57211
<b>Vegetables</b>	2908	3707	2574	2465	3008
<b>Meat (beef, pork)</b>	8489	7340	8831	6501	6797
<b>Milk</b>	25388	24067	18406	19296	28400
<b>Oils</b>	475	719	843	917	890
<b>Sugar</b>	89	92	96	80	90

Source: Eurostat data

Citizens of the European Union eat relatively expensive, high-calorie foods, which ensures a healthy diet and overall better health. Agricultural products whose percentage level of consumption remains almost constant over time are: meat (4.78%), sugar (1.21%), vegetables (3.54%), which proves that European citizens have found a relative food balance. Agricultural products that increase in percentage are: cereals (33.10%), wheat (20.06%), milk (17.75%), oils (428%).

The situation of food consumption in our country is not the happiest. Romania is far below the EU average food consumption in the case of meat and meat products, milk, but also sugar and oils, the dietary pattern of the population in our country being pronounced lacto-cereal. From the data contained in the table above, it can be seen that this shortcoming is about to change in the future.

Thus, the user noticed percentage increases in the more expensive and high-calorie products: meat (47.11%), milk, 53.54%), oils (14.96%), sugar (50.3%) and vegetables (58.69%). The consumption of cereals (-23.03%) and wheat (-27.55%) is decreasing (Table no. 4).

**Table no. 4. Availability for food consumption in Romania (1000t)**

	2018	2019	2020	2021	2022
<b>Whole grains</b>	10532	9056	10647	8538	8211
<b>Wheat</b>	950	661	1268	950	903
<b>Vegetables</b>	622	387	351	489	511
<b>Meat (beef, pork)</b>	308	198	211	280	306
<b>Milk</b>	382	525	694	601	733
<b>Oils</b>	35	30	25	28	31
<b>Sugar</b>	6	8	9	6	8

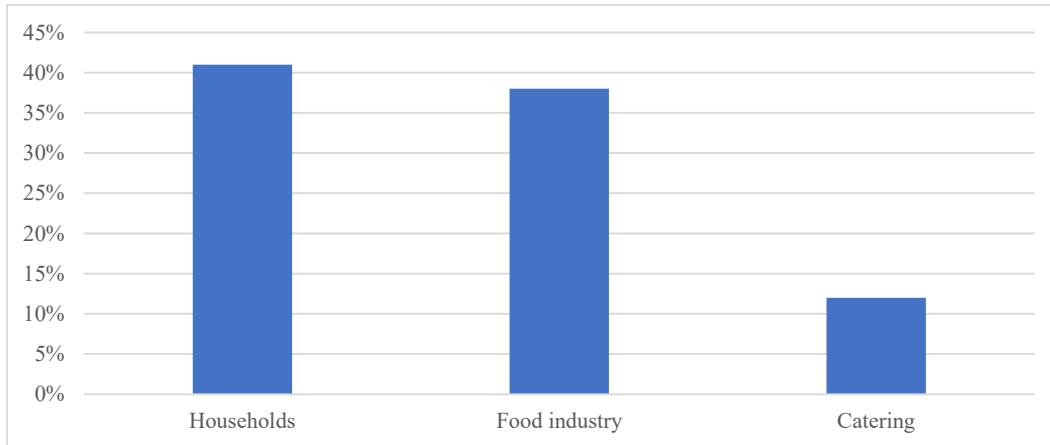
Source: National Institute of Statistics, Romania

The member states of the European Union can be said to successfully ensure their food self-sufficiency, with percentage increases in: cereals (8%), wheat (6%), meat (2.5%), milk (8.7%), oils (76%) and decreases in: sugars (-23.90%). In general, food self-sufficiency is also ensured in Romania, although in relation to the other member states of the Union it is much lower.

#### **Food waste**

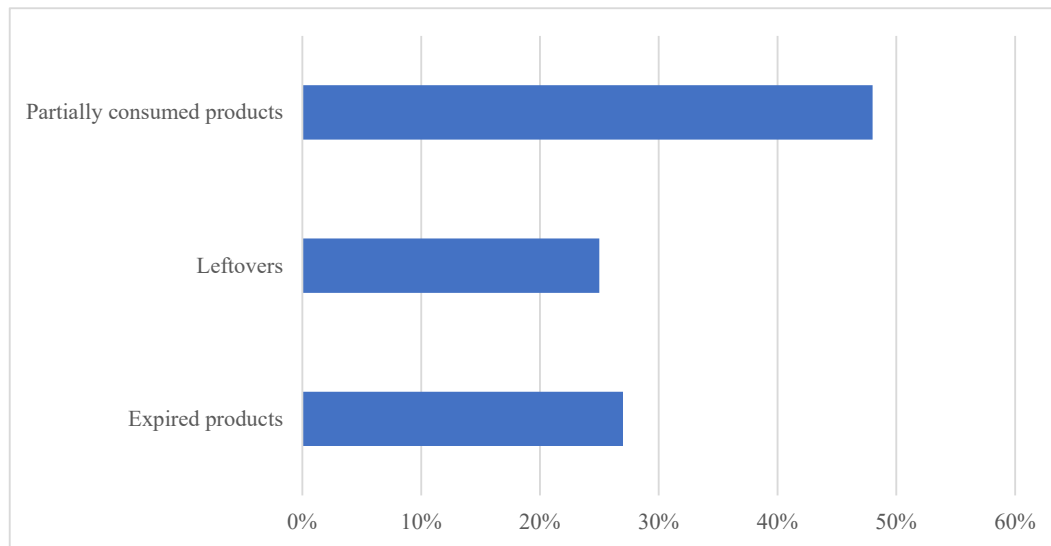
Food loss and waste could be defined as referring to any product originally intended for human consumption, except non-food products, that is discarded or destroyed at all levels of the food chain, from farm to consumer. Thus, harvest residues and by-products resulting from processing, inedible, are not part of the concept of food loss or waste. However, what is currently not edible and cannot be transformed into a by-product, could become such a product in the future, depending on the progress of knowledge and technique. Also, these definitions must be considered as evolutionary.

In an investigation by the European Commission, the volume of food waste would be 189 kg/inhabitant/year. The distribution between the different links of the chain indicates 42% in households, 39% in the food industry, 5% for distribution and 14% for catering outside households (Figure no. 1).



**Figure no. 1. The volume of food waste**  
*Source: Eurostat data*

A study carried out in Brussels regarding the contents of household bins shows that food waste reaches 12.7% of gross household waste. This waste is made up of 47.8% partially consumed products, 26.5% expired products and 25.5% leftover prepared food (Figure no. 2).



**Figure no. 2. Food waste**

*Source: National Institute of Statistics, Romania*

In the face of the challenges represented by demographic evolution, climate change and the need to use resources efficiently, combating food loss and waste must be considered as part of the solution to the problem of food security.

A distinction must be made from the beginning between the approach of developing countries and industrialized countries. In developing countries, where losses are concentrated in the first links of the chain, the solutions that can be considered are of a different nature and have already been the subject of recommendations in various EESC documents. In industrialized countries, such as the EU member states, the fight against food loss and waste should primarily target the links of processing, distribution, consumers and catering.

In industrial countries it is more a matter of behavior. The fact that in the last 40 years the food category experienced a significant reduction in the weight of the shopping basket in Europe probably stimulated the final consumer to pay less attention to food.

In general, efforts to reduce food loss and waste must follow a waste hierarchy: prevention first, then use for human consumption (e.g. donations to food banks), then use in animal feed, and finally use in energy production and compost production; measures must be taken at every level of the food chain.

Incentive approaches will be favored to the maximum; any action to reduce food loss and waste must not contravene food safety requirements.

Even if the large distribution chains are not the link where the greatest food waste occurs, they can play a decisive role in reducing it by adopting certain business practices and including consumers to a greater extent in their information and awareness plans.

## Conclusions

Food security represents a well-organized functional system that provides all categories of the population with food products according to the physiological norms adopted on account of own production and the rationalization of the import necessary for those products, the production of which is impossible due to the lack of internal conditions.

Part of food security is food safety, which, as it emerges from the work, represents the observance of hygienic and sanitary norms in the production-distribution process, to guarantee the health of the population that must be provided with adequate food in terms of quality, hygiene and of nutritional value.

In order to maintain the quality and safety of food, there is a need for both procedures to ensure the integrity of the food, as well as monitoring procedures to ensure the completion of operations in good conditions.

In the first chapter, the concept of "traceability" was insisted on as an effective monitoring procedure, representing the ability to follow the movement of a food product in different specific stages of production, processing and distribution.

The general characteristics of food security at the national level are the following: physical access to food products; the economic possibility of purchasing the products; food quality; food independence; secure access to food and stable development.

At the international, national, and regional level, food security subjects are represented by the organizations, government institutions, services that put into action the food security mechanism. As an object of food security, the groups of the population and auxiliary households are highlighted, which must be guaranteed the satisfaction of their needs in food products at the level that ensures a normal vital activity.

From the above, we concluded that national food security represents the state of the economy, in which, regardless of the state of the world markets, the population is guaranteed a stable supply of food in the amount that corresponds to the scientifically argued parameters, as well as creating conditions to support consumption at the level of medical norms.

Combating hunger and malnutrition can be achieved by increasing food availability, improving access to food and strengthening crisis prevention and management mechanisms.

Through public-private partnerships, the stimulation of agricultural production can be ensured, thus new investments in agriculture can ensure a sustainable development in the field and the degree of food insecurity will decrease.

Food availability can be improved through regional integration of agricultural and food markets, facilitating trade flows from surplus to deficit areas. Access to food should be increased primarily by increasing employment and income-generating opportunities in both rural and urban areas, including through diversification and trade, thereby making food more accessible to a greater number of people. people.

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