STUDY

Requested by the AGRI Committee

European Parliament

Preliminary impacts of the COVID-19 pandemic on European agriculture: a sector-based analysis of food systems and market resilience

Agriculture and Rural Development

Policy Department for Structural and Cohesion Policies
Directorate-General for Internal Policies
PE 690.864 - MAY 2021

EN

RESEARCH FOR AGRI COMMITTEE

Preliminary impacts of the COVID-19 pandemic on European agriculture: a sector-based analysis of food systems and market resilience

Abstract This study provides a preliminary quantitative and qualitative analysis of the impact of COVID-19 on European agriculture and the agri-food supply chain in light of the responses deployed by the European Union and its Member States to mitigate its effects.

This document was requested by the European Parliament's Committee on Agriculture.

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LINGUISTIC VERSIONS

Original: EN

ABOUT THE PUBLISHER

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Manuscript completed in May 2021
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This document is available on the internet in summary with option to download the full text at: https://bit.ly/3yQbTOT

This document is available on the internet at:
https://www.europarl.europa.eu/thinktank/en/document.html?reference=IPOL_STU(2021)690864

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Montanari, F., Ferreira, I., Lofstrom, F., Varallo, C., Volpe, S., Smith, E., Kirova, M., Wion, A., Kubota, U., Albuquerque, J.D., 2021, Research for Agri Committee – Preliminary impacts of the COVID-19 pandemic on European agriculture: a sector-based analysis of food systems and market resilience, European Parliament, Policy Department for Structural and Cohesion Policies, Brussels
Please use the following reference for in-text citations:
Montanari et al. (2021)

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LIST OF ABBREVIATIONS

AI	Avian Influenza
ASF	African Swine Fever
APO(s)	Association of Producer Organisations
AVEC	Association of Poultry Processors and Traders
BEUC	European Consumers' Organisation
BPR	Biocidal Products Regulation
CAP	Common Agricultural Policy
CEEV	Comités Européens des Entreprises Vin
CFP	Common Fisheries Policy
CMO	Common market organisation
EAFRD	European Agricultural Fund for Rural Development
EAGF	European Agricultural Guarantee Fund
EC	European Commission
ECHA	European Chemical Agency
ECSLA	European Cold Storage and Logistisc Association
EDA	European Dairy Association
EEPA	European Egg Processor Association
EFFAT	European Federation of Food, Agriculture and Tourism Trade Unions
EFSA	European Food Safety Authority
EIT	European Institute for Innovation and Technology
EMB	European Milk Board
EMFF	European Maritime and Fisheries Fund
EP	European Parliament

EPRS	European Parliament Research Service
EU	European Union
EUPPA	European Potato Processors
EURO COOP	European Association of Consumer Cooperatives
FAO	Food and Agriculture Organization
FEBA	European Food Banks Federation
GMC	Global Margins of Committments
GDP	Gross Domestic Product
HOTREC	Hotels, Restaurants and Cafés – Hospitality Europe
IBO(s)	Interbranch organisations
IOM	International Organisation of Migration
MFF	Multiannual Financial Framework
MS(s)	Member State(s)
NDM	New Delivery Model
OECD	Organisation for the Economic and Cooperation Development
PO(s)	Producer organisations
SMI	Single Margin Instrument
SMEs	Small and medium-sized enterprises
TFEU	Treaty on the Functioning of the European Union
UK	United Kingdom
U.S.A.	United States of America
UTP(s)	Unfair trading practice(s)
VAT	Value Added Tax
WHO	World Health Organization

WNSP	Wine national support programme
WTO	World Trade Organization

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EXECUTIVE SUMMARY

KEY FINDINGS

- Overall, during the pandemic, the EU agri-food supply chain has demonstrated a **high degree of resilience**. The **value of the output of the agricultural industry declined by 1.4% in 2020** compared to 2019, although, when compared to the 2015-2019 average, it grew by 2.9%. Nonetheless, sectors highly dependent on the food service (e.g. **wine**, **beef and veal**) have faced major difficulties. **Flowers and plants** and **sugar** have also suffered considerable financial losses.
- The EU response was **highly effective** in preserving the integrity of the Single market. Conversely, **measures** adopted **under the Common Agricultural Policy (CAP)** had **mixed results** having been implemented partially or inconsistently across Member States (MSs).
- The costs of the crisis for the EU agri-food sector will be borne primarily by MSs. National financial support - namely in the form of State aids (**estimated 63.9 billion EUR**) and other instruments – has been significantly higher than EU support (**80 million EUR** in private storage aids).
- To better respond to future crises, policy responses should be designed following a '**food systems approach**'. Moreover, the reasons behind the limited impact of CAP measures during the pandemic should be better investigated. Consideration should also be given to the **decoupling of the CAP crisis reserve** from farmers' direct payments to reinforce EU financial capacity during crises. Finally, because of the economic consequences of the pandemic, **food assistance programmes** for the most deprived are needed.

Overall impact of COVID-19 on the EU agri-food supply chain

The EU agri-food supply chain demonstrated a **high degree of resilience** during the pandemic. The **value of the output of the agricultural industry declined by 1.4% in 2020** compared to 2019, although, when compared to the 2015-2019 average, it **grew by 2.9%**.

Farm incomes also declined compared to 2019 (**-7.9%** corresponding to **7.1 billion EUR**).[1] Food and drink production (-9% in the second quarter of 2020 compared to 2019) and the food service sector (60-90% of estimated losses compared to 2019) suffered as well. Conversely, retail sales increased with **online food sales** registering the highest growth during the first months of the pandemic (+45% compared to pre-pandemic levels).

Initial challenges for the EU agri-food supply chain included increased food demand due to consumer panic buying; labour shortages caused by movement restrictions (**1 million seasonal workers in agriculture**); delays in food deliveries, raw materials and other agri-food inputs as well as a slowdown in food production because of virus outbreaks in processing plants.

[1] Farm incomes have not formed part of the present study whose primary focus are the market support measures adopted at EU and national level during the pandemic.

During the first wave of the pandemic **European farmers** suffered **significant economic losses** as a result of supply chain disruptions and/or the closure of specific trade channels (e.g. food service). Those disruptions led to **production surpluses**, and, in the absence of targeted market management measures across all sectors, surpluses had to be disposed of.

The **food service sector** was **severely impacted** by COVID-19: restaurants, canteens, and bars were repeatedly targeted by national restrictions limiting their functioning. **Food retailers** were generally allowed to remain open during the pandemic. However, because of COVID-19, traditional retail business models increasingly shifted to **e-commerce** and/or implemented **local sourcing policies.**

Finally, the pandemic significantly impacted **consumer preferences**. Consumers are increasingly interested in buying food online, in convenience shopping as well as in the consumption of healthy products. However, for **low-income groups** price has become a key determinant of food choice often to the detriment of healthier options.

Impact of COVID-19 on selected EU agri-food sectors

Overall, the study shows that, despite the pandemic, the EU agri-food sector performed relatively well in 2020 with **production and trade levels remaining stable. Food prices** also remained stable across sectors; according to FAO Food Price Index, global food prices have even been on an upward trend over the last months.

There are however sectors which were affected more severely than others.

Concerning the **wine sector**, value of EU production (-5%) and Extra-EU exports (-2%) dropped in 2020 compared to the 2015-2019 average. Highly dependent on the food service for the sale of high-quality wines, this sector has faced considerable challenges during the pandemic due to the combined effects of COVID-19, specific trade irritants and lack of additional financial support. Similarly, the **beef and veal sector** was severely impacted by the closure of restaurants: EU production and Intra-EU trade for these products registered a significant decrease in value in 2020 compared to the 2015-2019 average (- 6% and -7%, respectively).

Sugar consumption decreased during the pandemic which reflected lower production levels (-12% compared to the 2015-2019 average). Global sugar prices negatively affected Extra-EU exports (-44% in value compared to the 2015-2019 average). Among ornamental products, **flowers and plants** is a category that experienced significant financial losses due to COVID-19 (**4.12 billion EUR** estimated in the first wave alone).

EU and national responses to mitigate the effects of COVID-19 on the agri-food supply chain

The **EU response** has been **highly effective** in preserving the integrity of the Single market through the introduction of transportation '**Green lanes'** as well as the development of common **guidelines addressing the agri-food workforce** (e.g. seasonal workers).

Conversely, **CAP measures** adopted during the pandemic **had mixed results**. On the one hand, **flexibility in the application of CAP rules** was generally regarded as useful and adequate. On the other, **market-management measures** introduced for specific agri-food sectors (e.g. derogations from competition rules, private storage aids, crisis distillation) were implemented partially or inconsistently across MSs and their market impact has been limited.

Under the **Temporary Framework for State aids** (March 2020-January 2021), MSs have allocated at least **63.9 billion EUR**[2] to the **agri-food sector**, together with additional financial and/or non-financial measures. The comparison with the market measures introduced by the EU during the pandemic (**80 million EUR** for aids to private storage) and the fact that other EU financial mechanisms have not been activated (e.g. the CAP crisis reserve) indicate that the **economic burden of the crisis will be borne primarily by MSs**.

Considering the limited CAP budget for the period 2021-2027, in future crises affecting the EU agri-food sector MSs will continue to play a central role. Nonetheless, EU contributions via CAP in times of crisis could be still strengthened by ensuring the **decoupling of the crisis reserve** from farmers' direct payments and **improved market management measures** based on the present experience.

[2] Value determined on the basis of the MSs fiches contained in Annex 4 to the study excluding national umbrella schemes.

1. INTRODUCTION AND METHODOLOGICAL APPROACH

The COVID-19 pandemic is a sanitary crisis of unprecedented proportions for the world as we know it today and certainly the worst we witnessed after the end of the Second World War. The impact of the pandemic goes well beyond the high pressure which has been exerted on the national health systems of the various countries and the many lives lost to it.

Forecasts over the economic consequences engendered by the pandemic for the medium term do not look encouraging, with many concurring that its impact is still to be fully felt as the widespread adoption of public support measures has contributed to delaying its immediate effects.

In addition, at the moment in which this study was written, several countries had been hit by the second or the third wave of the pandemic. In some cases, the impact of the subsequent waves of the pandemic has been more severe than during the first outbreak of COVID-19, mostly owing to the emergence of new and more aggressive variants of the virus. While hopes are high for the outcome of vaccination programmes worldwide, great uncertainty still persists over the duration and the effects of the pandemic in 2021.

Objective and overall background of the study

Against this background, the present study aims at providing a **preliminary analysis** of the **impact of COVID-19 on European agriculture** as well as **on the other stages of the agri-food chain.** In this respect, it should be noted that the primary focus of the study is the analysis of agri-food markets and of the related market intervention measures (EU and national) adopted during the pandemic and not farmers' incomes as the latter depend on structural variations and CAP historical mechanisms not related to COVID-19.

As a premise, it is worth recalling that European agriculture and, more in general, the agri-food chain is certainly not foreign to crises with disruptive effects. Previous crises which significantly affected the EU agri-food sector were triggered, for instance, by drastic increases of food prices at global level (2007-2008) and by food scares like the BSE and the dioxins food safety incidents at the end of last century. Essentially, the current crisis differs from the crises which affected the EU agri-food supply chain during the last decades insofar as, being primarily a health emergency, its origin is completely extraneous to the stakeholders' and economic dynamics of that chain.

From this angle, COVID-19 has revealed the **inherent vulnerability of the modern agri-food systems** to external threats. Besides sanitary emergencies, climate change, political crises, cyberattacks and energy supply shortages are also events whose occurrence may disrupt the good functioning of the agri-food supply chain and, thus, endanger **food security**. In accordance with the widely known definition of food security developed by the Food Agricultural Organization (FAO), '*food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life*'. Based on article 39 (1) let. d) of the Treaty on the Functioning of the European Union (TFEU), guaranteeing the availability of food supplies is one of the **key objectives of the CAP**.

Food security can be guaranteed over time only if agri-food systems are fit for purpose and possess a **sufficient degree of resilience** so that they are able to withstand market disruptions and adjust to the new circumstances caused by such disruptions. Tendalla et al. (2015) define the resilience of agri-food systems as the '*capacity over time of a food system and its units at multiple levels, to provide sufficient, appropriate and accessible food to all, in the face of various and even unforeseen disturbances'*. From what precedes it emerges that the concepts of food security and resilience of agri-food systems are therefore

inherently related one with another to the extent resilience is instrumental to the achievement of the objective of food security.

Inevitably, in the current globalised world, the concepts of food security and resilience of the agri-food systems must be interpreted in light of the complexity that agri-food supply chains have developed over time and of their increasingly higher dependence upon international trade. In the case of the EU, which is the world's largest exporter and importer of agri-food products, this translates into the need to develop and implement policies that, while promoting self-sufficiency and supporting the domestic agri-food sector, foster international trade.

Also, we should not forget that COVID-19 was not the only challenge that European agri-food markets have been facing as of March 2020. Among others, the following events have further exacerbated the market disturbances caused by the pandemic:

- The uncertainty caused by **Brexit**, with the United Kingdom (UK) having formally left the EU on 31 January 2020;
- The economic consequences of **international trade disputes** involving the EU, notably the retaliatory import tariffs imposed by the United States of America (U.S.A.) upon key EU agri-food exports as a result of the settlement of the Airbus / Boeing case by the World Trade Organization (WTO); and,
- The **spreading or the resurgence of certain animal diseases** threatening the health of European livestock and the very existence of EU farm holdings, including the African Swine Fever (ASF) and Avian Influenza (AI).

In addition, several new EU policy initiatives of direct relevance to the agri-food supply chain have been adopted in 2020. Among those, the **EU Farm to Fork (F2F)** and **Biodiversity Strategies**, both adopted in May 2020 by the European Commission (EC) in the wider context of the **European Green Deal**, have set the course for an ambitious and profound transformation of the current agri-food systems into more sustainable production and distribution models (EC 2019b, 2020b and 2020c). In parallel, the interinstitutional negotiations for the design of the new legal framework for the CAP as of 2023 have continued and progressed.

Methodological approach

The analysis performed in the context of this study draws from different data and information sources. For this purpose, extensive desk research and analysis of grey literature as well as of academic literature on the impact of COVID-19 on the EU agri-food supply chain were conducted. Desk research was then complemented by the elaboration of relevant macroeconomic data from official sources (mainly Eurostat and EC) in order to appreciate the impact of the pandemic on the different agri-food sectors. In addition, almost 30 interviews with EU stakeholders representing the entire spectrum of the agri-food supply chain - literally '*from farm to fork*' - were carried out to gauge additional qualitative and quantitative data supporting the overall analysis. Finally, the main lessons to be learnt from the pandemic for the European agricultural sector and the remainder of the agri-food chain as well as possible policy improvements at EU level were discussed in an on-line focus group composed by independent academic experts on CAP. A more detailed outline of the methodology followed during the study can be found in Annex 1.

The fact that the pandemic is still ongoing at the time in which the study was written and, in some instances, the lack of quantitative data allowing full appreciation of its impact on the sectors studied constitute evident limitations of the present study. Nonetheless, in our view, this work represents a starting point for further research to be carried out in this area, which is necessary to better understand

the main vulnerabilities of the EU agri-food chain and strengthen its capacity to respond to future crises in the post-pandemic era.

Besides the present introduction, the study is structured in four different chapters. These are:

- **Chapter 2 – Overall impact of COVID-19 on the EU agri-food supply chain**. This Chapter provides a detailed overview of the main impacts of the pandemic across the EU agri-food supply chain, including farmers, processors and manufacturers, wholesalers and retailers, operators of the food service sector, and consumers, taking into account the evolution of such impacts from the first outbreak of the virus in Europe (March 2020) until early 2021.
- **Chapter 3 - Impact of COVID-19 on selected EU agri-food sectors**. This Chapter provides a quantitative and qualitative analysis of the impact of the pandemic on eight (8) key agriculture sectors. These are:

  a) **Meat** (including beef and veal, pork, poultry, and sheep and goat);

  b) **Milk and milk products**;

  c) **Eggs**;

  d) **Sugar and ethanol;**

  e) **Wine**;

  f) **Fruit and vegetables**;

  g) **Potatoes;** and,

  f) **Ornamental products**.

  The selection of the agri-food sectors to be analysed was made in accordance with the list contained in the Terms of Reference of the study which pre-identified the sectors listed above as the most affected by the market disturbances provoked by the pandemic.
- **Chapter 4 - Analysis of EU and national responses to mitigate the effects of COVID-19 on the agri-food supply chain.** This Chapter provides for an analytical assessment of the measures adopted at EU level to mitigate the effects of the pandemic. EU measures span across different policy areas of direct and indirect relevance for the agri-food supply chain, including transport and free movement of goods and professionals, food safety and competition besides the CAP. For each of those policy areas a detailed chronological mapping of all EU measures adopted since the onset of the pandemic until **31 January 2021** is contained in Annex 2. The Chapter also contains an overall evaluation of the requests formulated by the European Parliament (EP) to the EC throughout the pandemic with the objective to establish to what extent those requests were taken on board, whilst a more detailed assessment is provided in Annex 3. The analysis of the EU context is then complemented by a general overview of the measures adopted by EU MSs, in the form of State aids and of other nature, aimed at supporting the recovery of the domestic agri-food sector. More detailed information on the responses deployed at national level by each MS is provided by means of individual fiches which form part of Annex 4. Finally, the Chapter provides for an overall assessment of the burden-sharing of the costs of the crisis between the EU and its MSs during the period March 2020- January 2021 and an evaluation of the EU financial capacity to deal with future crises that may affect the agri-food sector.
- **Chapter 5 - Lessons learnt from the pandemic and recommendations**. The last Chapter of this study presents and discusses the main lessons that can be learnt from the pandemic for the EU

agri-food chain and for the primary production sector in particular, taking into account the broader EU policy context in which the sanitary crisis caused by COVID-19 has unfolded. A set of policy of recommendations is then formulated across a number of relevant policy areas, including the CAP, with a view to strengthening the capacity of the EU to respond to future crises.

2. OVERALL IMPACT OF COVID-19 ON THE EU AGRI-FOOD SUPPLY CHAIN

KEY FINDINGS

- The **impact of the pandemic** on the EU agri-food supply chain has been **multi-fold**. In macroeconomic terms, in 2020 the **value of the output of the agricultural industry declined by 1.4% compared to 2019**, although, when compared to the 2015-2019 average, **grew by 2.9%. Farm incomes** also declined compared to 2019 (**-7.9% corresponding to 7.1 billion EUR**). Food and drink production (-9% in the second quarter of 2020 compared to 2019) and the food service sector (60-90% of estimated losses compared to the previous year) suffered as well. Conversely, retail sales increased with **online food sales** registering the highest growth during the first months of the pandemic (+45% compared to pre-pandemic period).
- **Economic losses** suffered by farmers are primarily a consequence of supply chain disruptions and/or the closure of specific trade channels (e.g. hospitality). Such disruptions led to **production surpluses** and, in the absence of targeted market management measures across all sectors, these surpluses had to be disposed of. Movement restrictions imposed by MSs following the first outbreak of the virus resulted in **severe shortages of seasonal workers** (**approximately 1 million staff members**) putting harvests seriously at risk.
- Operations of **food and drink manufacturers** were hit especially after the first outbreak of COVID-19. **Logistical disruptions** and **outbreaks in processing establishments** were reported resulting in significant delays in production processes. Most issues had been addressed by manufacturers when the next wave of the pandemic affected the European region in the second half of 2020.
- International **wholesalers** were the first to feel the impact of COVID-19 when the virus broke out in China, mainly in terms of logistical disruptions. Following the first wave, international trade returned to normal. **Food retailers** were generally allowed to remain open during the pandemic. Because of the pandemic, traditional retail business models have shifted to **online sales** and/or implemented **local sourcing policies.**
- Complete shutdowns and/or restrictions to the functioning of the **food service sector** were implemented throughout the sanitary crisis. Whilst during the pandemic some **restaurants and bars** resorted to alternative commercial solutions (e.g. take-away, home delivery etc.), this has not compensated for the economic losses suffered from the sector.
- The pandemic significantly impacted **consumer preferences.** Consumers are increasingly oriented towards online sales, convenience shopping and proximity stores as well as purchase of healthy products. However, **for low-income groups** price has become a key food choice determinant often to the detriment of the healthier options.

2.1. Preliminary considerations on COVID-19 as a global crisis

Whilst the present study focuses primarily on the impact of the pandemic on the EU agri-food supply chain, it is important to highlight that similar impacts to those observed on the EU market have been reported in **other regions of the world** which were severely hit by the virus. For instance, Jámbor et

al. (2020) reviewed news appearing in selected international newspapers during the first months of the pandemic. They noted that issues related to **food supply and demand** (e.g. stockpiling, fear of higher prices etc.), **trade** (e.g. logistical disruptions resulting in delivery delays, increase in online food sales etc.) and **labour availability** (e.g, shortage of agricultural workers, truck drivers etc.) were the most regularly reported globally.

In addition, over the same period, international trade was temporarily disrupted by the **resurgence of protectionist measures** introduced by various countries in an attempt at ensuring availability of essential goods, including protective equipment, medicines and food products, for their populations. Temporary food export bans mostly targeted staple commodities such as cereals, rice, eggs, sugar and vegetables (Carreño et al. 2020; Montanari et al. 2020).

The following sections provide a detailed account of the **impact of the pandemic specifically on the European agriculture and later stages of the agri-food supply chain**. Overall, the impacts identified vary depending on the specific actors of the agri-food supply chain considered and may be economic (e.g. loss of revenues, liquidity problems, lower wages, unemployment etc.), operational (e.g. logistic and production disruptions, labour shortages etc.), social (e.g. consumer behaviour, food affordability etc.) and environmental (e.g. food losses and waste, short supply chains etc.). It is difficult to quantify precisely the economic impacts of the pandemic on the different stages of the EU agri-food supply chain as available data and information is often incomplete or only preliminary. There is little information on the actual costs sustained by farmers and other food business operators to comply with the sanitary measures imposed during the pandemic, costs which should be factored in when considering the overall economic impact of the pandemic.

2.2. Primary production

Agriculture constitutes a key segment of the EU economy. In 2016 agricultural production occupied over 38% of the EU's total land area, which is equivalent to 156.7 million ha. In the same year, the EU accounted for 10.3 million agricultural holdings, the majority being **family-run small farming businesses** of less than 5 ha. In 2018 EU agriculture provided employment to **9.2 million workers** directly and in related services. Current projections point out to a -1% yearly decline of the agricultural workforce until 2030, mainly due to the shift towards mechanisation and digitalisation in farming practices, alongside a relative increase in the average farm size (EC 2020a). In 2019 **investments in agriculture** totalled 56 billion EUR (Eurostat 2020).

The EU agriculture sector is characterised by a **high level of horizontal cooperation**. Some 41 000 farmers' organisations are estimated to exist across the EU of which the majority have the legal form of a cooperative, while only a small share (8%) is a producer organisation (PO) or an association of producer organisations (APO) formally recognised pursuant to the rules of the Common Market Organisation (CMO), that is, in respect of Regulation (EU) No 1308/2013 (the **'CMO regulation'**) (EC 2019a).

2.2.1. Economic and social impacts

Overall, during the **first wave of the pandemic**, EU agriculture showed a **high level of resilience** and proved to be **resilient in ensuring food security** for European citizens by continuing to provide safe and high-quality food (EC 2020a).

However, the restrictive measures which were implemented by EU MSs produced multiple impacts on the normal functioning of the farming sector with certain agricultural sectors being affected more severely than others. Among the most impacted agricultural sectors were those supplying large

quantities of products to the **food service channel** (e.g. wine, veal, potatoes, seafood as well as fruit and vegetables) and those which suffered from abrupt **declines in consumer demand** (e.g. - 80% in the case of ornamental products) (for a more detailed quantitative analysis by sector see Chapter 3).

According to a study performed in June 2020, based on a sample of 210 interviews carried out in France, Germany, the Netherlands, Italy, Poland and Spain, the top impacts experienced during the first months of the pandemic by large EU farms were **sharp drops in revenue/sales** (57%), **disruptions in supply chains** and **shortages in labour and key farming inputs** (51%) (Ipsos Mori 2020). These impacts are likely to have been felt even more strongly in the case of **small holdings** which are generally less equipped and, therefore, less resilient to face market shocks like those engendered by COVID-19.

In terms of **farmers' income**, preliminary results for 2020 indicate an average reduction of 7.9% compared to 2019 levels, corresponding to 7.1 billion EUR, with the highest drops registered in Romania (-56.6%), Germany (-28.5%), and the Netherlands (-15.5%). However, further research would be needed to better understand whether and to what extent the pandemic is directly responsible for such reductions in the different MSs (Matthews 2021 based on Eurostat data).

The occurrence of economic difficulties in the primary production sector during the pandemic is also corroborated by the organisations representing farmers at EU level. For instance, COPA-COGECA estimated that the lockdown measures introduced by MSs in spring 2020 provoked the **bankruptcy of up to 25% of their membership base**, while indebtedness and liquidity problems will be likely to affect some of those farmers who managed to remain in business following the first wave of the pandemic (COPA-COGECA 2020a).

Furthermore, the impact of COVID-19 is reported to have been particularly negative for **young farmers** who often have no financial means or savings to withstand abrupt market disruptions.

The following table presents the preliminary value for each of the sectors analysed in Chapter 3 alongside the overall agricultural industry output[3] in 2020 and compares it, respectively. with 2019 and the 2015-2019 average values. Overall**, the value of the output of the agricultural industry declined by 1.4% in 2020** compared to 2019. However, when compared to the 2015-2019 average, it **grew by 2.9%**.

Table 1. Value at producer price (million EUR)

	EU-27						% variation	
	2015	2016	2017	2018	2019	*2020	2020/ 2019	2020/ previous 5-year average
Beef and veal meat	27 673	27 042	27 725	27 208	26 266	25 506	-2.9	-6.2
Pig meat	32 214	34 279	38 297	34 663	39 937	39 277	-1.7	9.5
Poultry meat	19 437	18 407	18 999	19 552	19 854	19 169	-3.5	-0.4

[3] The notion of 'output of the agricultural industry' includes agricultural products, agricultural services as well as goods and services produced in inseparable non-agricultural secondary activities.

	EU-27						% variation	
	2015	2016	2017	2018	2019	*2020	2020/ 2019	2020/ previous 5-year average
Sheep and goat meat	3 445	3 407	3 382	3 299	3 778	3 370	-10.8	-2.7
Milk	47 560	45 014	54 014	52 975	53 745	53 526	-0.4	5.7
Eggs	8 759	8 082	9 580	9 534	9 090	9 066	-0.3	0.6
Sugar and ethanol**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wine	22 879	22 475	21 643	27 393	22 691	22 136	-1.6	-4.7
Fruit and vegetables	57 191	56 454	59 476	61 973	62 409	65 098	4.6	9.8
Potatoes	9 475	11 616	10 589	11 953	14 320	12 315	-14.7	5.4
Ornamental products	19 340	19 786	20 687	20 541	21 728	21 498	-1.1	5.3
Output of Agricultural industry	381 912	375 740	399 826	404 299	412 707	406 735	-1.4	2.9

Source: Elaborated by Arcadia International & VVA based on Eurostat–at producer price [aact_eaa01] Codes: 11100; 11200; 11500; 11400; 12100; 12200; 07000; 04100 + 06000 ; 05000; 04200; 16000. *2020 estimation ** Not available

Finally, farmers' organisations consider that the **social effects** of the pandemic on the EU agricultural sector should not be underestimated. By increasing the feeling of personal isolation, the pandemic might have negatively impacted on the mental health of many farmers and workers, thus exacerbating a health concern that affects the farming population worldwide (Hagen et al. 2019).

COVID-19 affected the EU agriculture sector at the time in which that sector was coping with other issues threatening its production and causing market uncertainties. Brexit and ongoing trade disputes involving the EU are two such issues (see above Chapter 1). During summer 2020 EU agriculture also faced adverse climate conditions (a drier than normal season) which endangered in particular harvests in the fruit and vegetables sector. Furthermore, the spreading of **ASF** across EU was the main concern for the pig meat sector in terms of animal health. Likewise, the early resurgence of **AI** in Europe in 2020 represented a major threat for the poultry meat and egg sectors.

Against this general background, the following sections describe in more detail the specific impacts of the pandemic on the EU agricultural sector as a whole.

2.2.2. Workforce availability

As regards **workforce availability**, the uncoordinated introduction of travel and/or movement restrictions at national level resulted in unplanned shortages of both frontier and seasonal workers in several MSs.

Frontier workers live in one country and cross the border to work in another. They are often highly qualified members of the agricultural workforce. Shortages of these workers were reported in the first weeks of the pandemic due to movement restrictions applied, among others, between France and Italy, France and Germany, and the UK and Ireland.

As far as **seasonal workers** are concerned, these are generally essential workforce for the performance of labour-intensive agricultural activities, such as harvesting, pruning, planting and other farming services (OECD 2020a and 2020b; Lioutas & Charatsari 2021). The overall labour shortfall in the EU in the first months of the pandemic has been estimated to amount to **1 million seasonal agricultural workers**. In this context, MSs which are highly dependent upon migrant workers from Central and Eastern Europe or Northern Africa (e.g. Germany, France, Italy, and Spain) have been singled out as the most affected agricultural labour markets. Various MSs have therefore tried to remedy the lack of seasonal workforce in different ways, notably by:

- Extending foreign workers' permits (e.g. Estonia);
- Increasing the maximum limit of working days per year for foreign workers (e.g. Belgium); or
- Recruiting workers from among the unemployed and/or refugee populations within the affected country (e.g. Germany, France, Spain and Italy).

However useful, these measures have been generally considered of limited impact, taking into account the critical situation faced by agricultural labour markets (IOM 2020; Cortignani et al. 2020). Notwithstanding that, the pandemic has contributed to raising awareness about the need to guarantee that the working conditions of these professionals comply with minimum labour rights and adequate health protection standards. Ongoing discussions on the possible addition of a **social dimension** to the **conditionality** which farmers' direct payments are subject to in the context of CAP duly reflect current societal concerns about the respect of seasonal workers' rights.

Measures adopted by the EC during the first wave of the pandemic to facilitate the **movement of essential workers in the EU**, including those pertaining to the agricultural sector, have **significantly contributed** to avoiding the occurrence of further serious labour shortages during the second and the third wave (see also section 4.1.1.). In spite of that, the agricultural workforce remains a top concern for European farmers mainly because the economic consequences of COVID-19 are expected to force many farm holdings to downsize their staff (COPA-COGECA 2020a). Doubts also remain over the availability of seasonal workers from non-EU countries for the upcoming spring harvesting season due to the travel restrictions introduced by various MSs early in 2021.

2.2.3. Disruptions of the agri-food supply chain and their effects

Movement restrictions implemented by MSs following the first outbreak of the virus in Europe led to **logistics disruptions** in the agri-food supply chain, involving blocked transport routes, congestion at borders / entry points due to the performance of extra checks and/or requests of additional sanitary certifications, imposition of quarantine periods, delivery delays and limitations of transport options (ECSLA 2021).

According to the OECD, problems associated with transport and logistics affected more heavily international trade of high-value perishable products such as **fruit and vegetables** (OECD 2020a and 2020b). Farmers producing **milk** were also severely affected as in the first weeks of the pandemic as haulers could not ensure its usual collection. Trade bottlenecks initially impacted on the availability of certain **agricultural inputs**, such as feed intended for food-producing animals, pesticides and

fertilisers. Conversely, most seed supplies for the spring sowing period in Europe were secured before the first outbreak of the virus and, thus, no significant shortages were reported during the pandemic (OECD 2020b).

In several instances, logistics disruptions together with other factors (e.g. lower or even no consumer demand) resulted in **production surpluses** and, consequently, in **excessive stocks** at farm level. This situation generated considerable **post-harvest losses** in certain agricultural sectors. For instance, in the ornamental products sector, in the Netherlands alone **400 million flowers** were **destroyed** in the first month of the pandemic (Siegal 2020), whilst the total loss for the sector in the first six weeks of the pandemic was estimated to be 4 134 billion EUR (Union Fleurs et al. 2020). Other agricultural sectors – notably, milk and milk products, certain types of meat and wine - benefitted from targeted EU intervention through the implementation of private storage aids to manage unforeseen production surpluses (see section 4.1.2.).

Overall, the measures adopted by the EC during the first wave of the pandemic to facilitate the movement of essential goods across the EU, including agri-food products and inputs, have significantly contributed to avoiding the occurrence of new trade bottlenecks during the second and third waves (see section 4.1.1.). Only in December 2020 severe traffic disruptions were reported between the UK and France as a result of the combined effect of Brexit and of the sanitary control measures imposed by the French government to limit the spreading of the British variant into the EU.

2.2.4. Short supply chains

Logistics disruptions combined with the temporary closure of some key commercial channels for agricultural products (e.g. fairs, markets and food service) pushed some European farmers to look for **alternative business solutions** to sell off existing stocks and prevent further losses. It is in this context that many farmers - alone or in collaboration with other institutional and/or business partners (e.g. online platforms, offline retailers) – have contributed to the creation of **short supply chains** or reinforced those already in place**.** Public campaigns aimed at encouraging consumers to **buy national and local products** during the pandemic to help the domestic farming sector were rolled out in a few MSs (e.g. Poland, Portugal and Romania) (Montanari et al. 2020; OECD 2020b). Furthermore, some MSs also tabled draft laws requiring retailers to give priority to locally sourced food products over foreign goods, prompting the reaction by the EC and other MSs in defence of the principle of free circulation of goods in the Single market (Foote & Plevák 2021).

Increased reliance on short supply chains during the first phase of the pandemic coincided with the publication of the F2F Strategy by the EC, which places significant emphasis on the promotion of **shorter trade circuits in the agri-food sector** both as a means to increase resilience of local food systems and reduce the environmental impact associated with transport and logistics (EC 2020b).

COVID-19 literature provides some positive examples of how short supply chains helped farmers navigate through the pandemic (Matthews & Soldi 2021). However, feedback collected from EU stakeholders during this study indicates that, with the gradual stabilisation of most agri-food sectors after the first market shock caused by the pandemic, farmers' interest in short supply chains would likely have decreased in favour of the implementation of **highly diversified commercial strategies** in terms of customers, end-markets and sales modalities.

2.2.5. Unfair trading practices

Overall, good levels of cooperation have been observed between the different actors of the EU agri-food supply chain throughout the duration of the pandemic. Nonetheless, there have been occasional

reports of **unfair trading practices (UTPs)** against individual farmers or farmers' organisations, notably during the first outbreak of the virus in Europe.

Allegedly, these practices ranged from **unilateral changes** in prices, delivery conditions and/or contractual terms to cancellations of orders and application of penalties for failing to deliver agreed quantities of products. Some practices (e.g. imposition of downward price, cancellation of orders) were reported to affect in particular perishable products such as fruit and vegetables (COPA-COGECA 2020b; Fortuna 2020a). The occurrence of these practices was reported while the **EU directive regulating UTPs** in the agri-food supply chain (**Directive (EU) 2019/633**) was still in the process of being transposed by most MSs.

2.3. Processing and manufacturing

The **food and drink processing and manufacturing sector** is the largest industrial sector and the leading employer in the EU, in addition to being a key contributor to the EU economy. Overall, the sector accounts for 291 000 companies, of which 99.2% are small and medium-sized enterprises (SMEs), employs 4.82 million employees and generates a turnover of 1.2 trillion EUR (FoodDrinkEurope 2020).

The outbreak of COVID-19 provoked **serious disruptions** for food processing and manufacturing operators located in the EU. At the beginning of the pandemic, food processors and manufacturers came under great pressure as they had to respond to an unexpected **rise in consumer demand** for some convenience and/or shelf-stable foods such as ready-meals, canned goods, flour and pasta (see section 2.6.1.). At the same time, the normal functioning of the agri-food supply chain was hampered by the sudden **closure of EU internal borders** and by the unilateral imposition of movement and health-related restrictions (e.g. border checks and quarantine period) by various MSs.

The application of such restrictions resulted in **temporary shortages of certain raw materials** and **equipment essential for food production**, including packaging materials. It also resulted in the **lack of workforce** mainly due to people's reduced mobility between MSs or even within the same country (FoodDrinkEurope 2021). In addition, staff availability was directly impacted by the spreading of the virus with COVID-19 outbreaks reported in processing plants (e.g. slaughterhouses), leading in some cases to the temporary shutdown of the operations. In France, for instance, the workforce in the meat sector was reduced by up to 30% in the areas of the country worst hit by the virus. Even so processing plants in the EU did not suffer drops in productivity which were registered in other countries (e.g. the U.S.A. reported - 40% in cattle and pig slaughter during the same period) (OECD 2020b).

The total **closure of the food service sector** in most MSs - a trade channel which, in the EU, traditionally absorbs a significant part (30%) of the production of the food and manufacturing industry - further aggravated the situation especially for specific products categories (e.g. **alcoholic beverages**, **soft drinks, seafood, potatoes** etc.) (Montanari et al. 2020). As a result, food and drink production fell by 9% in the second quarter of 2020 compared to the same period of the previous year.

In this context, EC policy intervention during the first months of the pandemic was key to re-establish the conditions that are essential to the proper functioning of the Single market, notably the free movement of goods and workers (see further 4.1.1.). In particular, the action coordinated by the EU led MSs to reach a shared understanding about that, as the health and pharmaceutical sector, the **agri-food sector** had also to be considered as a **critical provider of essential goods**.

Despite all these difficulties, there are examples of businesses in the manufacturing, retail and service sectors that donated food (e.g. staple foods, meals etc.) and non-food (e.g. protective materials, sanitizers etc.) items to hospitals, health professionals and vulnerable groups (Montanari et al. 2020).

In the months that followed the first outbreak of COVID-19, most operators of the food and drink sector have gradually adjusted their industrial operations to the new circumstances imposed by the pandemic, in particular by implementing the **necessary sanitary measures and protocols** to protect workers' health and further guarantee food safety (Djekic et al. 2021). The application of social distancing rules, however, has posed some challenges for certain types of processing and manufacturing establishments (for instance, in the meat and the fruit and vegetables sector) (OECD 2020a). Indeed, as in some food processing establishments the proximity between workers is often necessary for technical reasons and/or to achieve greater productivity, social distancing measures were reported to have an impact on the overall production efficiency in cases where, for instance, sites were small or less automated.

Other than that, the sector has not reported critical challenges for its normal functioning during the **second and the third waves of the pandemic**, with the notable exception of the opening restrictions that still affect the food service channel in most MSs and which continue to have an indirect impact on the operators supplying primarily that channel.

In conclusion, despite the initial difficulties and bottlenecks experienced during the first wave of the pandemic, the European food and drink processing and manufacturing sector has managed to cope relatively well with the impact of COVID-19 throughout the duration of the pandemic.

2.4. Wholesale and retail

In 2019 in the EU there was a total of 3.6 million retail companies and 1.8 million operating in the wholesale sector (food and non-food), of which 99% were SMEs, providing respectively employment to 19 and 10 million workers (Eurocommerce 2019). In the context of the EU agri-food supply chain, **retailers and wholesalers** are key players as they act as intermediaries between upstream suppliers and consumers. While retailers operate in a business-to-consumer (B2C) environment, wholesalers operate in a business-to-business (B2B) context selling to other operators of the retail and/or the food service sector. Considering the specific role retailers and wholesalers play in the agri-food chain, different effects of COVID-19 can be identified for these two types of actors.

2.4.1. Wholesalers

Wholesalers operating at international level were probably the first actors to feel the negative effects of the pandemic in 2019, facing severe delays in the normal operation of their import-export activities with China as well as sudden cancellations of orders.

With the appearance of the pandemic on the European continent, wholesalers were exposed to **comparable disruptions**, mostly due to closure of national borders or increased border surveillance by EU MSs and other EU trading partners. As a result, delays in ports and other entry points were reported in many instances, ultimately impacting delivery times originally foreseen and the marketability of highly perishable goods (e.g. fruit and vegetables). In addition, similar to food manufacturers supplying the food service sector, **wholesalers with a high level of commercial dependence on the on-trade channel** experienced unprecedented disruptions of their business activities and consequential turnover losses throughout 2020. This is the case, in particular, for wholesale companies supplying food categories, which are traditionally consumed in bars and restaurants (e.g. veal, as well as wine and other alcoholic beverages).

Whilst the initial difficulties reported in the transport and logistics of agri-food supplies were progressively overcome after the first wave of the pandemic, notably thanks to the resumption of trade in the EU Single market as well as globally, **wholesalers supplying the food service continue to be**

economically affected by the restrictive measures imposed upon that sector by several MSs. In addition, access by wholesalers to State aids deployed by MSs to counteract the negative effects of the pandemic has proven difficult: for example, in certain national contexts only companies which were closed by government order have been granted financial support (Eurocommerce 2021).

2.4.2. Retailers

Over the period March-May 2020, restrictive measures adopted by EU MSs resulted in the closure of many shops with the exception of those considered essential, a category that included **food retailers.**

During this period, several retailers faced unprecedented spikes in demand mainly because of consumers **stockpiling** certain grocery products, with consequential exhaustion of food stocks in outlets and/or warehouses (see section 2.6.1.). As other actors of the agri-food chain, retailers were also exposed to **temporary disruptions of food supplies** occasioned by COVID-19, which prevented the prompt refilling of shelves.

Furthermore, the total closure of the food service sector led to a drastic **increase in at-home consumption** and, as a result, to an **increase in retail sales**. In March 2020, the volume of retail food sales increased by 4.7% (compared to the same monthly average over the past 10 years), with the highest rise in Luxemburg (20.1%), Ireland (13.8%) and Belgium (13.3%). In this context, movement restrictions imposed on the general population led consumers to develop a general preference for doing their shopping in **convenience and proximity stores** as opposed to other retail formats which are generally located out of town (e.g. hypermarkets) or within the premises of shopping centres. National lockdowns also reinforced some current consumer trends with sales of retailers' own-brand lines as well as of healthy, organic and sustainable food products which were consistently reported to be on the rise.

Also, the first outbreak of the pandemic prompted consumers to experience new ways to do their food shopping which could guarantee social distancing. Many of them therefore resorted to **e-commerce** through dedicated platforms or applications (see also section 2.6.1.) to the point that, especially during the first weeks of the pandemic, many online retailers experienced **difficulties in coping with the number of online orders** placed by their customers. According to one of several surveys which were conducted on the impact of COVID-19 on e-commerce, 28% of Europeans living in urban areas declared having used online shopping as the main channel for buying their groceries during the first wave of the pandemic (an increase of 10% compared to the pre-pandemic period) (Ecommerce news 2020). Overall, this **emerging consumer trend**, which most analysts consider will continue in the medium and long term, has prompted considerable retail investments in most MSs during the pandemic with the objective to upgrade existing infrastructures supporting online sales or to create brand new e-trade outlets (EURO COOP 2021).

The first wave of the pandemic provided some retailers with the opportunity to introduce, **local sourcing policies** for the first time, while some others reinforced those already in place. In addition to promoting consumption of local products, in some instances these initiatives were justified as an attempt at limiting **food losses** upstream in the supply chain, notably at the level of primary production owing to an unprecedented amount of unsold production accumulated during the first wave of the pandemic (e.g. EURO COOP 2021; see also section 2.2.4.).

As other actors of the agri-food chain, the retail sector has sustained considerable costs to ensure **full compliance with sanitary measures** imposed by national or local regulations often going beyond minimum mandatory requirements to guarantee the safety of their staff and customers (e.g. EURO

COOP 2021). Likewise, outbreaks among retail employees led to additional costs for the recruitment of temporary replacement staff (OECD 2020b).

Following the first wave of the pandemic, for most retailers the situation has generally returned to normal or, in any event, stabilised in terms of food supplies and daily management of their operations. Retailers operating in the tourism sectors or whose shops are located in airports or business areas are still struggling because of limited travelling and widespread implementation of teleworking across the private and public sector.

Also, a **variety of restrictions** - mainly related to **opening hours** and **maximum capacity of retail stores** - still apply today in most MSs following the resurgence of the virus in autumn. Some of these measures have been subject to criticism by the retail sector for varying to a great extent across MSs as well as for not being proportionate in certain instances. By way of an example, the number of customers allowed in retail stores can range from 1 person per 4 square meters in Denmark to 1 person per 20 square meters in Portugal (Eurocommerce 2021).

2.5. Food service

By definition, the **food service sector** encompasses traditional operators such as bars, restaurants, hotels and cafés ('**hospitality'**) as well as businesses supplying and / or managing canteens of hospitals, public authorities, educational settings (e.g. schools, universities), private companies and other settings (e.g. retirement homes, museums, prisons, etc.) ('**contract-catering**'). Currently, the hospitality sector accounts for approximately 1.8 million businesses, of which 99.5% are SMEs and 91% are micro-enterprises. This sector provides around 10 million jobs in the EU alone**.** The contract- catering sector currently employs over 600 000 workers across Europe delivering over 6 billion meals every year (EFFAT et al. 2020).

Before the crisis, it was estimated that one in four meals was consumed outside the home (Food Service Europe 2020), with European consumers spending, on average, one third of their food budget eating and drinking out (Eurostat 2016).

The **food service sector** is one of the segments of the EU agri-food chain which was hit the hardest by COVID-19. Throughout the pandemic the sector has been repeatedly subject to complete shutdowns and/or to the application of restrictions limiting its functioning in all MSs. **Financial losses** in terms of sector turnover for the whole EU have been estimated to be in the range of **80%-90%** during the first quarter of 2020. They went then down to around 63% in the second quarter due to the gradual re-opening of bars, restaurants, cafés and hotels over the period May-June 2020 (EFFAT et al. 2020; Hotrec & EFFAT 2020). The necessary though high costs associated with the implementation of health and safety measures against the virus at the level of individual establishments have further exacerbated the effects of the economic downturn for many businesses within this sector.

Throughout the pandemic the food service sector has benefitted from financial aids and support measures deployed to a large extent by MSs (see sections 4.1.1. and 4.2.). However, the sector has been calling for the adoption of additional specific measures at EU level. These include the **temporary application of the lowest value added tax (VAT) rate** allowed under EU taxation policy (i.e. 5%) to transactions with final consumers in the food service, following the example of certain MSs (e.g. Austria, Cyprus and Germany), as a way to foster consumer demand and support businesses and employment (Hotrec et al. 2020).

The difficulties faced by the food service sector have been strongly felt **upstream in the agri-food chain**. Farmers, food and drink manufacturers as well as wholesalers supplying the food service were

left with unusual quantities of **unsold stocks**, while logistics operators lost key customers (ECSLA 2021).

The following sections provides additional insights on the impact of the pandemic observed so far on the hospitality and contract-catering sectors, respectively.

2.5.1. Hospitality

At the beginning of the crisis, most restaurants, bars, cafés and hotels across the EU were forced to close down. In most MSs, however, these operators were allowed to operate through **alternative trade channels**. As a result, many of them opted for take-away, home delivery and/or online sales solutions. Notwithstanding that, incomes generated through these new sale channels have hardly compensated the losses suffered by the operators of the sector for not being able to operate in their usual on-trade format.

Also, the **closure of restaurants, bars and the like restricted the market for several food and drink products** that are generally destined to these channels, such as alcoholic and non-alcoholic beverages (e.g. wine, beer, mineral waters and soft drinks), certain types of meat (e.g. veal) and French fries, among others.

Whilst measures affecting the hospitality sector have been gradually eased off by MSs governments as of May 2020, overall, the sector has continued to suffer because of **widespread consumer reluctance** to go back to pre-pandemic social habits. In addition, dramatic drops registered in the number of foreign tourists (over 90% in certain MSs) have hampered the recovery of the sector (Hotrec & EFFAT 2020). The subsequent waves of the pandemic severely affected the hospitality sector as MSs reinstated limitations to its functioning in addition to the imposition of movement restrictions for the whole population during the best trading hours for most businesses of this sector.

2.5.2. Contract-catering

Within the contract-catering sector only businesses supplying and/or managing **canteens of hospitals** have been able to operate with no major interruptions throughout the pandemic, due to the essential role played by public and private health services in the fight against COVID-19. For this reason, these settings have served as a **test case** for planning the re-opening of canteens and other catering services located in other settings after the end of the first wave.

Conversely, contract-caterers whose customers are **companies of the tertiary sector** have been impacted more severely than others. Most of those companies have closed down their catering services and operated in **teleworking** since the beginning of the pandemic. In certain MSs, the estimated loss of turnover for such operators would have been up to 80- 90% compared with the pre-pandemic period. In addition, there have been reports of clients terminating existing service contracts or public procurements or freezing contractual arrangements foreseen for 2021. By forcing thousands of companies to implement teleworking overnight, the pandemic has contributed to a dramatic acceleration of a market trend already observed in this sector over the last few years. This casts serious doubts over the long-term profitability of this specific business segment and ultimately of its future.

Contract-caterers supplying **canteens of educational establishments** have been also hit severely by the pandemic. The closure of schools and universities during the first wave of the pandemic had significant repercussions on these operators. However, the **impact of the second and third waves** is considered to have been **far more negative economically**: while in most MSs schools and universities

have reopened in the second half of 2020, most canteens and catering services located in such settings have remained closed to limit the risk of contagion.

Unlike the hospitality sector, contract-catering generally consists of large-scale operations and, therefore, enjoys **less organisational flexibility** overall. Throughout the pandemic the specific characteristics of this sector did not allow its operators to resort, even if only temporarily, to alternative marketing channels such as online, take-away and home delivery sales (see section 2.5.1.). Overall, only contract-caterers offering a highly diversified range of services in the food and non-food sector (e.g. insurances, cleaning services) have been able to partially compensate the losses suffered in other business areas.

In conclusion, the impact of the first wave as compared to subsequent waves of the pandemic has been similar for this sector, **with the exception of contract-caterers supplying educational establishments**, and even where the measures adopted by MSs in the second half of 2020 were, in general, perceived as less restrictive.

2.6. Consumers

2.6.1. Main impacts of the pandemic on consumer behaviour

Overall, the pandemic has profoundly affected the way in which European consumers shop, cook and eat. This has been documented throughout 2020 by the publication of consumer studies performed in several MSs by national competent authorities, research institutions and consumer organisations (Altroconsumo 2020; EIT 2020; Ferreira 2020; OCU 2020; Test Achats 2020). Several market specialists consider that some of the changes observed in consumption patterns during the pandemic may eventually consolidate in the long term.

During the first weeks of the pandemic many European consumers reacted with **panic-buying** and **stockpiling**. In general, a massive increase in sales of food products such as flour, milk, eggs and those with an extended durability (e.g. canned food, pasta, rice and frozen foods) was observed, leaving in many instances the shelves of retailers' shops temporarily empty (Bracale & Vaccaro 2020; EPRS 2020a; Montanari et al. 2020; ECSLA 2021).

Forced to stay at home, in most European households far more time was spent in the careful planning of food shopping and preparation of daily meals. In some MSs, this sudden change in consumers' lifestyle is reported to have contributed to better management of food at home alongside a **significant reduction in food waste** compared to pre-pandemic levels (e.g. Principato et al. 2021). By way of an example, consumer surveys performed in spring 2020 in Belgium and Italy have shown that respectively 60% and 66% of the households of these two MSs wasted very little food during the lockdown (Altroconsumo 2020; Test Achats 2020).

Subsequently, general movement restrictions and limitations combined with fear of accessing the physical premises of retailers led many European consumers to opt – in some cases for the very first time – for doing their food shopping online. As a result, **online food sales** have considerably increased across the EU in 2020. A behavioural study conducted last year in 10 MSs has shown that consumer online purchases of food products **at retail level** (including business models such as home delivery and 'click and collect') rose, on an average, by 45% during the first months of the pandemic, with the highest values recorded in the age group 18-35 (EIT 2020). In a similar way, the placement of online orders of **meals and ready-to-eat foods** directly to bars and restaurants or via specialised platforms (e.g. UberEats, Glovo, Bolt, Deliveroo) increased exponentially especially in urban areas, as a result of

the combined effect of the general restrictions limiting movements of the whole population and the total shutdown of the food service (see section 2.5.).

Furthermore, health concerns triggered by the pandemic further boosted consumers' interest in **healthy eating**, a trend which has been ongoing for several years now on the European retail market. This resulted, in particular, in a greater demand for **fruit and vegetables** (+32% and 27%, respectively, based on the behaviour reported by consumers of EIT 2020) and other specific food categories, including **food supplements** aimed at strengthening the immune and respiratory system. Some (rogue) online operators have tried to take advantage of the circumstances caused by the pandemic by claiming that their food or food supplements helped in curing or preventing COVID-19, triggering the launch of an EU coordinated action plan (see section 4.1.1.). Conversely, consumer demand for **alcoholic beverages** in general dropped dramatically in most MSs mostly owing to the closure of the food service channel which absorbs the largest share of the sales of these products. A similar trend was observed in relation to **convenience food products** (e.g. ready-to-cook), though to a varying degree across the EU market, most likely a direct consequence of the additional time reserved by European consumers to home cooking during the first months of the pandemic (EIT 2020).

2.6.2. Other drivers affecting consumer behaviour during the pandemic

Food safety gained more attention among European consumers as a result of the pandemic. In particular, the first weeks of the pandemic were marked by questions as to whether food and food packaging could be a potential transmission route of COVID-19. Even if those concerns were readily dispelled by the World Health Organization (WHO) at international level and by the European Food Safety Authority (EFSA) in the EU (WHO 2020; EFSA 2020), consumer behaviour was ultimately impacted by this climate of fear and uncertainty. As a result, during this period European shoppers showed a **clear preference for pre-packed foods**, presumably considering such goods less prone to contamination as opposed to food products sold loose (EIT 2020).

At global level, the sudden halting of several key sectors of the economy imposed by the adoption of measures aimed at containing the pandemic contributed to exacerbating the existing levels of **food insecurity**, exposing more and more individuals and households to hunger, undernutrition or malnutrition. The main reason behind that is the loss of jobs (e.g. seasonal workers and those working in the food service in the case of the agri-food sector) and, with that, the loss of family revenues.

In this respect, the European region is no exception. Before the pandemic started, approximately 24 million people (i.e. 5,6% of the EU population) were estimated to be 'severely materially deprived' in the EU (Eurostat 2019). Since the beginning of the crisis, in Europe requests for assistance from **food banks** increased up to 50% compared to the pre-pandemic period. Overall, food banks played a very important role during these extraordinary circumstances: besides having to recruit new volunteers and employees, existing partnerships with businesses were revised and new ones were agreed in order to be able to cope with the growing demand for food assistance (FEBA 2020; EURO COOP 2021). Also, the closure of schools and other educational settings during the first wave of the pandemic left millions of children without their usual daily meals.

If one considers these economic difficulties, it is not surprising to learn from consumer research that, since the onset of the pandemic, an increasing number of European households has started looking for the most affordable options when doing their food shopping, which are not always the healthiest options (EIT 2020). As the full impact of the global crisis engendered by COVID-19 has been in part delayed thanks to massive public intervention in support of national economies, it is highly likely that

affordability and **economic convenience** will become key drivers for the purchasing decisions of a growing number of European consumers in the short term.

A recent Eurobarometer survey of citizens' expectations around food sustainability confirmed that, after taste, food safety and price are at the top of the list of the main factors influencing consumer purchasing decisions (Eurobarometer 2020).

3. IMPACT OF COVID-19 ON SELECTED EU AGRI-FOOD SECTORS

KEY FINDINGS

- Amongst the **meat** sectors analysed, **beef and veal** were the most impacted. In 2020 EU production (-6%), Intra-EU trade (-7%) and Extra-EU exports (-3%) **decreased in value** compared to the previous 5-year average. EU high-value cuts such as lamb, suckling pigs, veal and duck were severely affected during the pandemic due to the closure of the food service channel.
- The **milk and milk products** sector performed relatively well during the pandemic. Overall, in 2020 **value of EU milk production increased by 6%** compared to the previous 5-year average. Conversely, owing to the closure of the food service channel, demand for specialty cheeses fell.
- The pandemic had mixed impacts on the **eggs** sector. While retail sales increased mainly in the first wave of the pandemic, eggs destined for the food service sector decreased. Nonetheless, the sector showed resilience: in 2020, the **value of EU production** and **Intra-EU trade increased by 1%, while the value of Extra-EU exports grew by 3%** compared to the previous 5-year average.
- Concerning the **sugar** sector, despite an increase in consumption at the beginning of the pandemic, a **general decrease in demand** was subsequently reported in many MSs. **Extra-EU exports** in particular were negatively affected by global prices (**-44% in value** compared to the previous 5-year average).
- The pandemic severely disrupted the **wine** sector mainly due to the closure of the food service. The **value of EU production (-5%)** and **Extra-EU exports (-2%) declined in 2020** compared to the previous 5-year average. Identification of alternative channels (e.g. online) and adoption of public support measures have mitigated the negative effects of COVID-19 only partially.
- The value of the EU **fruit and vegetables sector (+10%)**, **Intra-EU trade (+10%) and Extra-EU trade (4%) increased** in 2020 compared to the previous 5-year average. However, the first wave of the pandemic was challenging for the sector, namely due to shortages of seasonal workers in several MSs during the harvesting period.
- The **potatoes** sector was negatively impacted by the pandemic and notably the processed potatoes segment. On the contrary, the fresh potatoes market grew, primarily due to greater demand during the first wave of the pandemic. **Extra-EU trade** was **severely affected by lockdowns in foreign markets** registering **-24% in value** in 2020 compared to the previous 5-year average.
- In the ornamental products sector, **flowers and plants** were the product category more severely impacted with **4.12 billion EUR of estimated losses** in the first wave alone.

SECTORAL ANALYSIS

This chapter provides a quantitative and qualitative assessment of the impact of COVID-19 on selected EU agri-food sectors. For each sector, a characterisation of the sector, an assessment of the impact of COVID-19 at EU and MS level and an analysis of sector resilience was carried out. For the quantitative assessment, 2020 data were compared with the average of the previous five years (2015-2019) in order

to better contextualise the impact of the pandemic while securing a sufficiently representative baseline to draw conclusions. Taking into account the date of publication of this study, some 2020 data are still provisional or estimates; whenever relevant, this is indicated.

Table 2 shows for each sector the variation in production and exports (volume and value) between the 2015-2019 average and 2020. In addition, Table 3 summarises the impact of COVID-19 on each of the sectors studied through a SWOT analysis considering production, trade, prices, consumption, sale modality and EU support.

Table 2. Variation in production and exports volumes and values at EU level for each agri-food sector under study, indicating the direction and percentage change between the 2015-2019 average and 2020

	Production (volume)	Production (value)	Intra-EU trade (volume)	Intra-EU trade (value)	Extra-EU trade (volume)	Extra-EU trade (value)
Beef and veal meat	↓ -1%	↓ -6%	↓ -6%	↓ -7%	↓ -1%	↓ -3%
Pig meat	↑ 2%	↑ 9%	↓ -6%	↑ 5%	↑ 28%	↑ 54%
Poultry meat	↑ 6%	↓ -0.4%	↑ 1%	↑ 7%	↑ 3%	↓ 3%
Sheep and goat meat	↑ 5%	↓ -3%	↓ -9%	↓ -6%	↑ 17%	↑ 26%
Milk and milk products	↑ 3%	↑ 6%	↓ -1%	↑ 6%	↑ 10%	↑ 15%
Eggs	↑ 2%	↑ 1%	↑ 4%	↑ 1%	↓ -2%	↑ 3%
Sugar and ethanol	↓ -11%	Not available	↓ -0.3%	↓ -2%	↓ -46%	↓ -44%
Wine	↓ -3%	↓ -5%	↓ -0.3%	↑ 5%	↓ -3%	↓ -2%
Fruits and vegetables	↑ 1%	↑ 10%	↑ 0.5%	↑ 10%	↓ -7%	↑ 4%
Potatoes	↑ 10%	↑ 5%	↑ 6%	↑ 7%	↓ -14%	↓ -24%
Ornamental products	Not available	↑ 5%	↓ -7%	↑ 9%	↓ -20%	↑ 6%

Source: Elaborated by Arcadia International & VVA. Production volume based on EC (2020m), Eurostat [apro_mt_pann] codes: B1000, B3100, B7000 and B4000, Eurostat [apro_mk_farm] code: D1110A, EU Market Situation for Eggs (2016-2020), EC Sugar Balance Sheet 2015/2016-2020/2021, OIV 2020, Eurostat [apro_cpsh1] code: F0000, V0000 and T0000, Eurostat [apro_cpsh1] Code: R1000. Production value based on Eurostat – value at producer price [aact_eaa01] codes: 11100 (cattle); 11200; 11500; 11400; 12100 (milk); 12200; 07000; 04100 and 06000; 05000; 04200; 16000. Trade based on Eurostat [COMEXT] codes: see Annex 1.

Table 3. Impact of COVID-19 on EU agri-food sectors: SWOT analysis

Sector	Strengths	Weaknesses	Opportunities	Threats
 Meat	• **Production:** increase in pig, poultry, and sheep and goat meat • **Trade**: increase in pig, and sheep and goat Extra-EU exports • **Prices**: despite a drop in prices during the first lockdown, carcass prices remained stable • **Consumption:** increase in retail sales, mainly for poultry meat	• **Production:** decrease in beef and veal, and sheep and goat meat • **Prices:** high feed prices • **Trade:** decrease in exports of beef and veal • **Consumption**: negative impact from the closure of the food service channel on high-value cuts (e.g. lamb, suckling pigs, veal and duck) • **Support**: limited effects of private storage aid for beef, and sheep and goat sectors. Veal, poultry and pig did not benefit from any EC market measures	• **Trade:** EU meat exports expected to increase after 2021, mainly because of rising demand in the Middle East and the Philippines • **Consumption:** high demand for poultry meat and processed meat and preparations (e.g. minced meat)	• **Trade:** trade restrictions for EU exports due to the spreading of animal diseases (e.g. ASF, AI) • **Consumption:** changes in consumption habits (e.g. shift to plant-based diets)
 Milk & Milk products	• **Production:** steady growth with limited labour shortages • **Trade**: increase in EU exports (notably cream and yoghurt) • **Prices**: despite an initial drop, prices at farm level remained stable for cheese and increased for butter • **Consumption**: increased demand for drinking milk • **Support**: private storage aid used for skimmed milk powder, butter, and cheese	• **Prices:** prices at farm level remain below 2019 level • **Consumption:** negative impact of closure of food service channel on cheese (particularly specialty cheeses). • **Support:** EC measures did not cover farmers sufficiently	• **Sales modality:** take-away and e-commerce to support the recovery of dairy consumption	• **Consumption:** expected milk consumption to return to normal declining trend as stockpiling behaviour will be less likely
 Eggs	• **Production:** increased egg production with only a temporary surplus during the first wave of the pandemic • **Consumption**: retail sales increased during the first wave of the pandemic	• **Prices**: significant price drop, also affecting farmers' revenues • **Consumption:** negative impact from closure of the food service channel, partially mitigated by take-away and home delivery in the second wave of the pandemic	• **Consumption**: increased consumption as a protein source	• **Production:** AI negatively affected eggs sector

Sector	Strengths	Weaknesses	Opportunities	Threats
		• **Support**: sector did not benefit from any EC market measures		
 Sugar & Ethanol	• **Production:** fairly stable with a 1% decrease in the case of sugar. For ethanol, conversion of refineries production of fuel ethanol into alcohol for disinfectant • **Consumption:** increase of sugar consumption at retail level during the first wave of the pandemic	• **Trade:** decrease in sugar exports • **Prices:** negative impact on development of global market sugar prices in the first half of 2020 • **Consumption:** negative impact from closure of the food service channel on sugar consumption. Decreased demand for biofuels due to low oil prices, and decreased fuel demand due to lockdown measures • **Suppor**t: lack of support measures at EU and national level	• **Production**: further increase in EU sugar production expected by 2030 and reduced reliance on imports	• **Consumption**: sugar consumption expected to continue to decline in the medium term
 Wine	• **Trade**: increase in Intra-EU exports • **Support**: targeted support by EU and certain MSs (State-aid schemes, crisis distillation, private storage aid, etc.)	• **Production**: decrease for the top 6 producing MSs • **Trade**: decrease in Extra-EU exports • **Consumption**: negative impact from closure of the food service channel on a high-value market**.** Overall decrease of 8% in 2020 • **Support**: as the food service channel continues to be closed or to function partially, additional funds are needed	• **Consumption**: higher demand for EU and local wines • **Sales modality**: e-commerce as a way to innovate and diversify marketing channels	• **Trade**: high reliance on exports (i.e. 25% higher than Intra-EU trade in value) and negative effects of trade wars involving EU • **Consumption**: increase of wine-box consumption, with lower margin for producers, and overall decrease of wine consumption
 Fruits & Vegetables	• **Trade:** increase of Extra- and Intra-EU trade • **Support:** targeted EU measures (e.g. flexibility in expenditure for crisis prevention and management and in aid applications)	• **Production:** overall decrease in volume in main producing MSs. High reliance on foreign workforce (e.g. seasonal workers). • **Consumption:** negative impact from closure of the food service channel	• **Trade:** greater business opportunities in the EU market as opposed to non-EU markets • **Consumption:** overall higher demand for fruit and vegetables	• **Production**: negative impacts of adverse climate conditions • **Trade**: high perishability as opposed to other agri-food products

Sector	Strengths	Weaknesses	Opportunities	Threats
 Potatoes	• **Production**: significant increase in potato production in 2020 **Consumption:** increase in demand for fresh potatoes at retail level during the first wave of the pandemic • **Support:** targeted EU support (e.g. derogation from competition rules) effective in some MSs (e.g. France)	• **Trade:** potato Extra-EU trade severely hit by **lockdowns** in foreign markets • **Prices:** decline of as much as 80% below yearly average • **Consumption:** negative impact from closure of the food service channel on processed potatoes (e.g. frozen)	• **Trade:** greater business opportunities in the EU market as opposed to non-EU markets	• **Consumption:** with the closure of the food service channel, the recovery might take longer for processed potatoes
 Ornamental products	• **Production:** increase in the 5 largest producing MSs (value) • **Trade:** increase in Intra-EU trade (value)	• **Trade:** decrease in Extra-EU exports in most producing MSs. Import/export of flowers and plants particularly problematic because of ongoing transport restrictions and limitations due to the pandemic. • **Prices**: during the first wave auction prices of flowers and plants fell by 60% • **Consumption:** negative impact from the closure of specialised retail outlets and lack of alternative channels (e.g. online). Demand for flowers and plants fell by 80% during the first wave of the pandemic • **Support:** limited EU support and asymmetrical support across MSs	• **Trade:** greater business opportunities in the EU market as opposed to non-EU markets • **Consumption:** increased consumer interest in certain products (e.g. plants, trees, bulbs) because of more time spent at home	• **Trade:** high dependence on international transportation for import/export of flowers and plants • **Consumption:** perception of ornamental products and notably flowers as non-essential goods in times of crisis

3.1. Meat

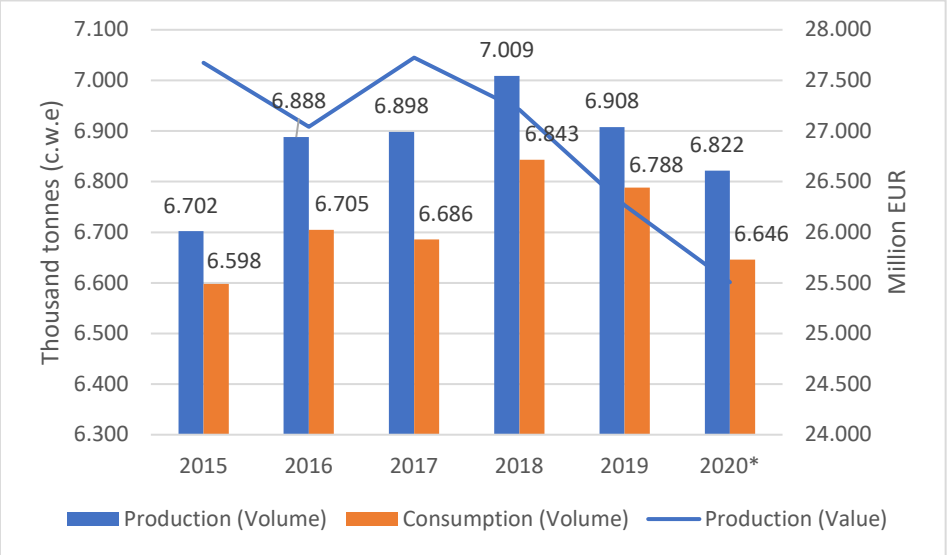
3.1.1. Beef and veal

3.1.1.1. Sector characterisation

3.1.1.1.1. Production and consumption

The EU is a major producer of beef and veal with a total of approximately 6.9 million tonnes produced and 6.7 million tonnes consumed on average between 2015 and 2019 (Figure 1). In 2019, bull was the most produced beef meat (34%), followed by cows (30.4%), heifers (16.3%), calves (9.4%), young cattle (5.1%) and bullocks (4.7%). The EU's self-sufficiency of this meat was at 106% in 2019.

Figure 1. Evolution of EU-27 beef and veal net production (at slaughter) and estimated consumption 2015-2020



Source: Arcadia International & VVA based on EC (2020m), Eurostat – [apro_mt_pann] Code: B1000 and Eurostat – value at producer price [aact_eaa01] [aact_eaa01] Code: 11100 (cattle). *EC estimation

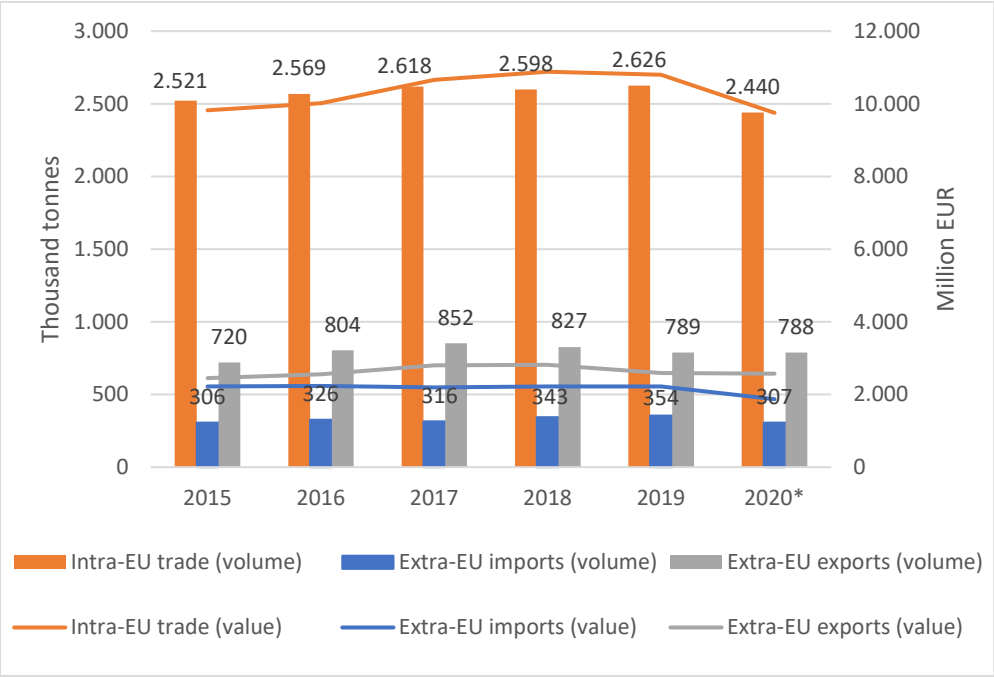
On average, between 2015-2019, the top six beef and veal meat producing MSs accounted for 74.9% of total EU production. The EU's largest producer is France (21%), followed by Germany (16.2%), Italy (11.4%), Spain (9.4%), Ireland (8.7%) and Poland (7.7%) (EC 2021a).

In 2019, EU consumption of this meat reached 10.6 kg per capita (retail weight), with Ireland, Denmark and Luxembourg leading the EU ranking (EC 2021c).

3.1.1.1.2. Trade

On average, between 2015-2019, the EU-27 imported 329 thousand tonnes of beef and veal meat from non-EU countries and exported 798 thousand tonnes. Over the same period, Intra-EU trade accounted for 2.6 million tonnes (Figure 2).

Figure 2. Evolution of Intra-EU27 and Extra-EU27 (imports and exports) of beef and veal meat (excluding live animals) 2015-2020



Source: Arcadia International & VVA based on Eurostat [COMEXT]. Intra-EU trade based on export flow. *Dec 2020 corresponds to the average of Jan-Nov 2020.

Among EU MSs, Ireland is the first largest Extra-EU exporter (43.2% in volume and 49.4% in value of the total EU-27's exports as an average between 2015-2019), while the Netherlands is the first largest Extra-EU importer (34.5% in volume and 38.3% in value of the total Extra-EU27's imports as an average between 2015-2019). Over the same period, the next three largest Extra-EU exporters in value were the Netherlands, Poland and Germany, while the next three largest Extra-EU importers in value were Germany, Italy and France.

Intra-EU trade of beef and veal meat has increased by 4.2% in volume and 9.9% in value between 2015- 2019. Over the same period, the Netherlands, Germany and Poland were the leading exporting MSs and Germany, Italy and France the top-three importers in value.

3.1.1.2. COVID-19 impact at EU level

With the closure of food service markets all over Europe, mainly **EU high-value cuts**, including **veal**, lost their primary sales channels and experienced a significant **drop in demand**. On average, in Europe 40% of veal sales are destined for food service. As an example, consumption of veal in France, one of the largest European markets for that type of meat, decreased by 35% in spring of 2020 (EC 2020n). Overall, in spite of an increase in the consumption of high-value products at the beginning of the pandemic, mainly in Western Europe, retail sales were not able to compensate for the loss of the traditional commercial channels for veal. In fact, at retail level consumer demand increased **for low-value products**, namely mincemeat.

Overall, EU **consumption** of beef and veal fell sharply in 2020 due to the effects of the pandemic and this decline is forecast to continue: by 2030, it could drop from 10.6 kg to 9.7 kg per capita (EC 2020o).

The food service channel is responsible for approximately 70% of the EU domestic demand of steak cuts produced from **hindquarters**. Due to a supply-demand imbalance for these products, the EC introduced support measures in the form of aid to private storage (see section 3.1.1.4.).

Moreover, the first wave of the pandemic, created difficulties for the normal operation of **slaughterhouses** (which was the case across the meat sectors), notably in Germany where COVID-19 outbreaks led to the closure of establishments or slowed down processing. Overall, the **EU production volume is estimated to have decreased by 1.4%** in 2020, continuing a trend observed since 2018.

Regarding EU trade, in 2020 **Extra-EU exports** and **Intra-EU trade** fell by **2.5%** and **6.6%** in value, respectively, when compared to the average across the previous five years.

Subsequent waves of the virus also impacted the beef and veal sector, as in many MSs the food service sector has not fully re-opened.

The closure of the food service sector also led to a steep decline in **prices** in the EU-27 in 2020, mainly between February and April. With the re-opening of the food service channel in the summer of 2020 in several MSs, prices slowly recovered. However, 2020 carcass prices decreased by -**1.78%** compared to the same period in 2019 (EC 2021c). The EC expects beef prices to rise slightly between 2025-2030 due to a deceleration in world production (EC 2020o).

3.1.1.3. COVID-19 impact at MS level

Table 4 provides an overview of the effects of COVID-19 on the major producing and exporting EU MSs in the beef and veal meat sector.

Table 4. Comparison of production and exports (Intra-EU and Extra-EU) between the average across 2015- 2019 and 2020 of the six main producing EU MSs and the largest exporting MSs in the beef and veal meat sector.

	Production				Extra-EU trade				Intra-EU trade			
					Exports				Exports			
	Vol thousand t *	Vol % **	Val million € *	Val % **	Vol thousand t *	Vol % **	Val million € *	Val% **	Vol thousand t *	Vol % **	Val million € *	Val % **
FR	-14	-1.0	-1127	-14.5	1.61	3.2	7.7	6.9	-27.48	-11.2	-83.6	-8.8
DE	-30	-2.7	-663	-17.5	-1.56	-2.7	-11.1	-6.9	-63.59	-16.5	-318	-22.1
IT	-57	-7.2	-157	-5.3	1.74	4.9	1.8	1.7	-13.68	-10.7	-103.8	-18.4
ES	23	3.5	-37	-1.3	-3.30	-8.3	0.6	0.5	23.98	14.1	118.2	20.1
IE	31	5.1	-13	-0.6	-5.38	-1.6	-44.1	-3.4	-8.12	-3.7	-39.1	-3.7
PL	28	5.3	26	1.7	-4.08	-4.7	-18.5	-6.5	10.29	2.8	99.2	8.3
NL	8	1.9	-298	-20.0	-2.30	-2.4	-25.8	-7.6	-17.24	-3.5	-160.6	-6.1

Source: Elaborated by Arcadia International & VVA based on Eurostat [apro_mt_pann] code: B1000, Eurostat – value at producer price [aact_eaa01] code: 11100 (cattle) and Eurostat [COMEXT]. Trade excludes live animals. 2020 production (volume) of FR, ES and NL is provisional. 2020 production (value) is estimated. 2020 trade (Dec 2020 corresponds to the average of Jan-Nov 2020). *absolute value **relative value

Almost all MSs under analysis experience a decrease in production value in 2020 compared to the average across the previous five years namely, the **Netherlands** (-20%), **Germany** (-17.5%), **France** (- 14.5%), **Italy** (-5.3%), **Spain** (-1.3%) and **Ireland** (-0.6%). The most affected MSs in terms of loss of Extra-EU exports in value were the **Netherlands** (-7.6%), **Germany** (-6.9%), **Poland** (-6.5%), and **Ireland**

(-3.4%). Among the MSs that saw their Intra-EU exports decrease, **Germany** (-22.1%) and **Italy** (-18.4%) recorded the largest drops. Also, **France** (-8.8%), the **Netherlands** (-6.1%) and **Ireland** (-3.7%) reported a decrease in the total value of their Intra-EU exports.

3.1.1.4. Sector resilience

Overall, among the meat sectors analysed in this section, the beef and veal sector was one of the most impacted by the pandemic. Veal was severely affected, having lost its main sales channel. As a response to the closure of the food service, the EC introduced a private storage aid scheme for **fresh or chilled meat of bovine animals aged eight months or more** through **Regulation (EU) 2020/596.** This measure was in place from 5 May until 16 July 2020. During this period, 1 959 tonnes of meat benefited from private storage aid, primarily in Spain, France, Austria, Poland and the Netherlands (EC 2021d). Nevertheless, the measure has been criticised by some stakeholders (e.g. COPA-COGECA 2020c) for the following reasons:

- Being limited in scope, as it did not cover individual cuts but only full hindquarters; and
- Not taking into account the difference in value between boneless and bone-in cuts, and the loss in value due to freezing through the storage aid provided.

Overall, the sector welcomed the private storage aid for beef, but regretted that a similar scheme was not introduced for veal, which experienced similar if not worse market disturbances. The EP shared this concern.

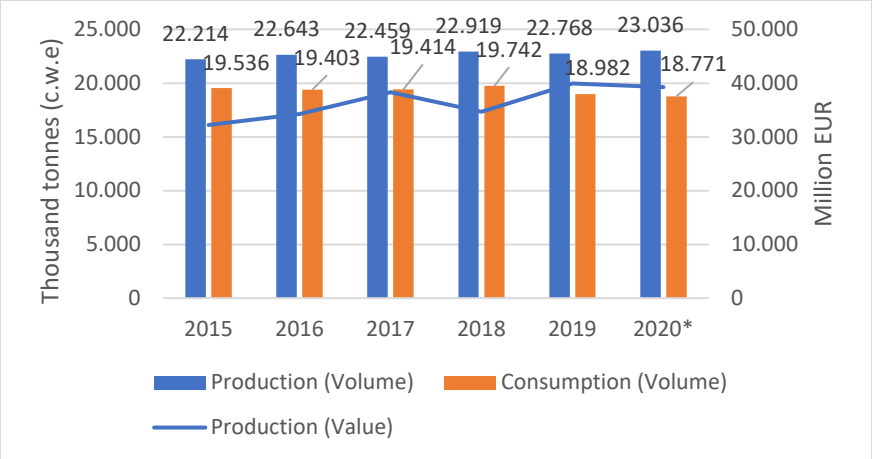
3.1.2. Pig meat

3.1.2.1. Sector characterisation

3.1.2.1.1. Production and consumption

The EU is the world's second largest producer of pig meat, with around 23 million tonnes produced and approximately 19 million tonnes consumed in 2019 (Figure 3). Within the EU, this meat segment constitutes the largest share (52%) of the total production output of the EU meat sector. EU's pig meat production has been relatively stable over the years. In contrast, EU consumption has been decreasing (-2.8% between 2015 and 2019) mainly due to changes in consumer preferences. The EU's self-sufficiency of pig meat was at 121% in 2019.

Figure 3. Evolution of EU-27 pig meat production (at slaughter) and estimated consumption between 2015-2020



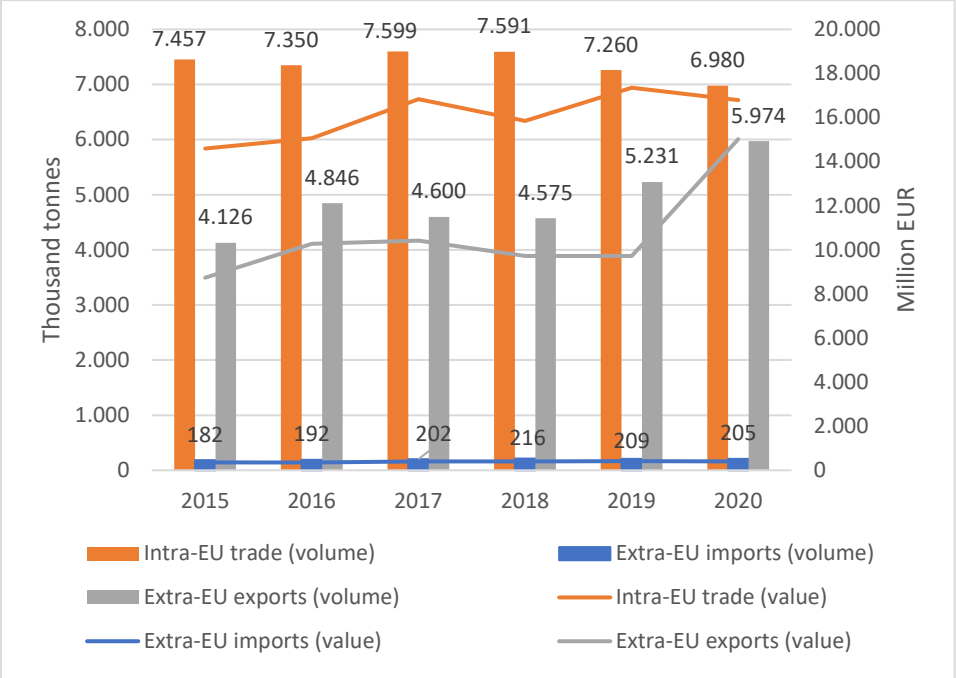
Source: Arcadia International & VVA based on EC (2020m), Eurostat – value at producer price [aact_eaa01] Code: 11200, Eurostat [apro_mt_pann] code: B3100 *provisional

Over the period 2015-2019 the top six pig meat producing MSs accounted for, on average, 75.1% of total EU production. The EU's largest producer is Germany (24%), followed by Spain (19%), France (9.7%), Poland (8.8%), Denmark (6.9%) and the Netherlands (6.7%) (EC 2021e).In 2019, EU consumption reached 10.6 kg per capita (by retail weight), with Denmark, Cyprus and Spain being the MSs with the highest consumption levels (EC 2021b).

3.1.2.1.2. Trade

The EU is the world's biggest exporter of pig meat with approximately an average of 4 676 thousand tonnes exported between 2015-2019. Over the same period, the EU-27 imported only 200 thousand tonnes of pig meat. As regards Intra-EU trade, the EU accounted for an average of 7 451 thousand tonnes over the same years (Figure 4).

Figure 4. Evolution of Intra-EU27 and Extra-EU27 (imports and exports) of pig meat (excluding live animals) 2015-2020



Source: Arcadia International & VVA based on Eurostat [COMEXT]. Intra-EU trade based on export flow. *Dec 2020 corresponds to the average of Jan-Nov 2020.

Among EU MSs, Germany is the largest Extra-EU exporter (19.6% of the total value EU-27's, on average between 2015-2019). Over the same period, the next three largest Extra-EU exporters were Spain, Denmark and the Netherlands. Regarding imports from non-EU countries, the largest importer by value was Ireland (35.8%) followed by Poland, Germany and the Netherlands.

Intra-EU trade in pig meat decreased by 2.6% in volume and increased by 18.9% in value between 2015- 2019, with Germany, Spain and Belgium being the leading exporting MSs and Germany, Italy and Poland the top-three importers, in terms of value.

3.1.2.2. COVID-19 impact at EU level

As observed for the beef and veal sector, the closure of food service resulted in a **reduction in demand for some products** in the pig meat sector. For example, at the beginning of the pandemic, the demand for suckling pigs almost disappeared in Spain and Portugal (COPA-COGECA 2020d).

Overall, **EU production of pig meat fell** in the first half of 2020, with declines registered in several of the EU's largest producers, namely Germany, France, the Netherlands and Poland (EC 2020p).

However, provisional figures for 2020 indicate an increase of 1.2% compared to the previous year, suggesting a **slight recovery** in the second half of the year.

Regarding EU trade, besides COVID-19, the spreading of ASF had a significant impact on the pig meat sector. In the first half of 2020, **EU exports** benefited from a sharp decrease in production in Asian markets, severely affected by this animal disease. Conversely, in the second half of 2020, ASF appeared in Germany (the EU's biggest exporter), which resulted in the immediate application of trade restrictions to the exports from that MS by some key markets (e.g. China). Even so, EU exports to non-EU countries increased by 14.2% in volume and 54.6% in value compared to the previous year.

The combined effect of COVID-19 and ASF disrupted markets and exerted **downward pressure on prices**. EU pig meat prices reached a peak in 2019 due to the massive demand from China, but in 2020 carcass prices decreased, on average, by 21.6% compared to 2019 (EC 2020o; EC 2021f).

3.1.2.3. COVID-19 impact at MS level

Table 5 provides an overview of the effects of COVID-19 on the major producing and exporting EU MSs in the pig meat sector.

Table 5. Comparison of production and exports (Intra-EU and Extra-EU) between the average 2015-2019 and 2020 of the six main producing EU MSs and the largest exporting MSs in the pig meat sector.

	Production				Extra-EU trade				Intra-EU trade			
					Exports				Exports			
	Vol thousand t *	Vol % **	Val million € *	Val % **	Vol thousand t *	Vol % **	Val million € *	Val% **	Vol thousand t *	Vol % **	Val million € *	Val % **
DE	-339	-6.2	38	0.5	-973	-90.1	408	20.1	-173	-8.9	-43	-1.0
ES	723	16.8	1 530	21.5	902	106.2	2 442	125.5	-44	-3.8	234	8.4
FR	-186	-8.5	255	8.1	55	19.5	210	37.8	-9	-2.0	80	10.3
PL	-31	-1.5	308	10.7	29	9.1	78	12.1	-29	-5.9	60	6.3
DK	38	2.4	753	24.9	180	23.3	687	35.9	-203	-28.0	-159	-13.2
NL	152	10.1	236	9.7	151	23.7	585	45.2	-60	-7.8	126	8.7
BE	31	2.9	30	2.1	-42	-32.5	-71	-29.8	27	3.2	165	11.0

Source: Elaborated by Arcadia International & VVA based on Eurostat [apro_mt_pann] code: B3100, Eurostat – value at producer price [aact_eaa01] code: 11200 and Eurostat [COMEXT]. Trade excludes live animals. 2020 production (volume) of ES, FR and NL is provisional. 2020 production (value) is estimated. 2020 trade (Dec 2020 corresponds to the average of Jan-Nov 2020). *absolute value **relative value

In terms of production volume, **Germany** (-6.2%), **France** (-8.5%), and **Poland** (-1.5%) recorded the biggest decline in 2020 when compared to the average across the previous five years. However, these countries have increased their production in value. In fact, all MSs under analysis have increased their production in value. **Belgium** was the only MS under analysis with a drop in exports (-29.8% in value). **Germany** (-1%) and **Denmark** (-13.3%) also registered a drop in the total value of their Intra-EU exports.

In general, Extra-EU trade performed better for the MSs under analysis than Intra-EU trade when compared to the previous 5 years.

3.1.2.4. Sector resilience

Overall, the pig meat sector has managed to remain stable during the pandemic despite the additional challenges posed by the spreading of ASF in certain MSs.

The closure of the food service channel during the first lockdown created difficulties for some specialised operators, such as farmers rearing suckling pigs. As a result of the lower demand for such products, the pig meat sector requested the introduction of private storage aid for suckling **pigs for roasting** and **fresh ham** (such as *Prosciutto di Parma* and *Jamón Ibérico*) (COPA-COGECA 2020e). However, these measures were not included in the legislative package adopted by the EC to address market disturbances in the meat sector.

Overall, among the meat sectors analysed, pig meat was the sector that performed best in terms of growth in production and exports in 2020.

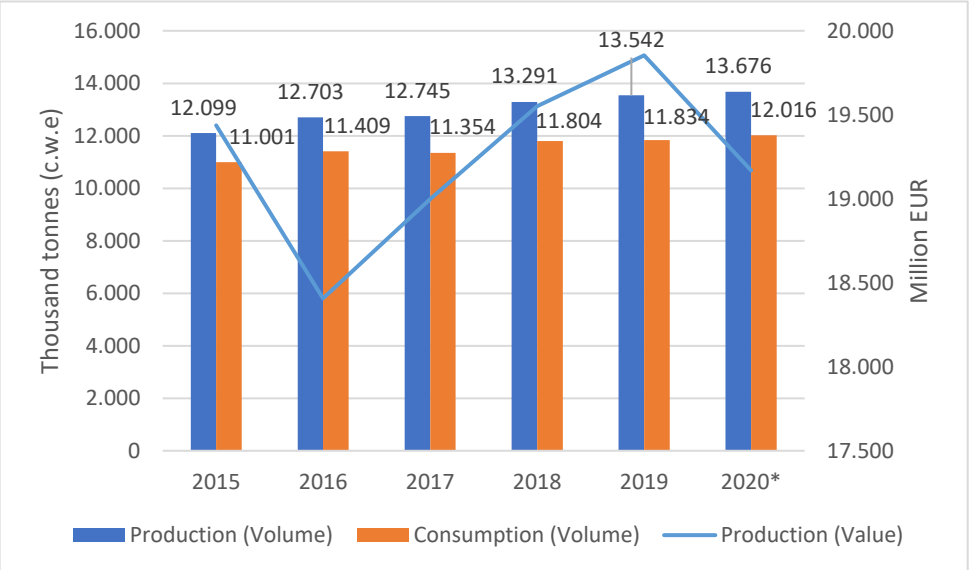
3.1.3. Poultry

3.1.3.1. Sector characterisation

3.1.3.1.1. Production and consumption

The EU is one of the world's largest poultry meat producers, with around 12.9 million tonnes produced and approximately 11.4 million tonnes consumed on average between 2015-2019 (Figure 5). EU poultry meat production and consumption have been increasing in the past years: between 2015 and 2019 production levels increased by 10%, and consumption increased by 7%. The EU's self-sufficiency in poultry meat was at 114% in 2019. In the same year, broilers were the most produced poultry meat in the EU (82%), followed by turkey (14%) and duck (4%).

Figure 5. Evolution of EU-27 poultry meat net production and estimated consumption between 2015-2020



Source: Arcadia International & VVA based on EC (2020m), Eurostat – value at producer price [aact_eaa01] Code: 11500 *EC estimation

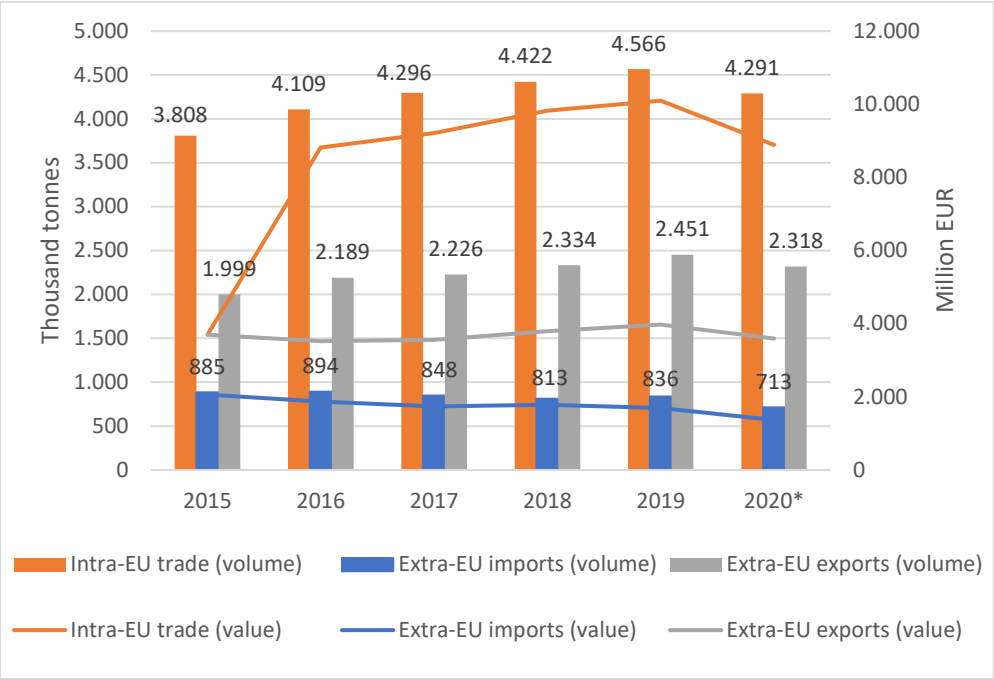
In 2019 the top six poultry meat producing MSs accounted for 74% of total EU production. The EU's largest producer is Poland (18%), followed by France (13.2%), Spain (12.2%), Germany (11.9%), Italy (10.2%) and the Netherlands (8.5%). According to the EC, poultry meat is the only meat segment whose production is expected to grow in the EU between 2020 and 2030 (+4.6%) (EC 2020o).

Poultry meat consumption has been growing fast for many years in the EU, as consumers perceive it as a healthy option. In 2019, EU consumption of this meat reached 23.3 kg per capita (by retail weight) (EC 2020m). According to the EC, in 2019 the top EU countries for poultry meat consumption were Cyprus, Ireland and Portugal. EU consumption of poultry meat is projected to reach 24.6 kg per capita by 2030 (EC 2020o).

3.1.3.1.2. Trade

On average, between 2015-2019, the EU-27 imported 855 thousand tonnes of poultry meat from non-EU countries against approximately 2.2 million tonnes of exports. Over the same period, Intra-EU trade accounted for 4.2 million tonnes (Figure 6).

Figure 6. Evolution of Intra-EU27 and Extra-EU27 (imports and exports) of poultry meat between 2015- 2020



Source: Arcadia International & VVA based on Eurostat [COMEXT]. Intra-EU trade based on export flow. *Dec 2020 corresponds to the average of Jan-Nov 2020.

Among EU MSs, the Netherlands recorded the highest share of the Extra-EU trade, on average, between 2015-2019, accounting for 29.3 % in volume and 29.8 % in value of the EU-27's exports of poultry meat and for almost half (49.9 % in volume and 49% in value) of the EU-27's imports. Over the same period,

the next three largest exporters in value were Poland, France and Germany, while the next three largest importers were Germany, Ireland and France.

Intra-EU trade of poultry meat has increased over the last years. Between 2015 and 2019 it increased by 19.9%. The Netherlands, Poland and Germany were the major exporting MSs and Germany, France and the Netherlands the major importers.

3.1.3.2. COVID-19 impact at EU level

The European poultry meat sector has been significantly impacted by the COVID-19 crisis, mainly in terms of **consumption**. On the one hand, in March 2020 there was an increase in demand for poultry meat at retail level (+20%) with chicken and turkey being the species most sought. On the other hand, with the food service sector normally absorbing a large part of poultry meat production, overall consumption levels decreased as soon as that sector was forced to shut down: **duck, guinea fowl and quail** were the most affected species. Overall, during the first lockdown, the increase in retail sales was not enough to compensate the closing of the food service channel, which is responsible for 20-40% of poultry meat consumption depending on the MS (AVEC 2020).

Moreover, the closure of the food service sector ultimately resulted in lower **production** levels in poultry plants. Overall, slaughterhouses ordered 10-30% less broilers for slaughter from farmers. Also, in most EU MSs, slaughterhouses and processing plants were forced to switch production from products in bulk intended for the food service channel to retail meat products for at-home consumption. These changes involved unforeseen investments and costs for several operators of this sector (e.g. packaging). Lastly, during the first lockdown, due to lower consumer demand, there was a decrease in the production of poultry meat other than chicken (AVEC 2020). In some MSs (e.g. the Netherlands) duck production stopped completely (AVEC 2020).

With the closure of the food service channel, mainly during the first lockdown, a large part of imported poultry meat lost its main channel, which caused oversupply. Therefore, one of the measures requested by the sector was the adjustment of imports (see section 3.1.3.4.).

In addition to COVID-19, in 2020 the sector faced the resurgence of AI. This, had a huge impact in particular in Eastern Europe, affecting exports to non-EU countries as well as prices. **Extra-EU exports fell by 5.4%** in 2020 compared to the previous year.

Low demand in 2020 led to a steep decline in broiler **prices** at farm gate in the EU-27, notably during the first lockdown. With the re-opening of the food service channel in the summer of 2020 prices rose slightly, though not to the previous level (EC 2021g). Overall, in 2020 prices were at -2.9% compared to 2019 (EC 2020q).

3.1.3.3. COVID-19 impact at MS level

Table 6 provides an overview of the effects of COVID-19 on the major producing and exporting EU MSs in the poultry meat sector.

Table 6. Comparison of production and exports (Intra-EU and Extra-EU) between the average 2015-2019 and 2020 of the six main producing EU MSs and the largest exporting MSs in the poultry meat sector.

	Production				Extra-EU trade				Intra-EU trade			
					Exports				Exports			
	Vol thousand t *	Vol % **	Val million € *	Val % **	Vol thousand t *	Vol % **	Val million € *	Val % **	Vol t *	Vol % **	Val million € *	Val % **
PL	344	14.6	80	2.7	174	38.1	187	27.5	203 199	24.4	220	12.7
ES	149	9.5	73	3.0	-2	-1.6	9	7.7	-6 906	-4.7	7	2.4
FR	-17	-1.0	-68	-2.1	-81	-29.1	-130	-24.9	-38 645	-14.4	-152	-21.1
DE	72	4.7	38	1.6	-27	-19.3	-5	-1.7	-64 744	-10.4	-173	-12.0
IT	75	5.7	-115	-4.5	-5	-6.8	-16	-18.5	5 736	4.6	-8	-2.5
NL	c	c	-119	-15.0	42	6.5	-43	-3.9	-15 872	-1.6	-97	-4.8
BE	-10	-2.2	-46	-6.6	-15	-7.6	-38	-16.3	-21 233	-4.9	-15	-1.7

Source: Elaborated by Arcadia International & VVA based on Eurostat [apro_mt_pann] code: B7000, Eurostat – value at producer price [aact_eaa01] code: 11500 and Eurostat [COMEXT]. Trade excludes live animals. 2020 production (volume) of ES, FR, FR, IT and NL is provisional. 2020 production (value) is estimated. 2020 trade (Dec 2020 corresponds to the average of Jan-Nov 2020). c-confidential *absolute value **relative value

Overall, the **Netherlands** (-15%), **Belgium** (-6.6%), **Italy** (-4.5%) and **France** (-2.1%) registered the greatest decrease in production value in 2020 when compared to the average of the previous five years. The most affected MSs in terms of Extra-EU exports value were **France** (-24.9%), **Italy** (-18.5%), **Belgium** (-16.3%), the **Netherlands** (-3.9%) and **Germany** (-1.7%). As regards Intra-EU exports, **France** recorded the highest drop both in volume (-14.4%) and value (-21.1%). **Germany** (-12%), the **Netherlands** (- 4.8%), **Italy** (-2.5%) and **Belgium** (-1.7%) also saw their Intra-EU value exports decrease.

3.1.3.4. Sector resilience

Overall, **the sector has demonstrated both its resilience and its ability to maintain adequate levels of supply, high-quality, safety and affordable food** despite the difficulties caused by the COVID-19 pandemic (EC 2020g).

As a result of the closure of the food service channel during the first months of the pandemic, cold stores and freezers across the EU were overloaded. In order to address such a situation, in April 2020, the European Live Poultry and Hatching Egg Association (ELPHA), together with AVEC, called on the EC, among others, to (ELPHA and AVEC 2020):

- Ensure a temporary adjustment of import quantities to decrease oversupply; and
- Introduce cold storage subsidies for operators who had no other option than storing products intended for the food service.

However, these measures were not included in the legislative package adopted by the EC to address market disturbances in the meat sector.

AVEC estimates that **COVID-19 will continue to disrupt the poultry market** during 2021 and result in low prices, oversupply and disruptions of food service, although the impact should gradually decrease as governments gain control over the virus throughout the year.

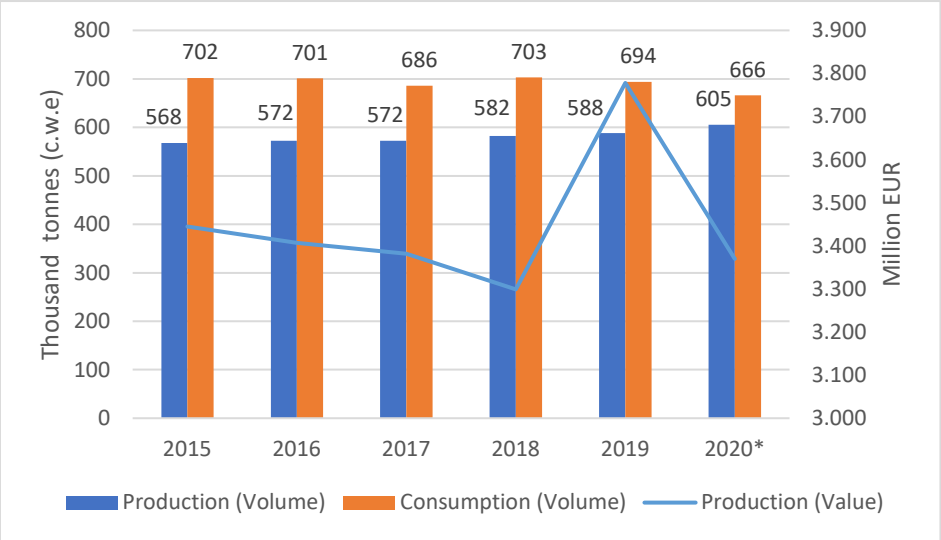
3.1.4. Sheep and goat

3.1.4.1. Sector characterisation

3.1.4.1.1. Production and consumption

Sheep and goat meat is a niche market in almost all MSs. In some of them it is considered a premium cut and is part of the traditional local diet. Overall, this meat segment constitutes a small share (1.3%) of the total production output of the EU meat sector. Between 2015-2019, the EU produced an average of 576 thousand tonnes of sheep and goat meat, with sheep normally accounting for the largest share (90%). After a constant decline registered in the last two decades (-32% in 2019 compared to 2000), production has nonetheless remained stable in recent years (Figure 7). In 2020, sheep and goat meat production totalled 605 thousand tonnes and is forecast to decline further in 2021. The EU's self-sufficiency of this meat was at 94% in 2019.

Figure 7. Evolution of EU-27 sheep and goat meat net production and estimated consumption between 2015-2020



Source: Arcadia International & VVA based on EC (2020m), Eurostat – value at producer price [aact_eaa01] Code: 11400. *EC estimation

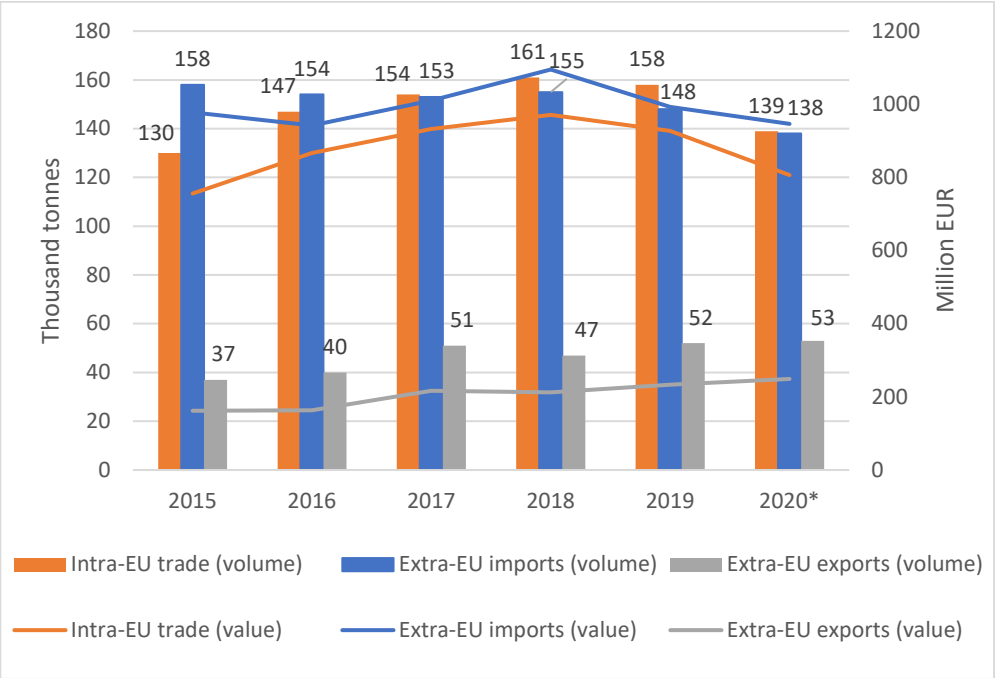
Between 2015-2019 the top six sheep and goat meat producing MSs in the EU accounted for, on average, 81.2% of total EU production. The largest EU producer is Spain (21.9%), followed by Romania (15%), France (14.8%), Greece (12.5%), Ireland (11%) and Germany (6%) (EC 2021h).

Sheep and goat is the type of meat least consumed in the EU. In 2019, EU consumption reached 1.4 kg per capita (by retail weight), with Greece, Cyprus and France being the largest consuming MSs (EC 2021b).

3.1.4.1.2. Trade

The EU is not fully self-sufficient in terms of sheep and goat products and, for that reason, is one of the world's major importers. On average between 2015-2019, the EU-27 imported 154 thousand tonnes of sheep and goat meat from non-EU countries while exporting 45 thousand tonnes (Figure 8). Over the same period, Intra-EU trade accounted for an average of 150 thousand tonnes.

Figure 8. Evolution of Intra-EU27 and Extra-EU27 (imports and exports) of sheep and goat meat (excluding live animals) between 2015-2020



Source: Arcadia International & VVA based on Eurostat [COMEXT]. Intra-EU trade based on export flow. *Dec 2020 corresponds to the average of Jan-Nov 2020.

Among EU MSs, Ireland is the largest Extra-EU exporter (42.5% in volume and 41.2% in value of the total EU-27's exports on average between 2015-2019), while the Netherlands is the largest Extra-EU importer (25.75% of the total Extra-EU27's value imports on average between 2015-2019). Over the same period, the next three largest Extra-EU exporters (in value) were Spain, the Netherlands and Romania. The next three largest Extra-EU importers (in value) were France, Germany and Belgium.

Intra-EU trade of sheep and goat meat increased by 21.5% between 2015-2019, with Ireland, Spain and the Netherlands being the leading value exporting MSs and France, Germany and Belgium the top-three importers in value.

3.1.4.2. COVID-19 impact at EU level

In general, sheep and goat meat was significantly impacted by the COVID-19 crisis, mainly due to a **drastic drop in sales in the food service channel** and **lower consumer demand for at-home consumption**. As consumption of this meat is closely linked to celebrations (e.g. Christmas and Easter), the restrictions imposed during such festivities in most MSs contributed to its decrease in 2020. Also, due to the closure of the food service channel, the sales of certain sheep and goat products, notably lamb and goat carcasses aged less than 12 months, were severely impacted. The introduction of EU support measures in the form of aid to private storage did not help mitigate the imbalance between supply and demand for these meat products (see sections 3.1.4.4. and 4.1.2.).

In general, the EC estimates sheep and goat meat consumption to fall by 4% in 2020. With lower demand for this meat, **production** dropped in all major producing MSs in 2020 (see section 3.1.4.3.). Also, similar to other meat sectors, the restrictive measures imposed by the majority of MSs in the first half of 2020 impacted on availability of the labour force in slaughterhouses and reduced capacity in transport and logistics.

EU sheep meat **prices** fluctuated in the first half of 2020 with **light lamb**, in particular, registering a drop due to the combined effect of national measures to contain COVID-19 and Brexit. However, in general, prices were higher in 2020 compared to 2019. Light lamb prices increased by **5.8%** and heavy lamb prices by **10.5%** in 2020 compared to the previous year (EC 2021i). However, prices are expected to fall in the coming years, followed by a recovery in 2025-2030 (EC 2020o).

3.1.4.3. COVID-19 impact at MS level

The impact of the pandemic on the sheep and goat meat sector has been different depending on the MS. The table 7 provides an overview of the effects of COVID-19 on the major producing and exporting EU MSs of this meat category.

Table 7. Comparison of production and exports (Intra-EU and Extra-EU) between the average 2015-2019 and 2020 of the six main producing EU MSs and the largest exporting MS in the sheep and goat meat sector

	Production				Extra-EU trade				Intra-EU trade			
					Exports				Exports			
	Vol thousand t *	Vol % **	Val million € *	Val % **	Vol thousand t *	Vol % **	Val million € *	Val% **	Vol thousand t *	Vol % **	Val million € *	Val % **
ES	-3.58	-2.8	-92.0	-8.9	7	59.7	25.9	61.8	-2.557	-7.7	6.0	4.6
RO	NA	NA	4.0	2.0	-0.23	-6.5	-1.1	-6.9	-2.752	-58.1	-10.3	-57.6
FR	-2	-2.3	77.0	10.6	-0.99	-35.6	-3.8	-27.8	-1.675	-16.9	-9.7	-17.0
GR	-24	-26.4	-19.0	-5.9	0.61	758.8	1.4	624.3	-0.958	-16.8	-10.6	-33.7
IE	2	3.1	32.0	12.5	0.67	3.5	20.3	25.0	6.237	16.5	44.4	21.0
DE	-7	-21.2	-25.0	-14.0	-0.49	-51.6	-4.7	-56.2	-1.128	-20.0	-12.6	-25.7
NL	4	28.6	31.0	36.0	-0.10	-2.3	7.5	33.8	-3.051	-10.1	-46.8	-19.2

Source: Elaborated by Arcadia International & VVA based on Eurostat [apro_mt_pann] code: B4000, Eurostat – value at producer price [aact_eaa01] code: 11400 and Eurostat [COMEXT]. Trade excludes live animals. 2020 production (volume) of ES, FR and NL is provisional. 2020 production (value) is estimated. 2020 trade (Dec 2020 corresponds to the average of Jan-Nov 2020). NA-Not available *absolute value **relative value

Overall, **Germany** (-14%), **Spain** (-8.9%) and **Greece** (-5.9%) were the MSs which registered a decrease in production value in 2020 when compared to the average of the previous five years. **France** decreased in production volume (-2.3%) but not in value. The most affected MSs in terms of Extra-EU value exports were **Germany** (-56.2%), **France** (-27.8%) and **Romania** (-6.9%). As regards Intra-EU exports, almost all MSs under analysis were severely affected. Among those MSs that saw the value of Intra-EU exports decrease, **Romania** recorded the highest drop (-57.6%), followed by **Greece** (-33.7%), **Germany** (-25.7%), **the Netherlands** (-19.2%) and **France** (-17%).

3.1.4.4. Sector resilience

The sheep and goat meat sector were highly impacted by the pandemic mainly due to the lower demand.

For certain types of sheep and goat there was a serious supply-demand imbalance. In order to support the sector, the EC implemented private storage aid for the most affected products, namely fresh or chilled meat of ovine and caprine animals aged less than 12 months through **Regulation (EU) 2020/595**. This measure was in place from 5 May 2020 until 16 July 2020. The measure has been criticised by some stakeholders for (e.g. Copa-COGECA 2020c):

- Being limited in scope as the measure did not cover the storage of **individual cuts** but only of the whole animal carcass, while the meat already in storage before the introduction of the measure was not eligible for aid;
- The administrative burden associated with it.

In fact, **only 15 tonnes of meat benefited from private storage aid** (all from Spain) (EC 2021d) (see section 4.1.2.).

3.2. Milk and milk products

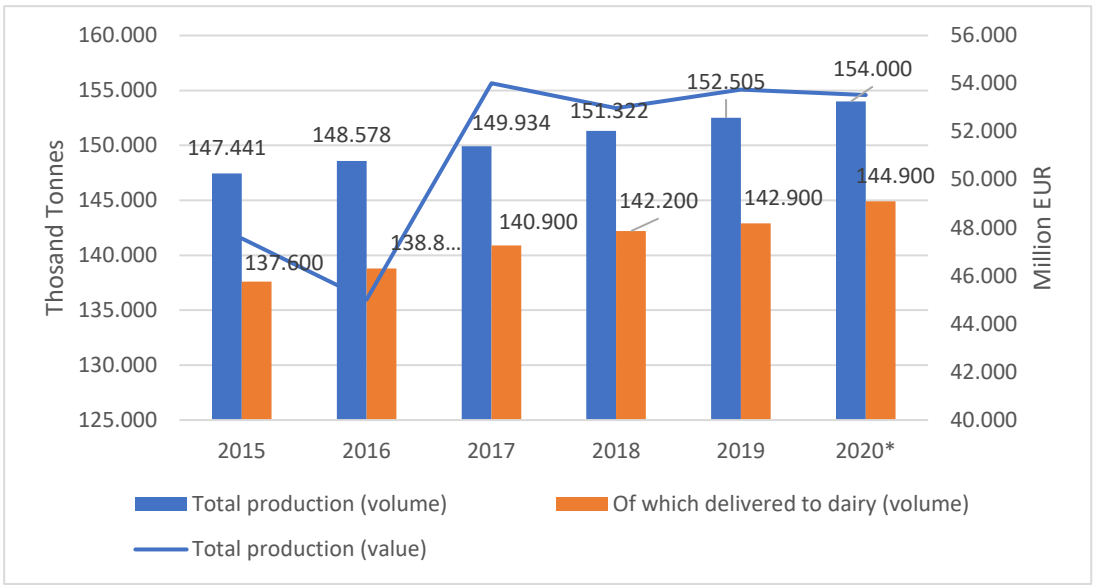
3.2.1. Sector characterisation

3.2.1.1. Production and consumption

Milk and dairy production represent an important proportion of the EU agricultural output, with the total EU production of raw milk reaching 152 million tonnes in 2019. Of that amount cow's milk represented 97%, while the rest was a combination of milk from ewes (1.63%), goats (1.34%) and buffaloes (0.17%) (EC 2019a). For cow's milk, the largest collectors are Germany, France, Poland, the Netherlands, Italy and Ireland. These six MSs alone account for 70% of the EU production of cow's milk (EC 2020m). Regarding the collection of milk from animals other than cows, Spain is the largest collector (1 million tonnes), followed by Greece and France (0.8 million tonnes each), and Italy (0.7 million tonnes) (EC 2019a).

In the EU, the vast majority of milk collected is delivered to dairies where milk products, such as cheese and butter, are produced or sold as drinking milk. In 2019, about 9% of the total production went to on-farm use and direct sales as well as animal feed, while the remaining production was delivered to dairies. Figure 9 shows the evolution of cow's milk production and milk delivered to dairies over the period 2015-2019, including projections for 2020 and 2021.

Figure 9. Evolution of EU-27 cow's milk produced, and of which delivered to dairies between 2015-2020



Source: Arcadia International & VVA based on EC (2020m), Eurostat – value at producer price [aact_eaa01] code: 12100 (milk). *EC estimation.

Out of the milk delivered to dairies, 37.7% goes to cheese production, 29.4% to butter production, 11.9% to cream, and 11% to drinking milk. The remaining 9.9% goes to the production of acidified milk,

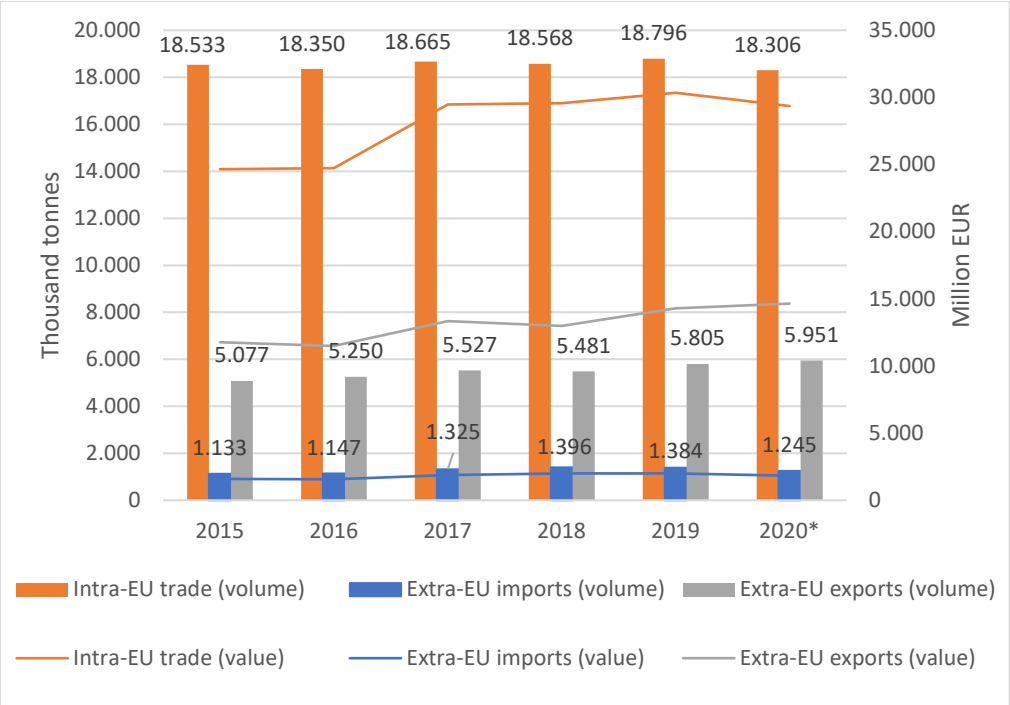
powder products and other products (EC 2019a). In 2019, cheese production in the EU reached 10 million tonnes with consumption levels at 9 million tonnes, i.e. 20.2 kg in per capita consumption. The self-sufficiency rate for cheese was at 112%. Out of the total cheese production, only 8.7% was made from milk from animals other than cow. Production levels for fresh dairy products (including drinking milk, cream, acidified milk etc.) in 2019 reached 37.7 million tonnes, while use levels were at 36.9 million tonnes with a per capita consumption of 82.9 kg. The self-sufficiency rate was at 102%. The EU-27's butter production was 2.3 million tonnes in 2019, with a domestic use of 2.1 million tonnes and per capita consumption of 4.73 kg (EC 2020m).

The current projections by the EC suggest an increase in 2020 and 2021 in terms of EU cheese and butter production. Concerning the production of fresh dairy products, projections indicate an increase in 2020 to be followed by a decrease in 2021, consisting in the decreasing production of drinking milk and cream production which has been a trend over the past few years (EC 2020m).

3.2.1.2. Trade

On average, between 2015-2019, the EU-27 imported 1.3 million tonnes of milk and milk products from non-EU countries against approximately 5.4 million tonnes exported (Figure 10). Over the same years, Intra-EU trade accounted for about 18.6 million tonnes. The EU is a net exporter of milk and milk products with stable but increasing exports (+14%) and imports (+22%) in the period 2015-2019. The intra-EU trade is larger with stable levels in the period 2015-2019, with a slight increase of 1.42%.

Figure 10. Evolution of Intra-EU27 and Extra-EU27 (imports and exports) of milk and milk products between 2015-2020



Source: Arcadia International & VVA based on Eurostat [COMEXT]. Intra-EU trade based on export flow. *Dec 2020 corresponds to the average of Jan-Nov 2020.

Among EU MSs, France recorded the highest share of Extra-EU exports in terms of value. On average, between 2015-2019, France accounted for 19% of the EU-27's exports of milk and milk products. The next three largest exporters in terms of value for the same period were the Netherlands, Germany and

Ireland. Regarding imports from non-EU countries, the largest importer concerning value was Ireland (27.8%), followed by Germany, France and Belgium. According to the EC, Extra-EU exports of cheese and dairy products are expected to increase in 2021 by 3% and 5%, respectively (EC 2020p).

In terms of Intra-EU trade in the period 2015-2019, Germany recorded the highest share of exports in terms of value, followed by the Netherlands and France. In terms of Intra-EU imports, Germany is the top importer in terms of value, followed by the Netherlands and Italy.

3.2.2. COVID-19 impact at EU level

The beginning of the pandemic triggered an **increased demand for drinking milk,** supporting the production growth (around +4% compared to January-June in 2019). Following this increased domestic demand, as well as export demand, the declining trend of drinking milk production has seen an interruption. Conversely, **cheese consumption** has been affected negatively as a consequence of the closure of the food service channel, in particular for specialty cheeses. However, EC projections indicate that adjustments in food service and retail channels (such as take-aways and e-commerce) in 2021 should help cheese consumption to grow. Overall, losses in food service are likely to be compensated by retail sales which, in turn, may stabilise domestic consumption (EC 2020p).

According to EC data from October 2020, **milk collection** growth has remained strong and labour shortages were limited (EC 2020p). Notwithstanding that, according the European Dairy Association (EDA) and European Milk board (EMB), at the beginning of the pandemic, the closure of borders created some supply chain disruptions, delayed delivery of materials to dairies, and increased prices for transporters and containers.

Uncertainty, closure of food service channels, including schools and restaurants, and an **initial decrease in prices** of several types of dairy products led the sector to request market support measures from the EC (COPA-COGECA 2020b). As a result, private storage aid schemes for butter, cheese and skimmed milk powder were introduced in May 2020 through **Regulations (EU) 2020/591, 2020/597 and 2020/598**. These measures have been used to a significant extent by the sector (see section 3.2.4. and 4.1.2.). They have also helped build confidence in the market and stabilise prices.

Overall, **dairy prices** have remained stable after the initial drop following the first wave of the pandemic. As for butter, prices have increased since mid-May. This will have a positive effect on EU exports: during the period January-June 2020, cream exports to China grew by 40% and yoghurt exports to the UK by 7%. While prices have remained stable, **farmers' revenues** are still low according to the trade organisations representing the sector.

In 2021, drinking milk consumption should return to its normal declining trend as stockpiling behaviour is less likely to occur. However, adjustments of some distribution channels like e-commerce and take-aways are expected to support the recovery of dairy consumption overall.

3.2.3. COVID-19 impact at MS level

The impact of the pandemic on the milk sector has been different depending on the MS. The table 8 provides an overview of the effects of COVID-19 on the major producing and exporting EU MSs of this product category.

Table 8. Comparison of production and exports (Intra-EU and Extra-EU) between the average 2015-2019 and 2020 of the six main producing EU MSs and the largest exporting MS in the milk sector

	Production				Extra-EU trade				Intra-EU trade			
					Exports				Exports			
	Vol thousand t *	Vol % **	Val million € *	Val% **	Vol thousand t *	Vol % **	Val million € *	Val % **	Vol thousand t *	Vol % **	Val million € *	Val% **
DE	405	1.3	189	1.79	162.2	15.3	288	16.7	-399	-8.5	342	5.4
FR	-46	-0.2	573	6.43	-81.7	-8.2	72	2.9	-113	-5.5	26	0.8
PL	904	7.8	486	13.1	170.4	41.6	271	48.1	69	6.8	-16	-1.3
NL	33	0.2	-76	-1.55	7.6	0.9	101	4.6	-129	-6.2	181	3.7
IT	1180	10.3	227	4.7	9.5	4.7	124	11.8	-21	-2.9	361	18.5
IE	1152	15.6	467	20.4	70.7	13.0	336	24.2	125	43.0	265	29.7
BE	359	8.8	89	7.35	73.8	19.1	261	33.7	15	0.9	-9	-0.4

Source: Elaborated by Arcadia International & VVA based on Eurostat [apro_mk_farm] code: D1110A, Eurostat – value at producer price [aact_eaa01] code: 12100 (milk) and Eurostat [COMEXT]. Production is based on Cows' milk collected. Trade includes milk products. Intra-EU trade based on export flow. 2020 trade (Dec 2020 corresponds to the average of Jan-Nov 2020) *absolute value **relative value

Overall, the MSs under analysis have registered an increased production in 2020 compared to 2019, with **Ireland** recording the greatest increase both in volume (15.6%) and value (20.4%). Only the **Netherlands** recorded a slight decrease in production value (-1.55%). In terms of Extra-EU exports, almost all MSs under analysis recorded an increase in terms of both volume and value. **Poland** had the largest increase both in terms of volume (+41.6%) and value (+48.1%). Only **France** registered a decrease in volume (-8.2%), but experienced an increase in value (+2.9%). None of the MSs under analysis suffered losses in value. As regards Intra-EU exports, **Germany**, **France**, the **Netherlands** and **Italy** registered a decrease in volume, but an increase in value. Only **Poland** and **Belgium** recorded a small decrease in value (-1.3% and -0.4%, respectively). **Ireland** registered the highest increase in terms of volume (+43%) and value (+29.7%).

3.2.4. Sector resilience

Overall, the EU dairy sector has kept operations going during the pandemic, including milk collection at farm level, as well as supply to retailers and other outlets. According to the trade organisations representing the sector at EU level, the capacity of the sector to resist this type of external shock is linked to a strong relationship with farmers, the structure of cooperatives and private dairies as well as standard operational procedures ensuring continuous processing of fresh and perishable raw materials.

EU-wide market support measures, notably private storage aid for skimmed milk powder, butter and cheese, were put in place in May 2020 and used to a significant extent. Between May 2020 and February 2021, MSs had concluded contracts for 18,300 tonnes of skimmed milk powder, 63,324 tonnes of butter and 39,184 tonnes of cheese (EC 2021d) (see also section 4.1.2.). This led to a general increase of dairy commodity prices in summer of 2020, while milk prices at farm level have still not recovered and in August 2020 were **2% below** 2019 prices (COPA-COGECA 2020f; EMB 2020). In December 2020, price levels for raw milk were **1.2% below** 2019 levels (EC 2020r). Prices for cheese, skimmed milk powder and whole milk powder have been stable, with butter recording an increase (EC 2020p).

The importance of ensuring a fair price for farmers was highlighted by the sector organisations, as in some cases (e.g. France) farmers had to stop operations due to **low prices**. According to EDA, while the

EC measures have had a positive effect on trade and industry, they have not covered farmers sufficiently.

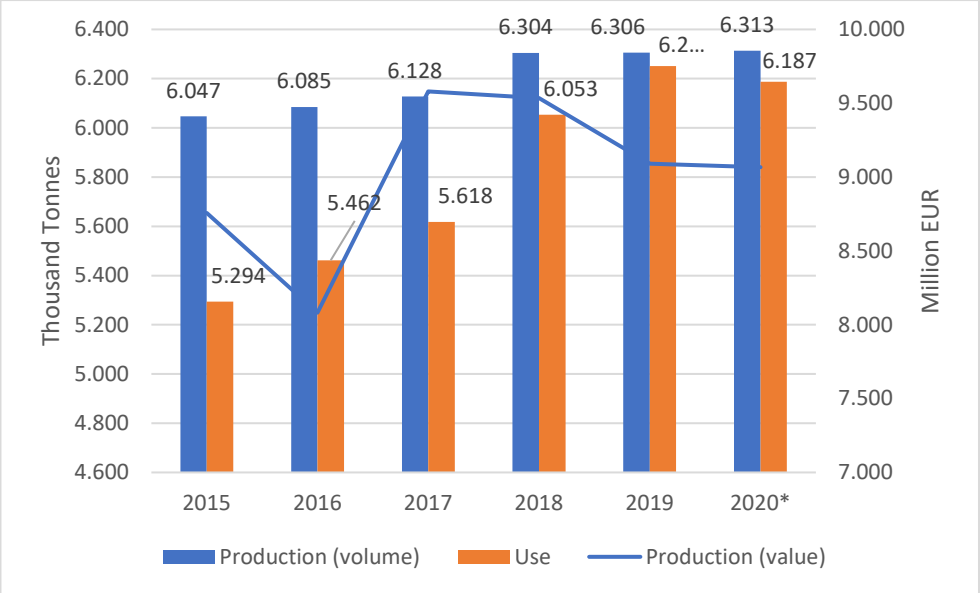
3.3. Eggs

3.3.1. Sector characterisation

3.3.1.1. Production and consumption

The EU is the world's second largest egg producer behind China, and a net exporter of egg and egg products. In 2019, over 6.3 million tonnes of eggs were produced by more than 350 million laying hens in the EU. Total use in 2019 was 6.2 million tonnes (Figure 11). Egg production and use levels have been increasing over the past years: between 2015 and 2019 production levels increased by 7%, while use levels increased by 19.9%. The EU's self-sufficiency of eggs was at 103% in 2019 and per capita consumption was 14 kg (EC 2021j).

Figure 11. Evolution of EU-27 egg production and use between 2015-2021 (eggs for consumption)



Source: Arcadia International & VVA based on EC (2020m), Eurostat – value at producer price [aact_eaa01] code: 12200
*Forecast based on EC estimation.

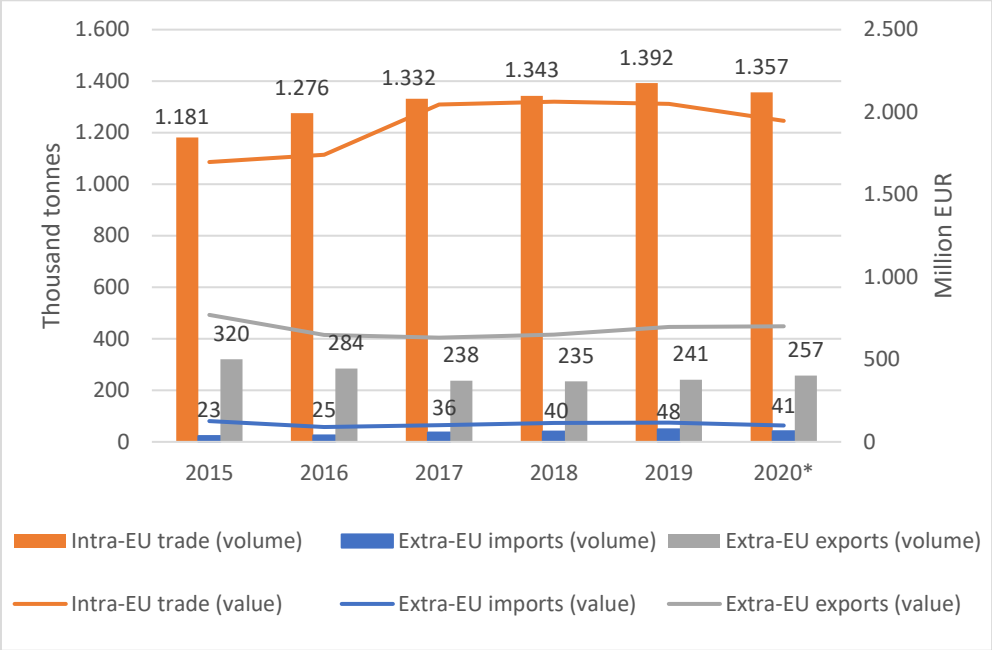
The top six egg producing MSs accounted for 71% of the total EU production in 2019. The EU's largest producer is France (14%), followed by Germany (13%), Spain (13%), Italy (12%), the Netherlands (10%) and Poland (9%) (EC 2021j). The current projections by the EC indicate a continued increase in EU egg production over the coming years, with production of 6.77 million tonnes forecast in 2030, representing a 7.4% increase compared to 2019 production levels. Similarly, per capita consumption is projected to increase by 7.1%, reaching 15 kg in 2030 (EC 2020o).

3.3.1.2. Trade

The EU is a net exporter of eggs, with export to non-EU countries of approximately 264 thousand tonnes on average between 2015-2019 (Figure 12). Over the same period, imports reached 34 thousand tonnes. While exports decreased by 24.7% between 2015 and 2019, imports have increased by 108.7%. However, import levels remain low. Intra-EU trade levels are significantly higher than Extra-

EU trade levels, reaching 1.3 million tonnes on average between 2015-2019. In the period 2015-2019, Intra-EU trade increased by 17.9%.

Figure 12. Evolution of Intra-EU27 and Extra-EU27 (imports and exports) of eggs between 2015-2020



Source: Arcadia International & VVA based on Eurostat [COMEXT]. Intra-EU trade based on export flow. *Dec 2020 corresponds to the average of Jan-Nov 2020.

Among EU MSs, the Netherlands is the main exporter by value between 2015-2019, accounting for 30.1% of the EU-27's egg exports. Over the same period, the next three largest exporters were Spain, Belgium and Germany. The Netherlands is the largest importer, accounting for 24.8% of the value of imports from non-EU countries. The next three largest importers are Ireland, France and Germany. Concerning Intra-EU trade, the Netherlands, Poland and Germany are the top-three leading exporters in terms of value.

According to the EC, Extra-EU imports are expected to be stable in 2021 and then gradually increase to 2030 (+39%). Extra-EU exports are also expected to be stable in 2021 and then gradually increase to 2030 (+38.5%) (EC 2020o).

3.3.2. COVID-19 impact at EU level

According to the European Egg Processors Association (EEPA), **consumption** at retail level increased during the first wave of the pandemic as people stayed at home more than usual. However, egg consumption in the food service sector declined dramatically due to lockdown measures put in place across the EU. In April 2020 COPA-COGECA reported that large parts of the market for eggs and egg products had disappeared, creating a surplus (COPA-COGECA 2020b). Since eggs intended for the food service and eggs destined to retail are not of the same type, the surplus registered for food service could not be diverted to retail.

As a consequence, unsold eggs were destined for the food processing industry. This, in turn, caused a **significant price drop** as the food processing industry represents the lowest segment of the sector in terms of prices. This price drop affected **farmers' revenues** negatively as they received a **lower price** than expected. In general terms, according to EEPA, the second wave of the pandemic was less

impactful on the egg sector across the EU as restaurants could operate to a large extent through take-away and home delivery modalities, while sales at retail level returned to pre-pandemic levels.

While EU **price levels** in general were over the 2019 average in the first months of the pandemic, prices fell below the 2019 average in August 2020 and have not recovered. Prices remain well below the average of 2019 and below the average of prior years. Overall, the sector has seen a negative evolution when comparing current price levels to January 2020, with a **12.4% decrease**. The average EU market price for 100 kg was 120.76 EUR in January 2021 (EC 2021j).

UTPs were also reported in the egg sector as a result of the pandemic, namely the use of promotional campaigns by retailers to disrupt the product segmentation. In this way, free-range eggs and cage/barn eggs were sold at similar consumer prices (COPA-COGECA 2020g).

3.3.3. COVID-19 impact at MS level

The impact of the pandemic on the egg sector has been different depending on the MS. The table 9 provides an overview of the effects of COVID-19 on the major producing and exporting EU MSs of this product category.

Table 9. Comparison of production and exports (Intra-EU and Extra-EU) between the average 2015-2019 and 2020 of the six main producing EU MSs and the largest exporting MS in the eggs sector

	Production				Extra-EU trade				Intra-EU trade			
					Exports				Exports			
	Vol thousand t *	Vol % **	Val million € *	Val % **	Vol thousand t *	Vol % **	Val million € *	Val % **	Vol thousand t *	Vol % **	Val million € *	Val % **
FR	-21.6	-2.4	67	6.1	-4.4	-29.3	-2.5	-3.5	6.3	12.9	1.1	0.8
DE	62.8	7.6	-32	-2.9	-10.2	-38.3	-20.1	-25.0	-29.0	-20.6	-19.0	-8.2
ES	87.0	11.3	135	13.2	3.4	8.5	18.4	27.5	14.1	13.6	16.8	13.7
IT	-16.6	-2.1	153	12.5	-2.0	-18.9	-2.4	-9.5	0.4	1.5	4.8	12.0
NL	-1.4	-0.2	-82	-12.1	-5.4	-6.1	4.5	2.2	15.6	3.3	27.1	3.8
PL	18.7	3.5	-148	-12.2	8.4	68.8	5.4	21.9	-28.7	-11.3	-18.7	-6.3
BE	7.6	5.0	-7	-5.3	-2.7	-9.8	3.2	3.8	59.0	64.7	0.8	0.7

Source: Elaborated by Arcadia International & VVA based on EU Market Situation for Eggs (2016-2020), Eurostat – value at producer price [aact_eaa01] code: 11200 and Eurostat [COMEXT]. 2020 production (volume) is EC forecast. 2020 production (value) is estimated. 2020 trade (Dec 2020 corresponds to the average of Jan-Nov 2020) *absolute value **relative value

Overall, **France, Spain** and the **Netherlands** registered the greatest decrease in production volume in 2020 when compared to the average of the previous five years (-2.4%, -2.1% and -0.2% respectively). **Poland** (-12.2%), the **Netherlands** (-12.1%), **Belgium** (-5.3%) and **Germany** (-2.9%) registered the greatest decrease by production value. The most affected MSs in terms of Extra-EU exports by value were **Germany** (-25%), **Italy** (-9.5%) and **France** (-3.5%). As regards Intra-EU exports, **Germany** and **Poland** registered a decrease in value in 2020 of -8.2% and -6.3%, respectively.

3.3.4. Sector resilience

Overall, during the pandemic the sector has been resilient in terms of ensuring the supply of eggs. However, during the first outbreak of the virus the EU market for eggs and egg products experienced a **supply surplus** due to the combined effect of lockdown measures alongside limited access to alternative markets. While consumption at retail level increased in the first wave of the pandemic, the food service segment registered a significant fall.

Price levels were stable during the first months of the pandemic, but then **decreased significantly** and have not recovered. In this context, eggs intended for use by the food service sector were particularly impacted. While the sector did not benefit from any market measures at EU level, sector representatives expressed satisfaction with the effectiveness of EC measures such as the transportation Green Lanes.

3.4. Sugar and ethanol

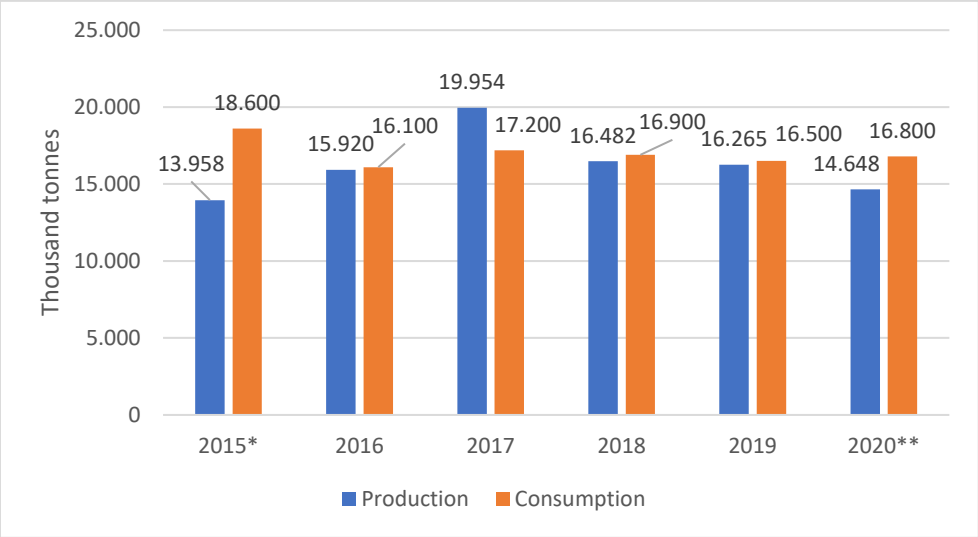
3.4.1. Sector characterisation

3.4.1.1. Production and consumption

The EU is the third largest sugar producer in the world, following Brazil and India, with around 16.2 million tonnes produced and 16.5 million tonnes consumed in 2019 (Figure 13) (EC 2020m). Sugar can be produced either from sugar beet (20% of global production), or from sugar cane (80% of global production). The EU is the world's leading producer of beet sugar, with around 50% of the total amount produced (EC 2021k; CEFS 2021a; ISO 2020). Between 2015 and 2019, production levels increased by 16.5%, while consumption levels in 2016-2019 increased by 2.5%. The EU's self-sufficiency of sugar was at 95% in the marketing year 2018/2019 (EC 2020m).

In Europe, beet sugar accounts for 80-85% of total production, while cane sugar accounts for 15-20% (ESRA 2020). The use of sugar comprises both human use (91.7%) and industrial use (8.3%). The industrial use of sugar includes ethanol production (3.9% of total use) (EC 2020m). While ethanol can be produced from several different crops, sugar represented 19.3% of ethanol production in 2019 (the third most important source for EU production following corn and wheat) (ePURE 2021). The total production of ethanol remained stable at around 6 billion litres per year since 2015, varying between 5.8 and 6.1 billion litres (EC 2020m).

Figure 13. Evolution of EU white sugar production and consumption between 2015-2021



Source: Arcadia International & VVA based on EC (2020m), Committee for the Common Organisation of Agricultural Markets - Sugar Balance Sheet 2015/2016-2020/2021 *Consumption includes EU+UK. **2020 Forecast based on EC estimation.

Sugar beet is grown in 18 EU MSs and processed by over one hundred factories in these countries (CEFS 2021b). The top six sugar producing MSs accounted for 85% of the EU's total production in

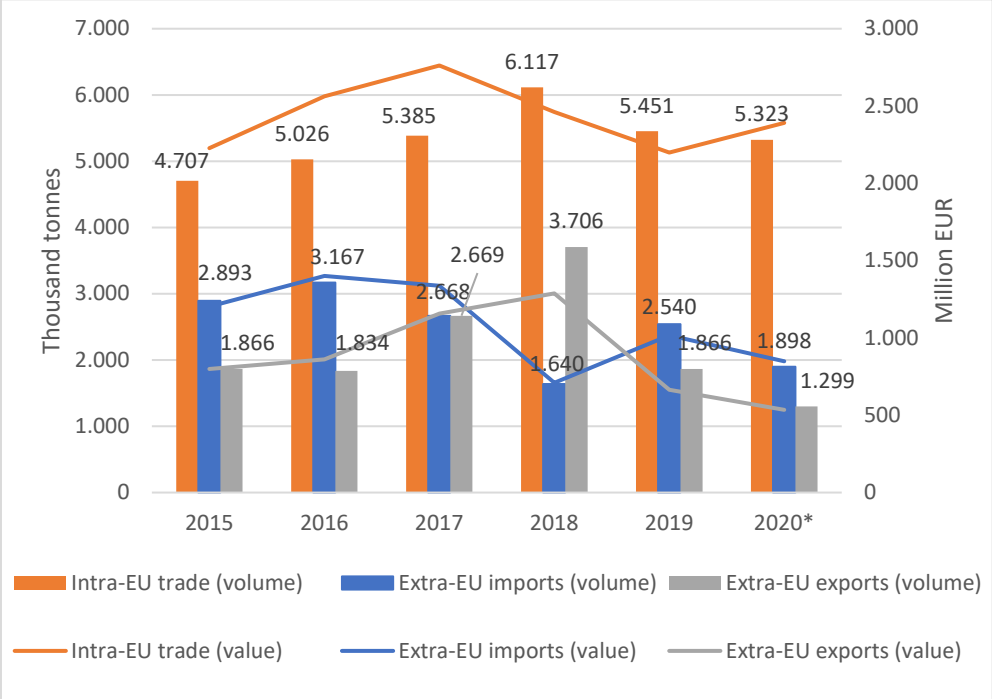
2018/2019. France is the largest producer (30.9%), followed by Germany (25.6%), Poland (13.3%), the Netherlands (6.7%), Belgium (5%), and the Czech Republic (3.5%) (EC 2020s).

The current projections by the EC indicate a slight decrease in terms of EU sugar production with a forecast of 14.6 million tonnes in the marketing year 2020/2021, compared to 16.2 million tonnes in 2019/2020. Similarly, consumption levels slightly dropped in 2019/2020 following the COVID-19 confinement measures. However, human consumption is expected to recover in 2020/2021 (EC 2020p).

3.4.1.2. Trade

On average, between 2015-2019, the EU-27 imported about 2.6 million tonnes of sugar from non-EU countries against about 2.4 million tonnes exported (Figure 14). Over the same period, Intra-EU trade accounted for approximately 5.3 million tonnes.

Figure 14. Evolution of Intra-EU27 and Extra-EU27 (imports and exports) of sugar between 2015-2020



Source: Arcadia International & VVA based on Eurostat [COMEXT]. Intra-EU trade based on export flow. *Dec 2020 corresponds to the average of Jan-Nov 2020.

Among EU MSs, France recorded the highest share of the Extra-EU trade in terms of value, on average between 2015-2019, accounting for about 34% of the EU-27's exports of sugar. Regarding imports, Spain recorded the highest share in terms of value on average over the same period, representing about 19% of the EU-27's imports. Over the same period, the next three largest exporters were Belgium, Poland and the Netherlands, while the next three largest importers were Italy, Portugal and Romania. According to the EC, Extra-EU trade is expected to remain stable in the coming years (EC 2020o).

The volume of Intra-EU trade of sugar increased until 2018, followed by a decrease of approximately 12% in 2019. Between 2015 and 2018 it increased by 30%. Based on the past five years' average, France, Germany and the Netherlands were the top-three EU exporters by volume.

3.4.2. COVID-19 impact at EU level

A decrease in **demand and consumption** has affected many European countries in 2020 as a consequence of the implementation of lockdown measures, including the closure of bars, cafés and restaurants (CIBE 2020). An increase in consumption at retail level was observed initially at the beginning of the pandemic when consumers started stockpiling food. However, this was followed by a sharp drop compared to the previous year's consumption levels (CEFS 2021c). In November 2020, COPA-COGECA reported a decrease in consumption of 429 thousand tonnes during the marketing year 2019/2020, and a decrease in exports of 885 thousand tonnes (COPA-COGECA 2020h). While **production** was fairly stable in 2019/2020 in terms of volume with a 1% decrease, EC production forecasts for 2020/2021 point to a further decrease of 11% for the EU-27 (EC 2020t).

COVID-19 has negatively impacted **price development** on the world market: raw sugar and white sugar prices dropped drastically between February and April 2020, from 325.9 USD/t to 225.07 USD/t (CEFS 2021c; FAO 2020). Over the summer, COPA-COGECA reported a loss in sugar value of 100 EUR/t, directly related to the impact of COVID-19. This implies a **loss in value of around 1.6 billion EUR for the EU sugar beet sector** in the coming season (2020/2021) (COPA-COGECA 2020f).

However, when looking at the average price for the full year of 2020 compared to 2019, prices were stable (Worldbank 2020). The EU sugar market is directly linked to the global market, and the depreciation of currency in some emerging economies plays an important role. In particular, based on the interviews conducted with the organisations representing the sector at EU level, the currency in Brazil, which is the largest sugar producer in the world, depreciated by 46% between January and May 2020, implying a huge gain in terms of competitiveness for exports with a subsequent negative impact for the EU market. The weakness of the Brazilian currency remains, affecting sugar prices considerably at global level.

Regarding **ethanol,** global demand for biofuels has decreased due to low oil prices, while fuel demand has declined as a consequence of the lockdown measures, with an estimated decrease of 40-60% for fuel ethanol, according to the organisations representing the sector. In response to the COVID-19 crisis, some refineries have redirected part of the production capacity from fuel ethanol to alcohol for disinfectant (EC 2020p). Also, in the light of disinfectant shortages, the European Chemical Agency (ECHA) took action through a special provision of the Biocidal Products Regulation (BPR), allowing EU MSs to grant exceptional emergency permits for products without authorisation under the BPR for a limited period of time. This allowed for the production of disinfectant from fuel ethanol (ECHA 2020).

3.4.3. COVID-19 impact at MS level

The impact of the pandemic on the sugar sector has been different depending on the MS. The table 10 provides an overview of the effects of COVID-19 on the major producing and exporting EU MSs of this product category.

Table 10. Comparison of production and exports (Intra-EU and Extra-EU) between the average 2015- 2019 and 2020 of the six main producing EU MSs and the largest exporting MS in sugar sector

	Production		Extra-EU trade				Intra-EU trade			
			Exports				Exports			
	Vol thousand t *	Vol % **	Vol thousand t *	Vol % **	Val million € *	Val % **	Vol thousand t *	Vol % **	Val million € *	Val % **
FR	-1288.5	-26.4	-349.1	-42.2	-146.6	-45.2	105.6	6.1	17.0	2.4
DE	59.3	1.5	-110.3	-56.6	-36.7	-41.9	12.9	1.2	8.9	1.8
PL	109.6	5.5	-64.2	-20.0	-21.6	-19.2	12.3	3.9	1.6	1.1
NL	108.5	10.5	-78.2	-32.5	-31.5	-32.1	51.5	13.1	33.9	16.1
BE	-53.9	-6.6	-247.1	-58.0	-81.2	-52.7	5.9	1.6	-13.7	-6.5
CZ	-5.1	-0.9	-73.9	-99.2	-28.4	-97.6	11.7	4.9	14.9	13.8
DK	28.4	7.8	-14.0	-12.0	-11.1	-17.7	-9.0	-11.6	-7.9	-20.1

Source: Elaborated by Arcadia International & VVA based on EC Sugar Balance Sheet 2015/2016-2020/2021 Committee for the Common Organisation of Agricultural Markets and Eurostat [COMEXT]. 2020 trade (Dec 2020 corresponds to the average of Jan-Nov 2020) *absolute value **relative value

France registered the **greatest decrease in production volume** in 2020 when compared to the average of the previous five years (-26%), while Belgium reported a smaller decrease (-6.6%) and the **Czech Republic** a minor one (-0.9%). In terms of Extra-EU exports, all MSs under analysis registered a decrease both in terms of volume and value. The **Czech Republic** and **Belgium** were the most affected countries (-97.6% and -52.7%, respectively, in terms of value), **Poland** and **Denmark** were the least affected (-19.2% and -17.7%, respectively, in terms of value). As regards Intra-EU exports, **Denmark** was the most affected country with a drop of 20.2% in value. Also, **Belgium** experienced a decrease (-6.5%) in value, but an increase (1.6%) in volume. The remaining MSs under analysis registered increased exports both in terms of value and volume: in particular, intra-EU exports of **Netherlands** (+16.1% in value) and the **Czech Republic** (+13.8% in value) performed quite well in 2020 partly compensating losses suffered in terms of Extra-EU exports.

3.4.4. Sector resilience

Despite the high pressure exerted by the pandemic, sugar producers have continued to supply sugar and other beet-derived products to the EU food industry, retailers and consumers thus contributing to food security. Through industrial adaptation, the EU sugar sector has also shifted part of its ethanol production from fuel to pharma-grade ethanol for the manufacture of sanitary gels (CEFS 2021c).

Since the beginning of the pandemic the sector has communicated their difficulties and need for support to the EC. However, according to the sector, there was no response by the EU or MSs. **The sector therefore adjusted to the situation on its own and was able to adapt the supply chain**.

With regard to ethanol, according to the trade organisations representing the sector, the crisis highlighted the importance of having a European network of bio-refineries as all supply chains were disrupted, as well as the importance of being able to rely on domestic sources for increased resilience. Ethanol refineries redirecting part of their production capacity from fuel to alcohol for disinfectant can be singled out as an indicator of the resilience of the sector.

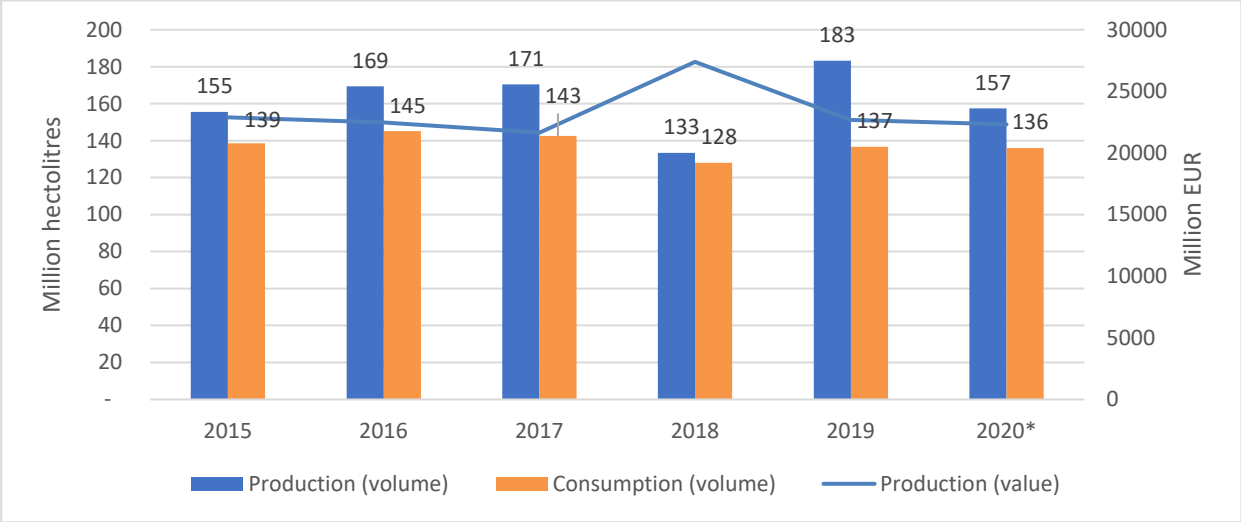
3.5. Wine

3.5.1. Sector characterisation

3.5.1.1. Production and consumption

The EU is, by far, the world's largest wine producer, with around 162 million hectolitres produced and approximately 138 million hectolitres consumed per year over the period 2015-2019 (Figure 15) (EC 2020m). EU wine production has increased from a total of 155 million hectolitres in 2015 to 183 million hectolitres in 2019, despite a drop in 2018 to 133 million hectolitres. Consumption was stable over the period 2015-2019 oscillating around 140 million hectolitres. The EU's self-sufficiency of wine was at 134% in 2019.

Figure 15. Evolution of EU-27 wine net production and consumption between 2015-2020



Source: Arcadia International & VVA based on EC 2020m and Eurostat – value at producer price [aact_eaa01] Code: 07000 data. *Forecast based on EC estimation.

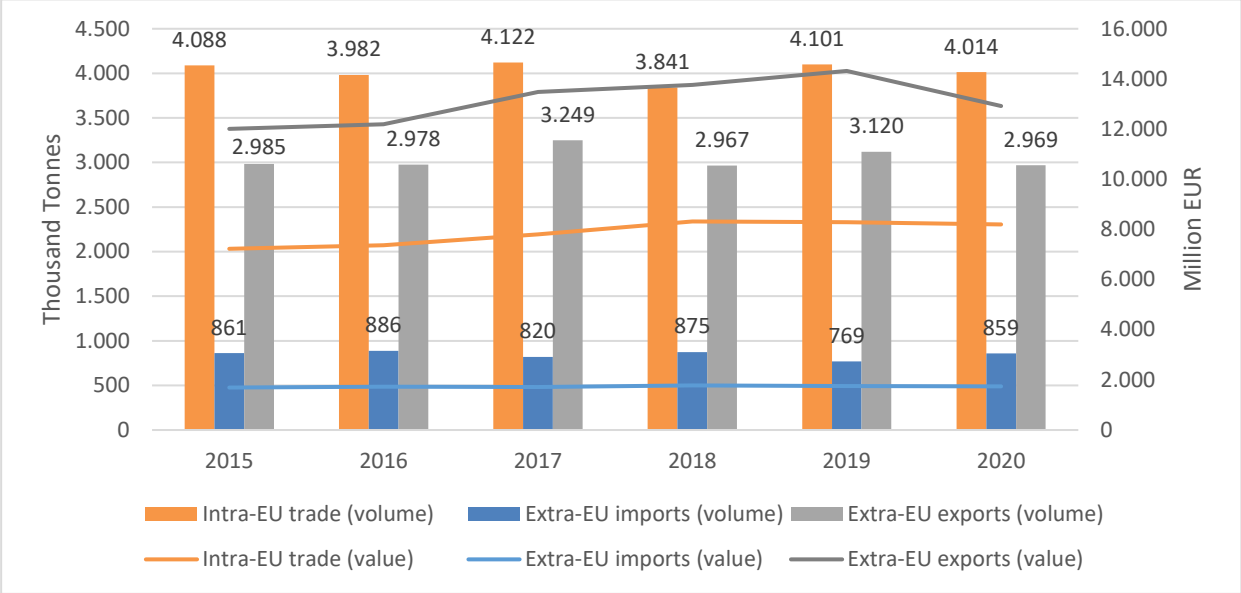
The top six wine producing MSs accounted for 95% of the total EU yearly production over the period 2015-2019. The largest EU producer is Italy (30% in volume), followed by France (27%), Spain (24%), Germany (5%), Portugal (4%), and Romania (2%) (EC 2020m). The current projections point to a moderate increase in 2020 and 2021 in terms of EU production of wine (for 2020 the EC estimates that 159 million hectolitres will be produced) (EC 2020o).

In 2019, EU consumption was around 24 litres per capita with France, Germany and Spain leading the EU ranking (EC 2020o; EC 2019c). EU per capita consumption of wine is projected to reach 25.4 litres per capita by 2030 (EC2020o).

3.5.1.2. Trade

During the period 2015-2019, the EU-27 imported 842 thousand tonnes of wine per year from non-EU countries against around 2.5 million tonnes per year exported (Figure 16). Over the same period, Intra-EU trade accounted for 4 million tonnes.

Figure 16. Evolution of Intra-EU27 and Extra-EU27 (imports and exports) of wine between 2015-2020



Source: Arcadia International & VVA based on Eurostat [COMEXT]. Intra-EU trade based on export flow. *Dec 2020 corresponds to the average of Jan-Nov 2020.

Regarding Extra-EU exports, France recorded the largest export share, accounting for 48% of the total value in the EU-27 on average between 2015-2019. Over the same period, the next three largest exporters were Italy (28% in value), Spain (11%) and Germany (4%). Over the same period, the EU's main export destinations were the US, China and Russia (EC 2019c). Regarding Extra-EU imports, Germany has the biggest share, accounting for 19% of the EU-27's imports in terms of value. Over the same period, the next three largest importers were the Netherlands (18% in value), France (13%) and Denmark (10%).

Intra-EU trade of wine has remained stable over the period 2015-2019. During this period, the main intra-EU exporters of wine were France (34% in value), Italy (29%) and Spain (17%).

3.5.2. COVID-19 impact at EU level

The EU wine sector has been significantly impacted by the COVID-19 crisis especially in terms of trade and consumption levels. Overall, production was not severely affected as observed in other sectors because restrictions imposed by MSs were lifted during the busiest period for the sector (i.e. in the summer and fall). As result, in 2020 the wine sector reported production levels similar to the yearly average over the past 5 years (EC 2020o).

Regarding wine consumption in the EU, Comités Européens des Entreprises Vin (CEEV) estimates that approximately 30% of wine in terms of volume (corresponding to 50% in value) is sold each year through bars, restaurants and similar venues (CEEV 2020).

The restrictions imposed on the food service sector during the first wave of the pandemic resulted in an estimated surplus of 1 billion litres of unsold wine (Pomranz 2020). In turn, the **value of wine dropped by -12%** (from 3.05 EUR/l in March 2020 to 2.69 EUR/l in June 2020) (CEEV 2020). In addition, CEEV estimates that **overall consumption dropped by 8% for the whole year,** although with significant differences by region and variety of wine (e.g. sparkling and liqueur wines were impacted more than others). For example, based on interviews conducted with the trade organisations

representing the sector, in Portugal restrictions led to a drop in sales of port wine because fewer tourists than usual visited the country.

The COVID-19 crisis **severely impacted** both Intra- and Extra-EU wine trade. CEEV reported **a fall of -5% in volume** and **-15% in value** for the period **March-August 2020**. However, not all wine categories were affected in the same way. According to CEEV, sales of sparkling wines decreased by -10% in volume, and -30% in value, while bag-in-box increased by +14% in volume, and +4% in value.

Despite a progressive re-opening of the food service channel across the EU as of late spring last year, wine sales have not been able to compensate for the losses in volume and value experienced following the first lockdown. In addition, restrictions imposed by most MSs on the food service to limit the sanitary impact of the second and third waves of the pandemic are still preventing the full economic recovery of the sector.

3.5.3. COVID-19 impact at MS level

The wine sector was differently impacted from one MS to another. The table 11 provides an overview of the effects of COVID-19 on the major producing and exporting EU MSs in the wine sector.

Table 11. Comparison of production and trade (exports and imports) between the average 2015-2019 and 2020 of the main producing and exporting EU MSs in the wine sector

	Production				Extra-EU Exports				Intra-EU Exports			
	Vol thousand t *	Vol % **	Val million € *	Val % **	Vol thousand t *	Vol % **	Val million € *	Val% **	Vol thousand t *	Vol % **	Val million € *	Val % **
IT	-84.0	-1.7	-292.0	-3.6	24.9	2.4	127.0	3.4	-1.9	-0.2	208.4	9.3
FR	-81.4	-1.8	-954.0	-9.0	-73.7	-9.0	-427.0	-6.8	7.9	1.2	83.3	3.2
ES	-209.4	-5.3	-114.0	-8.6	-102.0	-14.2	-83.2	-5.7	-78.9	-5.0	-26.0	-1.9
DE	-25.2	-3.0	297.0	22.9	-25.1	-19.6	-119.8	-24.3	-8.9	-3.6	-1.0	-0.2
PT	-18.6	-3.0	30.0	3.6	24.4	16.2	53.8	13.2	2.0	1.4	24.9	6.8
RO	-12.7	-3.0	-17.0	-5.7	-1.6	-28.7	-2.9	-24.6	4.6	42.7	7.8	55.3
NL***	N/A	N/A	N/A	N/A	20.1	57.6	77.6	41.3	10.2	36.7	25.9	24.7

Source: Elaborated by Arcadia International & VVA based on, OIV 2020, Eurostat – value at producer price [aact_eaa01] Code: 07000 and Eurostat [COMEXT]. *absolute value **relative value ***The Netherlands do not produce wine, however they are a key trade player. 2020 trade (Dec 2020 corresponds to the average of Jan-Nov 2020)

In terms of production volume, **Spain** (-5.3%), **Germany, Portugal** and **Romania** (-3%), **France** (- 1.8%) and **Italy** (-1.7%) registered declines in 2020 when compared to the average of the previous five years. With the exception of **Germany** and **France,** these countries registered negative production value. The most affected MSs in terms of loss of Extra-EU exports in value were **Romania** (- 24.6%), **Germany** (- 24.3%), **France** (-6.8%) and **Spain** (-5.7%). Among the MSs that saw their Intra-EU exports decrease, **Spain** (-1.9% in value) and **Germany** (less than 1% decrease) recorded drops.

3.5.4. Sector resilience

Overall, during the pandemic the sector has demonstrated **a good level of resilience** in respect of production, while the **trade** segment has shown **some weaknesses**. Because of EU and national support measures and limited restrictions during last year's harvesting season, wine producers were able to produce as much wine as they did in 2019. Conversely, wine trade was severely affected by the introduction of COVID-19 containment measures at national level (e.g. **closure of the food service**

sector). This situation was further aggravated by the existence of specific **trade irritants** (e.g. import tariffs imposed by the US on wines with EU origin).

In general terms, the first wave found the sector unprepared: faced with the closure of the food service channel, finding alternative trade channels (e.g. e-commerce, direct sales) proved to be quite challenging. The second and third waves also caused some market disturbances although the response by the sector was more effective owing to the experience gained during the first outbreak of COVID- 19.

In order to support the wine sector, several **extraordinary measures** were introduced at EU level during the pandemic. Among others, a first package of measures was released in May 2020 and included measures such as advance payments for **crisis distillation** and **aid to private storage** (EC 2020u). In June and July 2020, a second package of measures was adopted, allowing **green harvesting** on the same parcel for two or more consecutive years as well as **temporary derogations from EU competition rules** in the wine sector.

Whilst these measures were in general positively received by the trade organisations representing the sector, **market-management measures** (e.g. crisis distillation, private storage aid) were **unevenly implemented** across MSs, limiting their effectiveness (see also sections 4.1.2. and 4.2.3.). In addition, direct financial support provided so far by the EU to the wine sector has been considered limited by that sector. Owing to the prolonged closure of the food service sector, several MSs are currently seeking additional EU support for their national wine sector (Council 2021).

In conclusion, the recovery of the wine sector appears to be dependent on the evolution of the pandemic. While it is still unknown when the food service sector and events will re-open, alternative marketing channels which the sector has been exploring may not be able to absorb all the production.

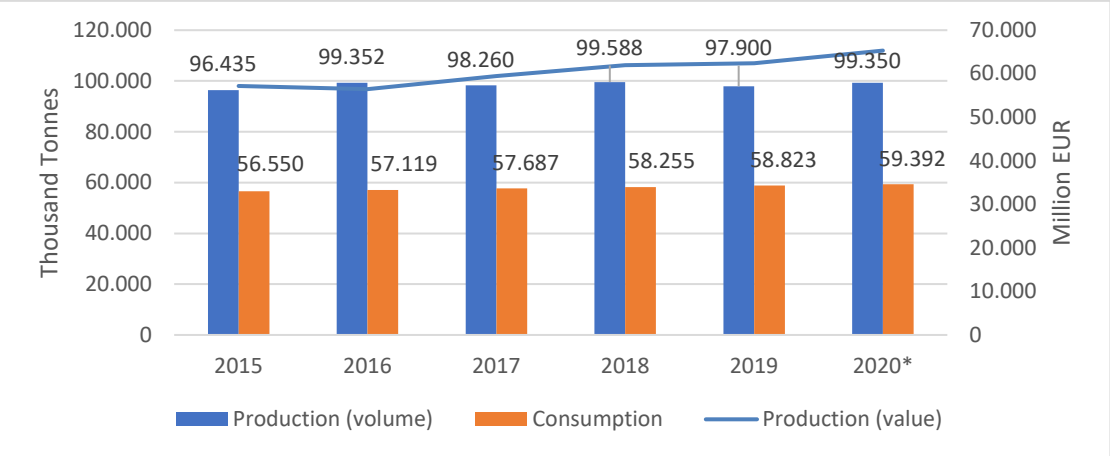
3.6. Fruit and vegetables

3.6.1. Sector characterisation

3.6.1.1. Production and consumption

The EU is one of the world's largest fruit and vegetables producers, with more than 97.9 million tonnes produced in 2019 (Figure 17). EU fruit and vegetable production was stable between 2015 and 2019 with production levels fluctuating from 96.4 million tonnes to 99.6 million tonnes.

Figure 17. Evolution of EU-27 fruit and vegetables production and consumption between 2015-2020



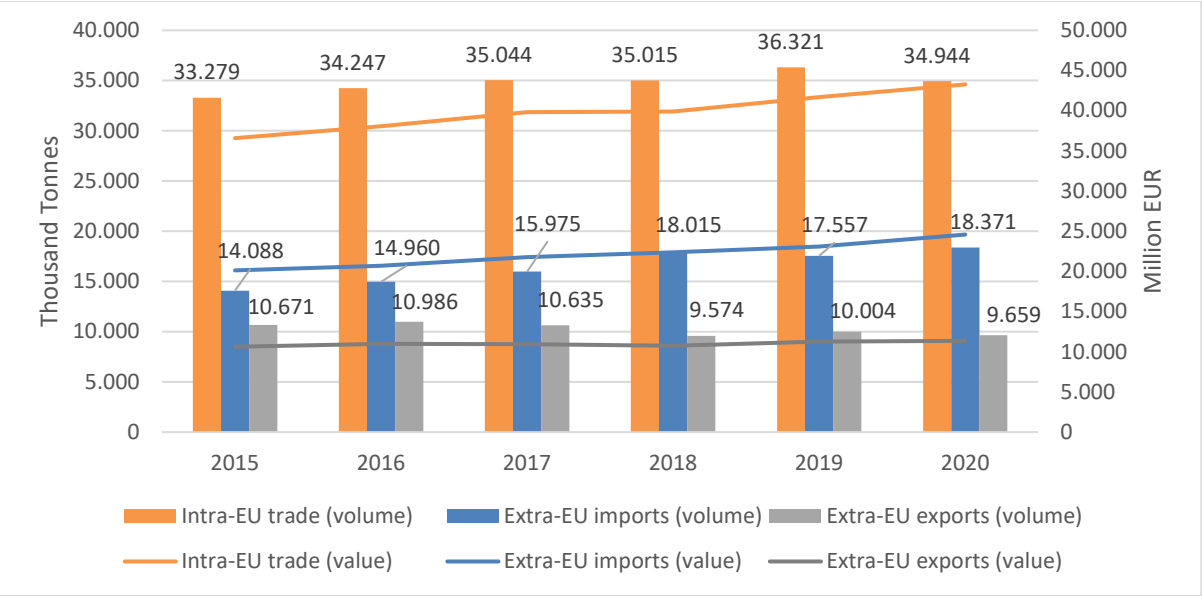
Source: Arcadia International & VVA based on Eurostat [APRO_CPSH1] Code: [F0000]; [V0000] and [T0000] and Eurostat – value at producer price [aact_eaa01] Code: 04100 and 06000 *Forecast 2020 based on EC estimations.

The top six fruit and vegetables producing MSs accounted for 76% of the total EU production over the period 2015-2019, in volume. The EU largest producer in volume is Spain (27%) followed by Italy (18%), Poland (10%), France (9%), the Netherlands and Greece (6%). Fruit and vegetable production is expected to decrease slightly between 2020 and 2030 in the EU – mainly when considering a forecast decline for tomatoes (-4%). Apples and peaches are expected to remain stable and oranges to increase slightly (+0.4% in volume) (EC 2020o).

3.6.1.2. Trade

Over the period 2015-2019, the EU-27 imported around 16 million tonnes of fruit and vegetables per year from non-EU countries against 10 million tonnes of exports (Figure 18). Over the same period, Intra-EU trade accounted for 35 million tonnes per year.

Figure 18. Evolution of Intra-EU27 and Extra-EU27 (imports and exports) of fruit and vegetables between 2015-2020



Source: Arcadia International & VVA based on Eurostat [COMEXT]. Intra-EU trade based on export flow. *Dec 2020 corresponds to the average of Jan-Nov 2020

Regarding Extra-EU exports of fruit and vegetables, over the period 2015-2019, Spain recorded the highest share with around 2.7 million tonnes exported annually, accounting for 29% of the EU-27's export in value. Over the same period, the next three largest exporters were the Netherlands (24%), Italy (10%) and France (9%). Regarding Extra-EU imports, the Netherlands has the biggest share with 4.2 million tonnes imported annually over the period 2015-2019, representing 27% of the EU-27's import in value. Over the same period, the next three largest importers were Germany (14%), Spain (12%) and France (10%).

Intra-EU trade of fruit and vegetables has grown from 33 million tonnes in 2015 to 36 million tonnes in 2019. The main Intra-EU exporters of fruit and vegetables are Spain (30% in value), the Netherlands (25%), Belgium and Italy (10%).

3.6.2. COVID-19 impact at EU level

The EU fruit and vegetables sector has been significantly impacted by the COVID-19 crisis, mainly in terms of production and trade levels.

At the beginning of the crisis, the sector had to overcome particular challenges caused by **shortages of seasonal workers**, **restrictions to Intra-EU agri-food transport** and an **imbalance between market demand and supply**.

As early as April 2020, **labour shortages** resulted in unharvested crops (e.g. asparagus, red fruits, stone fruits and mushrooms) and consequential food losses (COPA-COGECA 2020c). Labour shortages affected each MS at different degrees and at different times: overall, they were addressed by EU and national measures (see sections 2.2.2. and 4.1.1.). During the first wave, restrictions on the functioning of the food service sector and changing demand from retail and consumers (e.g. products with long shelf-lives were preferred to fresh vegetables) created stocks for fruits and vegetables (COPA- COGECA 2020e). High stock levels resulted in a drop in prices for seasonal products. For example, in Slovenia, producers had to destroy 250 tonnes of lettuce in the fields because it could not be sold (COPA- COGECA 2020c).

The **trade and transport** of fruit and vegetables was also affected by the pandemic, in particular during the first wave, mainly due to the closure of national borders and occasional workforce shortages affecting the transport sector. The prompt establishment by the EC of the transportation 'Green lanes' has contributed to mitigating the negative effects of the pandemic on the sector (see section 4.1.1.).

EU exports were negatively affected by increased transport costs (e.g. high airfreight prices, shortage of containers, lengthy delivery times) and additional administrative burdens for both drivers and goods (COPA-COGECA 2020c). For example, COPA-COGECA reported that it was extremely expensive to transport bell peppers to the US (COPA-COGECA 2020e). However, restrictions on trade occasionally had positive outcomes: for example, the decrease of garlic imports from China led to an increased garlic demand from EU farmers (COPA-COGECA 2020b).

Following the experience from the first wave, the production costs per worker and goods might increase during the next season considering additional costs for personal protective equipment, transport, housing and recovering of infected employees as well as increasing demand for packaged food (Freshfel 2020).

The evolution in demand for fruit and vegetables in 2020 has impacted **prices** in the EU-27. The EC reported that retail prices for fruits in December 2020 were 4.5% higher than in December 2019. However, retail prices for vegetables in December 2020 were 1.2% lower than in December 2019 (EC 2020v).

3.6.3. COVID-19 impact at MS level

The fruit and vegetables sector was differently impacted from one MS to another. The table 12 provides an overview of the effects of COVID-19 on the major producing and exporting EU MSs in this sector.

Table 12. Comparison of production and trade (exports and imports) between the average 2015-2019 and 2020 of the main producing and exporting EU MSs in the fruit and vegetables sectors

	Production				Extra-EU Exports				Intra-EU Exports			
	Vol thousand t *	Vol % **	Val million € *	Val% **	Vol thousand t *	Vol % **	Val million € *	Val% **	Vol thousand t *	Vol % **	Val million € *	Val% **
ES	-1 407.8	-5.5	1 279	8.1	35.7	1.4	270.6	8.4	-41.0	-0.4	1 410.8	12.0
IT	-947.3	-5.5	998	8.8	-108.5	-13.0	-39.3	-3.5	-286.7	-9.2	104.6	2.7
PL	-507.8	-5.5	640	17.1	-264.1	-22.6	15.2	2.3	-90.9	-5.2	156.1	10.4
FR	-463.8	-5.5	768	12.7	-174.7	-21.8	-108.4	-10.8	-110.1	-5.2	-11.7	-0.5
GR	-314.3	-5.5	457	10.9	-1.7	-0.4	30.1	11.4	74.1	6.8	177.7	22.7
NL	-305.1	-5.5	379	10.9	318.7	14.0	278.1	10.5	832.7	11.7	1 826.5	18.5
DE	-262.8	-5.5	-9	-0.2	18.0	13.9	17.1	4.5	-31.9	-2.2	139.7	6.2

Source: Elaborated by Arcadia International & VVA based on EC 2020o, Eurostat [APRO_CPSH1] Code: [F0000]; [V0000] and [T0000] and Eurostat – value at producer price [aact_eaa01] Code: 04100 and 06000 and Eurostat [COMEXT]. 2020 production (value) is estimated. 2020 trade (Dec 2020 corresponds to the average of Jan-Nov 2020) *absolute value **relative value

In terms of production volume, the agriculture 2020-2030 outlook from the EC states that production will decrease by around 5% in 2020 for all MSs. Regarding production value, all MSs increased their value except **Germany** (-0.2%). The most affected MSs in terms of loss of Extra-EU exports in value were **France** (-10.8%), and **Italy** (-3.5%). Regarding Intra-EU exports, the majority of top producing MSs, except France (-0.5%), have increased their exports in terms of value. However, some top producing MSs experienced a decrease in volume for Intra-EU exports, including **Italy** (-9.2%), **France** and **Poland** (each -5.2%), and **Germany** (-2.2%).

3.6.4. Sector resilience

Overall, the fruit and vegetables sector has demonstrated both its resilience and its ability to maintain adequate supply levels of high-quality, safe and affordable food despite the difficulties caused by the COVID-19 pandemic. Bottlenecks which emerged during the first year of the COVID-19 crisis (i.e. labour shortages, trade restrictions, etc.) were addressed progressively, primarily through EU intervention.

The adopted emergency measures supported primarily the production sector (e.g. EU-funded subsidies to address worker shortages) and Intra-EU trade (e.g. Green Lanes). According to Freshfel Europe's 2020 Consumption Monitor, **consumption of fruit and vegetables increased in 2020** (+4% compared to 2017) (Freshfel 2021). This increase may be linked to various measures implemented throughout the supply chain.

Representatives from the EU fruit and vegetables sector who were interviewed during the study consider that, overall, the **sector was well prepared for the second wave** due to the experience gained during the first one. Best practices learnt during the first wave were implemented to ensure protection of workers and appropriate factory conditions as well as to overcome logistical constraints and disruptions.

From April 2020 to January 2021 the **EC adopted various measures to support the fruit and vegetables sector**, ranging from the temporary lifting of expenditure limits and more flexibility in EU financial assistance to EU promotion programmes (see section 4.1.2.).

There is nonetheless uncertainty regarding how future waves might impact the sector especially in view of the next harvest season. As the sector is largely dependent on labour supply, there are concerns in particular that the next wave may result in shortages of **non-EU agricultural workers**.

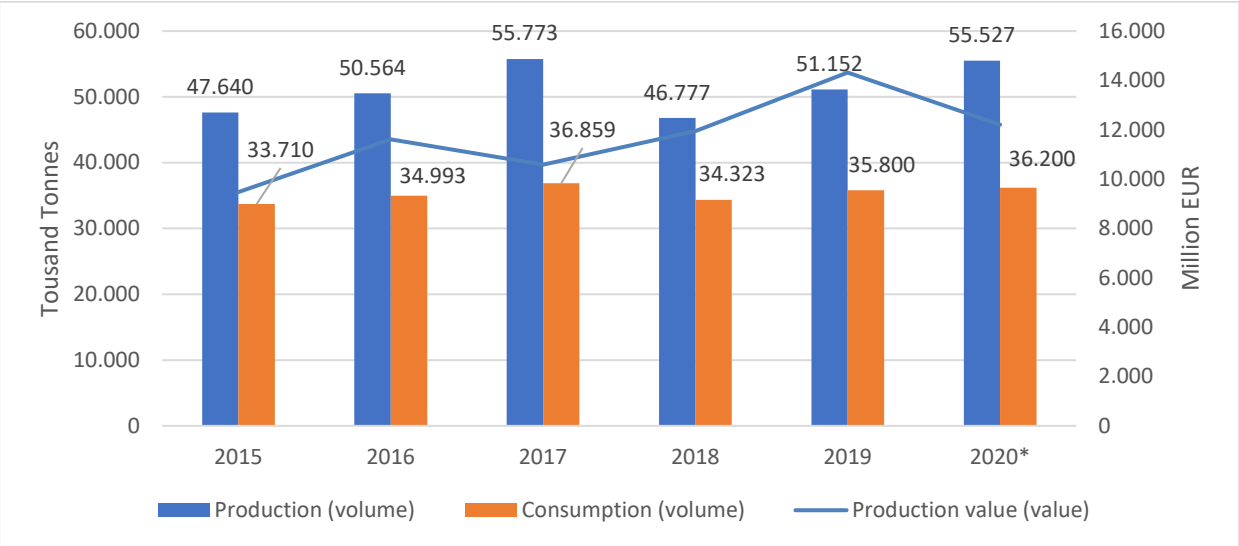
3.7. Potatoes

3.7.1. Sector characterisation

3.7.1.1. Production and consumption

The EU is one of the world's largest potatoes producers, with more than 51 million tonnes in 2019 (Figure 19). EU potatoes production increased in the past years: between 2015 and 2019 production levels increased by 7%.

Figure 19. Evolution of EU-27 potatoes net production and consumption between 2015-2020



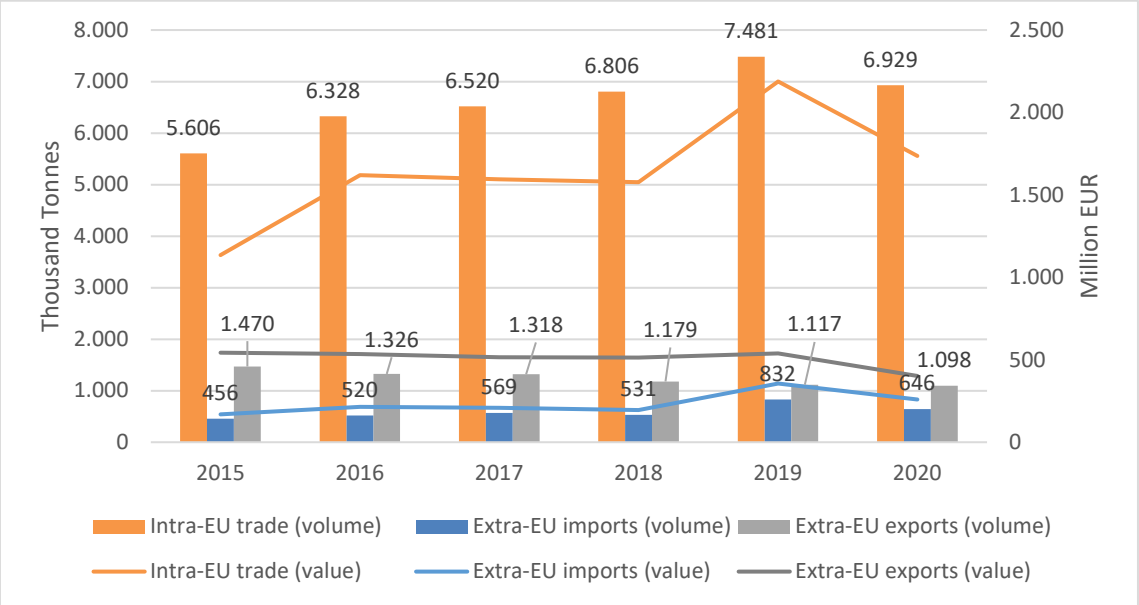
Source: Arcadia International & VVA based on Eurostat [apro_cpsh1] Code: [R1000], Eurostat – value at producer price [aact_eaa01] Code: 05000; FAO 2021b; *Forecast 2020 based on estimations of EC and sectoral interviews

The top six potato producing MSs accounted for 77% of the total EU production in 2019. The largest EU producer is Germany (21%), followed by France (17%), the Netherlands (14%), Poland (13%), Belgium (8%) and Romania (5%). The current projections by the EC point to a moderate increase in 2020 and 2021 in terms of EU production for this type of product.

3.7.2. Trade

Over the period 2015-2019, the EU-27 imported 581 thousand tonnes of potatoes from non-EU countries against 1.3 million tonnes exported (Figure 20). In the same year, Intra-EU trade of potatoes accounted for 6.5 million tonnes.

Figure 20. Evolution of Intra-EU27 and Extra-EU27 (imports and exports) of potatoes between 2015-2020



Source: Arcadia International & VVA based on Eurostat [COMEXT]. Intra-EU trade based on export flow. *Dec 2020 corresponds to the average of Jan-Nov 2020

Regarding Extra-EU trade, in 2019 the Netherlands accounted for more than half of total Extra-EU export of potatoes, with 629 thousand tonnes of potatoes exported (56% of total exports). Over the same period, the next three largest potatoes exporters were France, Germany and Denmark. Regarding Extra-EU imports, Greece is the main potato importer, with 119 thousand tonnes (14.4%) imported in 2019. Over the same period, the next three largest importers were the Netherlands, Belgium and Spain.

Intra-EU trade of potatoes increased over the last five years. From 5.6 million tonnes in 2015, it reached 7.5 million tonnes in 2019. The major Intra-EU exporters are France, Germany, and the Netherlands. In 2020, Intra-EU trade of potatoes is expected to decrease by 7% in volume and 20% in value.

3.7.3. COVID-19 impact at EU level

The European potato sector has been significantly impacted by the COVID-19 crisis. The main EU potato growers are located in Germany, France, Belgium, and the Netherlands. The impact was greater on specific segments of the potato value chain (e.g. potato consumption in the food service dropped) and type of products (e.g. exports of frozen potatoes were halted).

A large share of potatoes is processed before being sold to the food service sector. The closure of food service establishments across the EU as of spring 2020 led to a **surplus of potatoes**, primarily processed, in many MSs. By late April 2020, COPA-COGECA estimated that there was a surplus of 2.78 million tonnes of ware potatoes in the EU (**400 million EUR in value**) (COPA-COGECA 202b). In addition, these stocks had to be stored to ensure the final good quality of the products, leading to higher costs for producers, while destroying potatoes stocks would have potentially led to even higher costs (i.e. 70 EUR /t) (COPA-COGECA 2020b). Also, in accordance with the European Potato Processors Association (EUPPA), during the first wave, sales of **fresh potatoes** were in high demand **at retail level**, while, after some time, they returned to the usual level. Consumers also stored significant amounts of frozen potatoes.

Thus, the **first wave** led the industry to fill storage capacities. However, the second and third waves have not allowed the industry to empty its stocks. Indeed, the consumption of potatoes in the food service sector and in respect of exports have not yet reached pre-COVID crisis levels.

Overall, **frozen potatoes** were the **most negatively impacted market segment**. The food service sector and Extra-EU trade are highly dependent on frozen potatoes. Due to reduced market demand, the processing industry was forced to adapt production, processing and storage of frozen goods as well as reviewing contractual agreements with farmers (BELGAPOM 2021). The surplus recorded in 2020 will lower frozen potato demand for 2021, so both farmers and food manufacturers will have to find solutions to compensate their loss. In accordance with the trade organisations representing the sector, some processing companies have agreed to pay the same price to farmers for less quantity in order to avoid food loss while preserving long-term business relationships.

The **second wave** has impacted the potatoes sector insofar as its main trade channels remain closed (CAPEXO 2020). In addition to the restrictions imposed by MSs on the food service, the **EU potato trade was impacted globally**. Indeed, as a result of the lockdowns imposed in non-EU countries (i.e. especially in South America), Extra-EU exports of processed potatoes (i.e. mostly frozen chips) dropped during the first wave (COPA-COGECA 2020c). Faced with this situation, some producing MSs (e.g. Belgium, the Netherlands) made available subsidies in the form of State-aid schemes (see Annex 4). These measures were regarded as dumping practices and contested for undermining competition in some importing countries (e.g. New Zealand, Australia). Even before the COVID-19 crisis, the EU was accused by Colombia, Brazil and South Africa of dumping frozen potatoes originating from Germany, Belgium and the Netherlands (Fresh Plaza 2021).

The drop in demand for frozen and processed potatoes in 2020 impacted **prices** in the EU-27. Prices for potatoes for further processing in key EU producing MSs (i.e. Belgium and the Netherlands) were reported at around 19.5 EUR/t, i.e. 80% below their yearly average (Mintec 2020). The North-Western European Potato Growers also reported that around 20% fewer contracts might be signed for the 2021 harvest (NEPG 2020).

3.7.4. COVID-19 impact at MS level

The EU potato sector was differently impacted from one MS to another. The table 13 provides an overview of the effects of COVID-19 on the major producing and exporting EU MSs in the potato sector.

Table 13. Comparison of production and trade (exports and imports) between the average 2015-2019 and 2020 of the main producing and exporting EU MSs in the potatoes sector

	Production				Extra-EU Exports				Intra-EU Exports			
	Vol thousand t *	Vol % **	Val million € *	Val% **	Vol thousand t *	Vol % **	Val million € *	Val% **	Vol thousand t *	Vol % **	Val million € *	Val% **
DE	1 072	10.2	163	7.5	21.8	14.9	4.3	10.2	3.9	0.2	-0.7	-0.2
FR	927	11.9	563	19.9	-47.6	-23.9	-18.5	-23.4	172.2	9.0	45.5	9.6
PL	625	8.3	235	29.2	0.1	0.9	0.7	33.7	-7.2	-38.1	-1.1	-21.0
NL	376	5.6	-255	-16.5	-182.5	-25.0	-106.3	-33.0	152.3	13.1	54.8	14.0
BE	390	10.5	-171	-32.0	22.1	53.7	1.5	10.4	34.7	3.7	16.7	10.0
RO	-233	-8.2	156	17.7	6.3	113.7	1.0	156.2	0.6	24.0	0.5	67.7
ES	-64	-2.9	-105	-16.4	-5.4	-18.7	-6.1	-35.7	12.6	4.8	-1.4	-1.3

Source: Elaborated by Arcadia International & VVA based on Eurostat [apro_cpsh1] Code: R1000, Eurostat – value at producer price [aact_eaa01] Code: 05000, Eurostat [COMEXT]. Intra-EU trade based on export flow. 2020 production (value) is estimated. 2020 trade (Dec 2020 corresponds to the average of Jan-Nov 2020) *absolute value **relative value

In terms of production value, **Belgium** (-32%), the **Netherlands** (-16.5%) and **Spain** (-16.4%) registered the largest declines in 2020 when compared to the average over the previous five years. **Romania** registered a drop in production volume (-8.2%) but not in value. The most affected MSs in terms of loss of Extra-EU export value were **Spain** (-35.7%), the **Netherlands** (-33%) and **France** (-23.4%). Among the MSs that saw their Intra-EU exports decrease, **Poland** (-21%) and **Spain** (-1.3%) recorded the largest drops, however other MSs reported an increase of Intra-EU exports including **Romania** (+67.7%), the **Netherlands** (+14%), **Belgium** (+10%) and **France** (+9.6%), while trade from **Germany** remained at its pre-COVID level.

3.7.5. Sector resilience

The EU potato sector has been impacted in different ways by the pandemic and notably by the closure of the food service channel, the difficulties experienced in Extra-EU trade associated with international transport and claims of dumping practices by EU trade partners.

Overall, while the fresh potatoes sector has been able to maintain their activities, the processed potatoes sector has been more severely impacted. The sector estimated that in 2020 there was a 1- 2 million tonnes surplus compared to the previous year (COPA-COGECA 2020h).

In April 2020, the EC adopted a sector-specific measure intended to support the potato sector allowing for agreements and decisions concerning potatoes for processing. Focused on potatoes for processing, it enabled to conclude agreements for market withdrawals, free distribution, transformation and processing, storage, joint promotion and temporary planning of production (see section 4.1.). State aid for potato growers has been implemented in the Netherlands, France, Belgium, Bulgaria and Croatia (see Annex 4). This has allowed national growers to deal with the impact of the crisis although some consider that national aid might negatively impact competition on the EU market in the medium term (COPA-COGECA 2020f). To further support the resilience of the sector, in June 2020, the EC launched calls for financing promotion programmes targeting potatoes for further processing (see section 4.1.).

Considering that opportunities to market potatoes through the food service and export channels proved to be limited, growers have been exploring alternative ways to optimise their stocks: for example, by using potatoes as feed or for anaerobic digestion (i.e. producing bio-fuels), however prices for these alternatives are below market averages.

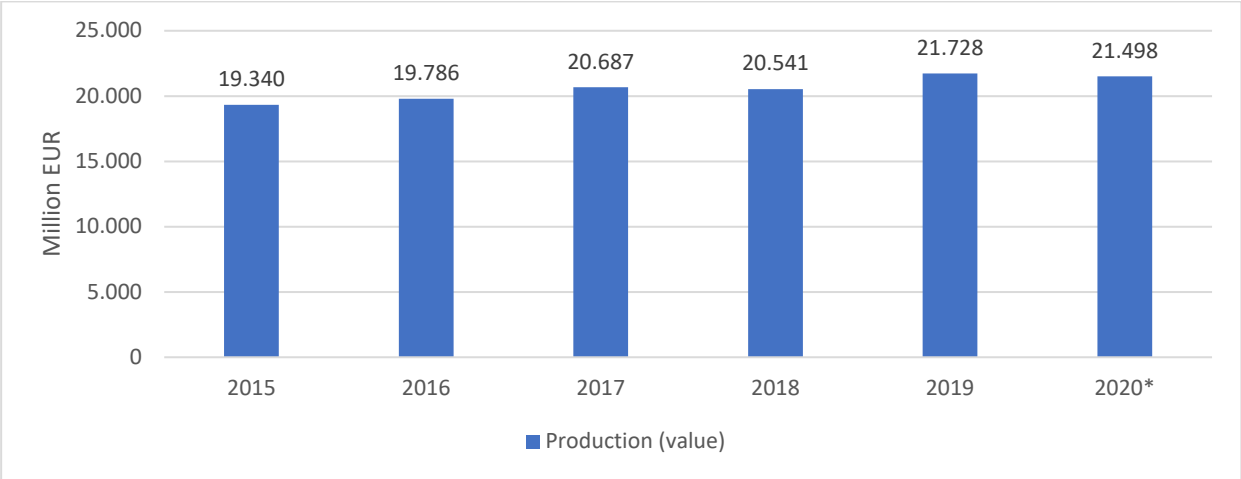
3.8. Ornamental products

3.8.1. Sector characterisation

3.8.1.1. Production and consumption

The EU is an important market for ornamental products (including bulbs, flowers, plants and trees), with around 20 416 million EUR of goods produced on average between 2015 and 2019 (Figure 21). Since 2015 the production value of flowers and plants has increased slightly from 19 340 million EUR to 21 728 million EUR (i.e. +12% growth over the last five years).

Figure 21. Evolution of EU-27 ornamental net production between 2015-2021



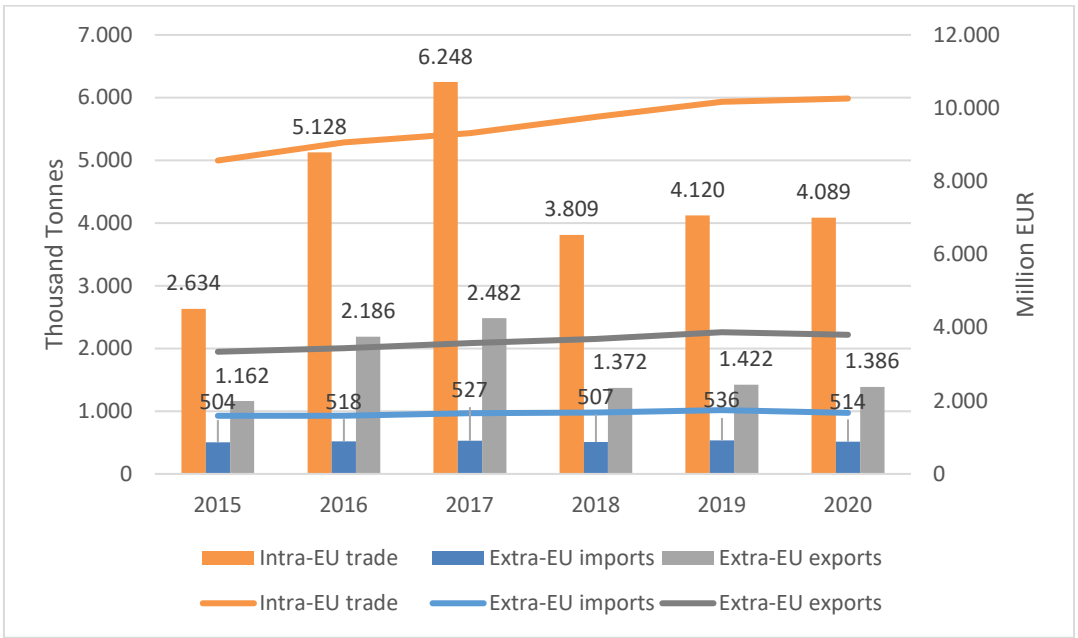
Source: Arcadia International & VVA based on Eurostat – value at producer price [aact_eaa01] Code: 04200 *Estimation 2020 value production.

On average, between 2015-2019, the top six producing MSs accounted for 84% of the total EU production. The largest EU producer is the Netherlands with almost one third of the total production in value (28%), followed by Italy, France and Germany (all around 14%), Spain (9%), and Denmark (4%).

3.8.1.2. Trade

On average, between 2015-2019, the EU-27 imported 518 thousand tonnes of ornamental products (including bulbs, flowers, plants and trees) from non-EU countries compared to approximately 1.7 million tonnes of exported goods (Figure 22). In the same year, Intra-EU trade accounted for 4.4 million tonnes.

Figure 22. Evolution of Intra-EU27 and Extra-EU27 (imports and exports) of ornamentals between 2015- 2020



Source: Arcadia International & VVA based on Eurostat [COMEXT]. Intra-EU based on export flow.

Among EU MSs, the Netherlands recorded the largest share of Extra-EU exports, with around 1.1 million tonnes exported each year over the period 2015-2019, accounting for 65% of EU-27 exports of ornamentals in volume and 73% in value. Over the same period, the next three largest exporters were Italy (7% in volume and 5% in value), Germany (6% in volume and 5% in value), Poland and Belgium (5% in volume and 2% in value each). Regarding Extra-EU imports, the Netherlands also has the highest share with 412 thousand tonnes imported each year over the period 2015-2019, accounting for 80% of the EU-27's imports in terms of volume and 73% in value. Over the same period, the next three largest importers were Germany, Belgium, and Spain (4% in volume and 8%, 6% and 5% in value, respectively).

Intra-EU trade of ornamental products almost doubled in the period 2015-2019 (from 2.6 million tonnes in 2015 to 4.1 million tonnes in 2019). The main Intra-EU importers of ornamental products are Germany, the Netherlands and France, whilst the main Intra-EU exporters are the Netherlands, Italy and Germany.

3.8.2. COVID-19 impact at EU level

Within the EU ornamental sector, the **flowers and plants category was severely impacted by the COVID-19 crisis**, mostly during the first half of 2020 when the first lockdown measures were introduced by MSs. The crisis started by affecting consumption levels before impacting production.

Preliminary figures suggest that the **demand for flowers and plants fell by 80%** during the first outbreak of the virus (COPA-COGECA 2020b). The first six weeks of the pandemic caused an **estimated loss of 4.12 billion EUR** (Union Fleurs et al. 2020). The fact that the peak of the sales normally takes place during spring (40%-80% in the case of flowerbed plants and cut flowers) might explain this impact. Indeed, most of the traditional sales channels for flowers and plants were closed in spring last year for being considered **non-essential business activities**. In France, only online sales were allowed, while retail sales were forbidden to ensure equal competition conditions between essential and non-essential outlets (Gouvernement 2020). Transport of flowers and plants proved also to be highly problematic for Intra-EU trade: unlike other agri-food products, these goods were not included amongst the priority sectors benefitting from the transportation Green lanes (see section 4.1.1.). Similarly, reduced transport with non-EU countries disrupted the international supply chain of cut flowers and Extra-EU trade in general.

As of June 2020, most MSs gradually allowed the re-opening of all the sales channels relevant for the whole sector. As a result, **gardening sales** recovered quicker than those of cut flowers for events and hospitality decoration (e.g. weddings, other events and hotels), as people spent more time at home and social gatherings was restricted. Overall, the **nursery sector** was **less affected** than the cut flowers' business, although many operators had to limit production due to a generalised surplus of products.

Following the **second wave of the pandemic**, as of November 2020, non-essential outlets were shut down again in various MSs and most are still closed at the time of writing of this report.

The drop in demand for flowers and plants in 2020 impacted **prices** in the EU-27. The EC reported that during the first wave in March 2020 auction prices were almost 60% lower than in the same week of the previous year. Moreover, in the weeks that followed and until early April 2020, prices were still 23%- 36% lower compared to the same period in 2019. According to industry sources, in November 2020 prices at auction levels were still 20% below their yearly average (KVC 2020).

3.8.3. COVID-19 impact at MS level

The ornamental sector was differently impacted from one MS to another. The table 14 provides an overview of the effects of COVID-19 on the major producing and exporting EU MSs in the ornamental sector.

Table 14. Comparison of production and trade (exports and imports) between the average 2015-2019 and 2020 of the main producing and exporting EU MSs in the ornamental sector

	Production		Extra-EU Exports				Intra-EU Exports			
	Val million € *	Val% **	Vol thousand t *	Vol % **	Val million € *	Val% **	Vol thousand t *	Vol % **	Val million € *	Val% **
NL	133	1.95	-33.62	-30.2	235.63	9.0	-20.16	-7.9	616.1	9.6
IT	109	4.27	-2.33	-20.2	-2.31	-1.2	7.49	20.8	121.2	19.5
DE	537	22.04	-0.29	-2.9	-1.98	-1.2	3.39	8.8	78.4	10.5
FR	52	1.82	0.15	7.0	4.69	8.7	-0.37	-7.6	5.9	5.6
BE	33	6.31	-1.39	-16.4	-9.98	-11.3	-24.49	-58.5	-23.0	-4.8
DK	-4	-0.89	-1.30	-40.6	-21.00	-24.8	-4.69	-28.1	-64.5	-18.9
PT	33	6.25	0.09	42.6	1.39	23.3	1.97	29.4	66.8	90.8

Source: Elaborated by Arcadia International & VVA based on Eurostat [COMEXT] and Eurostat – value at producer price [aact_eaa01] Code: 04200. 2020 production (value) is estimated. 2020 trade (Dec 2020 corresponds to the average of Jan-Nov 2020) *absolute value **relative value

When considering the top EU producers of ornamental products, in 2020 the production value significantly increased across the MSs analysed compared to the average over the previous five years (from +1.8% in **France**, up to +22% in **Germany)**. Only **Denmark** (-0.9%) has registered a drop. However, industry sources reported an important drop in production value, for the flower and live plants sector, during the first lockdown, representing 4.12 billion EUR loss in 17 MSs (Union Fleurs et al. 2020). The most affected MSs in terms of loss of Extra-EU exports in terms of value were **Denmark** (- 24.8% in value), **Belgium** (-11.3%), **Italy** (-1.2%) and **Germany** (-1.2%). Some countries, however, have increased their exports, for example **Portugal** (+23.3%), the **Netherlands** (+9%) and **France** (+8.7%). Regarding Intra-EU trade, the majority of top producing MSs have increased Intra-EU exports, for example **Portugal** (+90.8% in value), **Italy** (+19.5%), **Germany** (+10.5%), the **Netherlands** (+9.6%) and **France** (+5.6%). By contrast, some countries have seen a decrease in exports, for example **Belgium** (-4.8%) and **Denmark** (-18.9%).

3.8.4. Sector resilience

Both producers and retailers of this sector faced serious **liquidity problems** due to disrupted supply chains particularly during the first wave of the pandemic. However, as the sector is strongly market-oriented, it developed **new approaches** to reach consumers (e.g. e-commerce for cut flowers). The sales of certain ornamental products increased after the first wave, as people started to do more gardening and buy **plants** for home. Uncertainties in market demand, delays in payments and the lack of cash flow severely impacted the sector.

During the pandemic the resilience of the sector was also supported by **EC** and **national measures**.

As early as May 2020, the EC introduced temporary derogations from competition rules allowing market withdrawals and free distribution, joint promotion and temporary planning of production during a period of 6 months. In June 2020 calls for financing promotion programmes targeted ornamental products among other agri-food sectors (see section 4.1.2.). The EC stressed that the EU

agricultural budget cannot provide direct support to the ornamentals sector and that its operators will have to rely on national support or the Next Generation EU fund (EC 2020w).

In addition, financial support to the sector was also provided by MSs individually with no overall coordination at the EU level. As a result, the sector received **asymmetrical support** across the EU. For example, the Netherlands, France and Greece are among the few MSs which allocated specific funds to the ornamentals sector (see Annex 4). The uncoordinated support provided by MSs to the ornamentals sectors during the pandemic raises questions over possible distortions of competition within the Single market in the medium term.

As for the wine sector, the recovery of the ornamental products sector is highly dependent on the evolution of the pandemic and on the re-opening of its specialised trade channels.

4. ANALYSIS OF EU AND NATIONAL RESPONSES TO MITIGATE THE EFFECTS OF COVID-19 ON THE AGRI-FOOD SUPPLY CHAIN

KEY FINDINGS

- **EU interventions** have been **highly effective in preserving the integrity of the Single market.** The introduction by the EC of the transportation '**Green lanes'** as well as the development of common **guidelines addressing the agri-food workforce** (e.g. seasonal workers) are among the most successful measures.
- **CAP measures adopted during the pandemic had mixed results**. **Flexibility in the application of CAP rules** has been generally regarded as useful and adequate. Conversely, **market-management measures** established for specific agricultural sectors (e.g. derogations from competition rules, private storage aids, crisis distillation) have been implemented partially or inconsistently across MSs and, overall, their market impact has been considered limited.
- **Most requests put forward by the EP** during the pandemic have been **translated into EU legislation**. Exceptions include the activation of the CAP crisis reserve and measures in specific agricultural sectors (e.g. additional funding for the wine sector).
- The **Temporary Framework for State aids** has been considered relevant and useful allowing MSs to provide essential financial support to the agri-food value chain (estimated **63.9 billion EUR excluding 'umbrella' schemes** over the period March 2020 – January 2021). However, MSs have followed different approaches in the implementation of that support and often complemented it with other ad hoc financial and/or non-financial measures. This makes it difficult to compare the precise impact of national intervention in support of the agri-food sector. Also, the lack of coordination across MSs raises questions over **possible distortions of competition** in the short and medium term.
- Conversely, **EU financial measures**, in general, and **CAP measures,** in particular, have provided **limited financial support** to the agri-food value chain during the crisis. On the one hand, as the COVID-19 crisis broke out in the last year of the MFF 2014-2020, there was very limited room for identifying additional financial support. On the other, CAP financial support primarily took the form of aid to private storage for a total amount of **80 million EUR**. At least four **additional measures to tackle market crises** exist at EU level, but, for not being easy to use, they were not implemented during the crisis to support the EU agri-food sector.

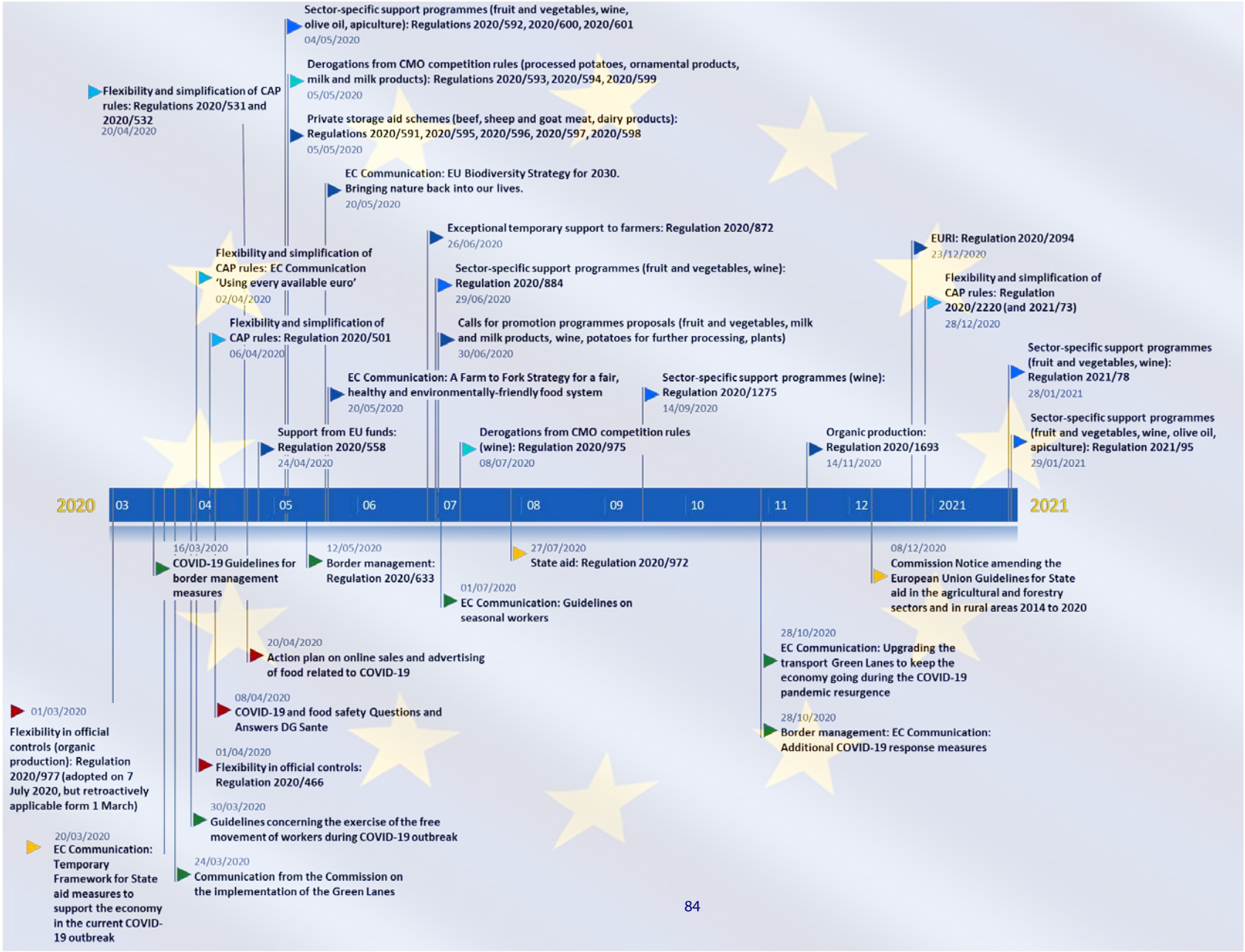
4.1. EU policy response

Throughout the pandemic the EC adopted a raft of policy measures to limit its detrimental impact on European agriculture and the agri-food supply chain in general.

This section provides an analysis of the most relevant measures adopted at EU level over the period **March 2020 - January 2021** in the context of the Single market (4.1.1.) and of the CAP (4.1.2.). Annex 2 provides a detailed mapping of these measures. The analysis is complemented by an evaluation to assess whether and to what extent the COVID-19-related requests put forward by the EP in the course of 2020 have effectively translated into concrete measures supporting EU agriculture (4.1.3.).

Figure 23 illustrates the timeline of the EU policy response over the period studied.

Figure 23. Timeline of EU policy response against COVID-19 in support of the agri-food supply chain



4.1.1. Single-market measures

This section presents and discusses the measures which were adopted at EU level during the pandemic to ensure the smooth functioning of the Single market. Most of these measures were a reaction to the uncoordinated response given by MSs to the challenges and uncertainties posed by COVID-19. In this context, harmonised rules and/or guidelines were introduced by the EC in various policy areas of direct and indirect relevance for the agri-food supply chain, including **transport and free movement of goods and workers**, **competition law** and **food safety**.

Transport and free movement

The EU's interventions in response to the pandemic occurred in the field of transport and free movement with the objective to preserve the **unity of the Single market** and keep the economy running despite the numerous restrictions introduced by MSs to the free movement of goods and workers. EU action occurred primarily through **non-binding instruments**, such as guidelines and recommendations, and was primarily intended to:

- Guarantee continuity in the supply of **essential goods**, including **food** and medical supplies; and
- Ensure the freedom of movement of **critical workers**.

Overall, the establishment of the transportation **Green lanes** at border crossings within the EU is considered as the most important policy measure introduced to guarantee free circulation of goods in the Single market during the pandemic. This measure provided for freight vehicles to move through internal border crossings in no more than 15 minutes, irrespective of the type of goods carried and including any checks and health screening of transport workers. Likewise, it recommended easing travel restrictions for transport workers, allowing these professionals to perform their duties seamlessly. The two Communications on the Green lanes adopted by the EC in 2020 also advocated for transport workers to be exempted from quarantine periods when travelling for work. In October 2020, the EC reported that **90% of the internal border crossings had proven to be compliant** with the 'Green lanes' concept (EC 2020d and 2020e).

EU action also focussed on **seasonal workers** owing to their importance in strategic economic sectors, including agriculture. On 30 March 2020, in a first Communication on the subject, the EC recommended MSs to ensure that such workers could move across national borders without obstacles (EC 2020f). Later in the summer of 2020 and following a specific request by the EP, the EC also adopted a specific set of guidelines covering seasonal workers' health and safety standards, social security and information campaigns about workers' rights (EC 2020g).

Overall, the feedback on the EC's intervention in this policy area provided by EU agri-food stakeholders which were consulted in the context of the study is **highly positive** both for the swiftness and the effectiveness of the EU's response following the first outbreak of the virus in Europe. The implementation of these measures by MSs under the supervision of the EC has continued during the subsequent waves of the pandemic with no significant drawbacks reported.

Competition

One of the EU's core policies and competences is to ensure the existence of free and equal conditions of competition for businesses operating in the Single market. Public intervention through the implementation of State-aid schemes as well as collective or individual practices with potential or

actual anti-competitive effects must therefore strictly comply with **EU competition rules**. This is an area in which the EC has extensive supervision and enforcement powers.

The exceptional socio-economic circumstances induced by the pandemic led the EC to adopt a **Temporary Framework for State aids** on 20 March 2020. The framework is based on article 107(3) (b) TFUE, which stipulates that national aids intended to **remedy a serious disturbance in the economy of a MS** may be considered compatible with the internal market as long as the MS in question is able to prove to the EC that such measures are necessary, appropriate and proportionate.

Under this Temporary Framework, MSs have been given the right to assist food processors and manufacturers, among others, with **subsidised public loans** and **direct grants** up to a maximum of 800 thousand EUR. Farmers benefit from sums of up to 120 -125 thousand EUR (national *de minimis* aid for agriculture included) (EC 2020h). This framework has been modified a few times during the pandemic, with the last amendment, dated 13 October 2020, extending its scope and prolonging the application of most of its elements until **30 June 2021**. The amendment approved in October 2020 introduced the possibility to extend the support to businesses that suffered a decline in turnover of at least 30% compared to the same period in 2019 (EC 2020i). In this case, the maximum amount of aid per undertaking is 3 million EUR. Overall, since the introduction of the framework over 100 measures were notified by MSs to the EC, several of which are directly or indirectly relevant for the agri-food sector (see section 4.2.1.).

The EC Temporary framework is not the only financial instrument foreseen by EU primary law which MSs have used to support their national economies during the pandemic. Indeed, national aids intended to **compensate damages caused by exceptional occurrences** besides natural disasters are compatible with the internal market pursuant to article 107(2) (b) TFUE. On that basis, during the pandemic some MSs introduced **compensation schemes** to the benefit of specific national agri-food sectors (e.g. the Netherlands for the floriculture, horticulture and potato sector, Lithuania for the poultry and egg processing sector, the UK for the Scottish poultry processing sector) (see section 4.2.1.).

Overall, there is consensus among the stakeholders consulted during the study that the EC's intervention in the field of State aids during the pandemic was carried out in an appropriate and timely manner. Nonetheless, in some instances**, national implementation** of COVID-19-related State aids has been reported to be **particularly slow and/or bureaucratic**, thus limiting it overall effectiveness (see above e.g. section 2.4.1.). Concerns remain about the impacts on the EU agri-food sector that these measures might have in the medium term, namely in terms of possible **distortions of competition** within the Single market. Indeed, in the absence of more structured and targeted coordination at EU level, MSs have followed different approaches at national level to support the agri-food sector through State aids (see section 4.2.1.).

Food safety

Concerns about the possible direct transmission of COVID-19 through food were ruled out by EFSA at the beginning of the pandemic (EFSA 2020). For this reason, EC intervention in the field of food safety has been limited.

Owing to the serious disturbances caused by the pandemic, specific temporary arrangements were introduced through **Regulation (EU) 2020/466** to allow some flexibility in the performance of official controls on the agri-food supply chain by MSs. The duration of these arrangements has been extended a few times since the beginning of the pandemic and should last until **1 July 2021**. Whilst this legislative measure was welcomed by food industry and implemented in several MSs (Montanari et al. 2020), consumers organisations across the EU have warned that flexibility in official controls should be

limited to the extent strictly necessary in order to guarantee the highest level of consumer protection on the EU market. No evidence was collected during the study that the flexibility granted in this area resulted in lower levels of protection of consumers' health or economic interests.

The EC published a **Q&A paper on COVID-19 and food safety** on 8 April 2020, which focused on the likelihood of contracting COVID-19 from food by means of direct or indirect contamination. In the absence of scientific evidence that food can be a source of transmission, indirect contamination, albeit unlikely, could still occur from the handling of food previously manipulated by infected individuals. For this reason, consumers have been encouraged to follow basic personal hygienic rules. The paper also provides reassurances on what the food industry has been doing to ensure that food is safe and on the additional measures which can be implemented to that effect, including in the case of an outbreak in a food establishment (EC 2020j). However, the Q&A paper did not contain any specific guidelines or recommendations for farmers and food service operators, two categories severely impacted by the pandemic, giving rise to a void which in certain instances has been filled in by MSs (Montanari et al 2020).

Finally, on 20 April 2020, the EC launched **an EU-wide coordinated action plan** intended to identify national and cross-border illicit or dubious practices regarding **online sales and advertising of food and food supplements** related to COVID-19 (EC 2020k; Montanari et al. 2020).

The overall feedback on the EC's intervention in this policy area provided by EU agri-food stakeholders which were consulted in the context of the study is **largely positive** both for the swiftness and the effectiveness of EU response.

4.1.2. CAP and other agricultural-related measures

A wide array of measures has been adopted at EU level to support the European agricultural sector during the pandemic. The following section provides an overview of the main measurers intended to support the agri-food sector as a whole ('general measures') as well as specific agricultural sectors ('sectoral measures').

General measures

On 2 April 2020 the EC issued the first act intended to provide direct support to EU agriculture, through the Communication **'Coronavirus response using every available euro in every way possible to protect lives and livelihoods'** (EC 2020l). In this Communication, the EC stressed the importance of farmers and fishermen alike for the EU economy and proposed measures to support them. The proposed measures for farmers primarily aimed at ensuring **flexibility in the implementation of the CAP rules**, namely by;

- **Granting more time** to farmers to submit applications for aid under the CAP (i.e. until 15 June 2020) and for national competent authorities to process those applications;
- **Increasing advances** for direct payments from 50% to 70% and rural development payments from 75% to 85%;
- Allowing **earmarking** of the remaining funds for Regional Development Programs to finance actions to deal with the crisis;
- Allowing **on-the-spot checks** performed in the context of CAP to be replaced by alternative verification instruments (i.e. photointerpretation of satellite, aerial ortho-images or other evidence).

The measures announced in the Communication were subsequently implemented through binding acts, including Regulations (EU) 2020/501, 2020/531 and 2021/532.

Measures similar to those envisaged for CAP on-the-spot checks were introduced by Regulation (EU) 2020/977 with regard to the physical inspections related to annual inspections and renewal of documentary evidence for organic food business operators. In addition, the pandemic justified the postponement of the entry into application of the new EU rules on **organic production and labelling** pursuant to Regulation (EU) 2018/848. Originally set to be 1 January 2021, their entry into application has been delayed until 1 January 2022 in accordance with Regulation (EU) 2020/1693.

Regulation (EU) 2020/872 amends Regulation (EU) No 1305/2013 to introduce **exceptional temporary support measures** under the European Agricultural Fund for Rural Development (EAFRD). The measures are focussed on farmers and SMEs active in the processing, marketing or development of agricultural products which were particularly affected by COVID-19 in order to ensure their business continuity. Under this regime, eligible beneficiaries may receive up to 7 thousand EUR per farmer or 50 thousand EUR per SME in the form of a lump sum to be paid by MSs by 30 June 2021.

Finally, in May 2020, the EC published the **F2F Strategy** as a part of the European Green Deal. Overall, the Strategy is intended to be a driver for a transition towards fairer, healthier and more environmentally friendly food systems in the EU (EC 2020b). The Strategy was published two months later than initially foreseen. The delay in its publication was partly due to COVID-19, but the Strategy was not intended nor designed to cope with the immediate consequences of the pandemic. Nevertheless, the pandemic provided an opportunity to enlarge its scope, namely by encompassing **food security**, a fundamental objective of the CAP (article 39 TFEU). In so doing, the F2F Strategy explicitly acknowledged the impact of COVID-19 on food supply and the vulnerability of the EU agri-food supply chain to external threats.

In light of this, the EC intends to develop an **EU-wide contingency plan** in order to strengthen the preparedness of the EU agri-food chain in critical areas (notably, agriculture, fisheries, food safety, labour, health and transport) and guarantee sufficient availability of food supplies in case of future crisis. As foreseen in the EU contingency plan, a **food crisis response mechanism** to be coordinated by the EC with the participation of all EU MSs is to be established. Earlier this year, the EC began working on the design of a future contingency plan by gathering feedback from stakeholders through a public consultation.[4]

Overall, the general measures which were introduced at EU level in support of the agricultural sector have received a **positive assessment** by the stakeholders consulted in the course of the study both for their relevance and timely adoption. Some issues (e.g. delays, administrative burden) have been occasionally reported in instances where the effective implementation of EU measures depends on MSs involvement.

Sectoral measures

On 30 April 2020 the EC passed a large package of measures intended to support the agricultural sectors most affected by the pandemic.

A first group of measures provides for **derogations from EU competition rules**, based on article **222 CMO Regulation**, allowing for agreements or decisions to be concluded by farmers, farmers'

[4] The public consultation on the EU contingency plan took place from 4 December 2020 until 13 January 2021. 66 submissions were received in total, which can be consulted at the following link: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12770-EU-food-supply-and-food-security-contingency-plan.

associations or associations of such associations as well as recognised producers' organisations (POs), associations of POs (APOs) and interbranch organisations (IBOs) of certain agricultural sectors. This group includes:

- Regulation (EU) 2020/593, covering **potatoes for processing** and allowing for agreements and decisions on market withdrawals and free distribution, joint promotion and temporary planning of production during a period of 6 months starting from 5 May 2020;
- Regulation (EU) 2020/594, covering the **live plants and flowers sector** and allowing for agreements and decisions on market withdrawals and free distribution, joint promotion and temporary planning of production during a period of 6 months starting from 5 May 2020;
- Regulation (EU) 2020/599, covering the **milk and milk products sector** and allowing for agreements and decisions on the planning of the volume of raw milk to be produced during a period of 6 months starting from 1 April 2020.

The feedback received by stakeholders regarding these derogations indicates that these measures have been used to a **limited extent** by the concerned operators. Their **perceived effectiveness** is therefore likewise limited. The reasons for this vary by sector as well as within sectors (e.g. in the case of potatoes). Overall, they relate to the lack of knowledge and experience regarding the practical implementation of the derogation and lack of appropriate incentives (e.g. in case of agreements envisaging costly measures such as market withdrawals).

A second group of measures provided a framework for temporary exceptional private storage aid schemes for different products categories. These were **cheeses** (Regulation (EU) 2020/591), **sheep meat** and **goat meat** (Regulation (EU) 2020/595), **bovine meat** (Regulation (EU) 2020/596), **butter** (Regulation (EU) 2020/597) and **skimmed milk powder** (Regulation (EU) 2020/598).

Limited use was made of these measures based on the feedback from concerned stakeholders and as shown in Table 15. Food business operators in 17 MSs have resorted to private storage aid as of March 2021. The measures for the beef and sheep and goat meat sectors registered significantly lower quantities of products covered by private storage schemes when compared to dairy products. In the case of sheep and goat meat Spain was the only MS to make use of private storage aid and for only 15 tonnes of products. In this context, private storage aid for dairy products was considered overall more effective.

The reasons for the limited use of private storage aid during the pandemic vary by sector (see above e.g. sections 3.1.1. and 3.1.4.) and include:

- The limited scope of the EU measure (e.g. veal was excluded from the private storage aid applicable to bovine meat despite being one of the meat segments most affected by the pandemic);
- The limited amount of the financial aid foreseen; and
- The administrative burden imposed on farmers to be able to receive the aid.

Table 15. Implementation of temporary exceptional private storage aid schemes until March 2021 (quantities in tonnes)

MS	Skimmed milk powder	Butter	Cheese**	Beef	Sheep and goat
AT	-	547	1 172 (60%)	300	-
BE	1 825	3 312	1 116 (99%)	-	-
CZ	447	12	-	-	-
DE	8 238	11 890	879 (4%)	39	-
ES	185	783	4 009 (87%)	586	15
FI	-	230	472 (56%)	-	-
FR	-	7 100	6 634 (36%)	348	-
HR	-	238	-	-	-
IE	-	14 266	2 179 (100%)	-	-
IT	-	74	12 654 (100%)	86	-
LT	693	1 717	978 (100%)	-	-
LV	-	-	-	50	-
NL	4 710	21 602	8 019 (92%)	260	-
PL	354	431	39 (0.5%)	290	-
PT	1 825	1 085	69 (9%)	-	-
SE	-	-	787 (99%)	-	-
RO	23	38	178 (19%)	-	-
Total EU*	**18 300**	**63 324**	**39 184** (41% of total)	**1 959**	**15**

Source: EC 2021d *EU without UK ** The private storage aid scheme for cheese was the only one to fix maximum volumes of product per MS subject to aid. The percentages represent the quantity effectively used in relation to the maximum set by EU legislation.

During the pandemic the EU legislator paid specific attention to the **wine sector**. Regulation (EU) 2020/592 was introduced to provide **support for the distillation of wine for industrial purposes** (including disinfection or pharmaceutical uses) **or for energy production.** The beneficiaries included wine enterprises producing or marketing the products referred to in Part II of Annex VII to the CMO Regulation, wine POs, associations of two or more producers, IBOs or distillers of grapevine products. Beneficiaries could request the payment of an advance, which should equal 100% of the EU contribution. Under similar conditions and for the same categories of beneficiaries, this regulation also introduced aids for **crisis storage of wine**. By way of derogation from article 44(3) CMO Regulation, MSs could grant **additional national payments** for the measures. A detailed overview of the national implementation of these specific market-management measures together with other relevant financial support measures is provided in Table 17 under section 4.2.3.

Regulation (EU) 2020/600 introduced derogations allowing MSs to adopt changes to their **wine national support programmes** (WNSP) until 15 October 2021. Derogations were introduced in order to enable MSs to postpone (between 15 April and 30 June 2020) the deadline for the submission of applications for support for green harvesting, as well as the deadline for carrying out such operations. Moreover, movement restrictions, logistics problems and the shortage of workforce to carry out the manual operations in the vineyards, like planting vines and grubbing up, were regarded as specific problems within the meaning of **article 221 CMO Regulation.** For this reason, under Regulation (EU) 2020/601, the validity of planting and replanting authorisations expiring in the year 2020 was extended for 12 months after the entry into force of that regulation (until 5 May 2021). MSs were allowed to extend the deadline for grubbing up in case of the anticipated replanting of vineyards until 5 May 2021.

Regulation (EU) 2020/975 established a **temporary derogation from EU competition rules in the wine sector,** pursuant to **article 222(1) CMO Regulation**. The derogation allowed farmers, farmers' associations, recognised POs, APOs and IBOs to conclude agreements and take common decisions on the production of wine grapes and wine, on transformation and processing, storage, joint promotion, quality requirements and temporary production planning during a period of 6 months, starting from 8 July 2020.

Finally, on 14 September 2020, Regulation (EU) 2020/1275 established **exceptional derogations from CMO Regulation** for the wine sector amending Regulation (EU) 2020/592 in order to be better able to **compensate for the loss of income** resulting from the COVID-19 crisis, based on article **219 CMO Regulation**.

Stakeholders representing the wine sector consulted during the study consider that **national implementation hampered the effectiveness of EU market-management measures** adopted during the pandemic. This is the case of the national funding allocated by certain MSs (e.g. Italy, Portugal and Spain) to wine operators resorting to crisis distillation measures where prices for beneficiaries were considered too low to compensate losses in the case of medium and high-quality wines. The same can be said for private storage aid, which could have been a life-saving economic instrument for many wine producers supplying the food service had it been supported by more adequate national funding.

Furthermore, according to the same stakeholders, EU measures introduced by Regulation (EU) 2020/884 allowing **green harvesting** on the same parcel for two consecutive years have proven to be ill-suited to farming practices typically used for the production of high-quality wines and wines covered by geographical indications. Indeed, vineyards producing such wines often consist of multiple parcels each one intended for the production of a specific type of wine for blending purposes: as green harvesting implies the destruction of the parcel, in such cases it may put a halt to the production of a given blend.

Calls from the organisations representing the wine sector for the allocation of **extra EU funding**, in addition to the financial support available through the WNSP, were not followed up (e.g. EFOW 2020).

The **fruit and vegetables** sector has been subject to various measures since the beginning of the pandemic. Most were introduced alongside the measures applicable to wine. The first measure specifically related to this sector is Regulation (EU) 2020/592, which resulted, among others, in the **temporary lifting of expenditure limits applying to crisis prevention and management** in the context of operational programmes of POs for the year 2020. Fruit and vegetables were covered by Regulation (EU) 2020/600, too. In this case, derogations from the applicable legal framework were

introduced to allow for aid applications submitted by 15 February 2020 to cover expenditure for operations programmed for the year 2019 but not carried out by 31 December 2019 as well as for aid applications to be submitted by 15 February 2021 to cover expenditure for operations programmed for the year 2020 - but not carried out by 31 December. Overall, the flexibility granted to the fruit and vegetables sector through the implementation of general and sector-specific CAP measures was **positively evaluated** by the stakeholders representing that sector.

Finally, two calls for proposals, with a budget of 5 million EUR each, were launched by the EC in June 2020 for financing of promotional programmes for the agricultural products most affected by the pandemic, notably including fruit and vegetables, milk and milk products, live plants, wine and potatoes for further processing. These initiatives were positively evaluated by the sectors concerned but no evidence was collected on their actual implementation during the study.

4.1.3. Effectiveness of EU response to COVID-19

Table 16 provides an overall assessment by policy area of the impacts on the Single market of the measures adopted at EU level to guarantee the proper functioning of agri-food markets during the pandemic. The assessment is mostly based on the feedback gathered through interviews performed with EU stakeholders during the study. No assessment was carried out in the case of the F2F Strategy since the elements of the strategy which were introduced as a result of the pandemic are still under development at the time of the writing of this report.

Table 16. Effectiveness of EU response to COVID-19 per policy area

EU policy area	Degree of effectiveness	Main factors limiting effectiveness
Transport and free movement	High	None
Competition	Medium	Reported challenges in national implementation of State aids
		Possible distortions of competition within the Single market
Food safety	High	None
Agriculture:		
Flexibility in the application of CAP rules	High	Occasional challenges due to national implementation
Exceptional temporary support measures under EAFRD	High	None
Derogations from CMO competition rules	Low	Lack of knowledge about practical implementation of the derogations
		Lack of incentives for the implementation of certain actions envisaged by agreements / decisions benefiting from derogations
Temporary private storage aids	Low	Limited scope
		Limited financial aid
		Excessive administrative burden for beneficiaries

EU policy area	Degree of effectiveness	Main factors limiting effectiveness
Specific measures for the wine sector	Low	Effectiveness of certain EU measures (e.g. crisis distillation, private storage aid) negatively impacted by uneven and inadequate national implementation and funding
		Extra flexibility granted via green harvesting measures not suitable for the characteristics of the production of high-quality wines and wines with geographical indication status.
		Lack of additional EU funding to support the sector during the pandemic
Specific measures for the fruit and vegetables sector	High	None
Calls for promotion of products of certain agricultural sectors (10M EUR)	High	None

Source: Interviews with EU stakeholders

4.1.4. EP requests during the pandemic

At the outset of the pandemic the EP put forward several requests to the EC to undertake appropriate policy and/or legislative steps to support the European agriculture sector in dealing with the resulting market disturbances. Most of those requests were taken board by the EC and reflected in EU legislation which was passed in 2020. This includes, among others, the adoption of measures:

- Streamlining the implementation of current CAP rules (e.g. extension of the deadline for submission of applications for aid by farmers, flexibility in the performance of on-spot checks at farm level);
- Facilitating the free movement of seasonal workers in the EU;
- Ensuring the health and safety of agricultural workers during the pandemic;
- Mitigating the negative effects of COVID-19 on agri-food markets (notably, through the introduction of temporary private storage aid schemes and derogations from competition rules); and
- Providing for the postponement of the entry into application of the new EU rules for organic production and labelling.

However, the EP request to deploy – for the first time ever – the **crisis reserve** established under CAP was **not** followed up. Likewise, requests regarding certain agricultural sectors (e.g. amendment of the scope of private storage aid scheme for cheeses and certain financial and non-financial measures for the wine sector) have not been translated into any EU policy or legislative initiative.

Against this background, Annex 3 provides for a detailed overview of the requests formulated by the EP throughout the pandemic to support the European agricultural sector alongside an evaluation as to whether those requests were followed up or not. The specific requests advanced by the EP were identified on the basis on the official letters that the EP AGRI Committee's Chair sent to the EC over the period March – October 2020 and which were made available by that Committee to carry out the evaluation.

4.2. Member State responses

The following sections provide an overview of the national responses to mitigate the detrimental effects of COVID-19 on the agri-food supply chain, which is based on an in-depth analysis for each MS (see national country fiches in Annex 4). The overview covers the period **March 2020- January 2021**. Regarding the financial and non-financial measures deployed at national level in support of the **domestic agri-food sector**, the study has identified **significant disparities** in the approach followed by MSs during the pandemic. This applies to the implementation of State-aid schemes as well as of other national ad hoc support measures.

4.1.5. 4.2.1. State-aid schemes

In March 2020 the EC introduced a temporary mechanism allowing MSs to support their national economy with direct subsidies in the form of grants and loans, among others (see section 4.1.1. and Annex 2). Several MSs have since taken advantage of this opportunity to varying degrees to support their domestic agri-food sector. While some MSs have implemented State-aid schemes targeting the agri-food sector as a whole or some specific segments of that sector, others have opted for general measures covering broader areas of their economy.

State-aid schemes specific to the agri-food sector

A comparative analysis of MSs' responses to COVID-19 (Annex 4) shows that 25 MSs have implemented State-aid schemes directly targeting the agri-food sector. In total, the study has identified **103 State-aid schemes** covering the agri-food value chain (including approximately 20 amendments). Around **63.9 billion EUR** have been budgeted for State-aid schemes that directly support the agri-food value chain. However, if '**umbrella State-aid schemes'** (i.e. State-aid schemes mostly used in Spain and Germany in support of the whole economy rather than a specific sector) are also included, the budgeted amount reaches **251.7 billion EUR**. In any event, these values should be carefully considered since, at the time of the writing of this report, it is not yet known how much of the allocated budgets have been effectively spent; in addition, for some of the State-aid schemes identified the committed budget has not been defined yet.

A majority of State-aid schemes implemented by MSs (**52%** of the total) targeted the **primary production sector.** Along the rest of the supply chain, **food service** was slightly more widely targeted than the processing and retail sectors. A precise estimate of what MSs allocated to operators representing different stages of the agri-food chain is not possible in all cases, notably when the same measure applies to two or more stages of the supply chain.

The majority of State-aid schemes (**71%**) targeting the agri-food value chain did not target a specific sector. When considering each sector separately, the meat and potatoes sectors were targeted by a higher number of State-aid measures, followed by ornamental plants, fruit and vegetables, wine and eggs.

Finally, all MSs except Germany and Spain deployed State-aid schemes specifically targeting the agri-food sector. Schemes ranged from a maximum of six in Luxembourg to none in Spain and Germany.

General State-aid schemes

MSs have also deployed State-aid schemes targeting their national production as a whole, including the agri-food sector. This is notably the case for Spain and Germany which to date have only resorted to the above mentioned '**umbrella schemes**', while other MSs have combined specific agri-food aid measures with general ones.

Spain introduced a guarantee scheme and two umbrella schemes under the EC temporary framework. These three schemes were targeted at the national economy as a whole, supporting companies below a certain size or facing financial difficulties. In addition, umbrella schemes have allowed the Spanish government to specifically support primary production, food service and ornamental products sectors. Germany introduced two umbrella schemes, both supporting agriculture alongside other sectors of the economy. These two MSs have complex decentralised administrative structures which may reflect the rationale behind the choice of a more general approach.

4.2.2. Other support measures

Throughout the pandemic MSs have relied on State-aid schemes to support their domestic agri-food production as well as **other national support measures**. National measures within this category can be either financial or non-financial in nature and target the agri-food sector as a whole or only part of it.

Financial support measures

In total, the study identified **70 financial measures** which were implemented by 27 MSs at national level over the period analysed. Each MS implemented three financial measures, on average, and up to 6 in the case of Italy. The majority of financial support measures were aimed at supporting the **primary production sector** (**51%**), followed by food service, retail and processing. A precise estimate of what MSs allocated to operators representing different stages of the agri-food chain is not possible in all cases, notably when the same measure applies to two or more stages of the supply chain.

A majority of national financial support measures consisted of **direct subsidies** (**64%**). Other financial measures implemented by MSs include credit support, flat-rate payments, tax exemptions, etc. The majority of those measures (66%) had a general scope, although some sectors such as wine, meat, ornamental plants and fruit and vegetables were specifically targeted in certain instances. Several MSs do not provide centralised and detailed information as to whether the funding allocated under a specific national support measure originates from national or EU resources, the amount budgeted, and even specific sectors targeted.

Non-financial support measures

In total, the study identified **37 non-financial measures** implemented by 19 MSs at national level. Over the period analysed, each MS implemented two non-financial measures, on average, and up to 4 in the case of Belgium. The majority of non-financial support measures targeted the **primary production sector** (**57%**)**,** followed by food service, retail and processing.

The majority of non-financial support measures identified were aimed at **ensuring greater flexibility in working conditions** (**59%**). This includes measures allowing foreign workers to legally work in the agri-food value chain and the extension of normal working hours. Another popular non-financial measure implemented by MSs is the creation of an online platform supporting the agri-food value chain (32%). Online platforms mainly aimed at facilitating sales of national products, promoting seasonal jobs in the agriculture sector, or even advertising regional products. The majority of the measures identified (87%) did not target a single sector, but rather the agri-food sector as a whole. Nevertheless, some sectors were specifically targeted by non-financial support measures such as milk and meat, especially with regard to working conditions (e.g. more flexibility for producing/selling products).

4.1.6. Sectoral analysis: focus on the wine sector

The wine sector is a good example to showcase the different layers of measures taken by MSs and the challenges in generating an accurate estimation of their total impact. This is a sector for which several MSs have taken measures, notably Austria, Bulgaria, Cyprus, Spain, France, Greece, Croatia, Hungary, Italy, Luxembourg, Portugal, Romania and Slovenia. The majority of wine producers in the EU have thus implemented **targeted measures** to support it. Other wine-producing MSs (e.g. Germany) might have also supported this sector indirectly, for instance, by implementing umbrella schemes or more general measures.

Regarding **State-aid schemes**, only Bulgaria, Romania and Luxembourg have used the mechanism during the period analysed. For Romania and Luxembourg, aids consisted of the provision of direct grants at the end of 2020, that is toward the end of grape harvest. In the case of Romania, the grant amounted to 12.4 million EUR. In the case of Luxembourg, it amounted to 124 500 EUR to be distributed among 280 winegrowers. For Bulgaria, the support is related to subsidised services.

Conversely, a larger group of MSs, including Austria, Bulgaria, Cyprus, Spain, France, Greece, Croatia, Hungary, Italy, Luxembourg, Portugal, Slovenia and Romania, implemented **specific financial measures** for the wine sector. Most of these measures consisted of **direct subsidies**, although other types of financial support were also provided, including in the context of EU market-management measures. For example, in France the following measures were introduced:

- A tax exemption from social security contributions for seasonal workers benefitting wine producers for the year 2020-2021 (otherwise known as TODE); and
- A crisis distillation system (2 million hectolitres and 155 million EUR) and private storage aid (15 million EUR), which were subsequently further enhanced (600 000 hectolitres and 70 million EUR for crisis distillation in addition to 20 million EUR for private storage aid).

Regarding **non-financial measures**, only one was implemented in Slovenia and focused on lifting restrictions for the utilisation of temporary workers in agriculture and in particularly for the wine sector.

As shown in Table 17, the total budget for the **26 national measures** identified across the EU which target the wine sector is around **1.17 billion EUR**. However, this estimate includes some national measures which also cover other sectors (e.g. in Italy the 500 million EUR measure applies also to livestock, fruit and vegetables, etc.), and does not consider measures which have not yet been quantified. In addition, several MSs are calling for EU additional funds to further support the respective domestic wine sector due to the combined effect of COVID-19 and retaliatory tariffs imposed by the U.S.A. at the time of the writing of this study (Council 2021).

Table 17. Overview of specific national measures for the wine

MS	Crisis distillation	Private storage	Other
AT	500 000 EUR (no maximum number of hl fixed)	N/A	N/A
BG	N/A	N/A	47M EUR (inc. fruit, vegetables, wine, ornamentals, livestock and beekeeping)
CY	N/A	N/A	500 000 EUR
ES	65.5M EUR (2M hl)	15M EUR (2.25M hl)	10M EUR (green harvesting)

MS	Crisis distillation	Private storage	Other
FR	± 225M EUR (2.6M hl)	40M EUR (no maximum number of hl fixed)	N/A
GR	25M EUR (no maximum number of hl fixed)	N/A	2M EUR (green harvesting)
HR	7.4M EUR (no maximum number of hl fixed)	1.3M EUR (no maximum number of hl fixed)	N/A
HU	7M EUR (no maximum number of hl fixed)	N/A	N/A
IT	50M EUR (1,65M hl)	10M EUR (minimum of 100 hl and maximum of 4 000 hl per single beneficiary)	18M EUR (green harvesting) 100M EUR for the wine sector 500M EUR (including ornamentals, wine, fruit and vegetables)
LU	N/A	N/A	124 500 EUR (SA.59945)* 150 000 EUR (Contribution to wine solidarity fund)
PT	12M EUR (no maximum number of hl fixed)	11M EUR (inc. 5M EUR for Port wine) (for wine maximum limit of 15 000 EUR for single beneficiary)	N/A
RO	N/A	N/A	12.4M EUR (SA.59520)*
SI	5.67M EUR (72 000 hl)	110 00 EUR (11 000 hl)	600 000 EUR (green harvesting)
EU	**EUR 398.1M**	**EUR 77.4M**	**EUR 690.7M**

*State aids
Source: Annex 4 - Member States' fiches

In conclusion, some specific patterns for the support provided by MSs were identified (e.g. State-aid schemes specifically targeting the agri-food value chain, complementary national direct subsidies, additional worker flexibility, etc.). However, the analysis indicates important differences in the national approaches implemented during the pandemic. For example, the analysis of State-aid schemes and other support measures clearly shows that the financial support to mitigate the impact of the COVID-19 crisis on the EU agri-food chain has come from a **complex combination of EU and national sources,** including the CAP. This makes it difficult to draw a comparison between MSs as well as to understand their respective degree of intervention alongside possible or actual risks of market distortions within the Single market.

Altogether, the main lesson which can be drawn from the analysis is that, at least for the policy areas where the EU has legislative competence (e.g. competition, taxation), the implementation of mechanisms ensuring **greater coordination and surveillance at EU level** might be desirable in case of future sanitary and non-sanitary crises to avoid uneven recovery processes by the agri-food sector across MSs.

4.3. Burden-sharing of the costs of the crisis between the EU and its Member States

The section of this Chapter aims at providing an overall assessment of the burden-sharing of the costs of the crisis between the EU and MSs during the period **March 2020- January 2021.**

Overall, MSs have been decisive in ensuring an effective policy response to the COVID-19 crisis in the agri-food sector**.** As discussed under Section 4.2., to that effect MSs have relied on both State-aid schemes and other national financial support measures. Regarding State-aid schemes, until the end of January 2021, MSs had committed a total of **63.9 billion EUR** to support **the agri-food sector as a whole**. This is a significantly larger financial amount when compared with previous attempts at estimating public support by MSs through State aids during the pandemic. For instance, earlier this year, Prof. Alan Matthews analysed all notifications of national support measures to agriculture and the food processing sectors submitted by the EU during the pandemic to the WTO Committee on Agriculture. These measures amounted 'only' to **4.4 billion EUR**, which the scholar himself admits may be an underestimate since the notifications examined do not include important agricultural MSs (e.g. France, Germany and Spain) nor cover all relevant stages of the agri-food chain (e.g. retail and food service) (Matthews 2021).

If one compares the level of financial intervention deployed by MSs during the pandemic in support of the agri-food sector (the above referred 63.9 billion) with EU intervention during the crisis (**80 million EUR** provisioned as aids to private storage for certain agricultural sectors, in addition to the CAP annual expenditure of around 41 billion EUR in 2019) (Table 18), this comparison further reinforces the conclusion that MSs have played a key role in supporting national agri-food value chains during the current crisis (Fortuna 2020b; Matthews 2021).

Table 18. Overview of financial support at EU and MS level (current prices)

	Financial support	Budget (EUR)	Coverage
EU level	CAP annual expenditure (2019)	41.4 billion	Agriculture and processing
	EU support for private storage (2020)	80 million	Agriculture and processing
MS level	State-aid schemes targeting the agri-food sector among others (03/2020 – 01/2021)	251.7 billion	Entire agri-food value chain and other sectors of the national economy
	State-aid schemes targeting only the agri-food sector (03/2020- 01/2021)	63.9 billion	Entire agri-food value chain
	Product subsidies/other subsidies on production reported (2020)	150 million	Agriculture and processing

Source: EC, Direct payments to agricultural producers -graphs and figures, Financial year 2019, available at https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/direct-aid-report-2019_en.pdf ; EC, Coronavirus: Commission announces exceptional measures to support the agri-food sector, 2020, available at https://ec.europa.eu/commission/presscorner/detail/en/IP_20_722; Country fiches in Annex 4; Matthews (2021) COVID-19 leaves limited traces in preliminary 2020 agricultural accounts, 5 January 2021, available at http://capreform.eu/covid-19-leaves-limited-traces-in-preliminary-2020-agricultural-accounts/

The central role that MSs have played during the crisis as opposed to that played by the EU can be explained if one considers the specific budgetary and political context in which the pandemic unfolded.

First of all, as the COVID-19 crisis broke out in the last year of the MFF 2014-2020, there was very limited room for identifying additional financial support. At the beginning of the pandemic, when introducing the Temporary Framework for State Aids, the EC itself declared that «*given the limited size of the EU budget, the main response will come from Member States' national budgets*» (EC 2020x).

Secondly, MSs showed reluctance to activate the crisis reserve under CAP probably considering that COVID-19 was not a crisis directly impacting the agri-food sector and owing to the ongoing negotiations for the CAP reform and the MFF 2021-2027 (Matthews 2021; see also section 4.3.2.2.).

Thirdly, it should not be forgotten that the CAP is not designed to address unexpected market disruptions but is instead a mechanism aimed at providing direct support to farmers, thus acting as an income stabiliser to mitigate minor market turbulences.

For all the reasons referred above, during the crisis EU intervention was limited to the provision of financial aids to private storage alongside the possibility to grant up to 85% advances for CAP payments to farmers (EC 2020y).

4.4. Towards future crises

The previous sections of this Chapter have provided an overview of the financial and non-financial measures which were adopted at EU and national level to support the EU agri-food supply chain in dealing with the market disturbances caused by pandemic. However, other financial crisis mechanisms were available at EU level during the pandemic which were not used or activated to the benefit of the agri-food sector. In light of this, this section will discuss those additional mechanisms while assessing the financial capacity of the CAP to deal with future crises. The pandemic has generated a serious economic crisis, which, in turn, may provoke new agricultural crises in the near future. Therefore, while the short-term challenge which lies ahead is repairing the current EU economy, it is also necessary to ensure better preparedness in the long run for future crises which may impact, directly or indirectly, the EU agri-food sector. From this perspective, considering the scope and the potential of additional mechanisms which may be used in the context of future agricultural crises is the first step towards better preparedness.

4.1.7. Additional instruments to tackle market crises

Four additional EU budgetary instruments to tackle market crises were available during the COVID-19 crisis. These are:

- The crisis reserve established under the CAP;
- Appropriations in aids;
- MFF margins; and
- Special flexibility instruments.

As anticipated, all the crisis mechanisms listed above were not used during the pandemic mostly for being considered as instruments which are not easy to use (Matthews 2021). Nonetheless, as they may provide substantial support to the agri-food value sector in times of crisis, their future use under such circumstances should be better looked into and assessed.

4.4.1.1. The crisis reserve

The crisis reserve was set in 2013 under the CAP 2014-2020. The objective of this instrument was to provide ad hoc financial support to farmers in case of crisis. The crisis reserve is provisioned by withholding a portion of direct payments to farmers, refunded at n+1. Such reserve could be used to support agricultural sectors which experienced important shocks. However, since its introduction in 2013, the crisis reserve has never been used, one of the reasons being precisely that its use will directly reduce direct payments to farmers. In total, the reserve fund was provisioned for **400 million EUR per year**, totalling 2.8 billion EUR, for the 2014-2020 period.

For future crises, the crisis reserve could be used for supporting farmers income to manage the production and thus indirectly preventing prices drop. However, for this to happen it seems necessary to opt for its decoupling from farmers' direct payments, a view which is shared also by the EP and EC at institutional level. This is also the recommendation emerging from a study performed earlier this year for the Committee of Regions, which concludes that, without decoupling, farmers are indirectly paying for the crisis reserve without benefitting from it (Matthews & Soldi 2021).

Under the CAP budget covering the period 2021-2027, the EP has approved the proposition to maintain the crisis reserve to **400 million EUR per year,** while including the possibility to raise it to **1.5 billion EUR** (EP 2020)**.**

4.4.1.2. Appropriations-in-aid

Appropriations-in-aid are based on day-to-day revenues received by government departments and retained to meet additional expenditure. During the financial year, exceptional and/or unexpected appropriations-in-aid could be provisioned to provide additional resources to farmers in the following year. In 2019, during the milk market price crisis, such mechanism was activated by the EC using milk fines which were then redistributed via appropriations-in-aid to support the market (Matthews 2021).

However, this crisis mechanism was not used during the COVID-19 crisis primarily because its use could be considered only following the closure of the financial year, which is still pending. In addition, appropriations-in-aid highly depend on the specific context of the crisis, because they are directly linked to day-to-day revenues received by government departments.

4.4.1.3. MFF margins

In the MFF 2014-2020, margin below the ceiling in Heading 2: "Sustainable growth: natural resources" (i.e. covering the CAP, fisheries, rural development, environment) have been established. Such mechanism defines a level of authorised commitment and overall annual payments under these headings. Quite often annual budgets do not use all of these ceilings, thus giving a margin of unused expenditure (Matthews 2021).

The EC has proposed in April 2020 a second draft amending budget along these lines, which provides the following overview of current margins under commitment appropriations by MFF Headings:

Table 19. MFF Margins in 2020

	Margins	Ceilings
Sustainable growth: natural resources (covering the CAP)	514M EUR	60 421M EUR
European Agricultural Guarantee Fund (EAGF) – included in the above (covering direct payments and market expenditure)	477M EUR	42 888M EUR

MFF margins in 2020 represented nearly the same budget as the crisis reserve. Activating these MFF margins requires only the agreement of the Council and the EP to be unlocked, thus avoiding the unanimity in the Council required for changes in the MFF ceilings (Matthews 2021).

The Global Margin for Commitments (GMC) is a financial mechanism included under the MFF and could also have provided an interesting flexibility instrument in the budget. Under the GMC the EC can re-deploy margins left below the MFF ceilings for commitment appropriations in previous years. However, in the MFF 2021-2027, the GMC alongside the Global Margin for Payments and the Contingency Margin have been replaced by a Single Margin Instrument (SMI) (EC 2021l). The SMI will allow to allocate funds between budgets and expenditure ceilings, by tapping into unused commitments from previous years and, as a last resort, from the current or future financial years.

4.4.1.4. Special flexibility instruments

Special flexibility instruments are tailored to address unforeseen events and have been used during the COVID-19 crisis notably to manage **migration, refugee and security crisis** (EPRS 2020b). Flexibility instruments provide funding for defined areas, not covered under the EU budget, while complying with the maximum annual budget set out in the MFF. In light of unexpected crises and events which the EU may face in future, the use of these instruments should be further assessed.

4.1.8. Limited role of the revised CAP

Under Section 4.3. the limited role that the CAP budget for the period 2014-2020 played during the pandemic was singled out. This might also be the case in the future since the revised budget of the CAP under the MFF 2021-2027 approved in December 2020 involves a **net budget decrease** of the overall CAP as compared to the previous programming period (see below Table 20).

Table 20. Evolution of the CAP budget (in billion EUR 2018 prices)

	2014-2020 MFF	2021-2027 MFF	Variation
CAP – Common Agricultural Policy	382.08	336.4	-12%
• EAGF – European Agricultural Guarantee Fund	286.01	258.6	-10%
• EAFRD – European Agricultural Fund for Rural Development	96.7	77.8	-19%

Source: European Council, Multiannual financial framework 2021-2027 and Next Generation EU, 2021, available at https://www.consilium.europa.eu/en/infographics/mff2021-2027-ngeu-final/; EP (2021) The Common Agricultural Policy in Figures

Regarding the New Delivery Model (NDM) introduced in the revised CAP as a mechanism allowing MSs to design their 5-year National Strategic Plans, the overall objective is to provide more flexibility to MSs by creating tailored, permanent and stable measures. In the previous version, there was a fixed selection of measures to support farmers' income, which prevented flexibility in the financial management to the detriment of farmers' interests. Under National Strategic Plans, each MS will assess specific needs, the CAP objectives which will be addressed, intervention strategy and interventions planned (EC 2018). The NDM might provide additional flexibility to MSs to answer ad hoc situations, but is not designed to address potential crises.

Considering the reduction of the CAP budget for the period 2021-2027 and the NDM mechanism, it is possible to conclude that, overall, the current revision of the CAP still aims at addressing mid-term objectives of the EU agricultural sector rather than future unexpected crises which may affect it. From

this perspective, the other instruments identified in this section could therefore play a key role in providing additional support to the agri-food sector during future crises.

4.1.9. Final considerations

In light of the considerations formulated above, the role of MSs to address any future crises which may affect the EU agri-food sector is likely to remain central, at least in the short-term considering the reform of the CAP and the MFF 2021-2027. The limited budget margins and flexibility under the CAP are not fitted to address such disruptions. In this context, **State aids** will remain the **most important instrument to address unexpected crises** possibly under an EU framework similar to that introduced by the EC at the beginning of the pandemic. Nonetheless, additional EU instruments to tackle market crises could also play a significant role if the challenges which have prevented their use during the COVID-19 crisis are better understood and overcome.

5. LESSONS LEARNT FROM THE PANDEMIC AND RECOMMENDATIONS

The EU agri-food supply chain demonstrated a **high degree of resilience** in the context of an unprecedented global crisis resulting from the COVID-19 pandemic. EU interventions supported a well-functioning Single market. However, the pandemic affected some sectors more severely than others and not all interventions were uniformly beneficial. This section summarises the lessons learnt and recommendations to support future resilience in the EU agri-food systems. Policy recommendations are grouped in Table 21.

Added value of EU intervention during the pandemic

The pandemic caused initial difficulties including increased food demand due to consumer panic buying; labour shortages caused by movement restrictions; delays in food deliveries, raw materials and other agri-food inputs and as a slowdown in food production because of virus outbreaks in processing plants (e.g. slaughterhouses).

Most of these issues were overcome due to EU intervention, which guaranteed the **smooth functioning of the Single market**. Issues observed during the outset of the pandemic have not resurfaced during subsequent waves that affected the EU.

From this perspective, the pandemic demonstrated the added value that the EU brings to the management of the agri-food supply chain and food security as opposed to MSs acting alone. Furthermore, it has also shown the need for policy responses to future crises to be designed by following a '**food systems approach'** as those crises may affect all stages and actors of the agri-food chain.

Inherent resilience of the EU agri-food sector

EU agri-food supply chain operators proved their **capacity to adjust quickly** to new market circumstances during the pandemic. Sanitary measures necessary to ensure the safety of workers and consumers were implemented. Production lines were converted to avoid wastage and ensure economic viability (e.g. wine and fuel ethanol made into alcohol for sanitizers; bulk poultry products changed to retail packaging). Trade strategies were adapted, and new business models introduced (e.g. e-commerce, home deliveries and take-away in the case of the food service) ensuring continuity of food supplies.

Overall, the macroeconomic analysis performed in this study shows that, despite the pandemic, the EU agri-food sector as a whole performed relatively well in 2020 with **production and trade levels remaining stable. Food prices** have also remained stable across sectors, including in the case of beef and veal, poultry meat and milk and milk products.

From this perspective, COVID-19 provided an unprecedented opportunity for the agri-food sector to demonstrate its role and contribution across the EU. It has also shown the importance of **business operators' own-initiatives** alongside public support during crises to ensure the necessary level of resilience of the agri-food supply chain.

Most affected agri-food sectors

Nevertheless, some sectors which were affected more severely than others. These include the **food service sector** with restaurants, canteens and bars being repeatedly targeted by national restrictions limiting their functioning in an attempt at containing the spreading of the virus. This situation is

evolving at the time of writing this report, which makes it difficult to estimate the economic impact of the pandemic on these operators.

Direct suppliers of the food service sector, including farmers, wholesalers and food and drink manufacturers, are likewise among the supply chain operators most affected by COVID-19. The **wine sector**, in particular, is highly dependent on the food service for the sale of high-quality wines and has faced considerable challenges during the pandemic due to the combined effects of COVID-19, specific trade irritants (e.g. import tariffs imposed by the U.S.A.) and the lack of additional EU and national financial support.

Similarly, the **beef and veal sector** has been negatively impacted by the closure of restaurants where in particular veal is typically consumed out-of-home. EU production and trade for these products registered a significant decrease in 2020 compared to the 2015-2019 average.

Sugar consumption decreased during the pandemic which reflected lower production levels. Global sugar prices negatively affected Extra-EU exports. Loss in value of EU sugar beet sector has been estimated in 1.6 billion EUR.

Finally, among ornamental products, the category of **flowers and plants** experienced significant financial losses due to the pandemic. Overall, this is a consequence of logistics disruptions observed during the first wave and of the restrictions which continue to prevent international transportation from operating under normal conditions. In addition, the trade channel where such ornamentals are normally sold has been considered as a non-essential activity and for that reason shutdown in most MSs during the pandemic.

EU and MS policy responses

Overall, the **EU policy response** in support of the agri-food supply chain has been evaluated as timely, relevant and proportionate, overall. Nevertheless, some policy instruments performed better than others based on the assessment carried out during this study.

For instance, measures adopted to ensure **flexibility in the application of CAP rules** during the pandemic, including the management of direct payments to farmers, have been assessed more positively than other **sectoral market management measures**, such as private storage aids and derogations from competition rules. The reasons for this vary by sector and deserve **further investigation** so that these instruments are properly designed and implemented by the EU legislator and effectively exploited by business operators during future crises. Consideration should also be given to the fact that some of the agricultural sectors which were most severely affected by the pandemic – namely wine and ornamental products – did not benefit from direct EU support via CAP and received **uneven national support** across MSs.

A **Temporary Framework for State aids** was introduced at EU level at the outset of the pandemic. While the introduction of this measure was justified in response to the unprecedented market circumstances determined by the spreading of the virus, its national implementation requires **appropriate monitoring and follow-up** to assess its medium and long-term impacts. In the case of the agri-food sector, it needs to be established whether national implementation might have resulted in any distortions of competition within the Single market for specific product categories. Overall, the experience of COVID-19 in this area calls for a **more coordinated and structured approach** at EU level in future crises with a view to limiting undesired market effects which may derive from **uneven national implementation.**

The F2F Strategy was not designed to address the immediate consequences of the COVID-19 crisis, but rather to build a more resilient EU agri-food supply chain in the long term. In particular, the F2F Strategy envisions the elaboration by the EC of an EU-wide contingency plan which should include a food crisis response mechanism and is currently being discussed at EU level.

The analysis conducted in this study revealed that the **largest share of the economic impact of the pandemic on the EU agri-food sector will be sustained by MSs**. Over the period March 2020- January 2021, an estimation of **63.9 billion EUR** has been allocated by MSs to mitigate the effects of the pandemic on the agri-food chain.

The total CAP contribution towards the crisis has been limited (namely **80 million EUR** in the form of aid to private storage). In addition, other financial mechanisms which are available at EU level for crisis situations – notably the CAP crisis reserve, MFF margins, appropriations-in-aid and special flexibility instruments - have not been activated during the current pandemic.

Considering that the CAP budget for the period 2021-2027 has been significantly reduced in comparison to the MFF 2014-2020, in future crises affecting the EU agri-food sector MSs are expected to continue to play a central role in economic and financial terms (e.g. through the provision of ad hoc State aids). Nonetheless, EU contributions through CAP in times of crisis can be still strengthened to reinforce complementarity with national support. In this context, in particular the **decoupling of the crisis reserve from farmers' direct payments** seems a **desirable and viable policy option**.

Consumption patterns in the post-COVID era

The pandemic also profoundly impacted **consumption patterns**, for instance, providing many consumers with an opportunity to buy food online for the first time while reinforcing current retail trends (e.g. purchase of healthy products).

However, impacts on consumption have not been all positive as the pandemic led to an increase in requests for **food assistance** (e.g. through food banks) and demand for **cheaper food products.** These trends are particularly apparent among **low-income population groups** and likely to aggravate in the near future as the economic consequences of the pandemic (e.g. unemployment, lower wages, liquidity problems) start to unfold.

From this perspective, the implementation of EU and/or national **food assistance programmes** is a desirable step towards ensuring **continuity and nutritional adequacy of food supplies**, and particularly for the most deprived.

What role for smart technologies?

The next crisis may be of a completely different nature to the one through which we are living. Environmental, economic or political crises will likely require an altogether different policy approach to preserve the functioning of the EU agri-food supply chain and food security.

From this standpoint, it is desirable to further explore the potential for and added value that the application of **smart technologies** in agri-food supply systems could bring in future crisis scenarios as this is an aspect which did not receive enough attention during the pandemic.

The pandemic is not over

The analysis and the recommendations formulated above need however to be properly contextualised as the COVID-19 crisis is still ongoing at the time of writing this study.

Considering that the food service sector has not fully re-opened and that certain agri-food sectors have not completely recovered from the impact of COVID-19 in 2020, uncertainties remain over the evolution of the pandemic and its ultimate economic and financial impact.

It is therefore difficult to establish whether the financial means deployed at EU and MS level will be sufficient to allow a **swift recovery** in all agri-food sectors. As additional measures are still being introduced by MSs in 2021 it will also be important to monitor closely this process.

Table 21. Policy recommendations to support resilience in the EU agri-food systems

Policy areas	Recommendation
Crisis management	
'Food systems' approach	*1. Ensuring that future policy responses to crises affecting the EU agri-food supply chain are designed taking into account that those crises can affect all actors and stages of the chain*
Common Agricultural Policy	
Market management measures	*2. Investigating further the reasons of the limited impact of the market management measures adopted under the CAP during the pandemic so that these instruments are properly designed and food operators can effectively use them during future crises*
Crisis reserve	*3. Considering the decoupling of the crisis reserve from farmers' direct payments to reinforce EU financial capacity in times of crisis*
Competition	
State aids	*4. Monitoring the short and medium-term market impacts of the State aids provisioned by MSs during the pandemic while assessing whether such aids may have resulted in any competition distortion in the Single market*
Food security	
Continuity and adequacy of food supplies	*5. Strengthening of food assistance programmes particularly for the most deprived taking into the economic consequences that the pandemic is likely to have on European households*

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This study provides a preliminary quantitative and qualitative analysis of the impact of COVID-19 on European agriculture and the agri-food supply chain in light of the responses deployed by the European Union and its Member States to mitigate its effects.

PE 690.864
IP/B/AGRI/2020-104

Print ISBN 978-92-846-8000-9 | doi: 10.2861/7598 | QA-08-21-087-EN-C
PDF ISBN 978-92-846-7999-7 | doi: 10.2861/03234 | QA-08-21-087-EN-N