

## Development of Agriculture Through Sustainable Production and Consumption

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**Please cite this paper as:**

Popescu, G., Panait, I. and Cucu, M.C., 2021. Development of Agriculture Through Sustainable Production and Consumption. In: R. Pamfilie, V. Dinu, L. Tăchiciu, D. Pleșea, C. Vasiliu eds. 2021. *7th BASIQ International Conference on New Trends in Sustainable Business and Consumption*. Foggia, Italy, 3-5 June 2021. Bucharest: ASE, pp. 450-456  
DOI: 10.24818/BASIQ/2021/07/058

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### Abstract

The study includes some theoretical insights about the sustainability of agriculture, respectively a sustainable and responsible production and consumption. Through the choices they decide to make, both the producer who chooses to produce a sustainable product and the consumer because he buys and consumes products certified according to sustainability standards, a market is created based on a common effort to contribute to the sustainable development of agriculture. The harmonious development of the agricultural sector has two key actors, the final consumer of which through daily choices of sustainable products will increase the demand for these products, and producers will move to sustainable agricultural practices to meet demand, the ultimate goal being creating a sustainable agri-food market that provides products corresponding to the requirements of the sustainability, in this case also taking care of the future of generations. This paper presents a quantitative and qualitative analysis about sustainable agriculture, responsible production and responsible consumption of agri-food products that aims to highlight the importance of the analyzed topic. At the same time, the paper presents the analysis of some indicators to reflect the current situation of Romania regarding the level of achievement the sustainable development objectives, to highlight the path taken and to determine development opportunities at an accelerated pace of fulfilment a sustainable agriculture. The main results regarding the development of agriculture aim at the sustainable demand which is represented by the increase of the population's awareness regarding especially the social aspects and those that imply the protection of the environment, which determines the choice of sustainable products and sustainable production is represented by the increase in the number of agricultural producers who obtain voluntary sustainability standards. Current trends tend towards resilience given social inequity and environmental awareness.

### Keywords

Agri-food supply chain, sustainable agriculture, responsible production and consumption, voluntary standards

DOI: 10.24818/BASIQ/2021/07/058

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### Introduction

The sustainability is a common responsibility of these actors in the supply chain that aims at the sustainable development of the agricultural sector, as well as sustainable production and consumption and that through responsible actions now consider the future of future generations (Tilman, et al., 2011). Agricultural production activities and sustainable food choices, respectively sustainable demand and consumption must be an integrated part of the economy, and the agri-food sector must pursue the transition to a green economy (Beddington, 2010). The Romanian agricultural sector must create a

responsible system focused on harmonious cooperation between socio-economic and natural resources (Pretty, 2008), where the farmer representing the supply of agri-food products and the final consumer representing the demand must move towards actions and adopt trends based on principles sustainable by developing a modern, competitive and sustainable market.

The Food and Agriculture Organization (FAO) together with United Nations Environment Programme (UNEP) realized the FAO-UNEP Sustainable Food Systems Programme which was created in 1992 when the emphasis was on sustainable consumption and production due to the high need for natural resources and their irrational use in agriculture. This program aims at the sustainability of the entire agri-food supply chain by connecting producers, retail, the final consumer together with the government creating a synergy that will lay the foundations of a sustainable agricultural sector (Meybeck and Redfern, 2016). The actions of this international sustainability program on agri-food production and consumption include the transfer of knowledge for producers, information transparency for consumers, together with government support for mechanisms to ensure market sustainability.

The farmer must use sustainable agricultural practices, and the consumer must be informed and educated about sustainable choices and their effects, while actors in the agri-food supply chain adopt sustainable actions, so the whole agri-food system becomes more sustainable. Sustainable production and consumption have effects on many systems, such as the environment, public health, food security. Producers must use all resources efficiently and rationally, especially natural ones, (Struik and Kuyper, 2017) and consumers must adopt a sustainable lifestyle (Gilg, et al., 2005).

The agri-food supply chain has several actions through which food losses occur, so it is important to reduce food losses along the supply chain through an integrated management that monitors all activities and prevents huge losses. Adapting agricultural practices and agri-food production to the sustainable requirements of the agroecosystem by adopting resilience in all specific activities are essential for the sustainable development of the agricultural sector (Brodt, et al., 2011).

The Common Agricultural Policy (CAP) introduces sustainability and sustainability pillars as an integrated part of its policies, following the transition to a green economy, one of the main actions being the development of a sustainable agri-food system based on the community strategy from farm to fork, which guarantees that all activities supply chain have been made in accordance with the specifications of sustainable development. Thus, the European Union (EU) strategy aims at both sustainable production in European farms, followed by a distribution that will ensure safety and food security for all agri-food products made in the EU and the final consumer will benefit from a product that is the result of a sustainable supply chain.

The paper is based on the level of development that agriculture in Romania has known lately, the main actions from which the study started being the importance of ethical choices of consumers along with ensuring production and agri-food products certified with voluntary sustainability standards, the results indicate that currently these two hypotheses have a high contribution in the agricultural sector.

### **Research methodology**

The methodology of the paper consists in performing a statistical, quantitative analysis, in order to identify the current situation of sustainable and responsible consumption and production in Romania. Based on the data collected from international databases, the evolution of the indices registered by Romania was calculated, as well as the progress from 2017-2020 for the score obtained on each Sustainable Development Goals (SDG).

At the same time, a quantitative and qualitative analysis was performed on the specialized literature. Quantitative analysis was performed using VOSviewer software, version 1.6.15. This software was used to create and visualize maps and bibliometric networks, in order to determine the most frequent occurrences and the most important extracted terms.



The figure above reflects the connections of the 1561 words that met the condition of at least 10 occurrences. The top of the most common keywords consists of: "agriculture" with 1198 appearances, "management" with 817 appearances, "sustainable agriculture" with 726 appearances and "sustainability" with 695 appearances.

### The evolution of Sustainable Development Goals in Romania

Since 2015, when the 2030 Agenda on sustainable development was established and 17 SDG have been adopted worldwide, Romania has managed in the last 5 years to climb 3 positions in the Global Index Rank, ranking in 2020 on 38th place out of 166 countries. Regarding the general score of the 17 SDG, Romania registered an increase of 7 points in 2020 versus 2016.



**Figure no. 2. Evolution of the Global Index Score and Global Index Rank indicators for Romania**

Source: Global Index Results for SDGs, 2020

In 2020, Romania ranks 24th in the EU in 27 member states, followed by Bulgaria, Greece and Luxembourg, having the potential to improve the position because 8 of the 17 objectives have a regression in 2020 compared to 2017. Table 1 presents the evolution of the score of the 17 objectives registered by Romania in the period 2017-2020.

**Table no. 1. Evolution of the score obtained by Romania for SDG**

SGD number	SGD name	2017	2018	2019	2020	Evo 20/17
1	No Poverty	99.85	95.25	98.83	99.09	-0.77%
2	Zero Hunger	51.86	61.05	58.03	64.95	25.25%
3	Good Health and Well-being	79.25	81.31	80.63	80.20	1.20%
4	Quality Education	82.63	82.23	84.17	82.38	-0.31%
5	Gender Equality	61.55	69.04	64.47	57.41	-6.73%
6	Clean Water and Sanitation	90.89	93.66	77.98	81.47	-10.36%
7	Affordable and Clean Energy	81.84	82.80	88.97	88.65	8.32%
8	Decent Work and Economic Growth	77.75	73.12	80.44	82.73	6.42%
9	Industry, Innovation and Infrastructure	34.67	38.45	41.34	53.25	53.62%
10	Reduced Inequality	94.60	30.08	29.97	48.54	-48.69%
11	Sustainable Cities and Communities	84.01	83.64	81.25	79.36	-5.54%
12	Responsible Consumption and Production	65.42	66.47	71.93	76.18	16.45%
13	Climate Action	90.69	92.90	95.23	89.06	-1.80%
14	Life Below Water	65.58	56.28	53.30	65.46	-0.18%
15	Life on Land	79.64	80.58	84.25	84.79	6.47%
16	Peace and Justice Strong Institutions	60.21	65.20	76.10	77.11	28.06%
17	Partnerships to achieve the Goal	59.77	58.67	69.53	60.64	1.47%

Source: Global Index Results for SDGs, 2020

If 8 indicators have regressed, 4 indicators have a very good evolution, of two digits, indicating a good management of the actions that correspond to the targets necessary to be reached to achieve the objectives.

Aspects regarding the sustainable development of the agricultural sector concern both the producer who must produce food respecting the principles of sustainability, in order to benefit the next generations of a sustainable food supply, and the consumer who must be rational in his choices and informed about the consumed products, through his constant choices influencing both the offer that the producer will generate, and the choices of the future consumers because they will have to choose from an already sustainable market.

According to Gheewala et al. (2020) the 12th SDG aims at “Responsible consumption and production” and considers the agri-food sector for which it highlights the following aspects that need to be improved:

- Food waste
- Degradation of natural resources: land, soil, water
- The impact of agriculture on the environment through greenhouse gas emissions

SDG 12 is closely related to SDG 2 "Zero hunger" which together aims at a production of food that must ensure the food needs of the entire population, now and in the future, providing the need for nutrients, vitamins, and minerals. Both indicators had important increases in Romania, being important for the development of the Romanian agricultural sector.

### Production and consumption trends to achieve the Sustainable Development Goals

The trends regarding the sustainable development of Romanian agriculture are directed towards the adoption of the producers of voluntary sustainability standards (VSS). The VSS which guarantee that the product was made according to the standards regarding social protection, environmental protection, food safety and ethical economic principles (Montiel et al., 2014). The International Trade Centre (ITC), through its focus on sustainability, states that in Romania in 2018 there were only 3 voluntary standards that ensure the sustainability of the producer, Forest Stewardship Council (FSC) which promotes responsible forest management and was adopted by 31 companies, the Global GAP certificate which was held by 265 producers and the certification regarding the organic agriculture which is the most important certification present in Romania being 7908 operators registered in the organic system.

In recent years, the number of certificates on the sustainability of economic activities, especially those related to the production and commerce of agri-food products is increasing due to the importance of the agricultural sector in the economy and which must continue to function constantly adapting to challenges (Blankenbach, 2020). The adoption of sustainable practices by Romanian agricultural companies is highlighted by the fact that they are voluntarily certified for international standards on sustainability, by this action being responsible for a development imperative to the agricultural sector, while ensuring transparency of the stages of the agri-food supply chain making available to consumers all the information that guarantees that the company has included in obtaining the product actions corresponding to the 3 pillars of sustainability: economic, social, environmental.



Figure no. 3. The elements of sustainable development of the agricultural sector

Source: Author's own processing

The consumer through his choices propagates the consumption trends, while the producer must constantly adapt to the requirements of the consumers. The current consumer considers when choosing the products that they meet the requirements of sustainability, the main motivation being the care for the environment and the social aspects that took part in the supply chain, especially the producer. Active information of actors in the agri-food supply chain will generate the desire to be a participant in a long-term transformation of the agricultural sector so sustainability requires a proactive involvement that gradually replaces current trends in some involving the concept of sustainability at all stages, both now and for the future.

According to a study conducted by Euromonitor International and published 2021, consumers have created a set of actions that address social and environmental issues, designed to transform their lifestyle into a sustainable one in the figure below being presented the first 3 concrete actions performed by them:

**Table no. 2. The main actions of consumers on sustainable food choices**

Environmental issues	reduction of plastic and plastic packaging reducing food waste recycling
Social issues	choosing suppliers with similar values choosing suppliers with CSR activity in accordance with its values active involvement in social activities

Source: Euromonitor International, 2021

The trends described above also apply to food choices, especially by supporting local producers and developing short supply chains, buying strictly what is needed to reduce food losses and preferring seasonal products with a tradition in cultivation at national level.

Consumers will be more concerned about sustainability and their selections will balance between social and environmental initiatives and the producers but also sellers need to communicate their sustainability strategies and the long-term attention will be paid to sustainable development of agriculture.

**Conclusions**

The potential of sustainable agriculture is high in Romania because it can be developed harmoniously in accordance with the pillars of sustainability, generating added value to agri-food production while offering sustainable products. Although Romania, in 2020, occupies the 38th position out of 166 countries in the Global Index Rank, the agricultural potential it had also the opportunities offered by its membership in the European Union can bring it much closer to the podium of this ranking.

Sustainable agriculture, through responsible production and consumption, has become a topic with increasing interest, this is reflected primarily by the number of rising researches conducted on this topic worldwide, as well as by finding as an objective in Agenda 2030.

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### Aknowledges



*This article is part of the research project “Towards Sustainable Food and Drink Choices among European Young Adults: Drivers, Barriers and Strategical Implications” (SUSCHOICE) (ID 66). SUSCHOICE is a transnational project and part of the ERA-Net SUSFOOD2 with funding provided by national sources (MIUR-Italy, RCN-Norway, PM-BLE-Germany and UEFISCDI-Romania) and co-funding by the European Union's Horizon 2020 research and innovation programme.*



*This work was supported by a grant of the Romanian National Authority for Scientific Research and Innovation, CCDI-UEFISCDI, project number COFUND-ERANET-SUSFOOD2-SUSCHOICE, within PNCDI III.*