

Franc, Sanja; Bilas, Vlatka; Trifunić, Lana

## Article

# Value chain in agriculture: The case of the European Union

Economic Review: Journal of Economics and Business

## Provided in Cooperation with:

Faculty of Economics, University of Tuzla

*Suggested Citation:* Franc, Sanja; Bilas, Vlatka; Trifunić, Lana (2021) : Value chain in agriculture: The case of the European Union, Economic Review: Journal of Economics and Business, ISSN 2303-680X, University of Tuzla, Faculty of Economics, Tuzla, Vol. 19, Iss. 1, pp. 23-34, <https://doi.org/10.51558/2303-680X.2021.19.1.23>

This Version is available at:

<https://hdl.handle.net/10419/307833>

### Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

### Terms of use:

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



<https://creativecommons.org/licenses/by-nc-nd/4.0/>

**VALUE CHAIN IN AGRICULTURE: THE CASE OF THE EUROPEAN UNION**Sanja Franc\*, Vlatka Bilas \*\* Lana Trifunić\*\*\*

DOI: 10.51558/2303-680X.2021.19.1.23

**Abstract**

*The European Union (EU) provides political and strategic framework to facilitate and promote agriculture and food production. In order to adequately respond to current trends, including global coronavirus pandemic, the EU's agricultural policy should be more flexible and continue to support the active needs of European farmers. The purpose of this paper is to give an overview of the agricultural sector and Common Agricultural Policy in the EU. Focusing on the food system analysis as the key factor of sustainability and analyzing demand and supply of the food system, the main aim is to bring conclusions regarding the state and strategic role of agriculture, especially in the times of crisis when basic human needs are compromised. Scientific methods of analysis, compilation and deduction have been applied in this paper. The former two have been used for the purpose of defining agricultural value chain, its main actors and interaction among them. Through a deduction method, certain conclusions were made about the state of the EU food system as well as demand and supply trends in order to provide a broader understanding of the food security and the significance of agricultural sector in general. Although EU agriculture showed to be resilient during the pandemic, it still needs careful consideration on the adequate support measures and consistency in implementing of the existing policy and strategic measures.*

**Keywords:** common agricultural policy, EU agriculture value chain, EU food system

**JEL:** F00, Q00

**1. Introduction**

Globalization, urbanization and changing socio-economic trends have created opportunities for agricultural and food systems. However, those trends have simultaneously led to challenges related to malnutrition, food safety, environmental degradation, exclusion risk, especially for

women, youth and other vulnerable groups, small-scale farmers, small and medium enterprises, and small economies (Food and Agricultural Organization of the United Nations, 2017). Farming agricultural products draws on a set of resources necessary to produce these agricultural goods and services. These resources or “factors of production” can be broadly categorized as land, labor, knowledge, capital, and entrepreneurship. Understanding what influences the availability of these factors of production and their change over time provides a key insight into how agriculture in the European Union (EU) will meet various future challenges.

Economic, environmental, climate-related and socio-economic challenges stress the role and the importance of farmers as the engine of Europe's rural communities. The EU recognizes the importance and fragility of agriculture and farming, and therefore provides political and strategic measures to facilitate and promote working and living of EU citizens in this sector. Within the EU, the agricultural sector operates under the Common Agricultural Policy (CAP). The policy supports farming and ensures food security in Europe. It is a common policy for all EU member states, and it is managed and funded at the European level from the EU budget.

Numerous recent scientific and technological advancements call for modernization and modification of the agricultural sector and thus, the CAP also needs to respond to developmental trends and challenges. The main aim should be to make the EU's agricultural policy more responsive to current and future challenges and continuing to support active needs of European farmers.

A more intuitive and innovative policy can foster a sustainable and competitive

\* Faculty of Economics and Business, University of Zagreb, Croatia, sfranc@efzg.hr

\*\* Faculty of Economics and Business, University of Zagreb, Croatia, vbilas@efzg.hr

\*\*\* Notitia Ltd., Zagreb, Croatia, lana.trifunic@notitia.hr

agricultural sector and provide strong support for European farming, enabling prosperous rural areas and the production of high-quality food (European Commission, 2020). Furthermore, agricultural development is promoted in the new EU's "Farm to Fork Strategy" which aims to ensure an efficient and sustainable food system within the EU and to promote global transition to sustainability.

This paper researches agricultural value chain in the EU. It focuses on the CAP and the food system analysis as the key factor of sustainability. The analysis of the food system demand and supply enables bringing some conclusions regarding the state of the value chain and the role of agriculture in the EU, especially during crisis when basic human needs are compromised.

## **2. Value chains in agriculture: inclusive food systems as key factor of sustainability**

Value chain in agriculture is key to designing inclusive food systems, from improving farmers' access to resources and information to creating off-farm jobs and enterprises in the midstream of the chain. It includes input companies, farmers, traders, food companies, and retailers with their common goal of satisfying different consumer needs in a sustainable way.

Modern agricultural value chains grow and become more sophisticated as countries industrialize and strengthen their position in global markets (Food and agriculture Organization of the United Nations, 2010).

Research, development and innovation such as mobile phones or other new technologies offer opportunities for marginalized and excluded population to access information and services, and to participate all along the food value chain.

Moreover, education is a major driver of inclusion, increasing lifelong income and improving nutrition, health, civic engagement, and gender equality.

### *2.1 Interaction within the value chain*

As mentioned, food systems are the sum of actors and interactions along the overall food

value chain, from input supply and production of crops, livestock, fish, and other agricultural commodities to transportation, processing, retailing, wholesaling, and preparation of foods to consumption and disposal (International Food Policy Research Institute, 2020).

Food systems also include the enabling policy environments and cultural norms around food, and provide basic sustenance in terms of meeting populations' minimum caloric needs and affect nutrition through crop health, diversity, and impacts on health, climate and environment.

Food value chains also provide living and working conditions for a vast number of the global population, through agricultural labor, as well as non-farm jobs in other segments of the food value chain, or just through family helping family in farming.

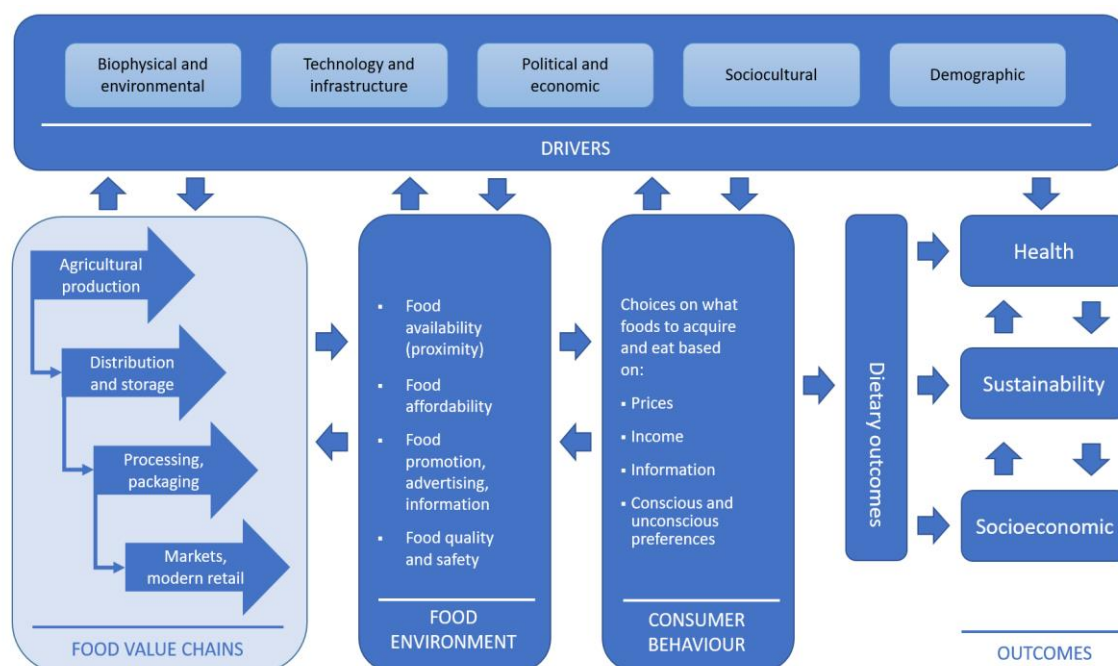
At the macro level, food systems (value chains) empower local and national economies, shaped in part by governance, trade, and investment at the global level (International Food Policy Research Institute, 2007). Some of the main characteristics of food value chains today include: volatility, complexity and scrutiny (KPMG, 2013).

The trends have shown a high rise in demand for higher-value food products. This means that farmers must change the crop production mix, but also be very dedicated to continuously maintaining a high level of quality, as well as striving to improve it.

New quality and efficiency requirements as well as the EU and global policies have encouraged mechanization and adoption of modern inputs.

This left many small farms behind because they lack the resources that are essential for the inclusion and continuously improving and evolving up the value chain.

Inclusive transformation requires market access, financial and other support measures for small farmers to begin sustainable productivity growth and foster their participation in value chains (Figure 1).

Figure 1 *Comprehensive value chain in agriculture*

Source: McDermott &amp; De Brauw (2020)

TRADITIONAL	TRANSITIONING	MODERNIZING
<p>Policy focus on food security and supply and cereal production</p> <p>High share of agriculture in GDP (&gt;25%) and employment</p> <p>Food is eaten close to where it is grown</p> <p>Sustainability focus on climate adaptation and efficiency and effectiveness of land and water use</p> <p>Limited industry (packaging, processing)</p> <p>Most calories from cereals (&gt;75%)</p> <p>High levels of stunting (&gt;35%)</p>	<p>Policy focus expands to consider micronutrient intake, dietary diversity, and agricultural transformation</p> <p>Decreasing share of agriculture in GDP (10–25%) and employment</p> <p>Increasing rates of urbanization</p> <p>Increasing lengths of food supply chains and increasing food safety burden</p> <p>Sustainability issues more complex, with greater options for specialization and market-based solutions</p> <p>Industry (packaging, processing) begins to grow</p> <p>Decreasing share of calories from cereals (65–75%)</p> <p>Different levels of stunting (25–50%)</p>	<p>Policy focus on food system transitions, food quality and safety (although food safety burden falls)</p> <p>Low share of agriculture in GDP (&lt;10%) and employment</p> <p>High rates of urbanization</p> <p>Complex sustainability synergies and trade-offs, benefit from systemic approach to food systems decision-making</p> <p>Industry plays large role</p> <p>More trade, with greater share of food imported and exported</p> <p>Food supply chains are more integrated and complex</p> <p>Lower share of calories from cereals (&lt;65%)</p> <p>More food is eaten away from home (snacks, restaurants, etc.)</p> <p>Moderate levels of stunting, still declining (&lt;30%)</p>

Figure 2. *Stages and characteristics of food system transformation*

Source: McDermott &amp; De Brauw (2020)

Mechanization and modernization are a part of a larger context of rural transformation, urbanization and development that can offer new opportunities for inclusion of poor and marginalized people. In addition to creating employment and income-generating opportunities, food system transformation can also support improvements in nutrition that are associated with long-term impacts on health, cognitive capacity, educational attainment, income, and development.

The dynamics of the food system also affect sustainability and equity outcomes. Drivers and food system components for a particular country help policymakers identify policy needs and promising leverage points for action. It can also highlight systemic trade-offs, interactions, and synergies in achieving nutrition, sustainability, and socioeconomic outcomes. For most countries at the traditional or transitioning stages of food system transformation, critical information gaps exist regarding value chain impacts and outcomes. Inadequate public and private investments continue to hinder the development of inclusive and efficient agricultural and food systems (Food and Agriculture Organization of the United Nations, 2017).

Therefore, new forms and innovative partnerships that bring together actors from private sector, government and civil society are promoted as a mechanism for improving productivity and driving growth in the agriculture and food sector around the world (Rankin et al., 2016), as well as the key factor of a successful, sustainable and competitive value chain. Commonly referred to as public-private partnerships (PPPs) are initiatives common in sectors such as infrastructure, health and education, but their implementation in the agriculture sector is relatively new.

Agri-PPPs are considered to have the potential to boost modernization of the agriculture sector and deliver multiple benefits that can contribute towards sustainable agricultural development that is inclusive for smallholder farmers (Food and Agriculture Organization of the United Nations, 2017). However, various different motives behind this PPP approach are not defined specifically enough and raise questions about the type of project that is

optimal and about the mechanism's effectiveness in achieving sustainable and inclusive agricultural development objectives. Cross-fertilization of theoretical contributions from other disciplines also appears to be limited, despite the plethora of literature on PPP topics from disciplines that include economics, public administration, and management science (Rankin et al., 2016).

It is important to note that there is no single definition of PPP, which leaves space for loose interpretation of this concept and its application.

However, a useful conceptualization is provided in the Asian Development Bank's PPP handbook (Rankin et al., 2016), which sees PPPs as a mechanism for improving the delivery of public goods and services by partnering with the private sector while retaining an active role for government to ensure that national socio-economic objectives can be achieved. This kind of partnership should be designed in a way that (Rankin et al., 2016):

- allocates tasks, obligations, and risks among public and private-sector partners in an optimal way;
- recognizes that public and private sectors each have comparative advantages relative to each other in performing specific tasks, and aims to minimize costs while improving performance in terms of relevance, efficiency, effectiveness, impact, and sustainability. This implies that by working together, the public and private partners generate more value for money than the government could on its own.

Public investment in rural infrastructure can also induce forms of inclusive growth that go beyond linking smallholders to markets, which is why new (and adequate) forms of public-private partnerships have an important role in rejuvenation and competitiveness of the sector.

These include the forming of agro-industrial parks, agro-based special zones, incubators, clusters, and agro-corridors, all of which have had varying degrees of success - infrastructure planning should also support existing "spontaneous clusters" of downstream agri-



food businesses (International Food Policy Research Institute, 2020).

Ideal food systems (value chains) would be: nutrition, health, safety-driven, productive, efficient (and thus able to deliver affordable food), environmentally sustainable, climate-smart, and inclusive (International Food Policy Research Institute, 2020). But to realize this vision, continuous investments must be made in agricultural research and development and technological innovation, paving the way for programs and policies that are evidence based.

## *2.2 Drivers of inclusive food systems*

Inclusive food systems are the key factor of comparative advantage and competitiveness in the agricultural sector, on the industry level, as well as on the country level – they can help break the intergenerational cycle of poverty, hunger, and malnutrition. For example, including marginalized population in food systems can help them secure jobs and satisfactory living conditions, such as education.

Inclusive food systems can help mitigate climate change impacts for the most vulnerable and also foster innovation to achieve climate-smart agriculture (International Food Policy Research Institute, 2020). They can create better economic opportunities, reduce hunger and poverty, and by triggering innovation in reorienting production and consumption toward healthy foods, they can improve nutrition and boost income of producers and consumers.

Finally, and equally important, inclusive food systems can help build a sense of community and a personal contribution in community success. Even on a national level, they have vast potential for contributing to political stability. In other words, inclusive value chains can help contribute to addressing some global challenges. Furthermore, inclusiveness is a moral imperative. Education is perhaps the greatest driver of inclusion (International Food Policy Research Institute, 2020).

Not only does education increase lifelong income, breaking the cycle of poverty, it also improves nutrition and health, while

encouraging civic engagement and gender equality. Education in the form of vocational training can also create a well-trained labor force that can seize opportunities in higher-productivity food-related sectors. Moreover, transfer of knowledge, reducing information asymmetries and closing information gaps, is another key driver of inclusion, which is hugely facilitated by new technological innovations, including mobile technologies. Up-to-date information about prevailing market prices, as well as marketing and pricing strategies, help rural farmers get the best price for their crops and the sense of accountability on spending. But for information to be useful, it must be understandable and relevant and it must enable appropriate action. Agri-food value chains and other rural and urban linkages are the key to unlocking these opportunities.

Fostering rural entrepreneurship and employment diversification, especially for women and youth, requires development of skills, such as those related to running a business, accessing market information and using information and communications technologies (ICTs).

Skilled labor force in low-income countries would increase agricultural productivity and stimulate growth of high-productivity services and industrial sectors, and would enjoy access to better-paid jobs (International Food Policy Research Institute, 2020).

As food systems and value chains evolve, many different types of mechanisms can be put into place to ensure that they reach, benefit, and empower. In ideal conditions, many of them should be implemented at the national level, so that the local context, including the status of specific population, economic structure, and cultural norms, can be taken into account.

Countries need support in order to efficiently implement and enforce the relevant regulation and standards, and value chain operators must have the ability to comply with the national and international food standards (Food and Agriculture Organization of the United Nations, 2017).

It is important to understand that some of the most relevant actions that can be taken to

redesign food systems are actually those in the value chains and their framework, so that actions start exactly where it matters, in order to trigger sustainability on all levels.

### 3. Methodology

This paper researches agricultural sector and the CAP in the EU, with the aim to identify the state and key trends in the EU food system. By reviewing available secondary data, the paper gives an overview of the demand and supply in the food system with the emphasis on agriculture and farming as important sources of employment and food security in the EU. In fact, food security is an important global objective with special importance for developing and less developed countries.

However, the Coronavirus pandemic has left many countries in socio-economic crisis and has emphasized food safety and health issues in countries at all levels of development.

Besides reviewing the conceptual framework of agricultural value chain, the paper also describes the state and trends in the EU food system and analyzes the EU response to the current pandemic by compiling and reviewing different papers, studies and EU statistical reports. In accordance with the practice of scientific research, methods of analysis, compilation and deduction have been applied in this paper.

The former two have been used for the purpose of defining the agricultural value chain, its main actors and interaction among them. Through a deduction method, certain conclusions were made about the state of the EU food system and the trends in demand and supply, in order to provide a broader understanding of the food security and the significance of agricultural sector in general.

### 4. The state of the food system in the European Union

Ensuring food safety is one of the global Sustainable Development Goals defined by the United Nations and thus, it is an important part of the overall sustainable development path of all countries.

Over the decades, the EU food system has developed its capacity to ensure a high degree of food security and self-sufficiency.

Most countries in Europe enjoy a large daily energy supply *per capita* and a low share of undernourished population. Moreover, the EU is mostly self-sufficient (EU Parliamentary Research Service, 2020).

#### 4.1 Supply side analysis in the EU food system

The EU is promoting a shift towards a more diversified food supply system. This would represent an opportunity for Europe's agri-food sector as it is still one of the biggest manufacturing sectors in terms of jobs and value added, but its competitive position is lagging behind that of comparable economies (European Commission, 2018).

The food supply chain plays a substantial role in the European economy, bringing together sectors such as food processing industry, distribution, and agriculture that together make important sources of employment and value added (Massot, 2016).

The EU's farms are numerous and varied, they are of all sizes, varied in terms of what is grown or animals that are reared, managed under different management structures and found in areas that have different soils, topographies, and climates.

According to the last available statistics, EU farms used 156.7 million hectares of land for agricultural production in 2016, which was 38.2% of the EU's total land area (Cook, 2020).

Utilized agricultural area of the EU is concentrated and based in just seven member states which make 71.5% of the total utilized area: France used 27.8 million ha for agricultural purposes, Spain 23.2 million ha, the United Kingdom and Germany both 16.7 million ha, Poland used 14.4 million ha, Italy a further 12.6 million ha and Romania 12.5 million ha.

There were 10.5 million farms in the EU in 2016, of which two-thirds are less than 5 ha in size (Cook, 2018; 2020). One third (32.7%) of the EU's agricultural holdings (farms) were

located in Romania in 2016, much more than in any other member state - this was about the same as all the farms in Poland (13.5% of the EU-28 total), Italy (10.9%) and Spain (9.0%) combined, the three members with the next highest number of farms.

The vast majority of the EU's farms are family farms (96.3%) and have only family workers (the farmer and his/her family members) (Cook, 2020). However, France had a relatively sizeable minority of non-family farms (27.3% of its close to 0.5 million farms) along with Estonia (21.0%).

Small farms can play an important role in reducing the risk of rural poverty, providing additional income and food. This distribution pattern was particularly clear in Romania, the country with the highest number of farms - nine in every ten farms (91.8% or 3.1 million farms) were smaller than 5 ha. Small farms of under 5 ha were also typical in Malta (96.5% of the total), Cyprus (89.6%), Bulgaria (82.6%), Hungary (81.4%), Greece (77.3%), Portugal (71.5%), and Croatia (69.5%), as well as in particular regions of other countries such as the southern parts of Poland and coastal regions of Spain and Italy.

The number of small farms in certain EU member states and regions reflects a mixture of crop specialization (such as small olive groves and vineyards), of wide land ownership, topographical constraints and tradition. Larger farms (50 hectares or more) were much more common in Luxembourg (51.8% of farms), France (41.3 %), the United Kingdom (38.6%), and Denmark (35.3%).

At the other end of the production scale, 6.9% of the EU's farms were of 50 ha or more in size and used two-thirds (68.2%) of the EU's utilized agricultural area (UAA) (Cook, 2020; 2018). In most member states, a majority of UAA was concentrated on the largest farms (50 ha or more in size).

To specify, EU farms can be characterized in three distinct size groups (Cook, 2020):

- semi-subsistence farms, where the focus is on growing a high proportion of food to feed farmers and their families

- small and medium-sized farms that are generally family-run businesses
- large agricultural enterprises which are more likely to have a legal form or be cooperatives

These distinctions are made clearer by analyzing farms in terms of their economic size. Out of the 10.3 million farms in the EU, 4.0 million had an economic size in terms of standard output below EUR 2,000 per year and were responsible for only 0.9% of EU's total agricultural economic output (Cook, 2020). These very small farms are at the semi-subsistence end of the farming scale; about three-quarters of such farms in the EU consumed more than one half of their production. Around 3.0 million farms had an economic output within the range of EUR 2,000 - EUR 8,000 *per year*. Together these very small and small farms accounted for two-thirds (67.6%) of all farms in the EU in 2016. By contrast, the largest 278,000 farms (2.7% of the EU total) each produced a standard output.

Majority of the standard output generated by agriculture across the EU in 2016 was from farms in France (18.1%), Italy (15.3%), Germany (14.5%), and Spain (11.3%). Although Romania accounted for one third of EU's farms, it accounted for only 3.6% of EU's standard output, according to the last available statistics (Cook, 2020).

According to Cook (2020), about one half (52.9%) of all farms in 2016 could be categorized as being specialist crop farms; just under one third (31.7%) of all farms were specialized in field cropping, about one fifth (19.3%) were specialized in permanent crops, with the remainder (1.8%) being specialist horticultural farms. Another one quarter (24.5%) of EU's farms were specialist livestock farms, with sheep, goats and other grazing livestock farms (5.7%) and specialist dairy farms (4.5%), the most numerous within this group. Mixed farms made up most of the rest (21.4%), with a small percentage of farms not being classifiable.

In many Mediterranean countries (Spain, Italy, Greece, Cyprus), and also in Finland, specialist cropping was the dominant farm type (with a share of more than 60% of all farms), while in parts of North-West Europe (Benelux, the



United Kingdom, Ireland, Norway) and Austria specialist livestock farming was the dominant activity (with a share of more than 50% of all farms) (Eurostat, 2018). More than 30% of farms were mixed holdings in Portugal, Romania, Bulgaria, Lithuania, and Croatia.

However, the number of farms in the EU has been declining for a long time. Putting a precise figure on farm losses should be treated with some caution, as coverage has decreased in some countries with the raising of the size threshold for what is considered a farm. This means that figures in time series analysis of farm numbers, types of farms and characteristics of the labor force should be seen as indicative rather than precise. According to the available agriculture, forestry and fishery statistics (Cook, 2020), there were about 4.1 million fewer farms in the EU-27 in 2016 than in 2005, which represents a decline of almost 30%. During this period, the largest reductions in farm numbers were recorded in Poland (an indicative loss of 1.1 million farms, or 43%), Romania (a loss of 0.8 million farms, or 20%) and Italy (an indicative loss of 0.6 million farms, or 34%).

Although there are negative trends regarding the number of farms, agriculture remains an important source of employment within the EU, as 9.7 million people work in agriculture. People employed in agriculture accounted for 4.2% of the total employment in the EU in 2016, corresponding to 9.7 million persons (Cook, 2018). However, knowing how many people are employed in agriculture is not as straightforward as it might seem and not as easy as other sectors of the economy, since employment data covers employees and self-employed persons, but excludes many part-time farmers and help from family members. This is explained by the fact that many farmers and farm workers pursue agriculture as a part-time activity, that many farms are family-run with family members providing help on the farm at different times of the year, and that there are seasonal peaks in labor (particularly when it comes to harvesting). In this analysis, in the manner of agricultural employment, four types of employment exist:

- agricultural employment
- the regular agricultural labor force
- the volume of agricultural work carried out

- farm managers.

Agriculture is particularly important as a source of employment in Romania, accounting for just less than one in every four persons (23.3%) employed in the country, as well as in Bulgaria (17.5% of the total employment), Greece (10.7%), and Poland (10.1%) (Eurostat, 2018).

Farming is a male dominated profession with relatively few female farmers – in 2016 71.5% of the total farmers were men, while only 28.4% of the total were women (Cook, 2018).

Furthermore, there are only few young farmers - only about one in 10 EU farm managers (11%) were under the age of 40 in 2016 (Cook, 2018).

Very few farm managers in the EU have full agricultural training - most farm managers in the EU only have practical experience (Cook, 2020). This was the case for seven in every 10 (68.3%) of them in 2016. Less than one in ten (9.1%) farm managers had full agricultural training, and the rest (22.6%) had basic agricultural training. In some EU countries, the level of agricultural training among farm managers was particularly low. In Romania and Greece only 0.4% and 0.6% of farm managers respectively had full agricultural training, the overwhelming majority (96.7% and 93.2% respectively) having only practical experience. Only a few member states had relatively high proportions of farm managers with full agricultural training; these were Luxembourg (52.5%), Czech (38.7%), France (34.9%) and Latvia (31.3%) (Cook, 2020; 2018). The regular agriculture labor force in the EU declined by 9.5 million persons between 2005 and 2016; this was a reduction of almost one third (-31.7%).

The level of investment in EU agriculture was very similar in 2019 to that in 2009, although there were some fluctuations in the intervening years. In 2019, the investments of the agricultural sector were estimated EUR 56.0 billion, accounting for 30.9 % of gross value added (Cook, 2020). Among the EU members, there was particularly strong investment growth in Lithuania and Latvia (an average 18.1 % and 11.8 % per year respectively). In contrast, there were strong contractions in

Slovakia (an average of -4.4% per year), Croatia (-6.9%), and Malta (an average -7% per year).

In the future, EU policies should focus on reducing meat consumption, greenhouse gas emissions associated with agriculture, and reducing food waste.

#### *4.2 Demand analysis in the EU food chain*

According to the European Commission (2019), global consumption of food *per capita* is increasing as well as self-sufficiency in certain parts of the world. This will have an impact on global trade and provide opportunities for some EU agri-food markets while creating a surge in competition for others.

Agriculture made 1.3% of the EU GDP in 2019 and output produced by the EU's agricultural industry was an estimated EUR 418.0 billion in 2019 (Cook, 2020). Furthermore, the EU's agricultural industry created a new high - (gross) value added of EUR 1181.5 billion.

About one half (52.8%) of the value of the total output of the EU's agricultural industry in 2019 came from crops (EUR 220.5 billion) (Cook, 2020). The member state that contributed the most (54.2%) to the total output value of the EU's agricultural industry is France (EUR 77 billion), followed by Germany (EUR 58.2 billion), Italy (EUR 57.81 billion), and Spain (EUR 51.7 billion) (Cook, 2020).

EU trade in agricultural goods doubled during the last decade and amounted to EUR 324.8 billion as it accounted for 8% of total EU international trade in goods in 2019 (Cook, 2020).

The same year the EU had trade surplus in agricultural goods with exports exceeding imports. While the EU imported mainly raw, unprocessed agricultural goods, it principally exported processed food products.

According to Cook (2020), the United Kingdom was the EU's main trading partner in agricultural products in 2019, with trade worth EUR 60.4 billion.

The United Kingdom was the main recipient of EU exports (23.2%) of agricultural products in 2019 and was the main origin of EU imports (12.8%). United States were the second largest trading partner with the EU in agricultural goods (11.9% of exports and 7.3% of imports), while China was the third most important trading partner as the EU exported 7.7% of agricultural products to China. After the United Kingdom, the EU imports 7.4 % of agricultural products from Brazil.

Foodstuffs made majority of the EU exports in agricultural products (54.3%) followed by vegetable products and animal products, which made practically the same share (23%).

On the other hand, crop products accounted for almost 45 % of the EU imports, foodstuffs accounted for one third (34.0%), and animals and animal products a little over one fifth (21.5%) of the value of imports.

While in foodstuffs the EU registered a trade surplus, in crop products it had a trade deficit in the period from 2002-2019 (Cook, 2020).

#### *4.3 Adopting transformation in the time of COVID-19*

The Coronavirus (COVID-19) pandemic has left consequences in economies around the world. Particularly affected is the healthcare system, but also water and sanitation systems and food system. The consequential crisis has emphasized the need for transformation to new trends, challenges, and needs.

The EU has responded to the pandemic by creating a recovery package of €1.8 trillion that combines the EU budget for 2021-2027 and "Next Generation EU" recovery instrument. As outlined by the European Commission, post-COVID-19 Europe will be greener, more digital, more resilient and better fit for the current and forthcoming challenges (European Commission, 2021).

Estimates show that the agricultural sector in the EU has been remarkably resilient. The value of output of the agricultural industry in 2020 declined by 1.6% compared to 2019 but was still ahead (by 0.3 %) of the average of the previous three years (Eurostat, 2020). Nonetheless, significant aid packages have

been made available to farmers as some producers and other actors in the food chain have faced difficulties during this crisis. The EU agri-food supply chain was impacted by the crisis, showing several weaknesses that could potentially disrupt its capacity to continue functioning in case of further or more prolonged crises (European Parliament Research Service, 2020). Supply chains face various challenges primarily due to the shortage of workers for harvesting crops and international logistics, which have become inefficient and expensive.

The introduction of border controls resulted in blocked transport routes which has been especially problematic for delivery of fresh food, transport of live animals, and in general, for international trade in agri-food products. Restrictions of labor movement have also affected the agricultural sector, especially those parts that depend on foreign seasonal workers. Restrictions on the food service sector have created surpluses of unsold production and required a shift in the supply chain, with volumes of food to be sold through different channels. As a result, the crisis has shown that the current way of production organization and supply chain organization need to change in order to minimize the short-term consequences of the crisis and prepare for recovery.

In the context of the Farm to Fork strategy, the European Commission is preparing a contingency plan to ensure food supply and food security in the EU during crisis. It will include exceptional market measures and CAP flexibility in the form of extension of deadline for CAP payment applications and fewer farm on-the-spot checks.

Finally, in order to successfully transform to new market trends, the following is suggested (CBI, 2020):

- Focus on cash flow - all business activities should focus on financial liquidity.
- Communicate with all stakeholders - it is important to stay connected; communicating well with customers is one of the most important things, through social media, newsletters and other marketing tools to let customers know that you have things under control.

- Stay informed – on all current epidemiologic, health, economic, political, and social issues.
- Tackle logistics – take care of safety and capacity issues.
- Show initiative and develop new ideas – be creative and adopt new approaches.
- Diversify crop – ensuring alternatives.

## 5. Conclusion

The performance of the agricultural sector is evaluated in terms of how successful farming is in delivering primary agricultural products and services. Performance matters because the long-standing policy objectives of the Common Agricultural Policy (CAP) relate to supporting farmers and improving agricultural productivity, thereby ensuring a reasonable living for them. As well as evaluating the performance of the agricultural sector towards these policy objectives, it is clear that any economic impact on farmers influences future farming business decisions but also wider ecological and environmental business decisions and behavior. Agriculture is a strategically important sector. It is under specific regulation as it is an important employer for the population in rural areas, source of food production, but also a source of exports for the entire EU.

What is more, the value chain in agriculture is key to designing inclusive food systems. Public and private investments in the agri-food industry should be promoted in order to ensure farmers' access to resources and information and creation of non-agricultural jobs and enterprises in the midstream of the chain. In the past year, the global pandemic impacted all sectors of the economy, including agriculture.

Numerous economic and social restrictions influenced both the production and consumption side, creating surplus of some goods that have not been sold and delivered, but also limited harvest possibilities on the other side, due to labor movement restrictions. The EU quickly responded to the crisis and designed aid packages for farmers.

Although EU agriculture showed to be resilient during the pandemic, it still needs careful

consideration on adequate support measures and consistency in implementation of the existing policy and strategic measures. The limitations of this paper rest upon the fact that it is based only on secondary data available from Eurostat and related reports.

For future research, it would be interesting to empirically research the contribution of agriculture to the overall EU growth and sustainability in order to determine its strategic role and to research how the trends in agriculture are influenced by trends in the overall economy.

## References

1. CBI Centre for the Promotion of Imports (2020). *How to respond to COVID-19 in the fresh fruit and vegetables sector*. Available at: <https://www.cbi.eu/market-information/fresh-fruit-vegetables/how-respond-covid-19-fresh-fruit-and-vegetables-sector> (Accessed: December 15, 2020).
2. Cook, E. (Ed.) (2020). *Agriculture, forestry and fishery statistics*. 2020 Edition. Luxembourg: European Union Publication Office.
3. Cook, E. (Ed.) (2018). *Agriculture, forestry and fishery statistics*. 2018 Edition. Luxembourg: European Union Publication Office.
4. European Commission (2018). *Towards a More Diverse Food Supply System*. Brussels: European Union.
5. European Commission (2019). *EU agricultural outlook. For market and income 2019-2030*. Luxembourg: Publication office of the European Union.
6. European Commission (2020). *Future of the common agricultural policy*. Available at: [https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/future-cap\\_en](https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/future-cap_en) (Accessed: December 15, 2020).
7. European Commission (2021). *Recovery plan for Europe*. Available at: [https://ec.europa.eu/info/strategy/recovery-plan-europe\\_en#nextgenerationeu](https://ec.europa.eu/info/strategy/recovery-plan-europe_en#nextgenerationeu) (Accessed: March 15, 2021).
8. European Parliamentary Research Service (2020). *European Union food system*. Brussels: EU.
9. Eurostat (2018). *Agriculture, forestry and fishery statistics* 2018 edition. Available at: <https://ec.europa.eu/eurostat/documents/3217494/9455154/KS-FK-18-001-EN-N.pdf/a9ddd7db-c40c-48c9-8ed5-a8a90f4faa3f> (Accessed: December 15, 2020).
10. Eurostat (2020). *Economic accounts for agriculture – values at current prices*. Available at: <https://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do> (Accessed: March 10, 2021).
11. Food and Agriculture Organization of the United Nations (2010). *Agricultural value chain development: Threat or opportunity for women's employment? Gender and Rural Employment Policy Brief #4*. Available at: <http://www.fao.org/3/i2008e/i2008e04.pdf> (Accessed: March 10, 2021).
12. Food and Agriculture Organization of the United Nations (2017). *Strategic work of FAO for strategic programme to enable inclusive and efficient agricultural and food systems inclusive and efficient food systems*. FAO. Available at: <http://www.fao.org/3/i6627e/i6627e.pdf> (Accessed: March 10, 2021).
13. International Food Policy Research Institute (2007). *The Role of Public-Private Partnerships and Collective Action in Ensuring Smallholder Participation in High Value Fruit and Vegetable Supply Chains*. CAPRI Working Paper No. 70. Research Workshop on Collective Action and Market Access for Smallholders October 2-5, 2006 - Cali, Colombia.
14. International Food Policy Research Institute (2020). *Global Food Policy Report 2020: Building inclusive food systems*. Washington DC: International Food Policy Research Institute.
15. KPMG (2013). *The agricultural and food value chain: Entering a new era of cooperation*. Available at: <https://assets.kpmg/content/dam/kpmg/pdf/2013/06/agricultural-and-food-value-chain-v2.pdf> (Accessed: December 15, 2020).
16. Massot, A. (2016). *Research for agri committee – structural change in EU farming: how can the CAP support a 21st century European model of agriculture?* Luxembourg: European Union.

17. McDermott, J. & De Brauw, A. (2020). *National Food Systems Inclusive Transformation for Healthier Diets*. International Food Policy Research Institute.
18. Rankin, M., Gálvez Nogales, E., Santacoloma, P., Mhlanga, N. & Rizzo, C. (2016). *Public-private partnerships for agribusiness development: A review of international experiences*. Rome: FAO.