Food Systems Science Network

Preprint

EU food system map

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Executive Summary

The FoSSNet (Food Systems Science Network) project aims to strengthen networks, knowledge sharing and collaboration to support food systems transformation in Europe. Building on the FoSSNet Conceptual Framework developed in Task 1.1, this deliverable applies the framework to develop a descriptive map of the EU food system.

Drawing on literature and bringing together diverse data sources, the report describes the main elements of the EU food system and organises them according to the FoSSNet Conceptual Framework. It covers the environmental, social and economic, and direct food system drivers; the main actors and activities involved in producing, processing, distributing, consuming and managing food; and the resulting food system, social and economic, and environmental outcomes.

The resulting map provides a comprehensive overview of the EU food system and the different elements and interactions that characterise it. Presented as a report, and linked to an interactive website, it is intended as a resource for researchers, policymakers and other stakeholders working on food systems in Europe, as well as providing a basis for further work within FoSSNet project.

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Abbreviations

AAC: Administrative Assistance and Cooperation networks

ACN: Alert and Cooperation Network

AMR: Antimicrobial Resistance

AWU: Annual Work Units

b: billion

BMI: Body Mass Index

CAP: Common Agricultural Policy

CF: Conceptual Framework

CFP: Common Fishery Policy

CoAHD: Cost and Affordability of a Healthy Diet

ECDC: European Centre for Disease Prevention and Control

EEA: European Economic Area

EEA: European Environmental Agency

EFSA: European Food Safety Authority

EFTA: European Free Trade Association

ESDAC: European Soil Data Centre

EU: European Union

EU-27:

EUSO: EU Soil Observatory

FAOSTAT: Food and Agriculture Organization Corporate Statistical Database

FBDGs: food-based dietary guideline

FEBA: European Food Banks Federation

FSCI: Food Systems Countdown Initiative

FSMD: Food Systems Monitoring Dashboard

GDP: Gross Domestic Product

gha: global hectares

GHGe: Greenhouse gas emissions

GVA: Gross Value Added

HICP: Harmonized index of consumer prices

INTRA: Intra-EU movement

Int$ (PPP): International Dollars adjusted for Purchasing Power Parity

JRC: Joint Research Centre

kw: Kilowatt

LULUCF: land use, land-use change and forestry

m: Million

PDO: Protected Designation of Origin

PGI: Protected Geographical Indicator

PLI: Price Level Indices

RASFF: Rapid Alert System for Food and Feed

SME: Small- and medium-sized enterprises

UTP: Unfair trading practices

WEI+: Water Exploitation Index Plus

ZPAP: European Commission's Zero Pollution Action Plan

STECF: Scientific, Technical and Economic Committee for Fisheries (European Commission)

t: tonnage / tonnes

UAA: Utilised agricultural area

WHO: World Health Organization

Statistical Definitions

EU-27: The 27 Member States that comprise the European Union. EU-27 consists of: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.

Euro Area: EA11-1999, EA12-2001, EA13-2007, EA15-2008, EA16-2009, EA17-2011, EA18-2014, EA19-2015, EA20-2023, EA21-2026

European Economic Area: A single common market including the EU-27 Member States and three non-EU countries: Iceland, Liechtenstein and Norway.

European Free Trade Association: Members include Iceland, Norway, Switzerland and Liechtenstein. It was established in 1960 as and alternative to what is now the EU.

European Union: EU6-1958, EU9-1973, EU10-1981, EU12-1986, EU15-1995, EU25-2004, EU-27-2007, EU28-2013, EU-27-2020

Table 1. List of ISO2, ISO3 and Eurostat GEO code used in the report.

Country	ISO2	ISO3	Eurostat GEO code
Austria	AT	AUT	AT
Belgium	BE	BEL	BE
Bulgaria	BG	BGR	BG
Croatia	HR	HRV	HR
Cyprus	CY	CYP	CY
Czechia	CZ	CZE	CZ
Denmark	DK	DNK	DK
Estonia	EE	EST	EE
Finland	FI	FIN	FI
France	FR	FRA	FR
Germany	DE	DEU	DE
Greece	GR	GRC	EL
Hungary	HU	HUN	HU
Ireland	IE	IRL	IE
Italy	IT	ITA	IT
Latvia	LV	LVA	LV
Lithuania	LT	LTU	LT
Luxembourg	LU	LUX	LU
Malta	MT	MLT	MT
Netherlands	NL	NLD	NL
Poland	PL	POL	PL
Portugal	PT	PRT	PT
Romania	RO	ROU	RO
Slovakia	SK	SVK	SK
Slovenia	SI	SVN	SI
Spain	ES	ESP	ES
Sweden	SE	SWE	SE

1. Introduction

What is the purpose of this report?

The FoSSNet project aims to strengthen academic networks and transdisciplinary knowledge sharing to support the transformation of Europe's food systems. A prerequisite for identifying pathways for transformation is a shared understanding of how the current food system is configured, how it's different components interact, and where pressures, trade-offs and bottlenecks arise (Brouwer et al., 2020; Schneider et al., 2025; von Braun et al., 2021). Task 1.1 developed the FoSSNet Conceptual Framework (CF), which provides a common structure for understanding food systems through their **drivers, actors and activities, outcomes and feedbacks**. This system perspective builds on established approaches that conceptualise food systems as interconnected set of activities, actors, drivers and outcomes linked to through multiple interactions and feedbacks (Ericksen, 2008; Ingram, 2011).

Building on this framework, Deliverable 1.2 develops an **EU-27 food system map and interactive website** that characterises the current configuration of the EU-27 food system. Drawing on the mapping approach developed by Hasnain et al. (2020), it brings together indicators and evidence to describe the actors and activities through which food is produced, processed, distributed and consumed; the environmental, socioeconomic and food system-specific drivers shaping actors' decisions; and the resulting outcomes for food and nutrition security, the environment, economies and livelihoods, and social equity. In doing so, the mapping considers how the EU food system currently contributes to ensuring food security and the wider outcomes associated with its present configuration.

The mapping is intended to provide a **common evidence base for joint problem analysis and the identification of transformation needs**. It does not constitute a formal performance assessment against predefined targets or sustainability thresholds. Rather, by examining drivers, activities and outcomes together, comparing patterns across Member States where data permit, and identifying gaps in the available evidence, it makes visible potential bottlenecks, pressures, trade-offs and areas requiring further investigation. The map therefore provides a baseline from which subsequent FoSSNet activities can examine where and why changes to the current food system configuration may be needed.

Further, similar to Bock et al. (2022), the term *EU food system* is used in the singular throughout the report, to reflect the EU-level perspective adopted in the mapping. However, this framing recognises the diversity of national and territorial food systems within the EU, shaped by different environmental, socioeconomic and cultural contexts, and is embedded in global food supply chains.

Who is this report for and how can it be used?

By bringing the different sources, the report is intended to provide a common reference point for researchers, policymakers and other food system stakeholders:

- For **researchers**, the mapping provides a means of locating specific research questions within the wider food system and examining connections between actors and activities, drivers, outcomes and feedbacks, while also identifying available indicators, evidence sources and knowledge gaps.
- For **policymakers and other food system stakeholders**, it provides a system-wide overview through which individual sectors, indicators and policy concerns can be considered in relation to the wider EU food system. The gaps identified through the mapping can help identify dimensions of the food system that are insufficiently understood or monitored, inform where future policy attention may need to be concentrated, support the formulation of policy goals, and contribute to the development of policy and research agendas.

How is the report structured?

Section 1 reviews existing EU and international food systems monitoring frameworks and initiatives (1.1) and introduces the FoSSNet CF and elements and how they are used to structure the EU-27 food system map (1.2). **Section 2** describes the methodological approach used to identify, select and organise indicators and evidence. **Section 3** presents the main environmental, social and economic, and direct food system drivers that shape the EU-27 food system. **Section 4** describes the main food system actors and activities, from production and processing through to retail, consumption and waste and surplus food management, together with the supporting services that enable these activities. **Section 5** presents the main outcomes associated with the EU-27 food system, covering direct food system, social and economic, and environmental outcomes. Finally, **Section 6** presents feedbacks and **Section 7** brings together final conclusions, while the references and supporting material are provided in **Sections 8** and **9**.

How can the interactive map be used?

The report is complemented by an interactive version of the EU-27 food system map, which enables users to navigate directly between components of the FoSSNet CF and the corresponding indicators and evidence. The interactive format is intended to facilitate exploration of the system according to users' particular research or policy interests and provides an accessible entry point to the evidence assembled in this report. In doing so, it provides an accessible resource for researchers, policymakers and other stakeholders and a common basis for subsequent FoSSNet work on European food systems.

1.1. Existing resources

Several EU and international initiatives provide frameworks, indicators and data for monitoring food systems (selected examples summarised in Table 2). These initiatives vary in geographical scope, purpose and indicator coverage, with some focused specifically on monitoring the EU food system and others providing broader international comparisons. The European Commission Joint Research Centre (JRC) EU Food System Monitoring Framework and associated dashboard provide a key benchmark for this report, particularly in relation to the selection and coverage of indicators across environmental, social and economic dimensions.

These resources differ substantially in their purpose, scope and approach. The JRC EU Food System Monitoring Framework is the most directly comparable EU monitoring initiative, providing a structured framework and dashboard covering environmental, economic and social dimensions of food system sustainability. The Food Systems Monitoring Dashboard (FSMD) and Food Systems Countdown Initiative (The Food Systems Dashboard, 2020) provide broader global comparisons, while several assessment frameworks propose indicators or conceptual approaches without maintaining regularly updated datasets. Eurostat's Key Figures on the European Food Chain (Eurostat, 2025b) provides the closest existing statistical synthesis to this FoSSNet report for D1.2, with substantial overlap in its coverage of food system activities. The present report draws on existing monitoring frameworks and data resources while providing a broader mapping of EU food system activities, drivers and outcomes, based on the FoSSNet conceptual framework.

The mapping does not seek to replace existing monitoring frameworks. Where appropriate, it incorporates indicators already identified and developed through these initiatives, thereby drawing on established measures while locating them within the FoSSNet system-wide structure. This overarching perspective helps identify areas for which robust or comparable indicators remain limited or absent. The FoSSNet mapping additionally makes dimensions visible that are not consistently represented in established monitoring frameworks (e.g., cultural values, traditional ecological knowledge indicators).

Table 2. EU and International inititatives

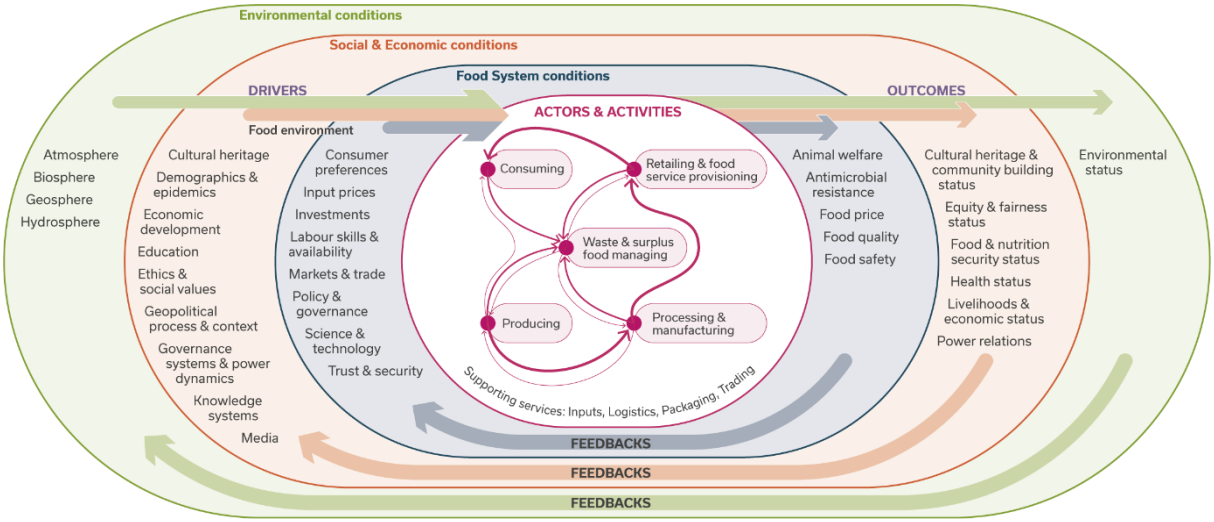
Resource	Coverage	What it provides	Relevance / limitation
Monitoring frameworks and dashboards			
JRC EU Food System Monitoring Framework (Tóth et al., 2025)	EU	Conceptual framework; 350+ indicators across environmental, economic and social areas; interactive dashboard.	Key EU benchmark for monitoring food system sustainability; provides a basis for comparing indicator coverage and identifying gaps in the present report.
Food Systems Monitoring Dashboard (FSMD) (The Food Systems Dashboard, 2020)	Global	300+ indicators compiled from >50 sources; country comparisons and metadata.	Very broad coverage and useful for indicators absent from EU sources; not specifically designed around EU monitoring needs. A key benchmark.
Food Systems Countdown Initiative (Fanzo et al., 2021)	Global	Framework and indicators for tracking food system transformation.	Useful methodological comparator; less EU-specific.
Evidence synthesis / reporting			
Eurostat, *Key Figures on the European Food Chain* (Eurostat, 2025b)	EU	Environmental data, indicators and assessments covering climate change, biodiversity, land, water and other environmental pressures.	**Substantial overlap with the mapping in this report**, particularly activities along the food chain.
European Environmental Agency (EEA)	EU	Environmental indicators, already represented through JRC and Eurostat.	Provides detailed environmental evidence relevant to food system outcomes, but is not exclusively focused on the food system.
Wageningen University & Research, The EU food and drink industry: a competitiveness analysis (Tidjani et al., 2025)	EU	Assessment of the competitiveness of the EU food and drink industry, including economic performance and comparisons with international competitors.	Provides a more detailed assessment of food industry competitiveness than the present report; focuses on economic performance rather than the entire food system.
FutureFoodS	EU	European research and innovation partnership supporting projects and collaboration on sustainable food system transformation.	Relevant to EU food systems research and innovation, but does not provide a comprehensive, regularly updated statistical monitoring dashboard.
Assessment / Monitoring Frameworks			
Global Farm Metric (2025) (Chaudhary et al., 2018) Gustafson et al. (2016) Chalmers et al. (2019) Raworth, (2012) SUSFANS Sustainability Compass (Hebinck et al., 2021)		Propose indicators, metrics or structures for assessing food system sustainability.	These frameworks do not provide a relevant, regularly updated dataset.

1.2 The FoSSNet Conceptual Framework

A food system encompasses *"all the elements, actors and activities involved in the production, processing, distribution, preparation, consumption and disposal of food, together with the nutritional, food security, socioeconomic and environmental outcomes generated by these activities"* (HLPE, 2017). The concept has evolved from earlier understandings centred primarily on how societies organise access to and consumption of food (Malassis, 1994) towards a broader systems perspective that recognises the interactions between food systems, societal outcomes and environmental change (Ericksen, 2008; Ingram et al., 2011). Food systems are therefore understood as interconnected and dynamic systems, conditioned by various internal and external driving forces, whose sustainability depends on interactions between social, economic and environmental dimensions, including feedbacks to the drivers (Ingram, 2011) .

Figure 1 presents the FoSSNet CF developed in D1.1 (Ingram et al., 2025)**.** The FoSSNet CF provides a systems-based approach for understanding EU food systems as **complex adaptive systems**, in which environmental, social, economic, technological, and institutional factors interact with actors across the food chain. Rather than representing food systems as a linear pathway from production to consumption, the framework emphasises interdependencies, drivers, feedback loops, uncertainty, and adaptation, showing how changes in one part of the system can generate consequences across the system.

Figure 1. The FoSSNet Conceptual Framework.



Source: Ingram et al. (2025). Available at: https://doi.org/10.5281/zenodo.20590881.

The FoSSNet CF was developed through a review of existing food systems conceptual frameworks and wider input from the European food (research) community. It draws on 22 frameworks that contained all the elements required to qualify as comprehensive food systems frameworks, as well as an additional 10 frameworks that provided

relevant insights on specific components, such as food system actors and food environments. The current working model builds particularly on the frameworks developed by Foresight4Food (2019) and FAO (2022), as these provided comprehensive yet sufficiently general representations that could be applied across diverse food system contexts.

The framework centres on four interconnected components: **drivers; actors** and their **activities; outcomes;** and **feedbacks**. Indirect drivers, such as climate change, demographic change, and broader socioeconomic conditions, interact with direct drivers such as food prices, science and technology, and policy. Together, these influence the behaviour and decisions of actors involved in production, processing, distribution, retail, consumption, storage, and waste management. Their activities are further shaped by the institutional environment, supporting services, and food environments, which influence how individuals and organisations interact with food throughout the supply chain.

These interactions generate interconnected social, economic, health, cultural, and environmental outcomes, including food and nutrition security, equity and fairness, livelihoods and economic conditions, cultural heritage, soil health, and greenhouse-gas emissions. Importantly, these outcomes feed back into the system, influencing drivers and actors and potentially creating either reinforcing negative cycles or pathways towards more sustainable outcomes.

In an EU policy context, the FoSSNet CF can therefore be used to understand relationships across the food system and identify leverage points for transformation. Interventions in areas such as regulation, research and innovation, knowledge sharing, infrastructure, and incentives can influence actors' behaviour and contribute to multiple objectives, including food and nutrition security, social equity, economic resilience, and environmental sustainability.

Further information on the development of the framework and detailed description can be found in D1.1 (Ingram et al., 2025). **Table 2** provides a description of the elements in the FoSSNet CF based on the literature review conducted in D1.1 of the elements in existing Food Systems CFs.

Table 3. Description of the elements available in the FoSSNet CF.

Element	Includes
Environmental drivers *(Section 3.1)*	The natural and biophysical systems within which the food system operates and with which it interacts. - **Atmosphere:** The atmospheric conditions and processes affecting the food system, including weather, climate, air quality, and greenhouse-gas concentrations. - **Biosphere:** Living organisms and ecosystems that interact with and support food systems, including wild biodiversity and agrobiodiversity. - **Geosphere:** The terrestrial and geological environment supporting food systems, particularly soils, land, minerals, and related natural resources. - **Hydrosphere:** Water resources and aquatic systems relevant to food systems, including water availability and quality, seas, and other water bodies.
Socio-economic drivers *(Section 3.2)*	The broader social, cultural, demographic, economic, political, and institutional context influencing the food system. - **Cultural heritage:** Traditions, religions, rituals, and cultural practices that shape food production, consumption, and relationships with food. - **Demographics and epidemics:** Population characteristics and health dynamics, including population growth and aging, migration, urbanisation, displacement, and epidemics. - **Economic development:** Wider economic conditions affecting the food system, including economic growth, income distribution, poverty, inequality, finance, and market opportunities. - **Education:** The development of knowledge, skills, and capacities that can influence participation and decision-making within the food system. - **Ethics and social values:** Values, norms, beliefs, and ethical considerations that influence food system behaviours, priorities, and decisions. - **Geopolitical process and context:** International and political conditions affecting food systems, including conflict, geopolitical instability, globalisation, international trade, and cross-country interdependencies. - **Governance systems & power dynamics:** Formal and informal governance structures and distributions of power that determine how food system decisions, resources, and responsibilities are organised. - **Knowledge systems:** Different forms and sources of knowledge that inform food system practices and decisions, including scientific and traditional knowledge.
Direct food system drivers *(Section 3.3)*	Factors operating more directly within the food system and shaping the decisions and behaviour of food system actors.

	- **Food environment:** The conditions through which people interact with food, including availability, accessibility, affordability, prices, quality, safety, convenience, desirability, and marketing. - **Consumer preferences:** Consumers' expectations, knowledge, attitudes, preferences, and motivations that influence food choices and consumption. - **Input prices:** The costs of resources and input required to undertake food system activities, particularly food production. - **Investments:** Public and private financial investments that enable and shape food system development and activities. - **Labour skills & availability:** The availability, knowledge, skills, and capacities of workers required to perform food system activities. - **Markets & trade:** Market structures, commercial relationships, and trade conditions that shape the exchange and distribution of food and related resources. - **Policy & governance:** Policies and governance arrangements directly influencing the food system, including food-policy objectives, land rights, planning, regulation, power, and equity. - **Science & technology:** Scientific and technological developments affecting food system activities, including research, innovation, infrastructure, machinery, biotechnology, and digital technologies. - **Trust & security:** Levels of trust, safety, security, and stability that influence relationships and activities within the food system.
Actors and activities *(Section 4)*	The actors and interconnected activities that form the core of the food system. - **Producing:** Activities related to the primary production of food, undertaken by actors such as farmers, fisheries, agribusinesses, and other primary producers. - **Processing & manufacturing:** Activities that transform primary agricultural products into food products, including processing, manufacturing, and packaging. - **Retailing & food service provisioning:** Activities through which food is distributed and provided to consumers, including retail, wholesale, restaurants, markets, and food services. - **Consuming:** Activities associated with selecting, acquiring, preparing, and consuming food. - **Waste & surplus food managing:** Activities concerned with preventing, redistributing, recovering, recycling, or disposing of food waste, food losses, and surplus food. - **Supporting services: Inputs, Logistics, Packaging, Trading:** Services and activities that enable the core food system actors to function and connect with one another, including the provision of inputs, transport and logistics, packaging, and trade.

Direct food systems outcomes *(Section 5.1)*	The direct consequences generated by food system activities and their interactions. - **Animal welfare:** The physical and behavioural wellbeing of animals involved in food production. - **Antimicrobial resistance:** The emergence and spread of resistance to antimicrobial medicines associated with practices within food and agricultural systems. - **Food price:** The affordability and price conditions of food resulting from interactions across the food system. - **Food quality:** The characteristics and attributes determining the quality and suitability of food. - **Food safety:** The extent to which food is safe for consumption and free from unacceptable biological, chemical, or physical hazards.
Social and economic outcomes *(Section 5.2)*	The broader consequences generated by food system activities and their interactions for individuals, communities, society, and the economy. - **Cultural heritage & community building status:** The contribution of food systems to cultural traditions, knowledge, social cohesion, networks, and community cooperation. - **Equity & fairness status:** The extent to which resources, benefits, risks, opportunities, and responsibilities are fairly distributed among food system actors. - **Food & nutrition security status:** The extent to which people have access to sufficient, safe, affordable, diverse, and nutritionally adequate food. - **Health status:** The effects of the food system and dietary patterns on human health and wellbeing. - **Livelihoods & economic status:** The effects of the food system on employment, income, profitability, poverty, livelihoods, and socioeconomic wellbeing. - **Power relations:** The distribution and exercise of influence, authority, and decision-making power among different food system actors.
Environmental outcomes *(Section 5.3)*	- **Environmental status:** The effects of food system activities on climate, soil, water, biodiversity, resource use, pollution, waste, and ecosystem stability.
Feedbacks *(Section 6)*	The processes through which food system outcomes influence f**ood system drivers, social and economic drivers, and environmental drivers**, which subsequently shape actors and activities again. These feedbacks capture the dynamic and interconnected nature of the food system.

2. Method

The mapping of the EU-27 food system builds on the FoSSNet CF and the methodological approaches developed through the SUSFANS project[1] (Hebinck et al., 2021; Zurek et al., 2016) and subsequently operationalised by Hasnain et al. (2020). The framework elements provided the conceptual basis for defining the individual food system components and guided the interpretation of what should be represented by indicators.

Hasnain et al. (2020) operationalised this systems framework to map the UK food system. Their approach combined a conceptual food system structure with evidence from publicly available datasets, policy and other documents, research literature and stakeholder input. This demonstrated the value of organising heterogeneous evidence through a common framework, allowing relationships across different parts of the food system to be considered together while also making data limitations and evidence gaps more visible than when individual sectors are assessed separately.

A more recent application by Gilmour et al. (2026) adapted this approach to map the food system across the Republic of Ireland and Northern Ireland. This application is particularly relevant to the present analysis because it demonstrates how the methodology can be operationalised geographically and across jurisdictions with different statistical systems. It also includes the Republic of Ireland, an EU Member State, thereby providing a recent example of the framework's application within the EU-27 context. Gilmour et al. (2026) further developed indicator identification through a combination of top-down and bottom-up searches of available data, while explicitly considering differences in spatial resolution, temporal coverage and data availability.

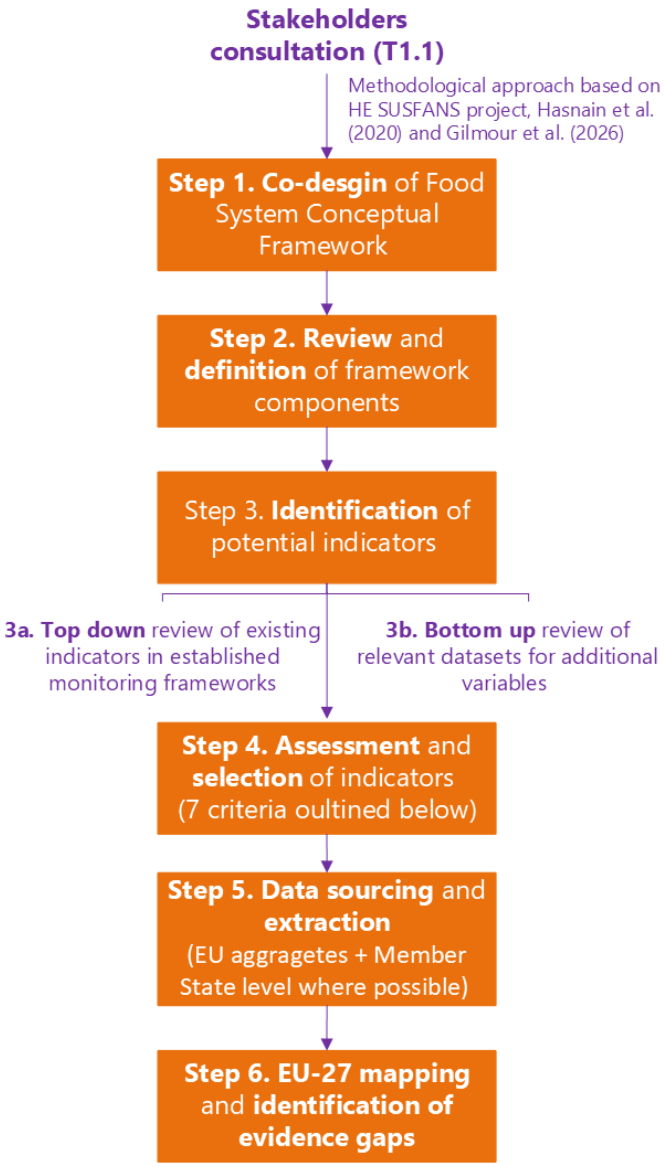
Building on these approaches, the present deliverable applies the framework at the **EU-27 level**. The objective is not to construct a new indicator framework, but to operationalise the existing food system framework using suitable and, wherever possible, already established indicators and data sources that can describe the EU food system consistently. The method included: (**Step 1**) co-designing the food system framework with FoSSNet stakeholders; (**Step 2**) defining and characterising each framework component based on the elements defined in Deliverable D1.1; (**Step 3**) identifying potential indicators for each component through a top-down review of existing indicator frameworks and a bottom-up review of available datasets; (**Step 4**) assessing and selecting indicators based on their conceptual relevance, EU-27 coverage, comparability, temporal coverage and data quality; (**Step 5**) sourcing and extracting data, prioritising harmonised EU and established food system data sources;

[1] https://susfans.de/

and (**Step 6**) mapping the selected evidence across the EU-27 food system framework and identifying data gaps and limitations.

The methodological steps relative to this deliverable are reported in **Figure 2**.

Figure 2. Methodological steps conducted for D1.2.



Source: *authors' own elaboration*.

Step 1. Co-design of the conceptual framework

Substantial stakeholder engagement was undertaken during the development of the FoSSNet Conceptual Framework (Task 1.1), helping to shape and refine the framework and its representation of the components and relationships that constitute European food systems. This stakeholder consultation informed the conceptual structure used for the EU-27 food system mapping. The co-design process is described in detail in D1.1 (Ingram et al., 2025) and Section 1.2.

Step 2. Review and definition of framework components

The development of the conceptual framework was also informed by a literature review of 22 existing food system CFs. This review supported the identification, organisation and definition of the components included in the FoSSNet framework. The resulting framework elements, presented in Deliverable D1.1 and in **Table 2**, provided the basis for interpreting each component in the present mapping. The framework review and development process are described in Section 1.2.

Step 3. Identification of potential indicators

Potential indicators and variables were identified for each framework component using the definitions established in the framework elements description as the starting point. Following the methodological approaches of Hasnain et al. (2020) and Gilmour et al. (2026), this combined a **top-down review** (3a) of indicators already used in established food system and sustainability monitoring frameworks (e.g., Food System Dashboard) with a **bottom-up review** (3b) of relevant datasets (e.g., Eurostat, World Bank) to identify additional variables capable of representing each component.

Step 4. Assessment and selection of indicators

Indicators were assessed according to their conceptual fit with the relevant framework component and their suitability for EU-27-level mapping. Selection was based on the basis of a combination of criteria:

1. their conceptual fit with the framework definition;
2. relevance to the EU-27 food system;
3. availability at an appropriate geographical scale;
4. comparability across Member States or availability as an EU aggregate;
5. temporal coverage and potential for future updating;
6. reliability and transparency of the underlying source;
7. and, where possible, consistency with indicators already used in established monitoring frameworks.

Depending on the component being represented, a single indicator or a combination of complementary indicators could be selected. The purpose was not necessarily to identify a single definitive metric for every component, but to assemble evidence capable of characterising the principal features of each part of the EU food system.

Step 5. Data sourcing and extraction

Data were sourced according to a hierarchy designed to maximise comparability, transparency and robustness. Priority was given to harmonised and publicly accessible EU sources, including Eurostat, European Commission services, EU agencies and the JRC, followed by peer-reviewed literature, sectoral and business statistics, and other authoritative sources.

Geographical coverage: where possible, EU Member States were used as the principal geographical unit of analysis, reflecting the availability of harmonised European statistics and enabling variation across national food systems to be visible in addition to EU-level aggregates. This approach allows Member States to situate their food system relative to other countries and the EU as a whole. However, national averages can mask within-country heterogeneity, including regional, socioeconomic and urban–rural differences, and do not necessarily correspond to the geographical scales at which food system processes operate. Member State indicators should therefore be interpreted as characterising broad patterns across the EU-27 rather than uniform conditions within individual countries.

Step 6. EU-27 mapping and identification of evidence gaps

The selected indicators and associated evidence were mapped against the components of the FoSSNet Conceptual Framework to characterise the EU-27 food system across its drivers, activities and actors, and outcomes. Differences in geographical and temporal coverage, the use of proxy indicators, and areas where suitable data were unavailable were documented as part of the mapping. These gaps were retained as an explicit output of the analysis, highlighting areas where the evidence base for monitoring the EU food system remains limited.

Data visualisation. Where suitable underlying data were available, the authors reproduced or adapted visualisations to facilitate comparison across the EU-27 and Member States. These visualisations are descriptive and do not involve additional statistical analysis or modification of the original indicators, definitions or underlying data. Microsoft Excel and Flourish[2] were used for data organisation and visualisation. Data sources are reported for each figure to ensure traceability to the original dataset.

Full list of indicators and their coverage, source and year mapped against the FoSSNet CF framework component can be found in *Table B1* in Annex B.

[2] https://flourish.studio/

3. What drives the EU-27 Food System?

Drivers are environmental, social, economic and institutional forces that influence how food systems function and evolve over time (Béné et al., 2019; Ericksen, 2008; Ingram, 2011). They shape the conditions under which food system actors operate and make decisions by altering resource availability, economic incentives, institutional constraints, risks and opportunities. Drivers interact across spatial and temporal scales, and their effects are mediated by actors' capacities, priorities and responses, ultimately shaping food system activities and outcomes. These relationships are not unidirectional: food system activities and outcomes can generate feedbacks that reinforce or modify the drivers themselves. Consequently, some factors presented here as drivers are deeply intertwined with the outcomes considered in **Section 5**. This reflects the interconnected nature of food systems, in which the outcome of one process may become a driver of subsequent change (e.g., GHGs emissions, biodiversity loss). This section examines the environmental, social and economic, and direct food system drivers represented in the framework.

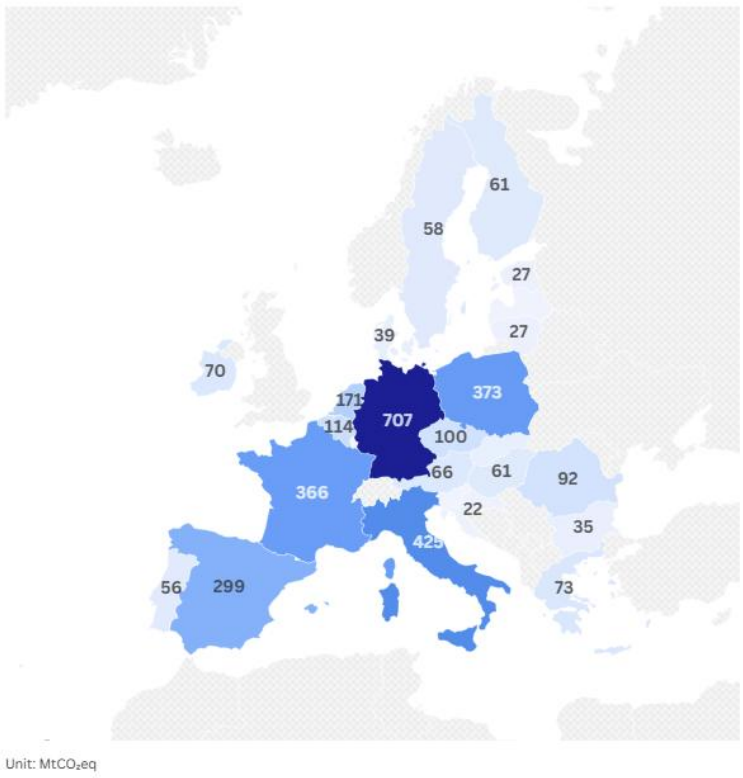
3.1. Environmental drivers

3.1.1. Atmosphere

Europe is warming substantially faster than the global average, increasing the exposure of the food system to heat stress and changing growing conditions. Over the most recent five-year period, *average temperature over European land* was around 2.4°C above pre-industrial levels, compared with around 1.4°C globally. Since 1979, European temperatures have increased by approximately 0.49°C per decade, with the rate rising to 0.56°C per decade since 1996 (C3S/ECMWF & WMO, 2026). Warming over European land has accelerated markedly since the 1980s, creating increasingly challenging climatic conditions for agricultural production. For food systems, this warming trend translates into shifts in growing seasons, changed suitability ranges for key crops, increased evapotranspiration and irrigation demand, and heightened thermal stress on livestock. Further information on the state of climate in Europe can be found in the European State of the Climate report (C3S/ECMWF & WMO, 2026), prepared by the Copernicus Climate Change Service and the WMO yearly.

Greenhouse gas (GHG) emissions are a key driver of climate change and, consequently, of the climatic conditions affecting European food systems. In 2023, emissions including *land use, land-use change and forestry (LULUCF)* varied substantially across EU Member States, with the highest total emissions recorded in Germany, Italy, Poland and France (**Figure 3**). Continued GHG emissions contribute to rising temperatures and associated climate risks, including heat stress, drought and extreme weather, with implications for agricultural production and food system resilience.

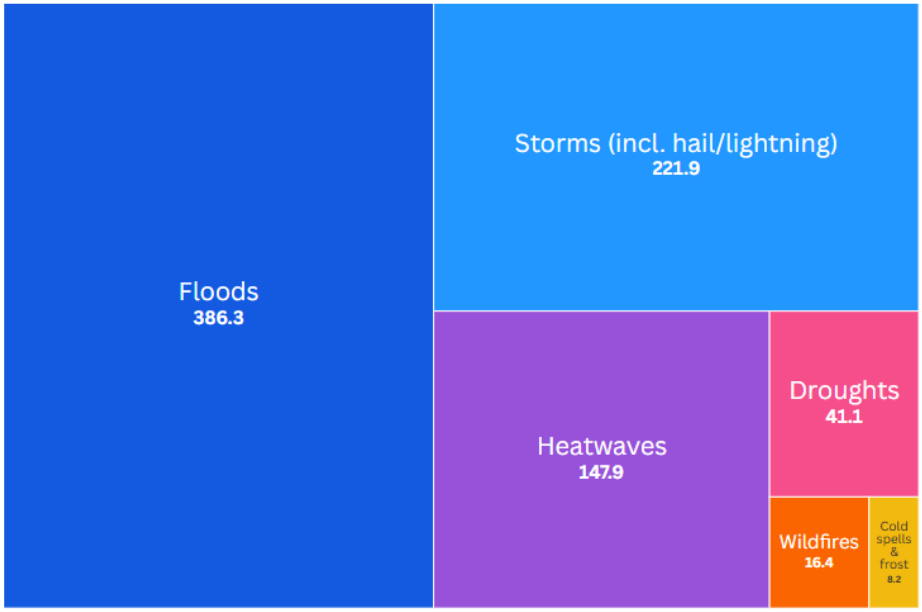
Figure 3. Greenhouse gas emissions including LULUCF in EU Member States, 2023



Source: FAOSTAT data. Data year: 2023. Accessed via Food Systems Dashboard. Available at: https://www.foodsystemsdashboard.org/

Extreme weather events, including floods, storms, heatwaves, droughts and frost, represent an important source of disruption to European agriculture and the wider food system. Between 1980 and 2024, weather- and climate-related extremes caused total economic losses estimated at EUR 822 billion in the EU Member States (2024 prices), with over EUR 208 billion occurring in the four years between 2021 and 2024 alone (EEA, 2024). Average annual losses have risen from EUR 8.6 billion in the 1980s to EUR 44.9 billion in the period 2020–2024, representing a 54% increase in the 30-year moving average between 2009 and 2024 (EEA, 2024). Hydrological hazards, primarily flooding, account for the largest share of losses at 47%, followed by meteorological hazards such as storms (27%) and heatwaves (18%), with droughts, wildfires and cold spells making up the remaining 8% (**Figure 4**) (EEA, 2024).

Figure 4. Economic Losses (EUR billion) by Hazard Type, EU-27, 1980–2024

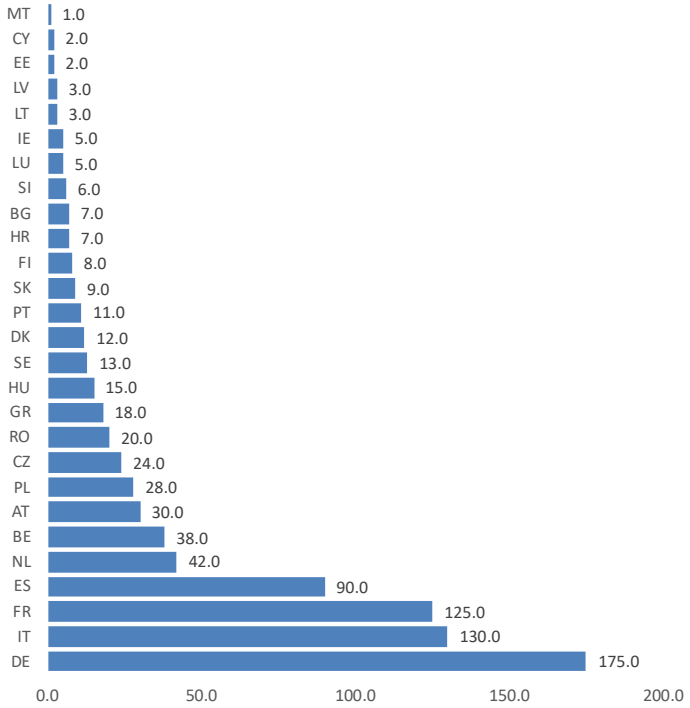


Source: EEA, Economic losses from weather- and climate-related extremes in Europe. Data year: 2025. Available: https://www.eea.europa.eu/en/analysis/indicators/economic-losses-from-climate-related. *Note: 2024 prices.*

In geographic terms, the highest absolute losses have been recorded in Germany, Italy, France and Spain, while the highest losses relative to population size were found in Slovenia, Luxembourg and Spain (**Figure 5**). Critically, these losses are not food system-specific but agriculture is among the most directly exposed: floods destroy standing crops and damage rural infrastructure, droughts reduce yields and deplete irrigation water reserves, and heatwaves affect both crop quality and livestock health. The figures therefore serve as a conservative indicator of the broader environmental pressure context within which European agri-food systems must operate, and the upward trend in losses makes clear that this pressure is intensifying.

Climate projections indicate that these pressures will intensify and that their food system consequences will deepen, with the scale of future disruption remaining strongly contingent on the emissions pathway followed in the coming decades. **Figure 6** presents projected *probabilities of wheat and maize crop failure* across EU Member States between 2026 and 2086, based on the Global Gridded Crop Model Intercomparison Project (GGCMI; Jägermeyr et al., 2021).

Figure 5. Total Economic Losses (EUR billion) from Weather & Climate Extremes by EU Member State, 2024

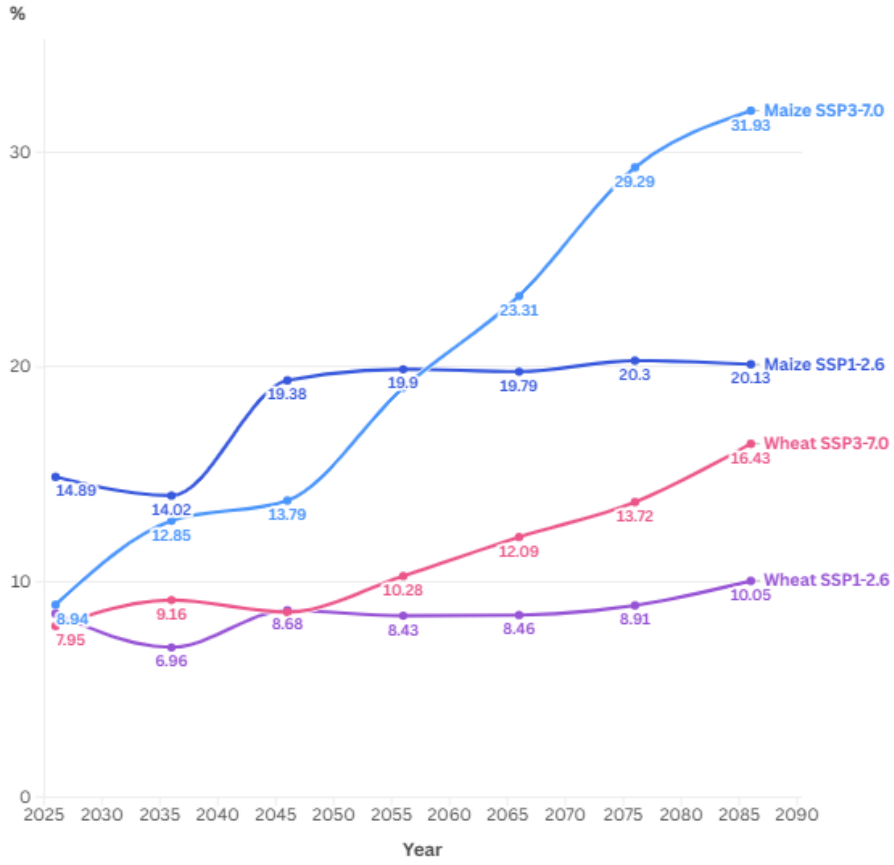


Source: EEA, Economic losses from weather- and climate-related extremes in Europe. Data year: 2025. Available: https://www.eea.europa.eu/en/analysis/indicators/economic-losses-from-climate-related. Note: 2024 prices.

Future climate impacts were represented using projections reported in the Food Systems Dashboard, based on the GGCMI multi-model crop-modelling framework described by Jägermeyr et al. (2021). The Shared Socioeconomic Pathways (SSPs) describe alternative socioeconomic, and emissions futures used to explore potential climate trajectories. SSP1-2.6 represents a low-emissions pathway characterised by strong climate action and international cooperation, with emissions reaching net zero around mid-century and warming limited to approximately 1.5–2 °C by 2100. By contrast, SSP3-7.0 represents a high-emissions pathway characterised by a more fragmented world, limited climate action and sustained greenhouse gas emissions, resulting in approximately 3–4 °C of warming by 2100.

Under a high-emissions scenario (SSP3-7.0), the average probability of maize crop failure rises from approximately 15% today to nearly 32% by 2086 while under a low-emissions pathway (SSP1-2.6) it stabilises at around 20%, suggesting that mitigation action can meaningfully contain but not eliminate the risk. Wheat is less exposed but not immune: failure probabilities reach approximately 16% under high emissions by 2086, compared to a near-stable 8–10% under low emissions. The pronounced gap between scenarios underscores that future food system risk is not predetermined but is directly shaped by the speed and ambition of climate action.

Figure 6. Projected likelihood of wheat and maize crop failure under low (SSP1-2.6) and high (SSP3-7.0) emissions scenarios in EU Member States (available countries), 2026–2086



Source: (Jägermeyr et al., 2021). Projections from the Global Gridded Crop Model Intercomparison Project (GGCMI). Data year:2021. Accessed via Food Systems Dashboard. Available at: https://www.foodsystemsdashboard.org/. Note: Values represent the unweighted average across EU Member States for which data are available. Wheat covers 25 Member States (excluding Cyprus and Malta); maize covers 20 Member States (excluding Cyprus, Estonia, Finland, Ireland, Latvia, Malta and Sweden).

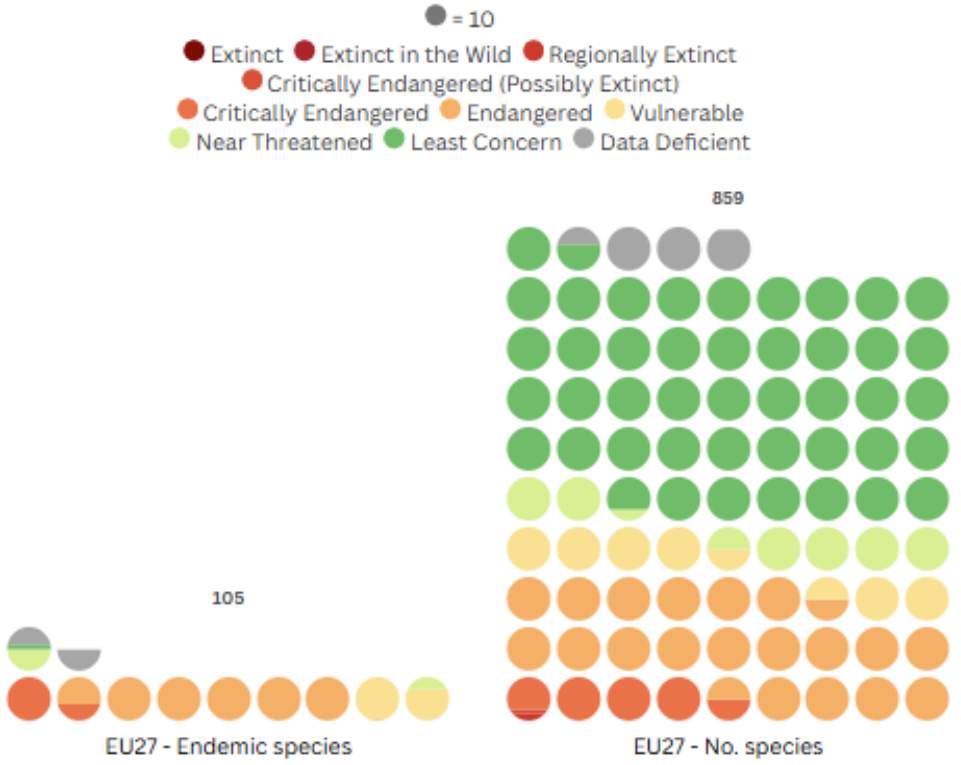
3.1.2. Biosphere

Biodiversity and healthy ecosystems are important environmental drivers of food systems (Shipley et al., 2024), providing essential ecosystem services, including pollination, biological pest control, soil formation and nutrient cycling. At the same time, biodiversity loss is an outcome of agricultural activities (**Section 5.3.2**), particularly agricultural expansion and intensification, which drive habitat loss and landscape simplification through monocultures and intensive agrochemical use (Tscharntke et al., 2005).

Wild pollinators are particularly important for the reproduction of flowering plants and many agricultural crops. The first comprehensive European Red List assessment of hoverflies considered 892 species, of which 859 were assessed in the EU-27 (Vujić et al., 2023). As illustrated in **Figure 7** most EU hoverfly species are classified as Least Concern, but a substantial number face elevated extinction risk: 42 species are Critically Endangered, 200 Endangered and 70 Vulnerable. Among the 105 EU-endemic species, 13 are Critically Endangered, 57 Endangered and 16 Vulnerable. These results

highlight potential pressures on pollination and other ecosystem functions supporting European food systems.

Figure 7. Conservation status of hoverfly species in the EU-27, 2022-2023

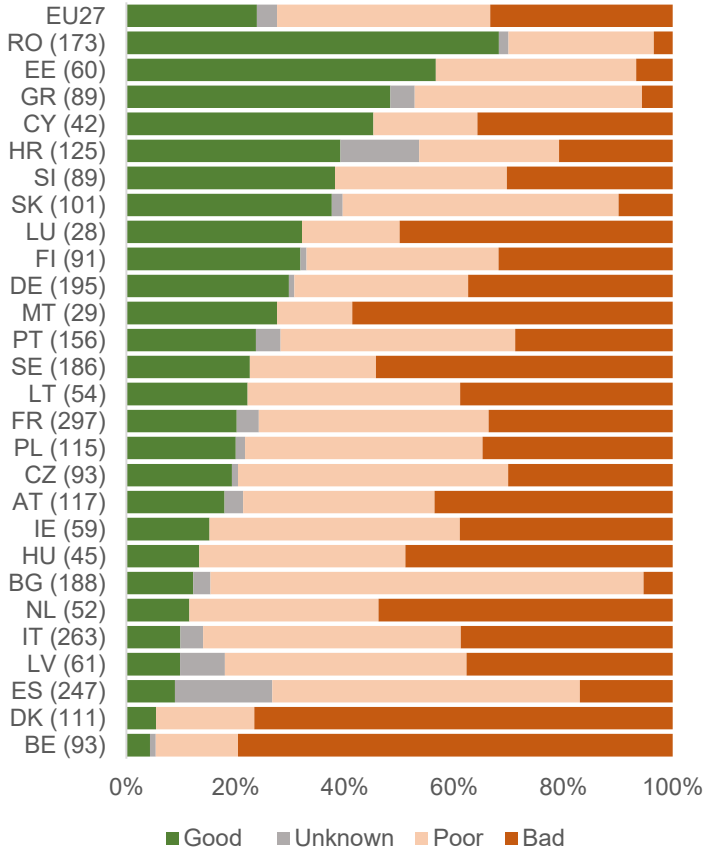


Source: European Commission, European Red List of Hoverflies, (Vujić et al., 2023). Data year: 2022-2023. Available at: https://data.europa.eu/doi/10.2779/35987.

The *condition of natural and semi-natural habitats* provides a broader measure of ecosystem health and the capacity of landscapes to support biodiversity and ecosystem services. For the 2013–2018 reporting period, only 15% of EU habitat assessments were classified as having good conservation status, while 45% were poor and 36% bad. Conditions also vary considerably among Member States (EEA, 2020) (**Figure 8**).

This deterioration is closely connected to the food system: agriculture is the most frequently reported pressure on habitats, accounting for 21% of reported pressures, with both agricultural intensification and abandonment of grasslands affecting pollinators and farmland biodiversity. Moreover, 46% of assessments of agricultural habitats were classified as having bad conservation status.

Figure 8. Conservation status of habitats by Member States, 2013–2018

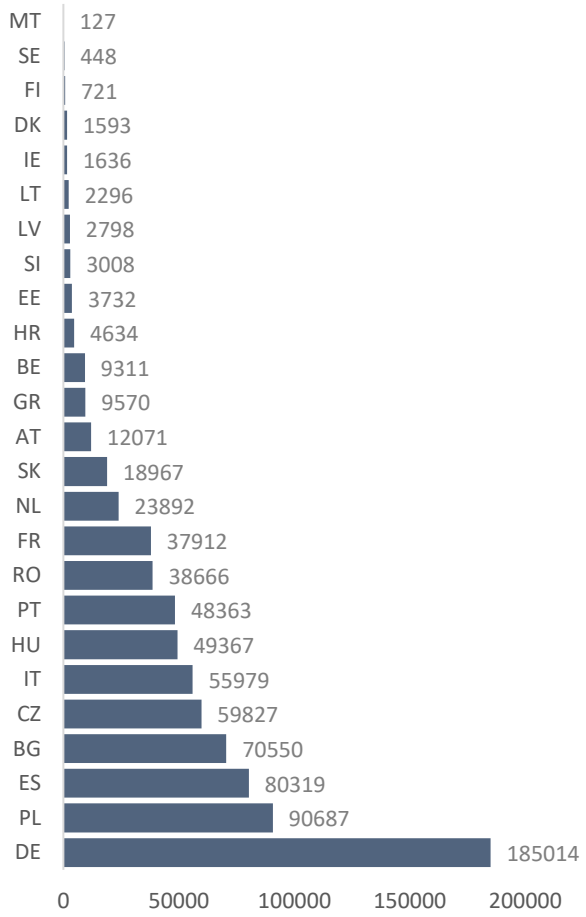


Source: European Environment Agency, Conservation status of habitat types and species: datasets from Article 17, Habitats Directive 92/43/EEC reporting. Data year: 2013-2018. Available at: https://www.eea.europa.eu/en/analysis/indicators/conservation-status-of-habitats-under

The *conservation of plant and animal genetic resources* for food and agriculture (GRFA) is important for maintaining the diversity and long-term resilience of food systems. Genetic material stored in medium- and long-term ex situ conservation facilities, such as genebanks, safeguards genetic diversity from permanent loss and provides material that can be used in breeding programmes to respond to emerging challenges, including climate change, pests and diseases. The indicator forms part of the UN Sustainable Development Goal framework (SDG 2.5.1a and 2.5.1b) and provides a measure of progress in safeguarding genetic diversity for future food and agricultural production.

As shown in **Figure 9**, the number of plant genetic resources secured in conservation facilities varies substantially across EU Member States. Germany reports the largest number among the countries shown (185,014 accessions), followed by Poland (90,687) and Spain (80,319). Maintaining diverse genetic resources strengthens the pool of traits available for future crop improvement and can therefore contribute to the adaptability and resilience of European food production.

Figure 9. Plant genetic resources (number of accessions) for food and agriculture secured in medium- or long-term conservation facilities in EU Member States, 2024

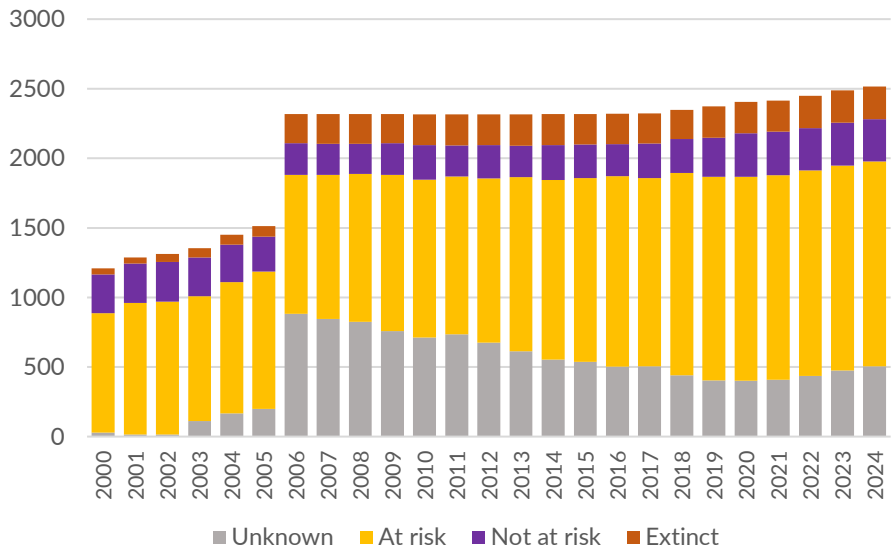


Source: FAOSTAT data. Data year: 2024. Accessed via Food Systems Dashboard. Available at: https://www.foodsystemsdashboard.org/

The **conservation of animal genetic** resources is an important driver of agrobiodiversity, contributing to the resilience and adaptability of livestock production systems. The conservation status of local livestock breeds provides an indication of the vulnerability of animal genetic diversity across Europe. As shown in **Figure 10,** the number of recorded local livestock breeds increased substantially between 2000 and 2024, particularly after 2005. Breeds classified as being at risk of extinction account for the largest share of those with a known risk status throughout the period, while the number of breeds classified as not at risk remains comparatively low. A substantial proportion of breeds are also classified as having an unknown risk status, highlighting persistent gaps in the availability of information needed to assess extinction risks. Although the number of breeds with unknown status has declined since the mid-2000s, it remains considerable in 2024. The number of breeds recorded as extinct has also increased over the period. Changes in the total number of recorded breeds should, however, be

interpreted with caution, as they may also reflect improvements in reporting and data coverage rather than changes in the actual number of livestock breeds.

Figure 10. Risk status of local breedsin EU-27 Member States, 200-2024



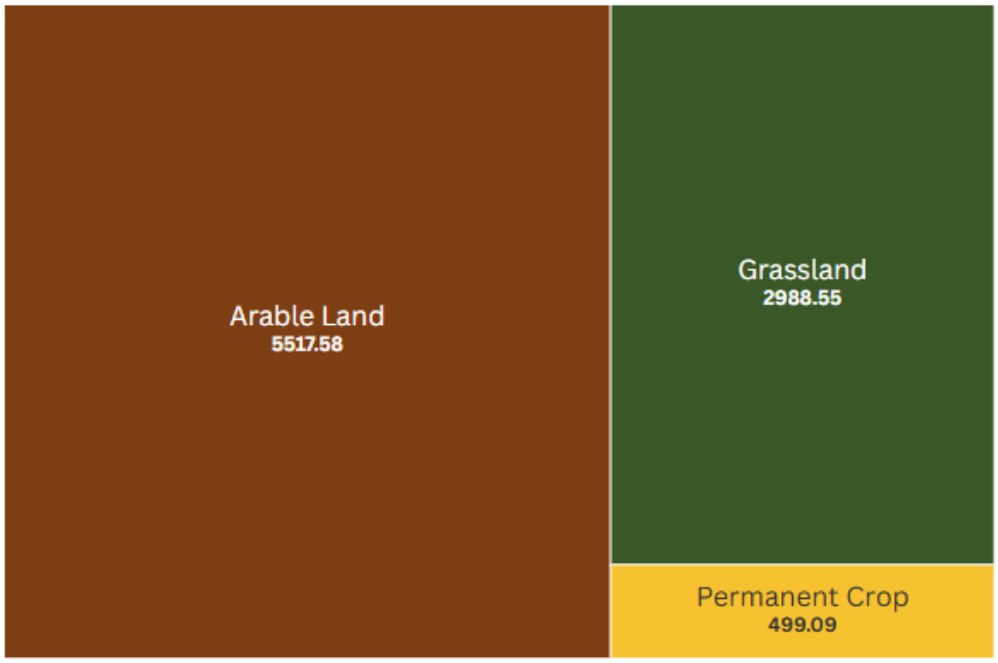
Source: European Environment Agency (EEA), Proportion of local breeds classified as being at risk of extinction in Europe (SEBI006). Underlying data: FAO Domestic Animal Diversity Information System (DAD-IS), SDG indicator 2.5.2. Data years: 2000–2024. Note: Data refer to local breeds of cattle, sheep, goats and poultry reported by EU-27 Member States. Available at: https://www.eea.europa.eu/en/analysis/indicators/proportion-of-local-breeds-classified-as-being-at-risk-of-extinction-in-europe

3.1.3. Geosphere

Soil organic carbon (SOC) is fundamental to soil fertility, structure, water retention and biological activity, making it an important determinant of the productivity and resilience of European agriculture. Maintaining or increasing SOC can improve resilience to drought and erosion, while also contributing to climate mitigation through carbon sequestration. SOC is influenced by land use and management practices, as well as soil, temperature and moisture conditions.

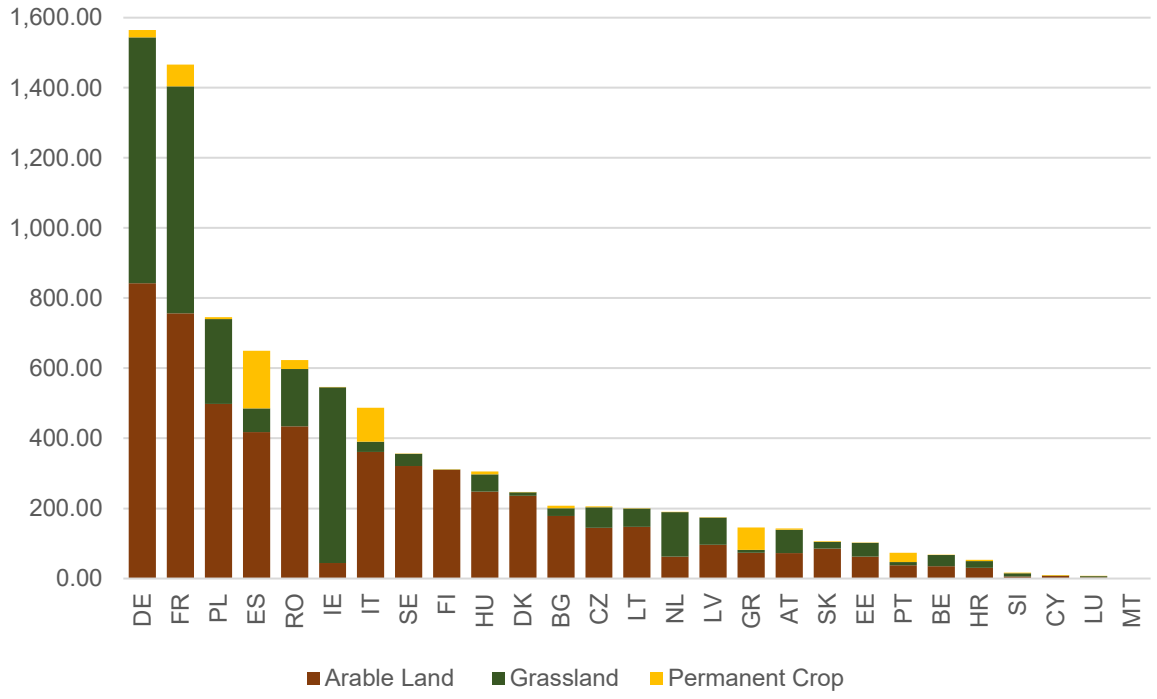
The current stock of SOC in EU agricultural land is approximately 9,005 Mt C/kg of soil. As shown in *Figure 11. Current distribution of soil organic carbon stocks in EU agricultural land by land-use type (Mt C/kg of soil), 2018Figure 11*, around 5,518 Mt C/kg (61%) is stored in arable land, 2,989 Mt C/kg (33%) in grassland and 499 Mt C/kg (6%) under permanent crops. The distribution of SOC stocks also varies substantially across Member States (**Figure 12**), with the largest stocks found in Germany, France and Poland. These differences reflect, among other factors, the extent and composition of agricultural land, meaning that total stocks should not be interpreted as a direct comparison of soil quality between countries.

Figure 11. Current distribution of soil organic carbon stocks in EU agricultural land by land-use type (Mt C/kg of soil), 2018



Source: C40_1, European Commission, Joint Research Centre. Data year:2018. Available at: https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorerPMEF.html

Figure 12. Estimated soil organic carbon stocks in agricultural land by land-use type and EU Member State (Mt C/kg), 2018

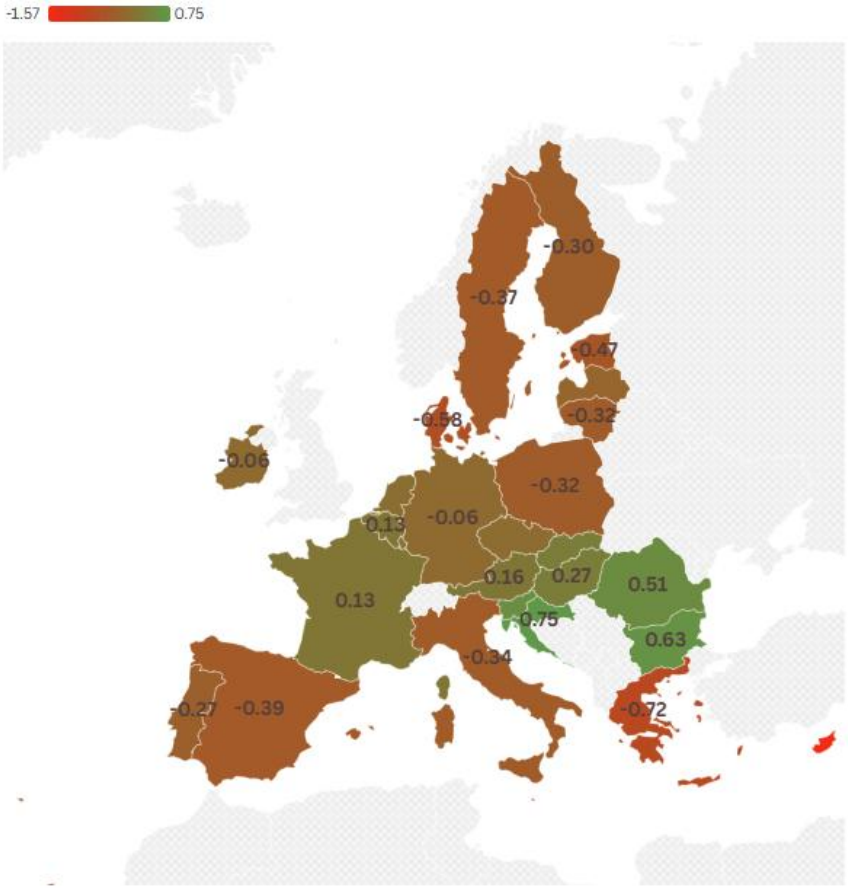


Source:C40_1, European Commission, Joint Research Centre. Data year:2018. Available at: https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorerPMEF.html

Figure 13 show positive changes are particularly apparent in parts of central and eastern Europe, including Croatia (+0.75), Bulgaria (+0.63), Romania (+0.51) and

Slovakia (+0.27). By contrast, declines are observed in several southern and northern Member States, including Greece (-0.72), Denmark (-0.58), Estonia (-0.47), Spain (-0.39), Sweden (-0.37), Italy (-0.34), Poland (-0.32) and Finland (-0.30).

Figure 13. Change (%) in soil organic carbon in agricultural land across EU Member States



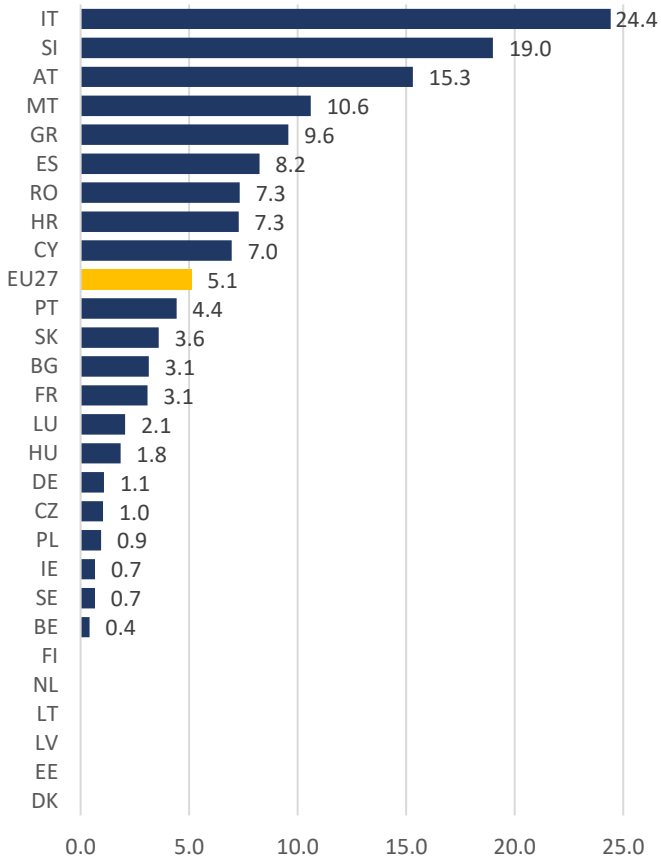
Source: C40_3, European Commission, Joint Research Centre, Data year:2018. Available at :https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorerPMEF.html

Soil erosion is an important environmental driver of food system resilience because it removes fertile topsoil, reducing soil organic matter, nutrients and water-holding capacity and potentially lowering agricultural productivity. The EU indicator measures the area at risk of severe soil erosion by water, defined as estimated soil loss of more than 10 tonnes per hectare per year. The indicator covers agricultural, forest and semi-natural areas, excluding artificial surfaces, wetlands and water bodies.

In 2023, 5.11% of the EU's non-artificial, erodible land was at risk of severe soil erosion, equivalent to around 190,000 km². This represents a gradual decline from 6.1% in 2000 and 5.3% in 2016, although progress has slowed. Risks differ between Member States (**Figure 14**). Italy had the highest share at 24.42%, followed by Slovenia (19.00%), Austria (15.31%) and Malta (10.60%), while erosion risk was close to zero in Denmark, Estonia, Latvia, Lithuania and the Netherlands. In absolute area, Italy also had the

largest area at risk (around 67,000 km²), followed by Spain (40,000 km²) and Romania (16,000 km²).

Figure 14. Percentage of area at risk of severe soil erosion by water in EU Member States, 2023

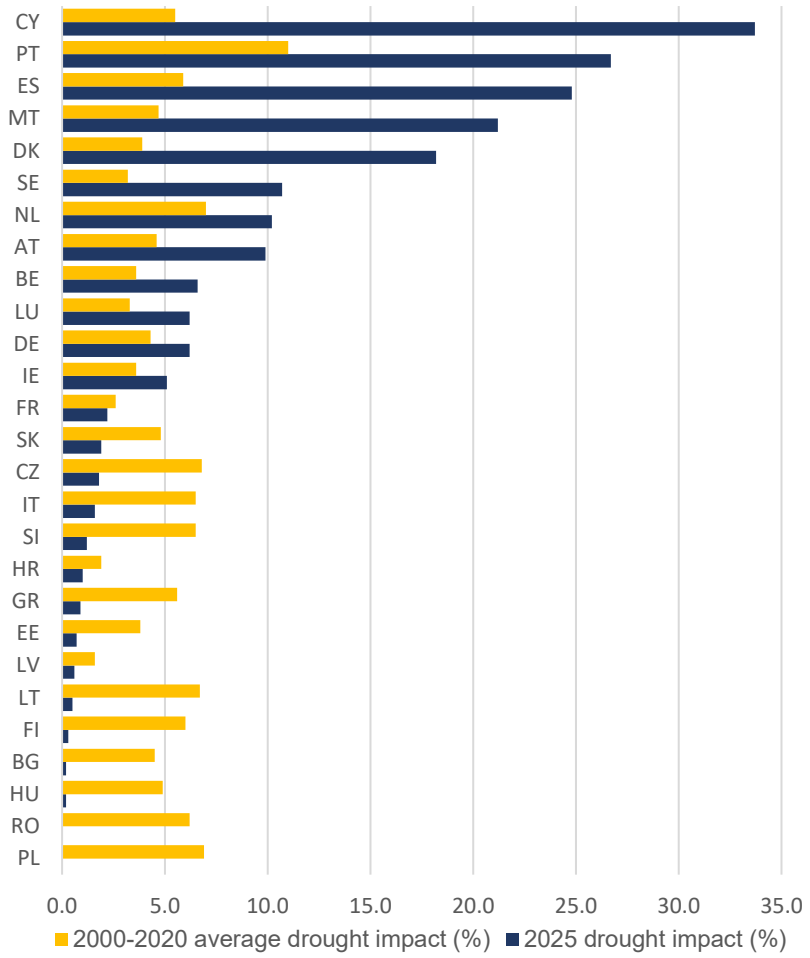


Source: European Commission, Joint Research Centre. Data year:2023. Available at: https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorerPMEF.html

3.1.4. Hydrosphere

Drought represents an important environmental driver of food systems by reducing soil moisture, constraining water availability and affecting vegetation productivity and agricultural production. In 2025, **drought impacts** were substantially above the 2000–2020 average in several EU Member States (EEA, 2026a) (**Figure 15**). Drought impact identifies areas where vegetation productivity was negatively affected by drought conditions compared with the 2000–2020 baseline. The largest shares of national territory affected were observed in Belgium (around 34%), Cyprus (27%), Bulgaria (25%) and the Netherlands (21%). Romania, Ireland and Hungary also experienced considerably higher drought impacts than their historical averages. Conversely, impacts remained relatively limited in several southern and northern Member States, illustrating the strong geographical and interannual variability of drought conditions across Europe.

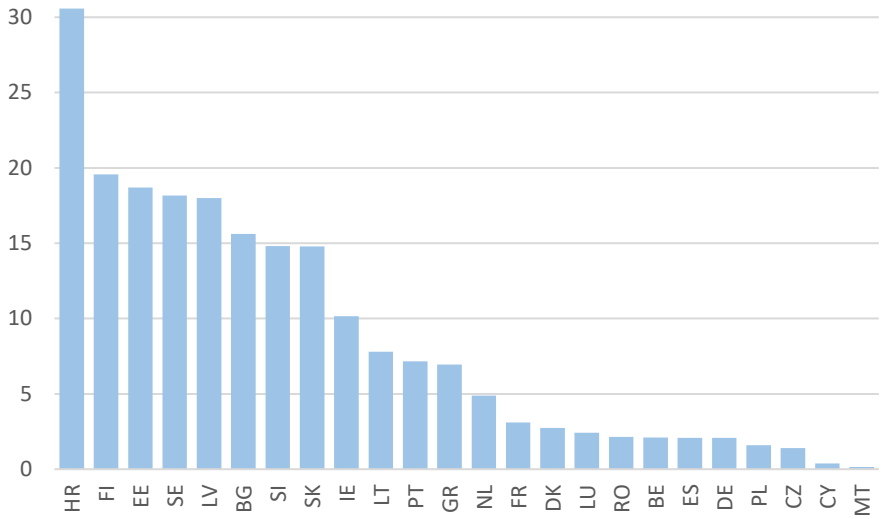
Figure 15. Share of country territory (%) affected by drought impacts in EU Member States compared with the 2000–2020 average, 2025



Source: Vegetation productivity 2000-2024, European Environment Agency (EEA) & EDO Soil Moisture Index (SMI) (version 3.0.1), European Drought Observatory, Joint Research Centre. Data year: 2025. Available at: https://www.eea.europa.eu/en/analysis/indicators/drought-impact-on-ecosystems-in-europe

Freshwater availability is an important environmental driver of food systems, influencing irrigation, livestock production and food processing. Renewable freshwater resources vary considerably across EU Member States because of differences in precipitation, hydrology and transboundary water flows. Long-term renewable freshwater resources per inhabitant are highest in countries such as Croatia, Finland, Estonia, Latvia and Sweden, while substantially lower levels are recorded in Malta, Cyprus, Czechia and Poland (**Figure 16**) These differences reflect variations in precipitation, river flows, groundwater resources and population size across Europe.

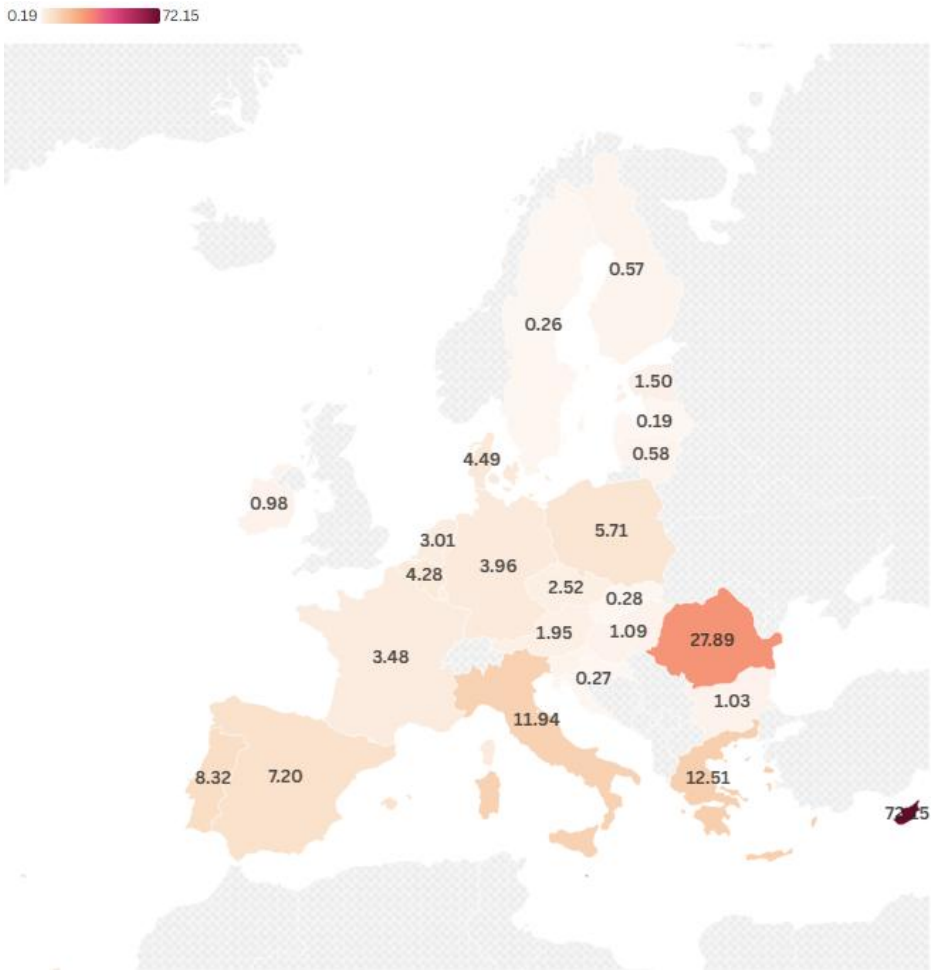
Figure 16. Long-term average renewable freshwater resources (1,000 m³ per inhabitant) per inhabitant in EU Member States, 2026



Source: Eurostat, Renewable freshwater resources - long term annual averages. Data year: 2026. Available at: https://ec.europa.eu/eurostat/databrowser/view/env_wat_ltaa/default/table?lang=en

The **Water Exploitation Index Plus (WEI+)** provides a complementary measure of the pressure placed on available freshwater resources. It expresses water consumption as a percentage of renewable freshwater resources. As shown in **Figure 17**, the four-quarter average WEI+ in 2023 varied substantially between Member States, ranging from below 1% in several countries to 72.15% in Cyprus. Cyprus recorded by far the highest value, followed by Romania (27.89%), while Greece (12.51%), Italy (11.94%), Portugal (8.32%) and Spain (7.20%) also recorded comparatively higher values. Most other Member States had four-quarter averages below 6%.

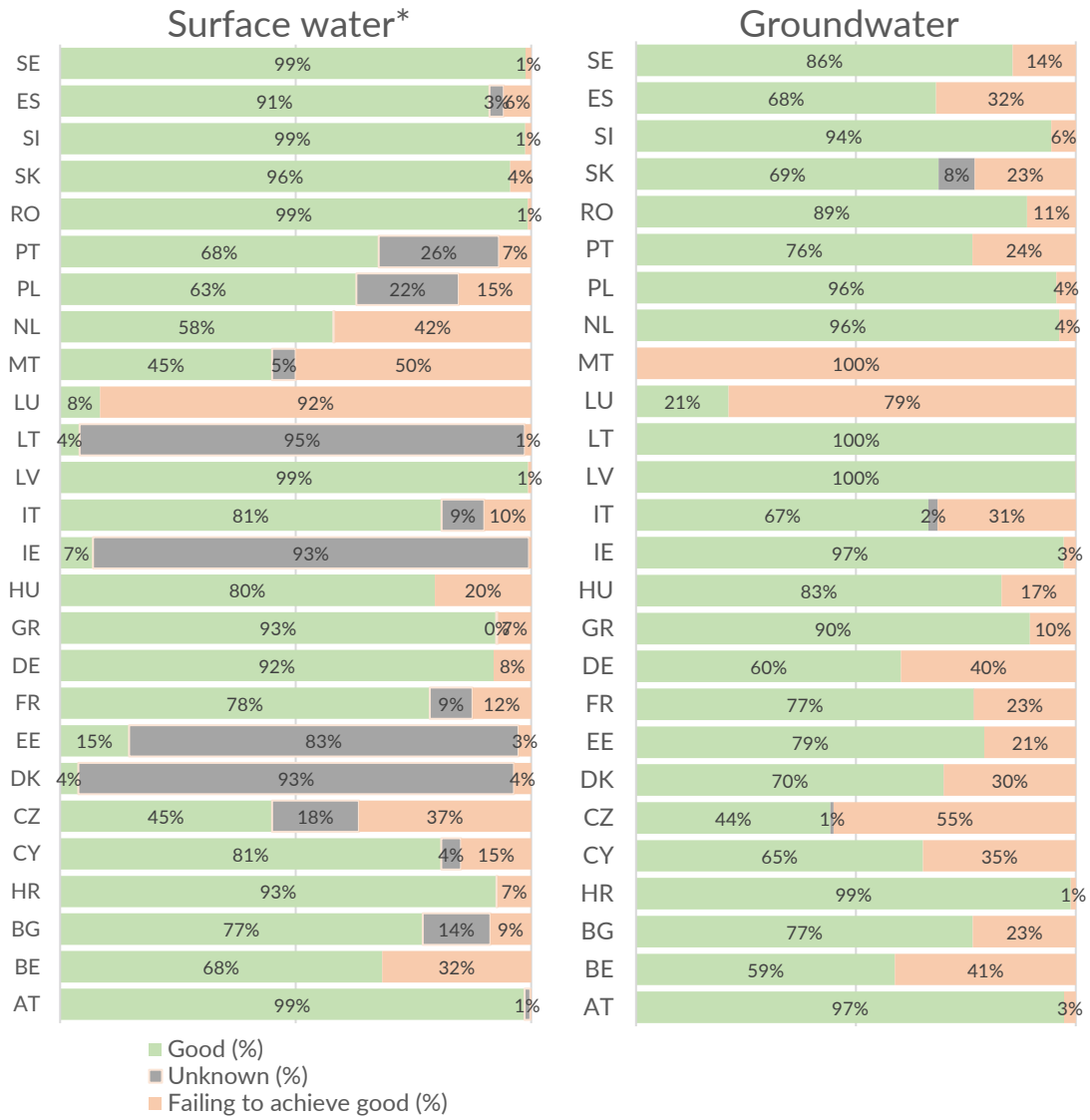
Figure 17. Water Exploitation Index Plus (WEI+) (%) in EU Member States, four-quarter average, 2023



Source: European Environment Agency (EEA), Water Exploitation Index Plus (WEI+). Data year: 2023. Available at: https://ec.europa.eu/eurostat/databrowser/view/sdg_06_60/default/table?lang=en

Water quality is another important environmental driver influencing food systems, as both surface water and groundwater provide essential resources for agricultural production, irrigation, livestock and food processing. Chemical contamination can reduce the availability of suitable water resources and affect aquatic ecosystems that contribute to wider food system functioning. **Figure 18** shows the chemical status of surface water and groundwater across EU Member States.

Figure 18. Chemical status of surface water and groundwater (% of water bodies) in EU Member States, 2000-2015



Source: European Environment Agency (EEA), WISE Water Framework Directive database, River Basin Management Plans. Data year:2000-2015. Available at: https://www.eea.europa.eu/en/analysis/maps-and-charts/chemical-status-of-surface-water-bodies-water-assessments?activeTab=570bee2d-1316-48cf-adde-4b640f92119b. Note: *Surface-water chemical status excludes ubiquitous persistent, bioaccumulative and toxic substances (uPBTs).

For surface waters, the assessment excludes ubiquitous persistent, bioaccumulative and toxic substances (uPBTs), providing a picture of chemical status without pollutants such as mercury and brominated flame retardants that are widespread and persistent across Europe. Overall, a large proportion of surface waters achieve good chemical status when these substances are excluded, although the share varies considerably between Member States. Groundwater generally shows high levels of good chemical status across the EU, with **around 86% of groundwater bodies achieving good chemical status at EU level**. Nevertheless, poor chemical status remains present in several Member States, with pollutants such as nitrates contributing to groundwater contamination.

3.2. Social and economic drivers

3.2.1. Cultural heritage

Cultural heritage shapes food systems through traditions, shared beliefs, religion, social norms and practices transmitted across generations, influencing both **what foods are produced and how they are prepared and consumed**. Food culture extends beyond individual products to encompass practices surrounding food production, preparation, sharing and eating, while religious and cultural beliefs can also determine the avoidance or preference of particular foods (Jayasinghe et al., 2025). These influences continue to evolve through migration, social networks, globalisation and modernisation. Religious practices provide a clear example, with dietary rules relating to fasting, alcohol, meat consumption, halal and kosher practices, and vegetarian diets shaping food choices across different cultural groups. These cultural influences are not static but evolve through migration, intercultural exchange, globalisation, and broader socioeconomic transformations.

Despite their importance, cultural drivers remain difficult to capture through quantitative indicators. One challenge lies in the multidimensional nature of cultural heritage, which encompasses both tangible and intangible dimensions, including traditional knowledge, practices, beliefs, and collective identities (House et al., 2024). As for all the drivers, cultural heritage may function both as a driver of food system activities and as an outcome shaped by changes in food production, markets, and consumption. **Territorial food identity**, for example, can be partially represented through registered geographical indications, although these primarily capture formally recognised food products rather than the broader cultural practices influencing food system behaviour. In this report, geographical indications are therefore considered under cultural heritage and community-building outcomes (**Section 5.2.1**), rather than as an indicator of cultural drivers.

The availability of harmonised quantitative indicators for cultural drivers remains limited across EU Member States. Although information on specific cultural dimensions, such as religious affiliation, dietary practices, and traditional food knowledge, may be available through national surveys or individual research studies, differences in definitions, data collection methods, geographical coverage, and reporting practices constrain their comparability at EU-27 level. Furthermore, no single indicator can adequately represent the diversity of cultural influences on food systems. This represents **an important monitoring gap**, particularly given the role of cultural values, traditions, and social norms in shaping food preferences, dietary behaviours, and food system practices.

3.2.2. Demographics and epidemics

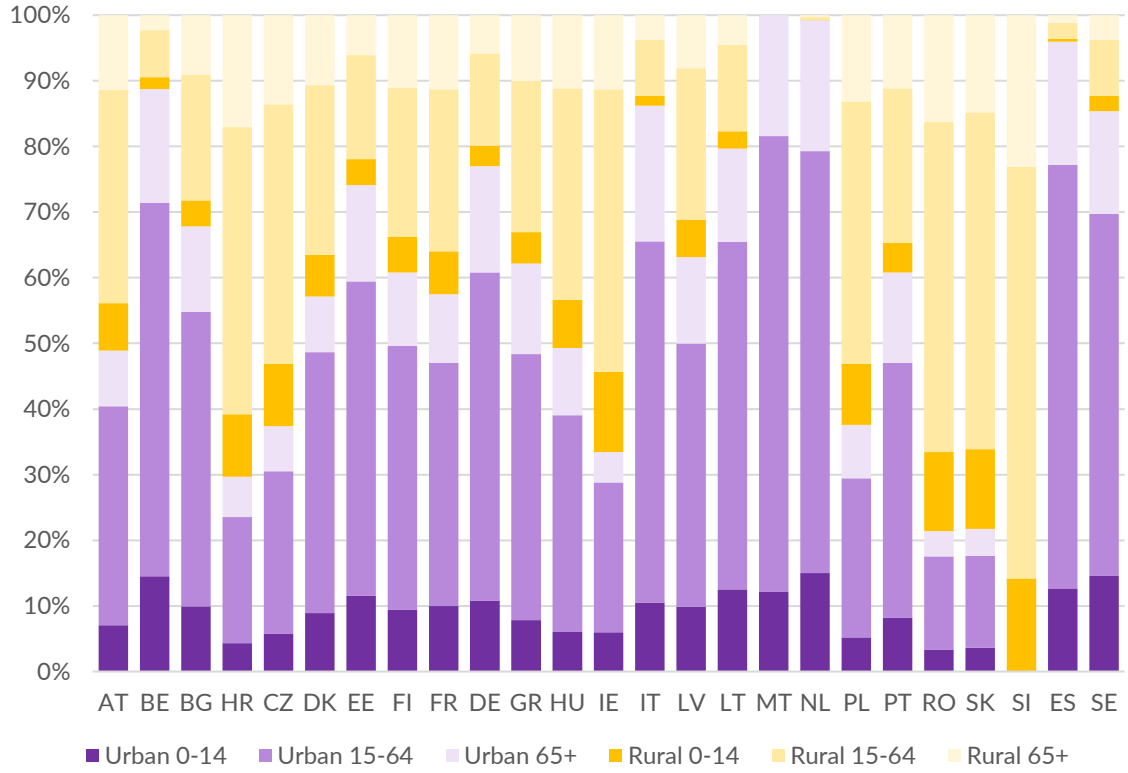
Population dynamics are an important socio-economic driver of food systems because changes in population size, age structure and settlement patterns influence food demand, labour availability and the organisation of food production and distribution. The EU population has continued to increase in recent years, reaching around 452.0 million inhabitants on 1 January 2026, about 706,000 more than a year earlier. This represented the fifth consecutive year of population growth following the decline recorded during the COVID-19 pandemic. Since 2012, negative natural population change has been offset by positive net migration, making migration the main contributor to recent population growth. Population change is accompanied by substantial differences in demographic structure across Member States. Between 1 January 2015 and 1 January 2025, the EU population increased by 1.8%, but developments varied considerably between countries: Malta and Luxembourg recorded the largest increases, while Bulgaria, Croatia and Latvia experienced the largest declines. Key statistics can be found in (Eurostat, 2026b).

In addition, key figures[3] in Eurostat show that the role of migration has become particularly pronounced in recent years. In 2024, the EU recorded a natural population decrease of approximately 1.26 million people, while net migration and statistical adjustment added around 2.33 million, resulting in an overall population increase of about 1.07 million. Migration patterns also vary considerably across Member States. Between 2015 and 2025, net inward migration was the main driver of the EU's **1.8% population increase**. At the same time, Bulgaria, Croatia, Latvia, Poland and Romania experienced population decline associated with both natural decrease and net outward migration, while countries including Greece, Italy, Lithuania, Hungary and Slovakia declined despite positive net migration.

Figure 19 shows the demographic composition of each EU Member State in 2025 according to both settlement type and age. The bars distinguish people living in predominantly urban and predominantly rural regions and, within each group, those aged 0–14, 15–64 and 65 years and over. The composition varies substantially between Member States. In some countries, the population is concentrated predominantly in urban regions, while others have a much larger rural population. The age structure also differs between settlement types: in several Member States, rural populations have a relatively larger share of people aged 65 and over than urban populations. This is particularly visible in countries such as Austria, Croatia, Portugal and Romania, where the rural part of the population contains a comparatively large older population. By contrast, countries such as Belgium, the Netherlands and Malta have a much larger concentration of their population in predominantly urban regions.

[3] https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Population%5Fand%5Fpopulation%5Fchange%5Fstatistics

Figure 19. Population composition (% of national population) of EU Member States by urban–rural typology and broad age group, 2025



Source: Eurostat, urt_pjanaggr3, Population on 1 January by broad age group, sex and other typologies; Data year: 2025. Available at: https://ec.europa.eu/eurostat/databrowser/view/URT_PJANAGGR3__custom_175120/default/table?lang=en

Migration is an increasingly important component of demographic change in Europe and can also influence the availability and composition of labour within food systems. According to (United Nations, 2024), Europe hosted around 94 million international migrants in 2024, the largest migrant stock in absolute terms among world regions, equivalent to approximately 13% of Europe's population. The number increased by around 43 million between 1990 and 2024, the largest absolute increase among world regions, with growth accelerating after 2020 partly as a result of refugee movements from Ukraine. Migration within Europe is also substantial: Europe was the region of origin of around 61 million international migrants in 2024, many of whom were living elsewhere within the region.

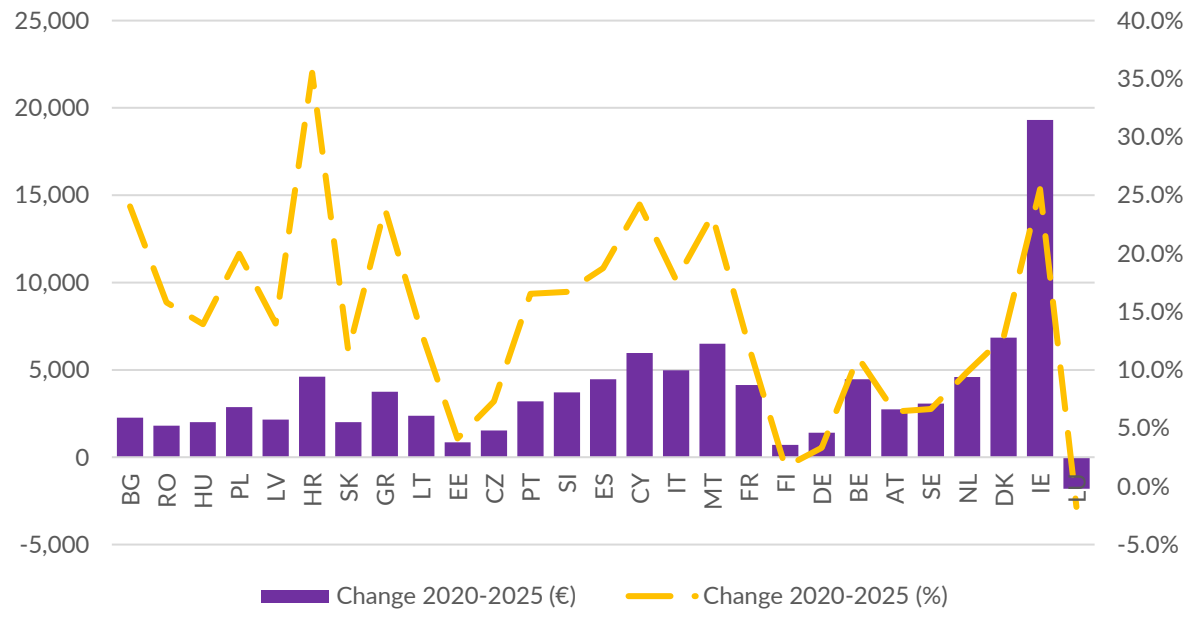
Within the food system, migration can contribute to labour availability, particularly in sectors facing recruitment and demographic pressures. According to the New Atlas of Demography story on migrant workers in EU of European Commission Joint Research Centre (2022) **share of migrant workers in the EU agricultural workforce** increased from 4.3% in 2011 to 6.5% in 2017, indicating a growing contribution of migrant labour to agricultural employment.

3.2.3. Economic development

Economic development influence household purchasing power, patterns of food demand, investment and the wider economic conditions in which food system actors operate. Real GDP per capita provides a measure of economic activity per person adjusted for price changes and can therefore be used to describe changes in economic conditions over time.

Between 2020 and 2025, real GDP per capita increased in almost all EU Member States, although the magnitude of growth varied substantially (**Figure 20**). The strongest relative increases were recorded in Croatia (around 35%), followed by Ireland (around 25%), Cyprus (around 24%), Malta (around 23%) and Greece (around 23%). In absolute terms, Ireland recorded by far the largest increase, reflecting its particularly high GDP per capita. Finland was broadly stable over the period, while Luxembourg recorded a decline.

Figure 20. Change in real GDP per capita (€ and %) across EU Member States, 2020–2025

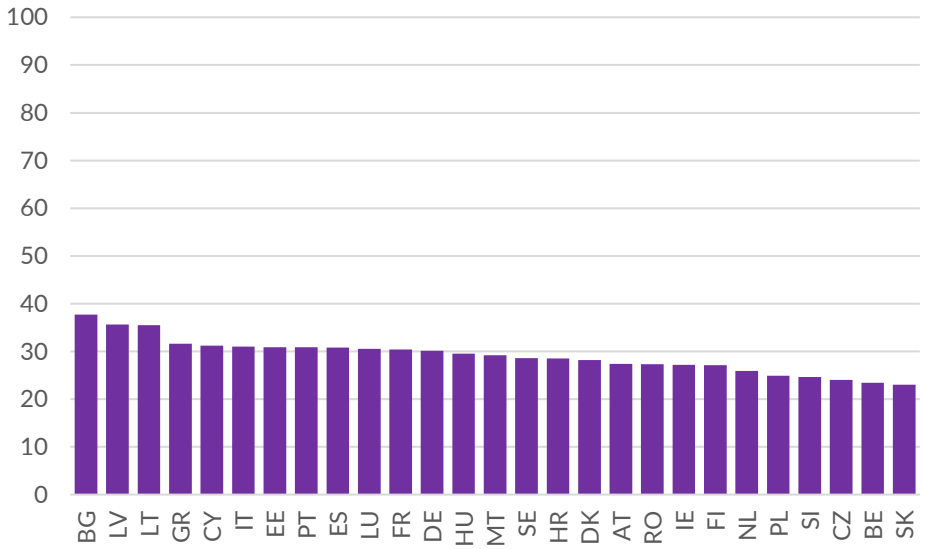


Source: Eurostat, Real GDP per capita. Data year:2020-2025. Available at: https://ec.europa.eu/eurostat/databrowser/view/sdg_08_10/default/table. Note: Bars show the absolute change in real GDP per capita between 2020 and 2025 (€ per inhabitant, chain-linked volumes), while the dashed line shows the percentage change over the same period.

The Gini coefficient provides a measure of **income inequality,** ranging from 0, representing complete equality, to 100, representing complete inequality. In the EU, the Gini coefficient declined from 30.9 in 2014 to 29.2 in 2025, indicating a modest reduction in overall income inequality over the period. However, substantial differences remain between Member States (**Figure 21**). In 2025, the highest levels were recorded in Bulgaria (37.7), Latvia (35.6) and Lithuania (35.5), while the lowest were observed in Belgium (23.4), Slovakia (23.0), Czechia (24.0) and Slovenia (24.6). These differences

indicate different socio-economic contexts in which food system actors and households operate.

Figure 21. Gini coefficient of equivalised disposable income in EU Member States, 2025



Source: Eurostat, Gini coefficient of equivalised disposable income. Data year:2025. Available at: https://ec.europa.eu/eurostat/databrowser/view/tessi190/default/table?lang=en. Note: The Gini coefficient ranges from 0 (complete equality) to 100 (complete inequality).

Income inequality can be complemented by the *at-risk-of-poverty or social exclusion* (AROPE) indicator (Eurostat, 2025a), which captures a broader dimension of socio-economic vulnerability. In 2025, 92.7 million people, or 20.9% of the EU population, were at risk of poverty or social exclusion. The highest shares were recorded in Bulgaria (29.0%), Greece (27.5%) and Romania (27.4%), while the lowest were observed in Czechia (11.5%), Poland (15.0%) and Slovenia (15.5%) (Eurostat, 2025a).

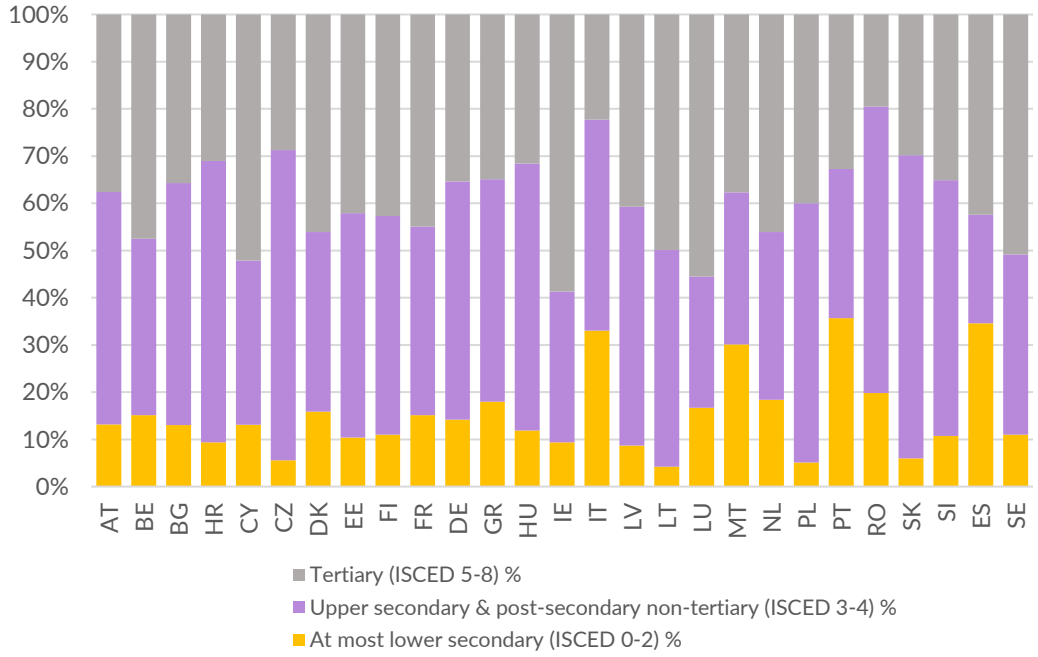
3.2.4. Education

Education influences the skills and knowledge available to the workforce, capacity to adopt new technologies and practices, and consumers' ability to access and interpret information. Educational attainment can therefore shape food systems through multiple pathways, from agricultural and food-sector innovation to employment opportunities and consumer decision-making.

Figure 22 shows the *educational attainment of the working-age population* (25–64 years) across EU Member States in 2025. At EU level, the largest group has upper-secondary or post-secondary non-tertiary education, while around one third of adults have attained tertiary education. However, educational profiles differ substantially across Member States. Ireland and Luxembourg have particularly high shares of tertiary-educated adults, whereas Italy and Romania have comparatively smaller tertiary-educated populations. The share with at most lower-secondary education is relatively

high in several southern Member States, including Portugal, Spain and Italy, while it is considerably lower in much of central and eastern Europe.

Figure 22. Educational attainment (%) of the population aged 25–64 across EU Member States, 2025



Source: Eurostat, EU Labour Force Survey, educational attainment statistics (edat_lfse_03). Data year: 2025. Available at: https://ec.europa.eu/eurostat/databrowser/view/edat_lfse_03/default/table?lang=en

3.2.5. Ethics and social values

Ethical and social values can shape food systems by influencing consumer preferences and expectations regarding how food is produced, marketed and regulated. The 2020 Special Eurobarometer 505 provides insight into these values by examining both the factors influencing food purchases and consumers' understanding of sustainable food. The survey covered 27,237 respondents across all EU-27 Member States.

According to the Special Eurobarometer 505 taste (45%), food safety (42%) and cost (40%) were the main factors influencing food purchases, while 16% identified their personal ethics and beliefs, including animal welfare and fair payment of producers, and 15% considered environmental and climate impacts among their most important purchasing considerations (European Commission, 2020). In addition, when citizens were asked which of the following characteristic they consider to be the most important of "sustainable" food, nutritious and healthy food (41%) is the most frequently identified characteristic at EU-27 level, followed by little or no use of pesticides (32%) and affordability of food for all (29%). Environmental and territorial considerations are also prominent: 24% identify local or short supply chains, 22% low environmental and climate impacts, and 20% minimal packaging or little/no plastic as important characteristics. Social and ethical considerations include high animal-welfare standards

(20%), respect for workers' rights, health and safety and fair pay (19%), and fair revenue for producers (16%). Organic production and minimally processed or traditional food are each identified by 18% of respondents.

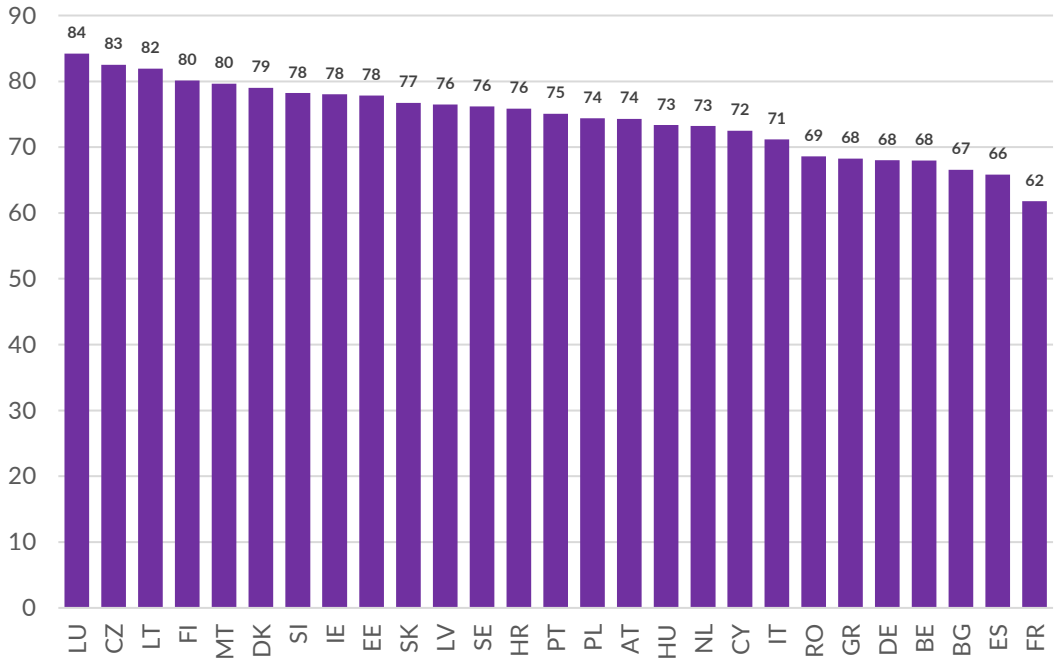
The Eurobarometer responses (European Commission, 2020) shows also considerable differences in the values emphasised across Member States. Low environmental and climate impact is particularly prominent in the Netherlands (51%), Ireland (34%) and Denmark (33%), while local or short supply chains are especially important in Sweden (45%), Finland (42%), Slovenia (41%) and Austria (37%). High animal-welfare standards are particularly prominent in Germany (36%), Sweden (34%), Denmark (32%) and Austria (30%). In contrast, little or no use of pesticides receives particularly high attention in Croatia (45%), Malta (42%) and Romania (41%). Overall, these differences illustrate the diversity of environmental, social, health and ethical values that can shape expectations towards food systems across the EU.

3.2.6. Geopolitical process and context

Geopolitical conditions influence the stability of trade, access to critical inputs, energy availability and the conditions under which food system actors operate.

The World Bank's *Political Stability* indicator (World Bank, 2025) captures perceptions of the extent to which political power and governance are secure from destabilisation and the likelihood that authority may be challenged through violent, coercive or unconstitutional means. The indicator is based on multiple perception-based sources and is expressed here as a governance score from 0 to 100, with higher values indicating greater political stability. As shown in **Figure 23,** political stability scores were relatively high across EU Member States in 2024, although some variation is evident. Luxembourg recorded the highest score (84.2), followed by Czechia (82.5) and Lithuania (81.9). At the other end of the distribution, France (61.8), Spain (65.8) and Bulgaria (66.6) recorded the lowest scores among EU Member States. The indicator should be interpreted as a broad measure of the geopolitical and institutional environment rather than as a food system-specific measure, and the World Bank recommends taking the reported uncertainty around governance estimates into account when making country comparisons.

Figure 23. Political Stability (governance score, 0–100) across EU Member States, 2024

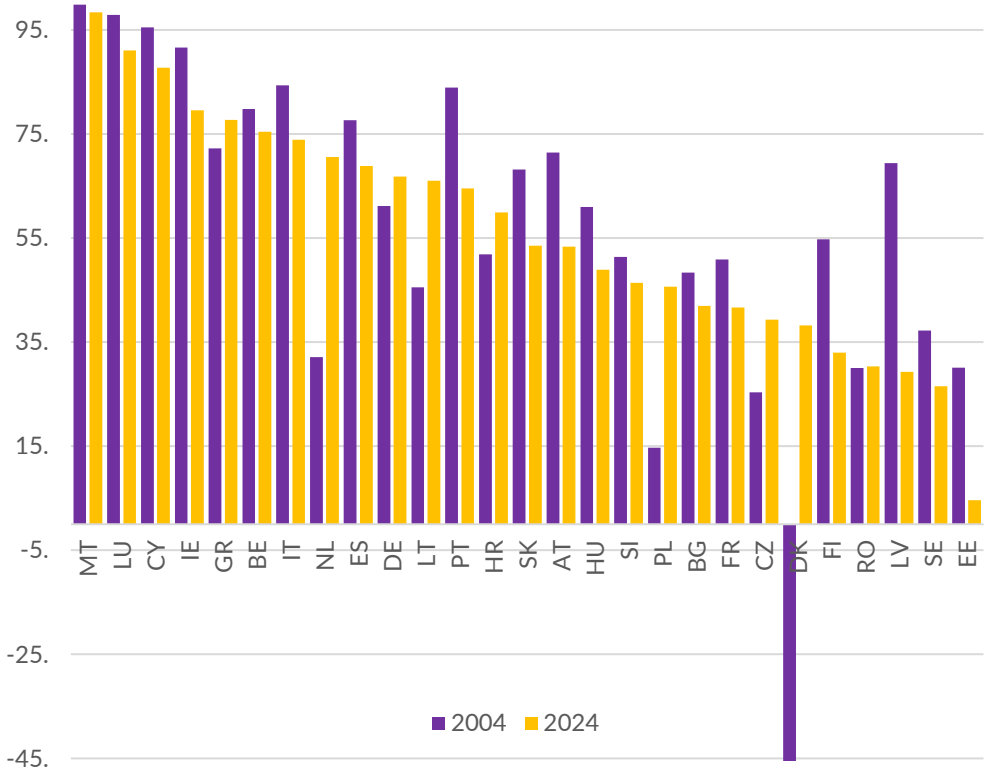


Source: World Bank, Worldwide Governance Indicators (WGI), Political Stability. Data year: 2024. Note: Higher scores indicate greater perceived political stability. The indicator captures perceptions of political destabilisation and the risk of violent, coercive or unconstitutional challenges to political authority. Available at: https://www.worldbank.org/en/publication/worldwide-governance-indicators

Geopolitical exposure also arises from the EU's dependence on external suppliers of inputs required throughout the food system. Energy dependency is particularly important, as energy is required for agricultural machinery, fertiliser production, processing, refrigeration and transport. In 2024, the EU produced 43% of its energy domestically and imported 57%. The energy import dependency rate (net imports as a share of gross inland energy consumption) therefore stood at 57% for the EU but varied considerably between Member States. Dependency was highest in Malta (98%), Luxembourg (91%) and Cyprus (88%), while Estonia recorded the lowest rate at 5%.

Dependency on imported energy represents another dimension of geopolitical exposure relevant to food systems, given the role of energy in agricultural production, fertiliser manufacturing, food processing, refrigeration and transport. **Figure 24** shows the evolution of the EU's energy import dependency rate between 2004 and 2024 (Eurostat, 2026a), measuring the share of energy needs met through net imports. Despite fluctuations over the period, the EU has remained substantially dependent on external energy supplies. In 2024, the dependency rate stood at 57%, meaning that nearly three fifths of EU energy needs were met through net imports, while 43% was produced domestically. The energy import dependency rate varied considerably between Member States. Dependency was highest in Malta (98%), Luxembourg (91%) and Cyprus (88%), while Estonia recorded the lowest rate at 5%.

Figure 24. EU energy import (%) dependency rate, 2004–2024



Source: Eurostat, Energy in Europe - 2026 edition. Data year: 2020-2024. Available at: https://ec.europa.eu/eurostat/de/web/interactive-publications/energy-2026#about-publication

Other agricultural inputs show similar external dependencies. For **feed protein**, the EU was approximately 75% self-sufficient overall in 2023/24, but self-sufficiency was substantially lower for protein-rich oilseed meals, for which EU production covered only around 27% of requirements (Directorate-General for Agriculture and Rural Development, 2024). *Fertilisers* are also closely connected to international trade and geopolitical conditions, both through direct imports and through their dependence on energy and natural gas. This exposure became especially visible following Russia's invasion of Ukraine and the associated disruption of European energy and input markets. The effects were reflected in agricultural input prices: fertiliser and soil-improver prices increased by almost 90% in 2022 compared with the previous year, following an increase of around 30% in 2021, before declining sharply in 2023 and continuing to fall in 2024 (Eurostat, 2025b). Trends in fertiliser, energy and other agricultural input prices are examined further under **Section 3.3.2.**

Self-sufficiency in critical agricultural inputs, such as feed protein, fertilisers and energy, can be understood as both a driver and a consequence of food system activities, reflecting the interconnected nature of the FoSSNet Conceptual Framework. In this context, dependence on external supplies is primarily considered a geopolitical driver, as it shapes production costs, resource availability and exposure to international market fluctuations and supply-chain disruptions. Nonetheless, levels of self-sufficiency are

also influenced by domestic production capacity, resource availability, policy choices and trade patterns and be considered as a food system outcome. However, self-sufficiency is therefore considered here primarily as an indicator of structural dependency and geopolitical exposure, rather than as a measure of food system performance or resilience.

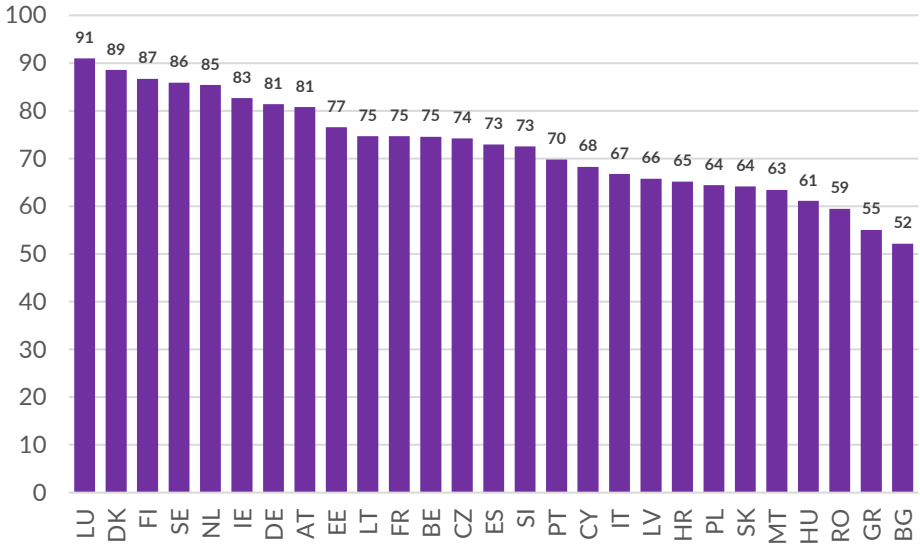
3.2.7. Governance systems and power dynamics

The quality and effectiveness of governance represent important socio-economic drivers of food systems. Public institutions shape the broader environment in which food system actors operate through policy formulation, regulation, public-service delivery and implementation capacity. The World Bank's Worldwide Governance Indicators (WGI) (World Bank, 2025) provide two complementary measures of this institutional context: Government Effectiveness and Regulatory Quality. Both are presented as governance scores ranging from 0 to 100, with higher scores indicating stronger governance performance.

Government Effectiveness captures perceptions of the quality of public services and the civil service, the quality of policy formulation and implementation, and the credibility of government commitments. **Figure 25** shows substantial differences across EU Member States in 2024. The highest scores are concentrated among several northern and western European countries, while lower scores are observed in parts of southern and eastern Europe. These differences illustrate variation in the institutional capacity available to formulate and implement public policy, including policies relevant to agriculture, food safety, environmental protection and food system transformation.

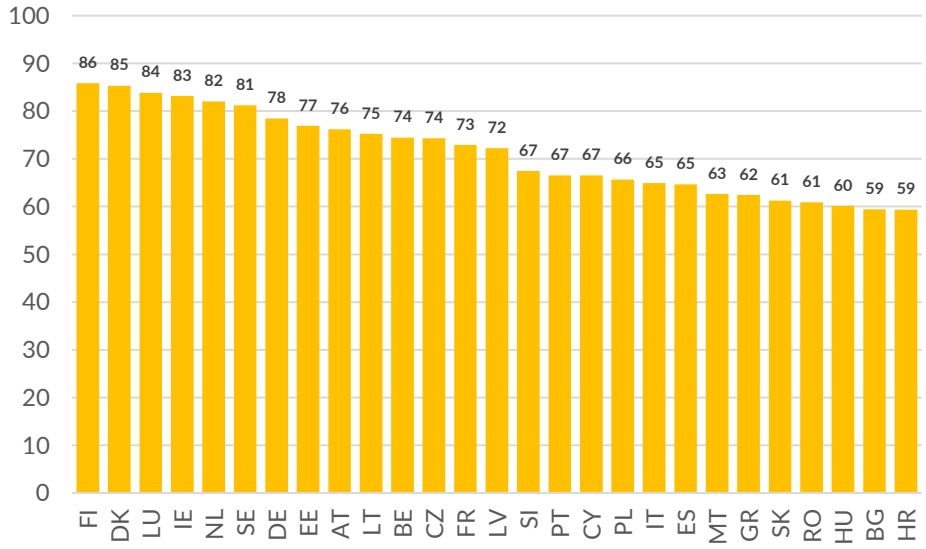
Regulatory Quality provides a complementary perspective, capturing perceptions of governments' ability to formulate and implement sound policies and regulations that enable and promote private-sector development. **Figure 26** shows considerable variation across EU Member States in 2024. This indicator describes the broader regulatory environment faced by businesses and producers rather than the quality or number of food-specific regulations. In the context of food systems, it provides an indication of the institutional conditions within which farmers, processors, retailers and other private actors operate.

Figure 25. Government Effectiveness (governance score, 0–100) across EU Member States, 2024



Source: World Bank, Worldwide Governance Indicators (WGI). Data Year: 2024. Available at: Available at: https://www.worldbank.org/en/publication/worldwide-governance-indicators. Note: Government Effectiveness captures perceptions of the quality of public services and the civil service, the quality of policy formulation and implementation, and the credibility of government commitments. Higher scores indicate stronger governance performance.

Figure 26. Regulatory Quality across EU Member States(governance score, 0–100), 2024



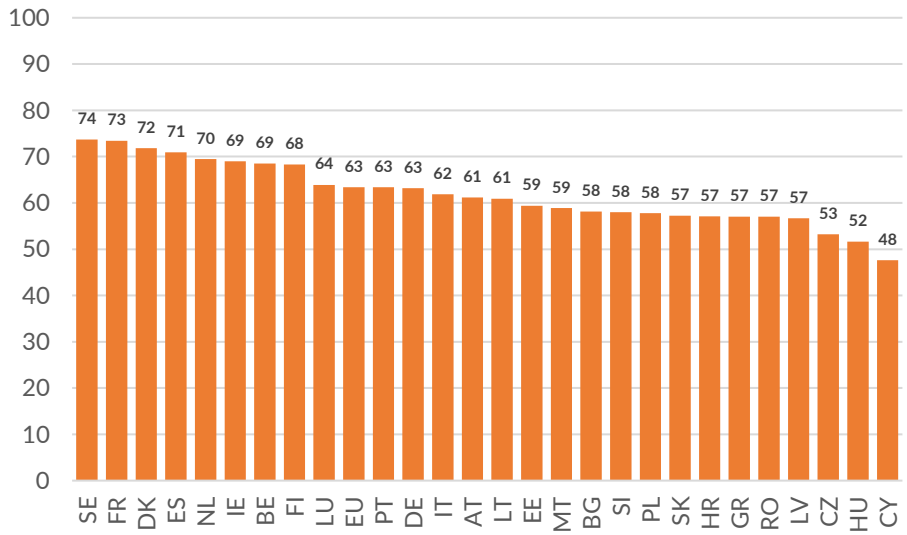
Source: World Bank, Worldwide Governance Indicators (WGI). Data Year: 2024. Available at: Available at: https://www.worldbank.org/en/publication/worldwide-governance-indicators. Note: Regulatory Quality captures perceptions of governments' ability to formulate and implement sound policies and regulations that permit and promote private-sector development. Higher scores indicate stronger regulatory quality.

These drivers should be interpreted as broad contextual drivers rather than measures of food system governance itself; food-specific policies and governance instruments are considered separately under **3.3.6. Policy and governance**.

Gender equality represents another structural dimension of governance and power, as differences in access to economic resources, employment, knowledge, time and decision-making power can influence participation and opportunities throughout society, including within food systems. The Gender Equality Index provides a composite measure of these inequalities, with higher scores indicating greater gender equality.

Figure 27 show substantial variation across EU Member States. The EU average is 63.4, while the highest scores are recorded in Sweden (74), France (73), Denmark (72) and Spain (71). At the other end of the distribution, Cyprus (48), Hungary (52) and Czechia (53) record the lowest scores. Gender equality is treated here as a societal driver, rather than as a direct measure of gender equality within agriculture or the food system workforce.

Figure 27. Gender Equality Index (score, 0–100) across EU Member States, 2025



Source: European Institute for Gender Equality (EIGE), Gender Statistics Database, Gender Equality Index. Data year: 2025. Available at: https://eige.europa.eu/gender-statistics/dgs/browse/index. Note: Higher scores indicate greater gender equality. The overall Gender Equality Index draws on the domains of work, money, knowledge, time, power and health.

3.2.8. Knowledge system

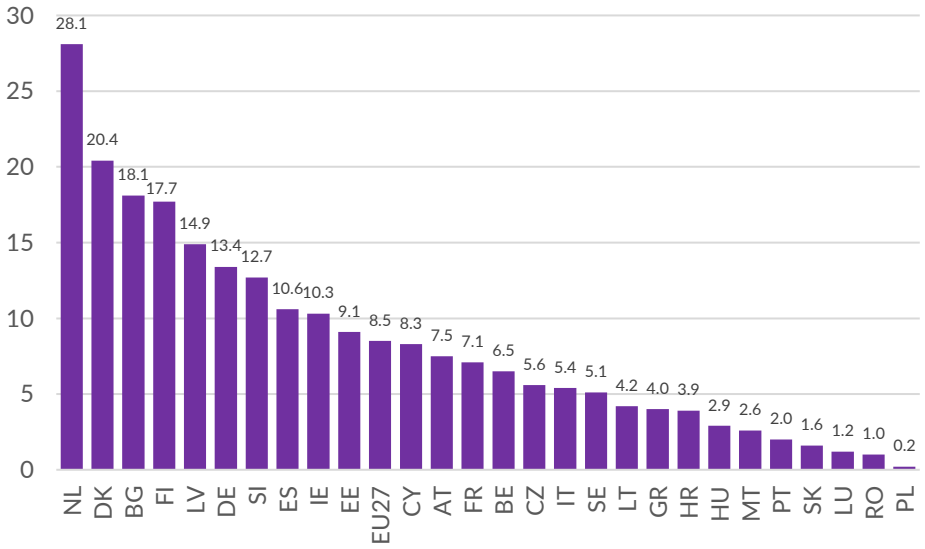
Knowledge systems shape the capacity to generate, exchange and apply knowledge in agricultural production, food processing and natural-resource management. These systems encompass both formal research and innovation, supported by public institutions and private businesses, and local and traditional forms of knowledge developed through long-term interactions between communities and their environments.

Public investment in agricultural research provides one indication of the resources devoted to formal knowledge generation. Eurostat's government support to agricultural R&D indicator measures government budget allocations for agricultural research and

development (GBARD). At EU level, support increased from around €2.1 billion in 2004 to €3.82 billion in 2024. In per-capita terms, the EU average was around €9 per inhabitant in 2024, although substantial differences occur between Member States. As shown in **Figure 28**, data indicate high allocations in the Netherlands (€28.1 per inhabitant) and Denmark (€20.4), followed by Bulgaria (€18.1) and Finland (€17.7), whereas several Member States allocated less than €5 per inhabitant.

Knowledge generation also occurs within the private food and drink industry. Intramural **R&D expenditure in the EU food and drink** industry increased by approximately 62% between 2010 and 2022, from €1.9 billion to €3.1 billion (FoodDrinkEurope, 2026) . Nevertheless, the sector's R&D intensity remains relatively modest: in 2021, R&D expenditure represented approximately 0.3% of EU food and drink industry turnover.

Figure 28. Government support (€ per inhabitant) to agricultural research and development across EU Member States, 2025



Source: Eurostat, Government support to agricultural research and development (sdg_02_30). Data year: 2025. Available at: https://ec.europa.eu/eurostat/databrowser/view/sdg_02_30/default/table?lang=en&category=sdg.sdg_02

Formal R&D indicators, however, capture only part of the knowledge supporting European food systems. **Traditional ecological knowledge** (TEK) encompasses cumulative knowledge, practices and beliefs concerning relationships between people and their local environments, developed and transmitted through cultural and practical processes. In European agriculture, research has documented the relevance of farmers' knowledge for sustainable land management, biodiversity conservation and adaptation to environmental change, including traditional grassland management and locally adapted agricultural practices.

However, TEK represents an important monitoring gap. The available European evidence is fragmented and dominated by individual case studies, particularly in Mediterranean and peripheral regions, rather than systematic and comparable monitoring across Member States (Herández-Morcillo et al., 2014) . The literature also indicates that these knowledge systems may be declining: of 21 European studies that examined trends in TEK, 14 explicitly reported losses, associated with factors including the transition towards market-oriented economies, rural demographic change and declining intergenerational transmission (Hernández-Morcillo et al., 2014). At present, therefore, no harmonised EU-27 quantitative indicator is available to represent this component of the food system knowledge base, leaving an important dimension of knowledge systems largely absent from comparable monitoring.

3.2.9. Media

Media and the wider information environment shape knowledge, perceptions, social norms and food preferences. Social media has become an increasingly important component of this environment. By 2025, 67% of EU citizens were using social media, alongside 64% of businesses, with usage having increased steadily over the previous decade. The role of social media also varies substantially by generation: younger Europeans are considerably more likely to obtain news and information through social platforms than older age groups, illustrating how exposure to digitally mediated information differs across the population (Eurostat, 2026c).

Food-specific evidence from the 2025 EFSA Eurobarometer (EFSA, 2025) illustrates the **changing mix of information channels**. Television remained the most frequently reported source of information about food risks (55%), followed by exchanges with family, friends and colleagues (42%) and internet search engines (38%). However, 26% of Europeans reported online social networks and blogs as a source of food-risk information, an increase of 4 percentage points since 2022, while television declined by 6 percentage points. Newspapers were reported by 25%. These trends suggest that consumers increasingly encounter food-related information through a combination of traditional, interpersonal and digital channels.

Commercial food marketing represents another component of this information environment. WHO Europe identifies exposure to advertising of foods and beverages high in fat, sugar and salt as being associated with children's food preferences and dietary behaviour, with digital marketing presenting particular monitoring challenges because of the growing use of social media, mobile devices and personalised and targeted advertising (WHO, 2010). However, comparable monitoring remains limited: although WHO has developed protocols for measuring food marketing across television and digital media, there is not yet a harmonised, regularly updated EU-27 indicator of population exposure to food marketing across media channels.

For instance, the EU-funded INFOODMATION[4] project, aim to investigate how mainstream media, social media and direct and indirect marketing influence food consumption and healthier and more sustainable dietary patterns. The project examines the communication strategies, channels and messages used by the private sector, governments and civil society, including misinformation and effects on vulnerable groups such as children, adolescents and people with lower socio-economic status. Its outputs are intended to support best practices, responsible business strategies and policy recommendations for food communication.

[4] https://infoodmation.eu/

3.3. Direct food system drivers

While environmental and socioeconomic drivers shape the broader context in which the food system operates, direct food system drivers are factors operating within, or in immediate interaction with, the food system that directly shape the decisions, behaviours and activities of food system actors, influencing how food is produced, processed, distributed, consumed and managed.

3.3.1. Consumer preferences

Consumer preferences drive changes in dietary preferences and influence demand for particular foods, and, in turn, the products supplied by retailers, manufacturers and primary producers.

In the 2020 Special Eurobarometer 505, 35% of EU respondents considered eating meat less often to be part of a *healthy and sustainable diet*, while 12% identified eating vegetarian or vegan as part of such a diet. Other related preferences included eating organic food (26%) and foods with a low carbon footprint (24%). The 2022 EFSA Special Eurobarometer on Food Safety (European Food Safety Association, 2022) provides further evidence of differences in attitudes towards plant-based diets across the EU. When respondents were asked about important choices for maintaining a healthy diet, the proportion identifying a plant-based diet reached 28% in Sweden, 26% in Croatia and 25% in Finland, compared with 6% in France, 7% in Cyprus and 9% in Ireland. Preferences for eating less meat and dairy also varied considerably, from 34% in Germany and 29% in Sweden to 7% in Estonia and Lithuania. These figures describe perceptions of what constitutes a sustainable diet rather than the prevalence of these dietary patterns.

Self-reported dietary patterns provide an additional perspective on how these preferences translate into dietary lifestyles. The 2023 Smart Protein European Consumer Survey (Smart Protein, 2023) covered 7,500 respondents in ten European countries. Across the total sample, 62% identified as omnivores, 27% as flexitarians, 4% as pescatarians, 5% as vegetarians and 3% as vegans. The distribution varied substantially between countries. Omnivores represented 74% of respondents in Poland and 69% in Italy and Spain, compared with 53% in the Netherlands, 48% in Austria and 45% in Germany. Conversely, flexitarian diets were particularly common in Germany (40%), Austria (37%) and the Netherlands (35%). Vegetarian and vegan diets remained comparatively small shares of the population in all countries surveyed. More broadly, 51% of respondents reported reducing their meat consumption, compared with 46% in the equivalent 2021 survey; health was the most frequently reported motivation for meat reduction (47%), followed by animal welfare (29%) and environmental concerns (26%).

3.3.2. Input prices

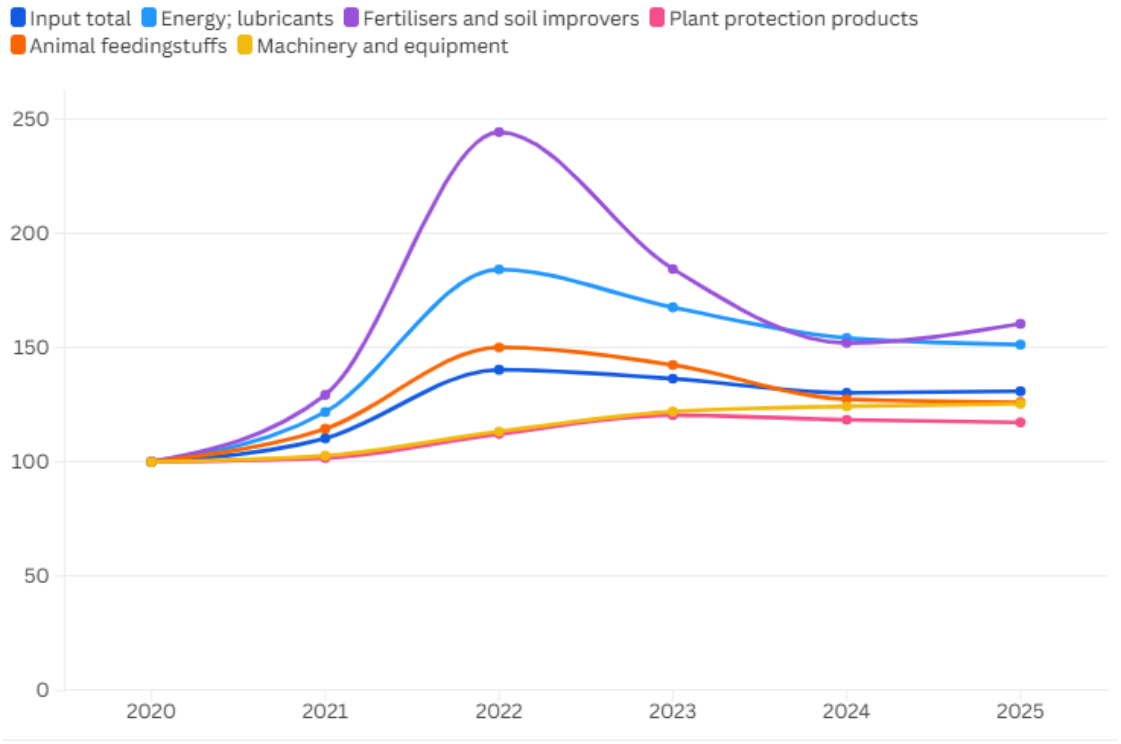
Input prices influence the costs faced by agricultural producers and can affect production decisions, profitability and the prices transmitted through subsequent stages of the food supply chain.

Figure 29 shows the evolution of agricultural input price indices in the EU between 2020 and 2025, using 2020 as the reference year (2020 = 100). Input prices increased markedly after 2020, although the magnitude and subsequent evolution differed considerably across input categories. The most pronounced increase occurred for *fertilisers and soil improvers*, whose index rose to approximately 244 in 2022, meaning that prices were around 144% above their 2020 level. Fertiliser prices subsequently declined substantially but remained around 60% above their 2020 level in 2025. *Energy and lubricants* followed a similar pattern, increasing sharply to around 184 in 2022 before declining to approximately 151 in 2025.

Animal feedingstuff prices also increased substantially, reaching around 150 in 2022, before gradually declining in subsequent years. By comparison, price increases for *plant protection products* and *machinery and equipment* were more gradual and considerably less volatile. By 2025, their indices remained around 17% and 25% above their respective 2020 levels. The overall agricultural input index consequently rose sharply between 2020 and 2022 and remained above its 2020 level in 2025. The figure therefore illustrates the broader increase in agricultural production costs since 2020.

The fluctuations in energy and fertiliser prices also connect directly with the geopolitical drivers discussed in **3.2.6. Geopolitical process and context**, describing one pathway through which disruptions in international energy and input markets can be transmitted into the European food system.

Figure 29. Evolution of agricultural input price indices (%) in the EU-27 by type of input (2020 = 100), 2020–2025



Source: Eurostat, Price indices of the means of agricultural production, input – annual data (apri_pi_ina). Data year: 2020-2025. Available at: https://ec.europa.eu/eurostat/databrowser/view/apri_pi_ina/default/table?lang=en. Note: The indices use 2020 as the base year (2020 = 100); values above 100 indicate prices above their 2020 level.

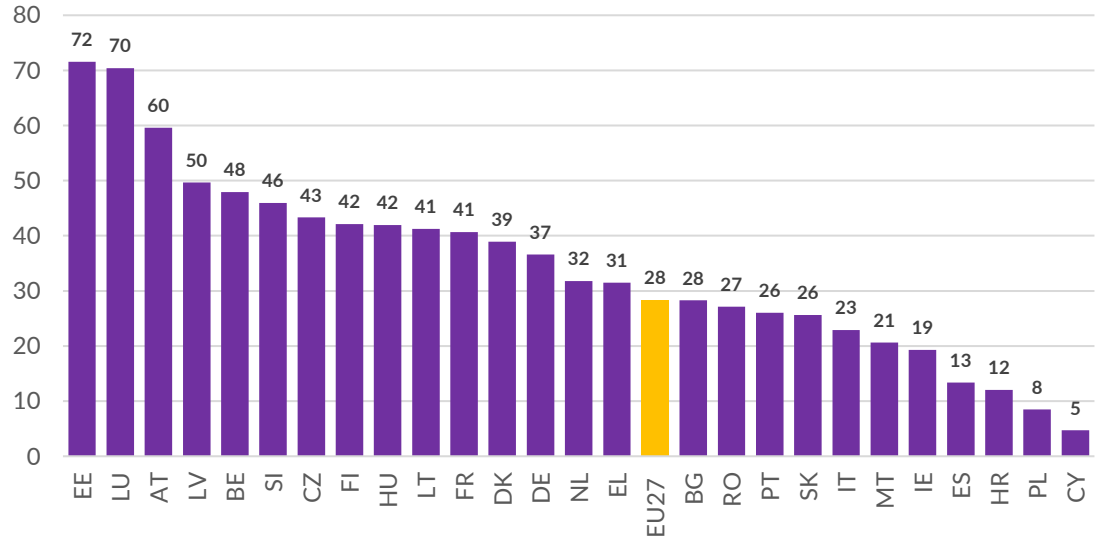
3.3.3. Investments

Investment in productive assets influences the capital base available to farms, their capacity to modernise production and their ability to adopt new technologies and production methods. **Gross fixed capital formation (GFCF)** measures investment in fixed assets that are used in production for more than one year. To account for the very different sizes of agricultural sectors across Member States, **Figure 30** expresses GFCF as a percentage of agricultural gross value added (GVA). The indicator can therefore be interpreted as the value of investment relative to the economic value generated by the agricultural sector, rather than as the absolute amount invested.

In 2024, agricultural GFCF represented approximately 28% of agricultural GVA in the EU-27, but the investment rate varied substantially across Member States. The highest ratios were recorded in Estonia (72%) and Luxembourg (70%), followed by Austria (60%). Rates of around 40–50% were also recorded in Latvia (50%), Belgium (48%), Slovenia (46%), Czechia (43%), Finland and Hungary (42% each), and Lithuania and France (41% each). By contrast, agricultural GFCF represented less than 20% of GVA in Ireland (19%), Spain (13%), Croatia (12%), Poland (8%) and Cyprus (5%). Large agricultural economies also differed: France recorded a ratio of 41%, compared with 37% in Germany, 23% in Italy and 13% in Spain.

These differences describe the intensity of capital formation relative to the size of each national agricultural economy. The indicator should also not be interpreted directly as a measure of agricultural performance or investment quality. High values may reflect major investment cycles or particular structural characteristics of the agricultural sector, while low values indicate lower capital formation relative to GVA in that particular year. For this reason, annual GFCF ratios are most useful for describing the investment environment and intensity of capital formation, rather than ranking the performance of national agricultural sectors.

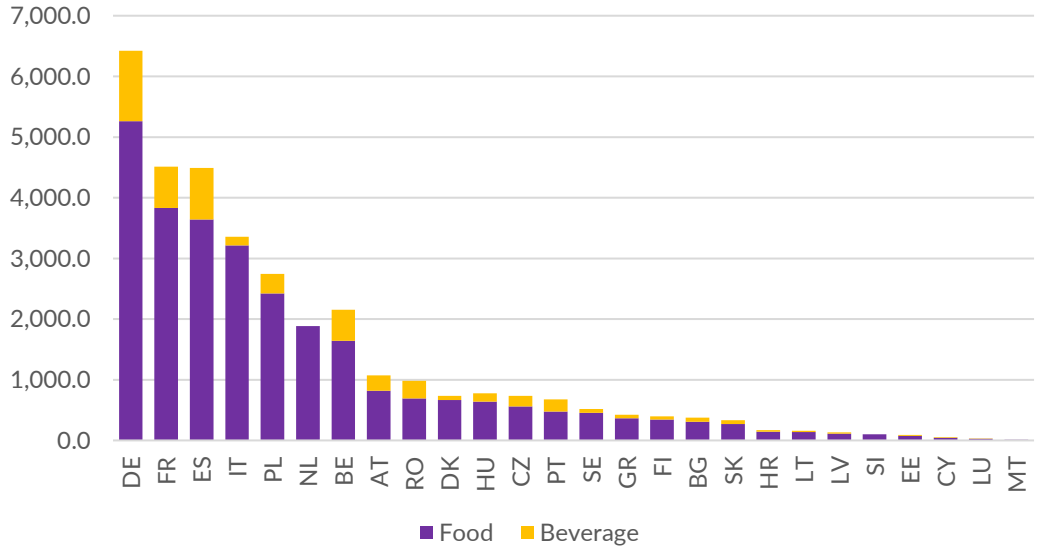
Figure 30. Gross fixed capital formation in agriculture (%) as a share of agricultural gross value added across EU Member States, 2024



Source: Eurostat, Economic accounts for agriculture - values at current prices (aact_eaa01). Data year: 2024. Available at: https://ec.europa.eu/eurostat/databrowser/view/aact_eaa01__custom_22911925/default/table

Investment also occurs further downstream in the food system. **Figure 31** shows net **investment in tangible goods in the manufacture of food products and beverages**, capturing investment in physical productive assets within food and drink manufacturing. The Eurostat Structural Business Statistics data show substantial differences between Member States, with the largest absolute investment concentrated in countries with large food-processing industries. In 2020, for example, net tangible investment in food manufacturing amounted to around €5.3 billion in Germany, €3.8 billion in France, €3.6 billion in Spain and €3.2 billion in Italy. The indicator is expressed in absolute € million and is therefore strongly influenced by the size of each country's manufacturing sector.

Figure 31. Net investment in tangible goods (million EUR) in food and beverage manufacturing across EU Member States, 2020

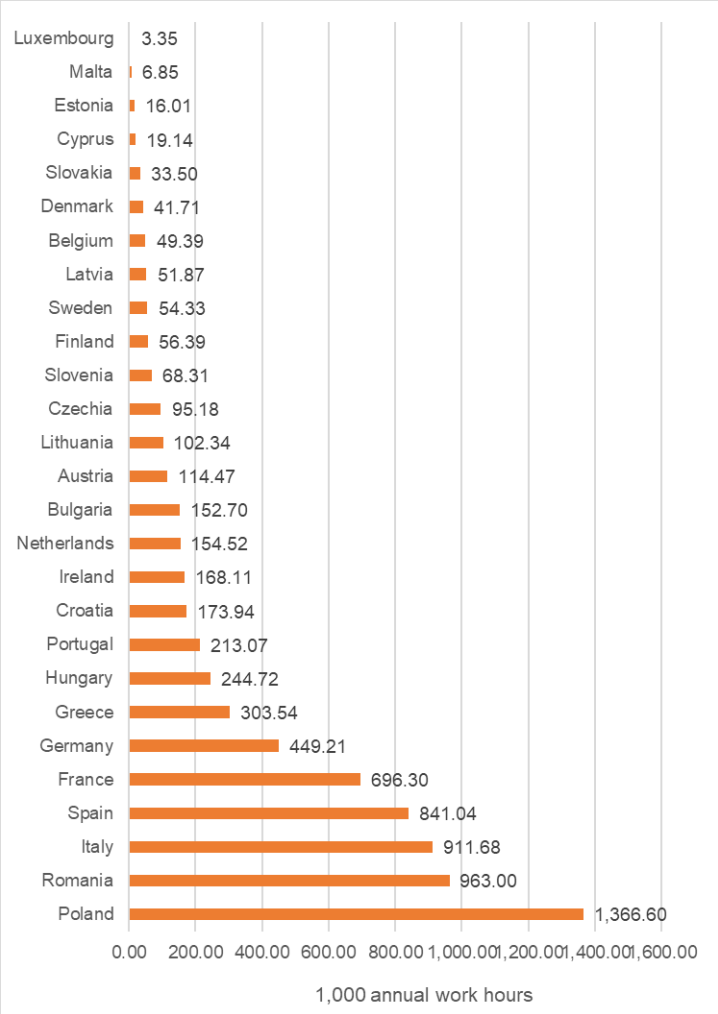


Source: Eurostat, Structural Business Statistics, Annual detailed enterprise statistics for industry (sbs_na_ind_r2). Data year: 2020. Available at: https://ec.europa.eu/eurostat/databrowser/view/sbs_na_ind_r2/default/table

3.3.4. Labour skills and availability

Agricultural labour input varies considerably across EU Member States and can be measured in annual work units (AWU). An AWU represents the labour input equivalent to one person working full-time in agriculture for one year and therefore differs from the number of people working in agriculture, which also includes part-time and seasonal workers. Data in **Figure 32** is from 2025 except the North Macedonia data is from 2022 as this was the year most recently available. Poland recorded the highest total agricultural labour input (1.37m AWU), followed by Romania (963,000 AWU), Italy (912,000 AWU) and Spain (841,000 AWU). Agricultural labour input was lowest in Luxembourg (3,350 AWU). The total agricultural labour input across the EU-27 in 2025 was 7,321.24 thousand AWU. In comparison, for the same year the non-salaried agricultural labour input was 5,004.44 thousand AWU, and salaried labour input was 2,346.81 thousand AWU. This highlights the high levels of self-employed farmers and family members working on agricultural holdings.

Figure 32. Total agricultural labour input in thousand annual work units, 2025



Source: Eurostat, Agricultural labour input statistics - absolute figures (thousand annual work units). Data year: 2025. Data code: aact_ali01 https://doi.org/10.2908/AACT_ALI01

3.3.5. Markets and trade

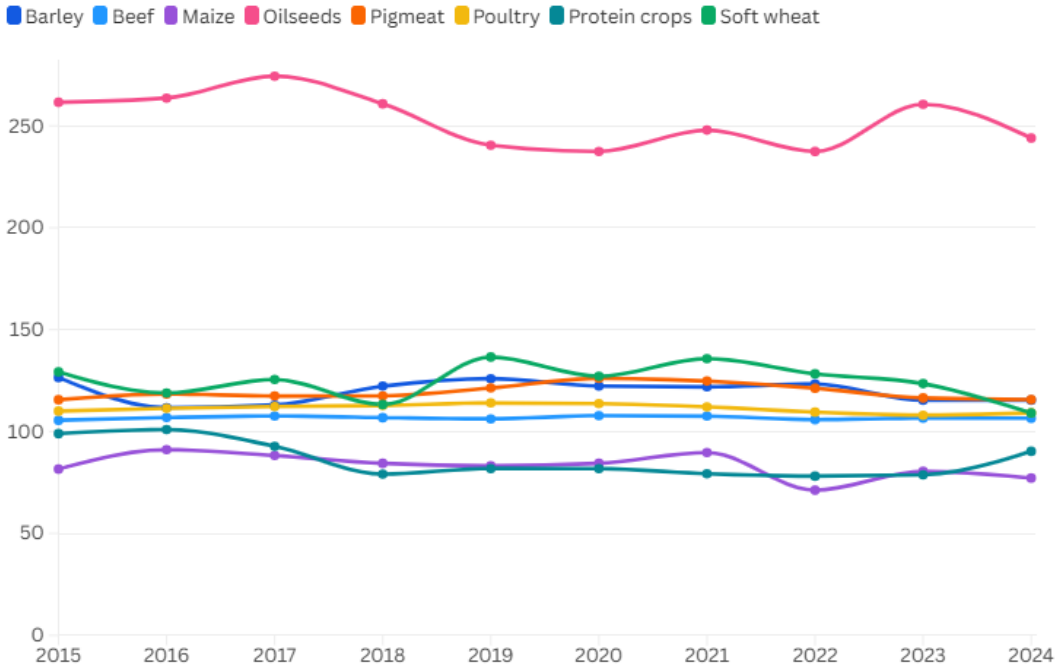
Markets and trade shape the conditions under which agricultural products are exchanged, the extent to which domestic demand can be met by domestic production, and the opportunities available to producers to organise and market their product.

Trade dependency can be described through the **self-sufficiency rate**, calculated as domestic production relative to domestic use. A value of 100% indicates that production is broadly equivalent to domestic requirements; values below 100% indicate that domestic production does not fully cover use, while values above 100% indicate production in excess of domestic use. **Figure 33** shows the evolution of self-sufficiency for selected agricultural commodities over the last decade. The data illustrate considerable differences between commodities and over time. The EU generally maintains self-sufficiency above 100% for several major livestock products and cereals, including beef, pigmeat, poultry, soft wheat and barley, while other commodities show

greater reliance on external supply. In 2024, for example, self-sufficiency was around 109% for soft wheat, 115% for barley and 77% for maize. Protein crops were close to but below self-sufficiency, at around 90%.

As discussed in **Section 3.2.6,** self-sufficiency can be understood as both a driver and a consequence of food system activities, reflecting the interconnected nature of the FoSSNet CF. While self-sufficiency rates reflect the balance between domestic production and use, they also influence trade dependency and exposure to external supply disruptions. Nonetheless, higher self-sufficiency does not necessarily imply greater food security or resilience, as diversified trade relationships may also help mitigate supply risks.

Figure 33. Self-sufficiency rates for selected key agricultural commodities in the EU, 2015–2024

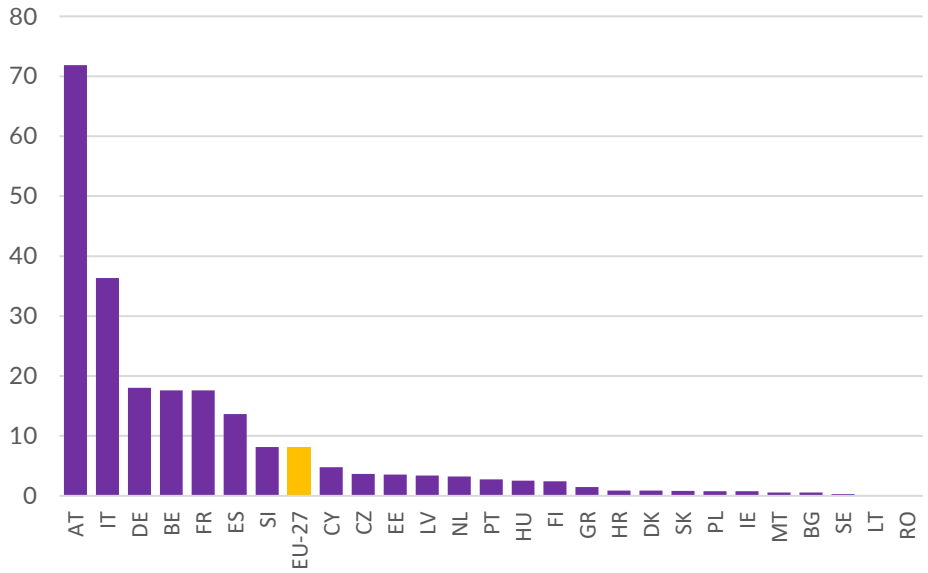


Source: European Commission, DG Agriculture and Rural Development, agricultural commodity balance sheets. Data year: 2015-2024. Available at: https://agridata.ec.europa.eu/extensions/DashboardSTO/ShortTermOutlook.html. Note: The self-sufficiency rate expresses domestic production relative to domestic use. A value of 100% indicates that production is equivalent to domestic use. For crops, data refer to marketing years and are displayed according to the starting year.

The organisation of farmers within supply chains provides another dimension of market conditions. The CAP result indicator **R.10: Better supply-chain organisation** measures the share of farms that the CAP Strategic Plans aim to cover through supported interventions involving producer groups and organisations, local markets, short supply-chain circuits and quality schemes. The EU-27 target is approximately 8.1%, with considerable variation in the targets established across Member States (**Figure 34**). These values therefore indicate the planned reach of CAP support for better supply-chain organisation during the 2023–2027 programming period. A country with a target

of 10%, for example, should not be interpreted as currently having 10% of its farms participating in these arrangements; rather, the target indicates the intended coverage of relevant CAP-supported interventions.

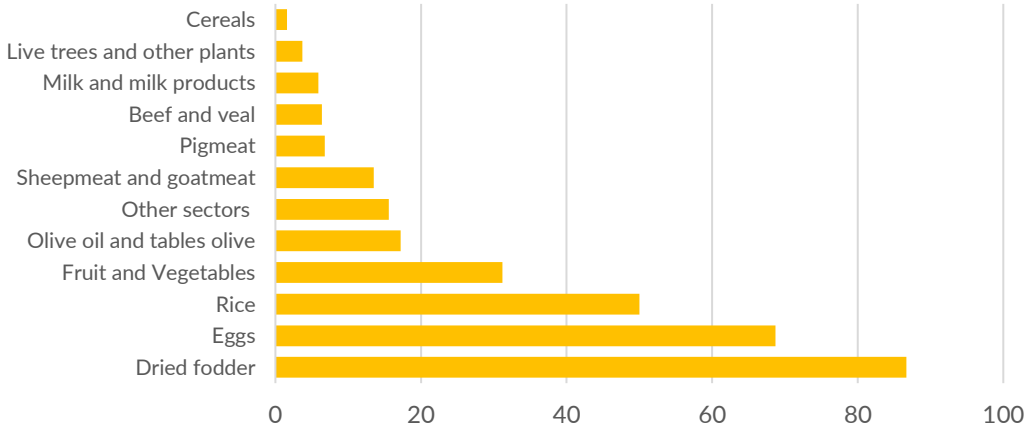
Figure 34. Planned CAP (2023-2027) support (R.10 target % of farms) for better supply-chain organisation across EU Member States



Source: European Commission, CAP Performance Monitoring and Evaluation Framework (PMEF), Result Indicator R.10: Better supply chain organisation. Data year: Values are targets established under the CAP 2023–2027 Strategic Plans and are not observed participation rates. Available at: https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorerPMEF.html

A second CAP result indicator, **R.11: Concentration of supply**, describes the planned concentration of marketed production through producer organisations or associations of producer organisations supported through operational programmes. Unlike R.10, R.11 is sector-specific, reflecting differences in the role and organisation of producer organisations across agricultural markets. The EU-level targets vary markedly between sectors, from around 1.6% for cereals and 6–7% for beef and veal and pigmeat, to 31.2% for fruit and vegetables, 50% for rice, 68.7% for eggs and 86.7% for dried fodder. These percentages should again not be interpreted as observed current market shares. Instead, they represent the levels targeted within the CAP performance framework and therefore describe where and to what extent policy interventions are intended to strengthen the concentration and collective marketing of agricultural supply.

Figure 35. Planned concentration (CAP 2023-2027, R.11 EU-27 target, % of marketed production) through supported producer organisations or associations of producer organisations by agricultural sector.



Source: European Commission, CAP Performance Monitoring and Evaluation Framework (PMEF), Result Indicator R.11: Concentration of supply. *Data year: Values are targets established under the CAP 2023–2027 Strategic Plans and are not observed participation rates. Available at: https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorerPMEF.html*

3.3.6. Policy and governance

Policy and governance directly shape food system actors' decisions by establishing policy objectives, rules, incentives and institutional arrangements that influence how food is produced, processed, distributed and consumed. Here, governance encompasses not only formal public policy and regulation, but also the institutions and societal actions through which food system priorities are coordinated and implemented. This direct driver is distinct from the broader governance systems and power dynamics considered under socioeconomic drivers (**Section 3.2.7**), which capture the wider institutional context and governance capacity within which these specific policies and actions operate.

The *Common Agricultural Policy (CAP)* (Regulation (EU) 2021/2115[5]) remains a substantial component of **public policy** support to agriculture, although its relative importance within the overall EU budget has declined. CAP expenditure represented 73.2% of total EU expenditure in 1980 compared with around 24.6% in 2023, while CAP spending relative to EU GDP declined from around 0.54% in the 1990s to 0.36% in 2023 (European Commission, 2024) . Public support nevertheless continues to represent an important component of agricultural income: over 2018–2022, direct payments represented 23% of EU agricultural factor income on average, rising to 33% when all subsidies were included. The contribution varied substantially between Member States, with direct payments accounting for more than 40% of agricultural factor income in Estonia, Latvia, Lithuania and Slovakia. For the current 2023–2027

[5] Regulation (EU) 2021/2115 of the European Parliament and of the Council of 2 December 2021 establishing rules on support for strategic plans to be drawn up by Member States under the common agricultural policy (CAP Strategic Plans). *Official Journal of the European Union*, L 435, 6 December 2021, pp. 1–186.

CAP Strategic Plans, around €264 billion of EU resources were initially allocated to the plans; including national co-financing, they mobilise more than €307 billion in planned public expenditure (European Commission, 2024).

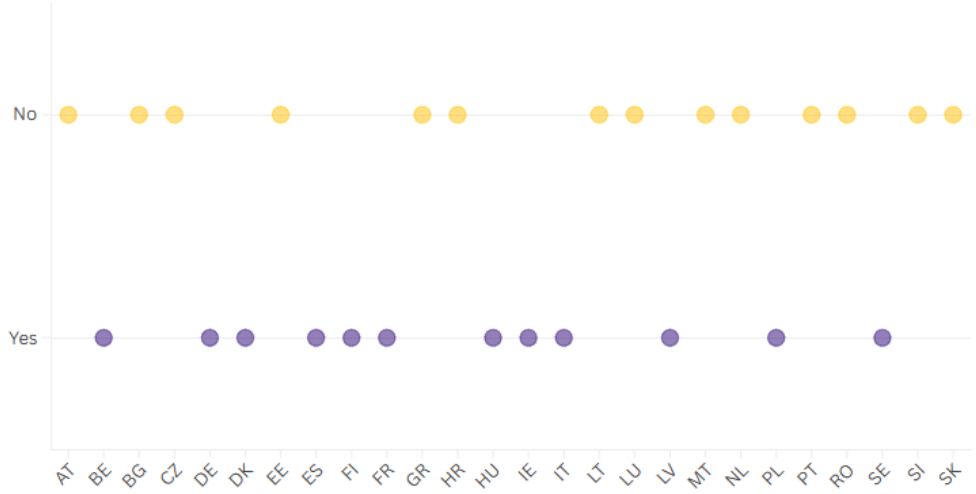
The *Common Fisheries Policy (CFP)* (Regulation (EU) No 1380/2013) provides the principal EU regulatory framework for fisheries management, seeking to ensure the environmental, economic and social sustainability of fishing and aquaculture activities. Financial support is provided through the European Maritime, Fisheries and Aquaculture Fund (EMFAF), established under Regulation (EU) 2021/1139, with a budget of €6.1 billion for 2021–2027, of which €5.3 billion is allocated to programmes under shared management with Member States (European Commission, 2021). Beyond financial support, the CFP shapes fishing activities through catch limits and national quotas, fleet capacity restrictions, technical conservation measures and the landing obligation. These instruments influence fishing opportunities, production decisions and resource management across Member States. The CFP therefore complements the CAP as a major EU policy instrument shaping primary food production, although its financial scale and regulatory mechanisms differ substantially. Further policy and initiatives at EU level related to EU Food System

At national level, the Food Systems Countdown Initiative (FSCI) monitors **the presence of a national food system transformation pathway**, defined as whether a country has developed such a pathway through the United Nations Food Systems Summit (UNFSS) process. The indicator is therefore binary (Yes/No) and describes the existence of a national strategic framework rather than its implementation or effectiveness. According to the latest Food Systems Dashboard data for 2025, 12 of the 26 EU Member States for which information is available are recorded as having a national food system transformation pathway, while 14 are recorded as not having one; no observation is available for Cyprus in the dataset used for **Figure 36.** Importantly, a "Yes" indicates that a pathway has been developed through the UNFSS process; it does not assess its comprehensiveness, implementation or impact.

Food system governance is also developing at the urban level. **The Milan Urban Food Policy Pact (MUFPP)** provides a voluntary international framework through which cities collaborate and exchange approaches to urban food policy. At the 2025 MUFPP Global Forum, Europe was reported as the region with the largest number of signatories, with 120 cities representing approximately 78 million inhabitants (MUFPP Secretariat, 2026). The European network also expanded by 26 new member cities and contributed 119 food-policy practices to the 2025 Milan Pact Awards. These figures provide an indication of the growing involvement of European municipalities in food system governance and knowledge exchange. As with the national pathway indicator, however, participation in the MUFPP should be interpreted as evidence of formal engagement

and policy mobilisation, rather than as a direct measure of the effectiveness or outcomes of urban food policies.

Figure 36. Presence of a national food system transformation pathway across EU Member States, 2025



Source: FAO accessed via Food Systems Dashboard, Food Systems Countdown Initiative (FSCI). Data Year: 2025. Available at: https://www.foodsystemsdashboard.org/indicators/cross-cutting-issues/governance/presence-of-a-national-food system-transformation-pathway/map

Land tenure and governance represent another important policy and governance dimension of food systems, as secure and equitable access to land can influence farmers' ability to maintain production, make long-term investments and manage natural resources. However, comparable monitoring remains limited: the 2026 global assessment of land tenure and governance (FAO, 2026) reports that globally 56% of the 59 countries assessed lack a robust framework for collecting and publishing land-tenure data. The report also highlights substantial inequalities in access to and control over land. The largest 10% of landholders manage, on average, 56% of land, while around 400 million agricultural holdings (85% of farms globally) are smaller than 2 hectares and together account for only around 9% of farmland. These global findings underline the relevance of tenure security, distribution and governance for food systems, nonetheless a harmonised EU-27 agricultural land-tenure security indicator cannot currently be included alongside the other quantitative indicators in this section.

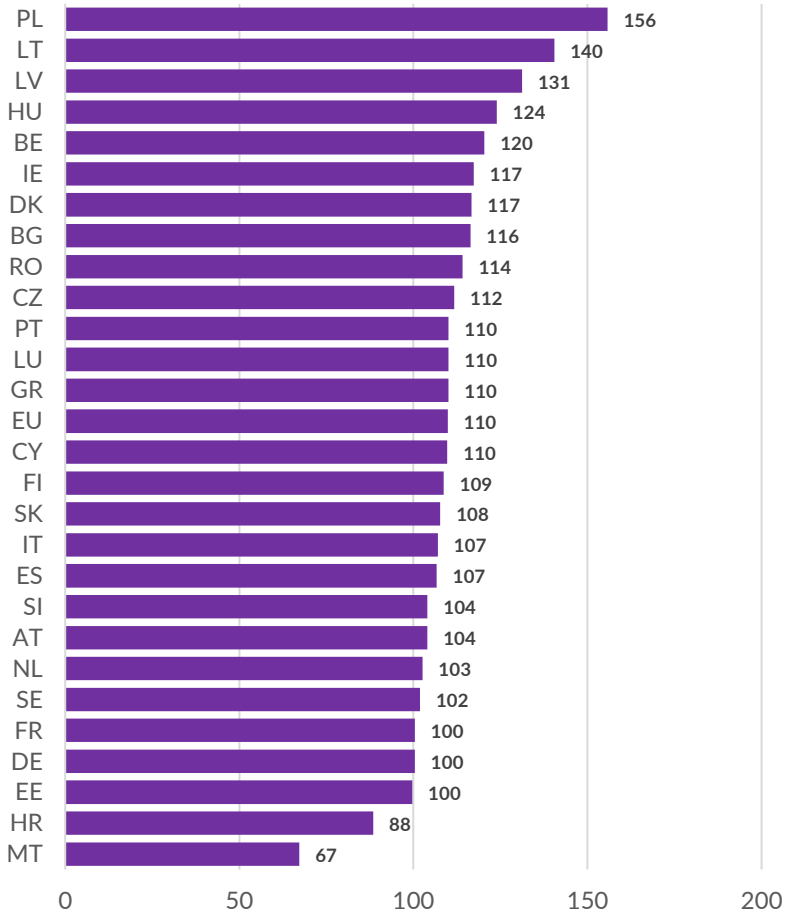
3.3.7. Science and technology

Science and technology directly shape food systems by influencing agricultural practices, productivity, machinery, infrastructure, genetic improvement, biotechnology and the use of digital technologies and data. Agricultural total factor productivity (TFP) provides a broad measure of how efficiently agriculture transforms the combined set of production inputs into outputs. The index should be read relative to its reference period: a value of 110 indicates that TFP is around 10% above the reference level, while

156 indicates a level around 56% higher. **Figure 37** shows substantial variation across Member States, with the EU-27 index at approximately 110. The highest values are observed in Poland (156), Lithuania (140), Latvia (131) and Hungary (124), while Croatia (88) and Malta (67) are below the reference level. These differences describe changes in productivity relative to each country's own reference level and should not be interpreted as absolute comparisons of agricultural productivity between countries.

Digitalisation provides a more direct indication of technological adoption. A 2025 JRC survey of 1,444 farms in nine Member States found that 93% used at least one general IT or software technology (Tur Cardona et al., 2025). More specialised technologies were less intensively adopted: although 79% of relevant farms used at least one crop-specific technology and 83% at least one livestock-specific technology, only 29% and 17%, respectively, used three or more. Digital field records (58%) and digital livestock records (66%) were relatively common, while advanced technologies such as drones and robotics showed considerably lower uptake. The report nevertheless highlights the absence of a harmonised EU-27 baseline for agricultural digitalisation, limiting systematic monitoring across Member States.

Figure 37. Agricultural total factor productivity (index) across EU Member States, 2025



Source: European Commission, CAP context indicator C.29; underlying data: Eurostat EAA, IFS. Data Year: 2025. Available at: https://agridata.ec.europa.eu/extensions/DashboardIndicators/DataExplorerPMEF.html. Note: An index of 100 represents the reference level; values above (below) 100 indicate higher (lower) TFP relative to that reference. The indicator measures productivity changes rather than absolute productivity, meaning that a country with a higher index is not necessarily more productive than a country with a lower index.

Biotechnology and genetic innovation represent another rapidly developing technological driver, with potential applications in protein diversification, resilient agriculture, nutrition and more efficient production systems. EIT Food highlights a strong European scientific base but identifies difficulties in translating research into investment, industrial capacity and commercial deployment: Europe currently attracts less than 10% of global biotechnology investment, while more than 90% of industrial fermentation capacity is located outside Europe. EIT Food estimates that, by 2040, biotechnology could influence up to 60% of what Europe grows and produces, with food biotechnology potentially generating around €140 billion in additional value. The recently established EU Agri-Food Biotech Alliance aims to connect research, industry, start-ups, investors and policymakers to address these scale-up barriers (EIT Food, 2026).

3.3.8. Trust and security

Trust in food-safety institutions and information is a direct driver of food systems because it can influence how consumers respond to food risks, regulatory decisions and information provided during food-safety incidents. The **2025 EFSA Special Eurobarometer on Food Safety (European Food Safety Association, 2022)** , based on 26,370 respondents across all EU-27 Member States, shows relatively high levels of institutional trust. At EU level, 70% of respondents trusted national authorities and 69% trusted EU institutions as sources of information on food-related risks, increases of 4 and 3 percentage points respectively since 2022. **Trust** in EU institutions exceeded 60% in 24 Member States and was highest in Portugal and Sweden (87%), followed by Finland and Ireland (82%) and Denmark (80%); the lowest levels were recorded in Romania and Greece (57%), Czechia (58%) and Bulgaria (59%). Trust was even higher for scientific and food system actors: 90% trusted doctors, 84% scientists working in universities or publicly funded research organisations, and 82% both consumer organisations and farmers/primary producers. **Awareness of the institutional food-safety framework** has also increased: 79% agreed that regulations are in place to ensure food safety, 76% recognised that the EU relies on scientific expert advice, and 71% recognised cooperation between EU and national food-safety authorities. These results suggest a generally high level of trust in the scientific and institutional actors underpinning EU food safety, although meaningful differences remain between Member States.

4. Who are the main actors and what are their activities in the EU-27 Food System?

4.1. Producing

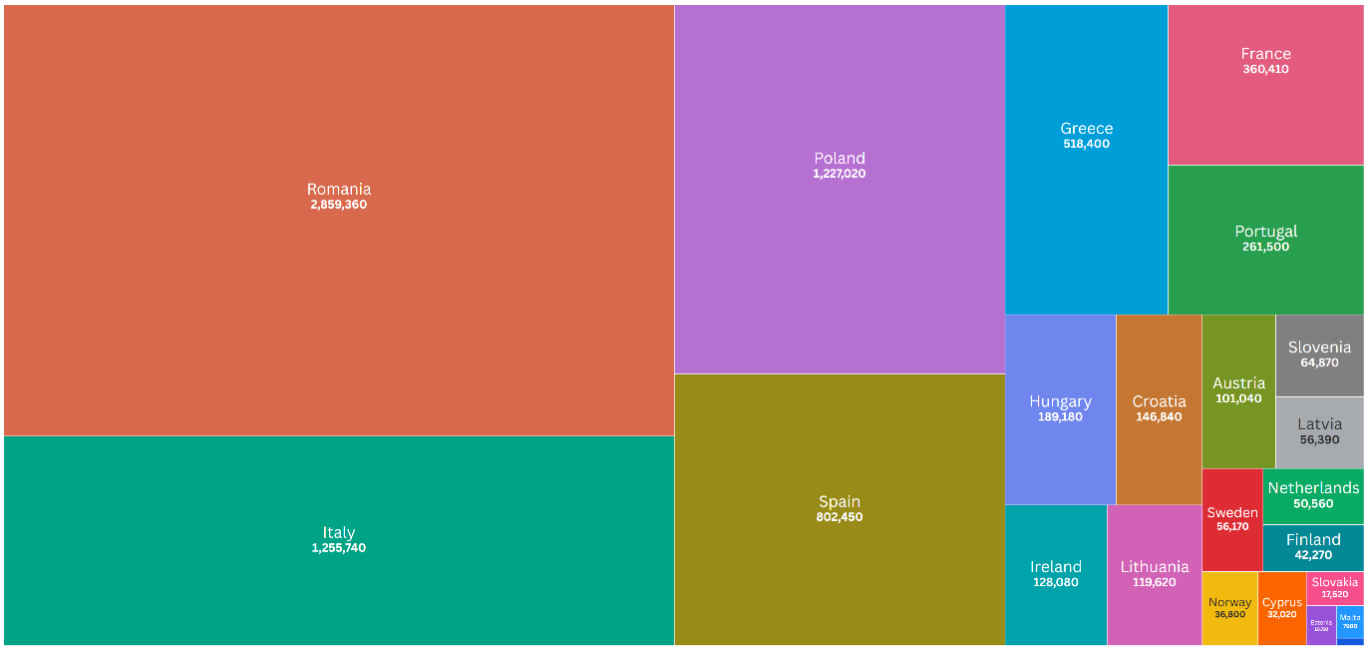
This section presents primary production data pertaining to both agriculture and aquaculture.

4.1.1. Agriculture / Crop Production

Land use. European Union (EU) farms use 38.1% of total land area for agricultural production (156m ha). There are **8.8 million (m) holdings** and 70.1% of all EU farms are in four Member States. Romania has the largest number of farms at 2.9m (32.9%), followed by 1.3m in Italy, 1.2m in Poland and 0.8m in Spain.

Figure 38 shows the number of holdings per EU Member State. Luxembourg has the smallest number at 1,830 holdings:

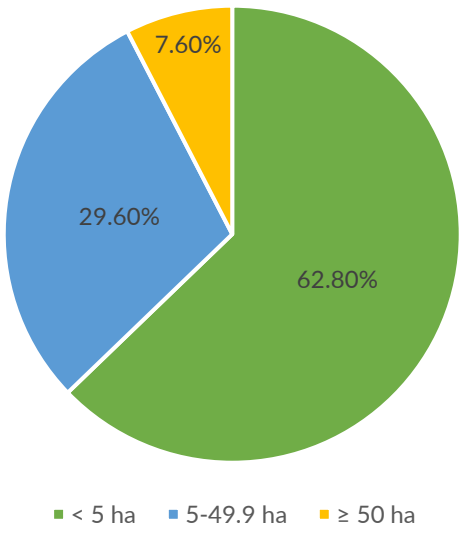
Figure 38. Number of holdings per EU Member State, 2023



Source: Eurostat, Farms and farmland in the European Union - statistics. Data year: 2023. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Farms_and_farmland_in_the_European_Union_-_statistics

The average mean size of an EU agricultural holding is **17.8 hectares** (ha); however, most farms are much smaller than this. Farm size has been aggregated into <5 ha, 5-49.9 ha and ≥50 ha. **Figure 39** shows that 62.8% of EU farms are less than 5 ha:

Figure 39. Average farm size in the EU (% of agricultural holdings), 2023



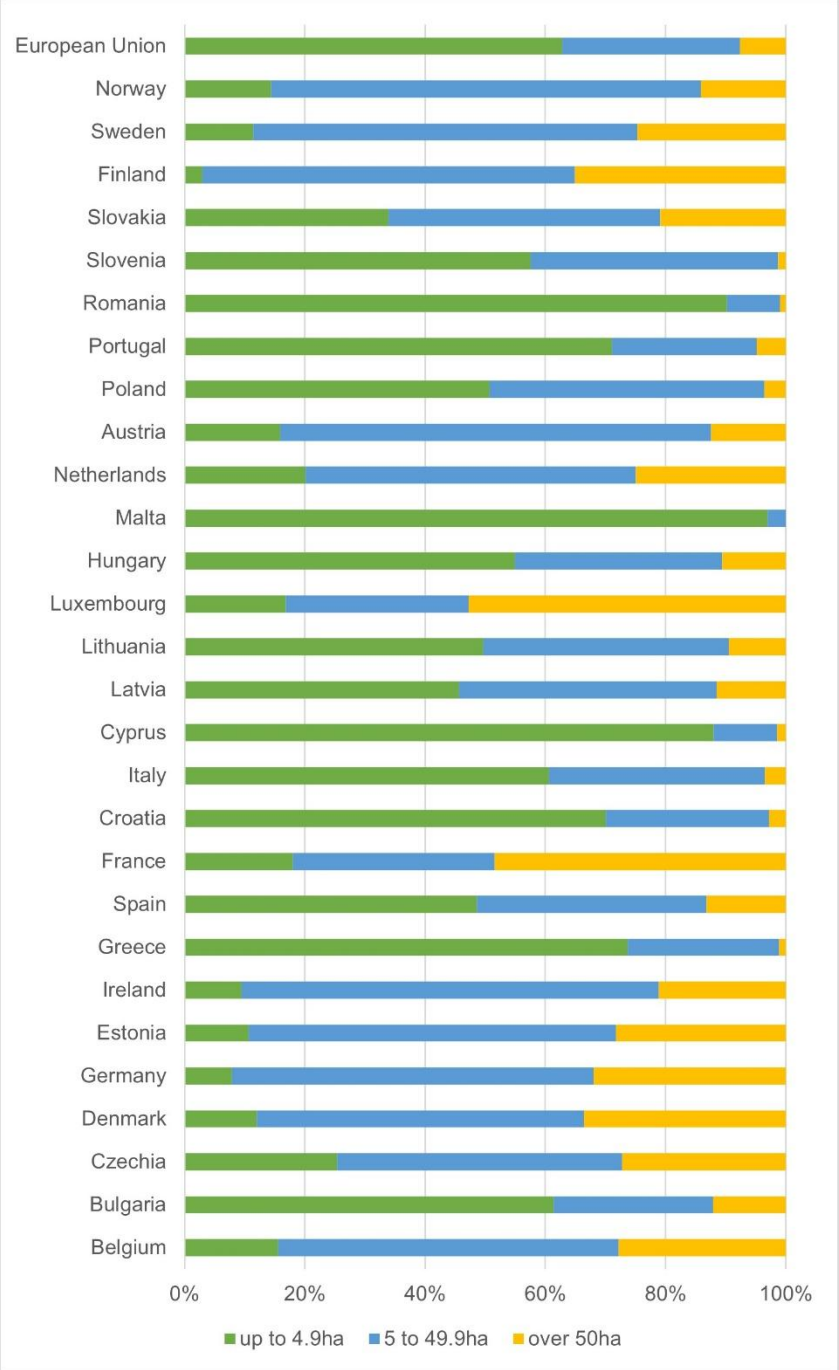
Source: Eurostat, Farms and farmland in the European Union - statistics. Data year: 2026. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Farms_and_farmland_in_the_European_Union_-_statistics

Although only 7.6% of farms are over 50 ha, these farms work 68.3% of the EU's utilised agricultural area[6] (UAA). The distribution of farm size varies considerably across EU Member States, with France having the most farms ≥50 ha (174,590) out of all EU

[6] Utilised agricultural area: Land used for agricultural production.

Member States. Proportionately, this is 48.4% of farms in France yet 52.4% of farms in Luxembourg are ≥50 ha but the number is only 970 farms (Figure 40; Annex Table A1):

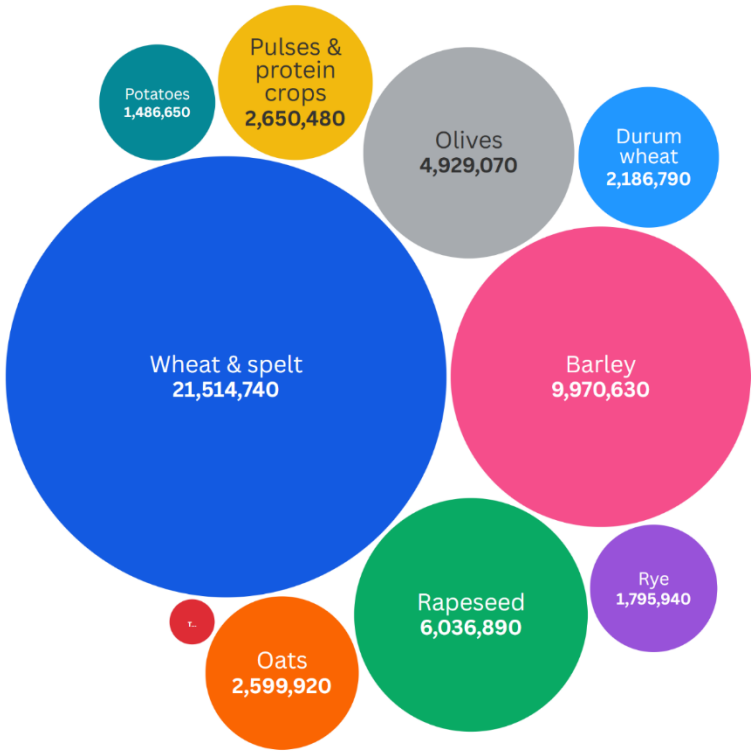
Figure 40. Farm size distribution by Member State (% of agricultural holdings), 2023



Source: Eurostat, Farms and farmland in the European Union - statistics. Data year: 2026. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Farms_and_farmland_in_the_European_Union_-_statistics

Harvested crop production in the EU totalled 257.7m tonnes (t) in 2024. The largest producers were France (53.5m t) and Germany (39.1m t). While production is measured in tonnes, harvest area provides an indication of the land area utilised for different crops. **Figure 41** shows the harvest area of the main crops grown in Europe. Wheat and spelt occupy the largest area (21.5m ha), covering more than twice the land sown to barley (10m ha).[7]. Tomatoes occupy the smallest harvest area of the crops shown (225,740 ha).

Figure 41. Area under selected crops in the EU (ha), 2024 and 2025



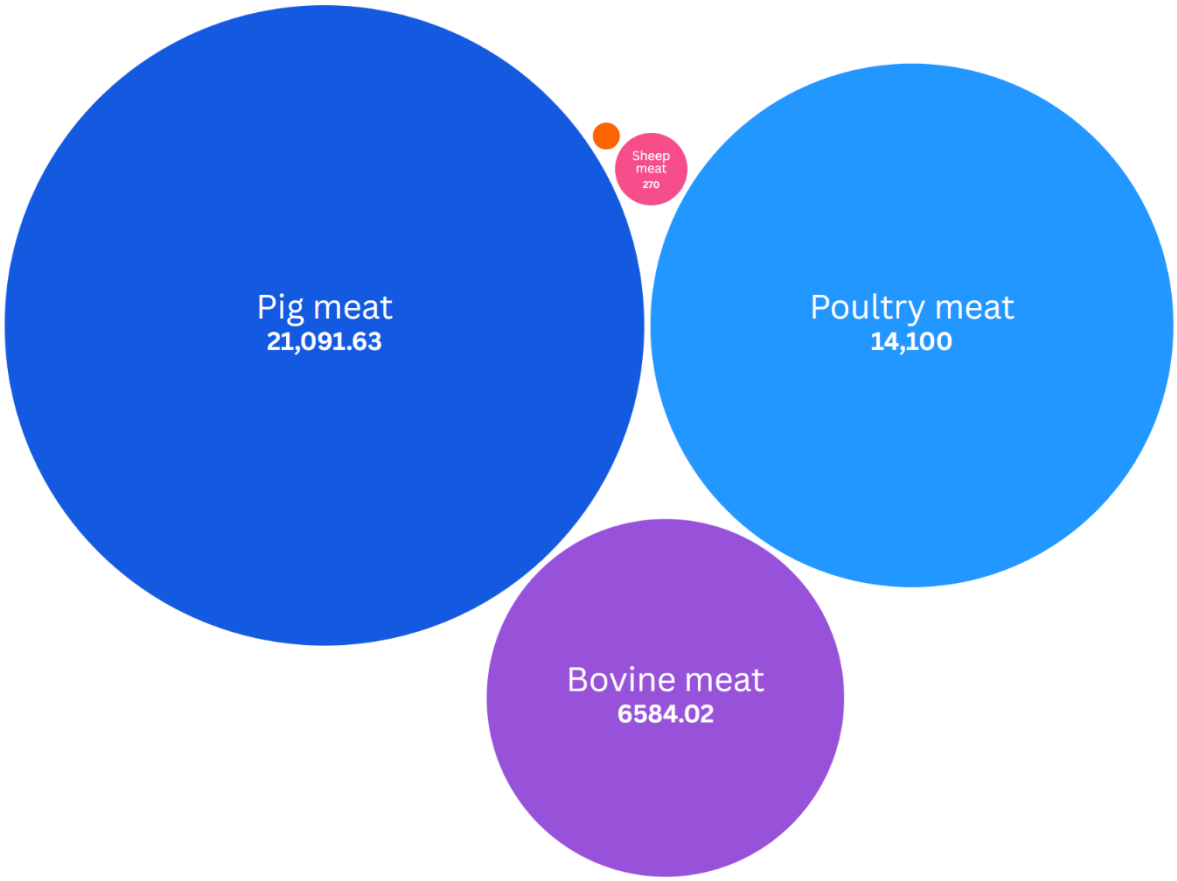
Source: Eurostat, Crop production in EU standard humidity. Data year: 2025. Available at: https://ec.europa.eu/eurostat/databrowser/view/APRO_CPSH1__custom_3280083/bookmark/table?lang=en&bookmarkId=1213fd57-810d-4858-b0eb-cabf65b822fd&c=1661875682866

4.1.2. Livestock / Meat Production

Figure 42 shows carcass weight for meat production for 2024 EU meat production. The largest value is pig meat and the pink spot represents sheep meat at 270,000 tonnes and the orange spot is goat meat at 37,300 tonnes. Milk and egg production are not included in this comparison:

[7] Please note that the 'pulses & protein crops' figure is from 2024, as is the rye figure. All other crop data is 2025.

Figure 42. EU-27 meat production by animal type (million tonnes), 2024



Source: Eurostat, Meat production, EU, 2009-2024. Data year: 2024. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Agricultural_production_-_livestock_and_meat

4.1.3. Fisheries / Aquaculture

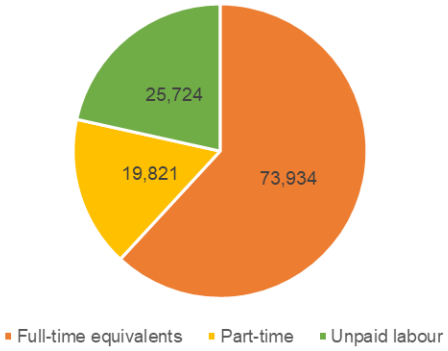
Vessels and fleet: According to the *2025 Annual Economic Report on the EU fishing fleet* by the *Scientific, Technical and Economic Committee for Fisheries (European Commission)* (STECF), in 2023 there were 70,280 fishing vessels; however, 24% (17,020) were inactive. Most (41,106) are small-scale coastal fleet; this makes up 77% of the total number of active vessels.

In 2025, the number of fishing fleet in the EU was 68,318. The fleet has a combined gross tonnage[8] of around 1.23m and an engine power of 5,039,364 kilowatts (kw). Italy has the highest number of fishing fleet, making up 18% of the EU total (n=12,321), the largest gross tonnage (146,253t) and biggest output (951,153kw) (Annexe Table A4).

[8] Gross tonnage: The measure of fish-holding capacity.

Workforce: There were 119,479 fishers in 2023 and 21.5% of these persons were unpaid (Figure 43) (STECF, 2025)

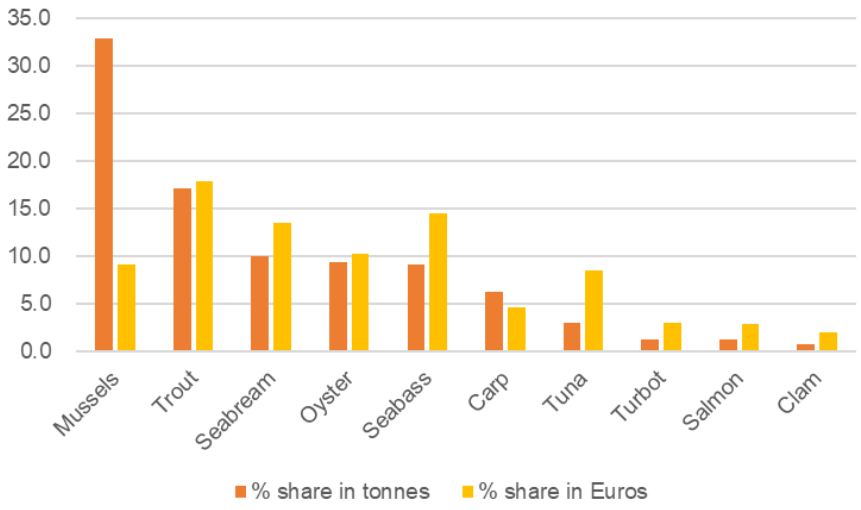
Figure 43. Fisher employment in the EU, 2023



Source: European Commission. JRC Publications, Scientific, Technical and Economic Committee for Fisheries (STECF) – The 2025 Annual Economic Report on the EU Fishing Fleet (STECF 25-03 & 25-07). Data year: 2023. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC144396

Output: In 2024, 1m tonnes of aquatic organisms were farmed. Four countries dominated the tonnage: Spain (24.3%; 246,137t), France (17.9%, 181,434t), Greece (12.3%, 127,493t) and Italy (9.7%, 98,051t). The economic value of aquaculture production totalled €4.6 billion (b) in 2024. Figure 44 shows that the percentage share of tonnes can significantly vary compared to the percentage share of Euros:

Figure 44. Percentage share in tonnes and euros of the main aquaculture species, 2024

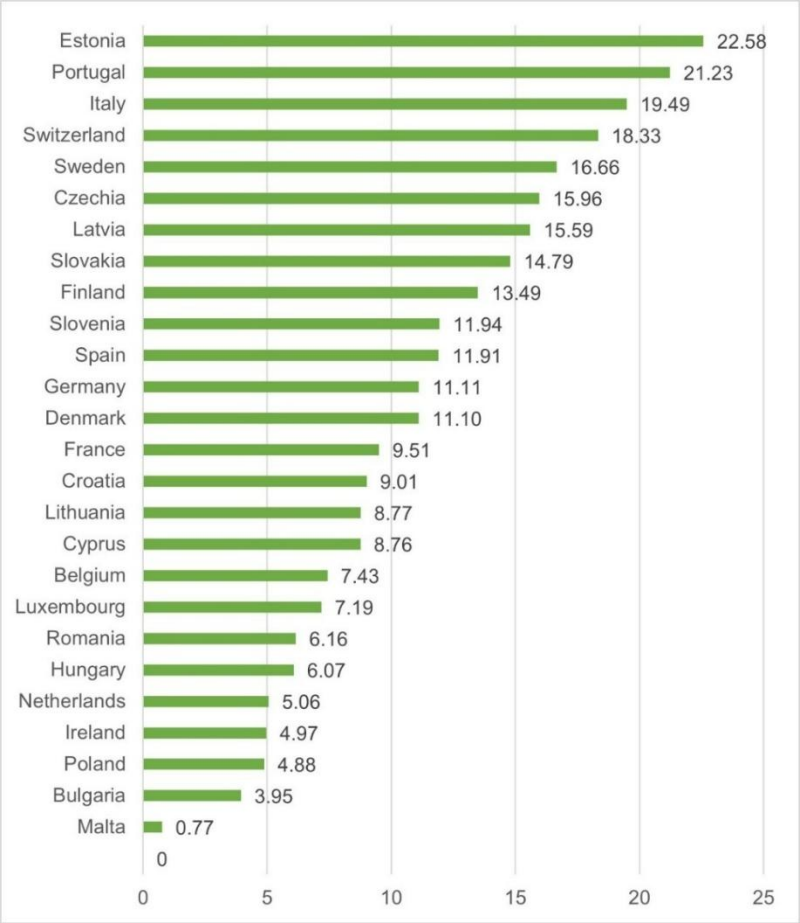


Source: Eurostat, A Main species in aquaculture production. Data year: 2024. Data code: fish_aq2a. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Main_species_in_aquaculture_production_(%25,_EU,_2024).png

4.1.4. Other agricultural production approaches

Organic farming. In 2022, 10.5% (16.9m ha) of total EU agricultural land was farmed organically[9]. Organic agricultural land is used for a range of purposes, including arable crop production, permanent grassland and permanent crops. At EU level, 42% of organic agricultural land was permanent grassland, 47% was arable land and 11% was devoted to permanent crops (European Commission, 2023). Figure 45 shows the percentage of the total UAA used for organic farming across Member States:

Figure 45. Percentage of total UAA used for organic farming, 2024

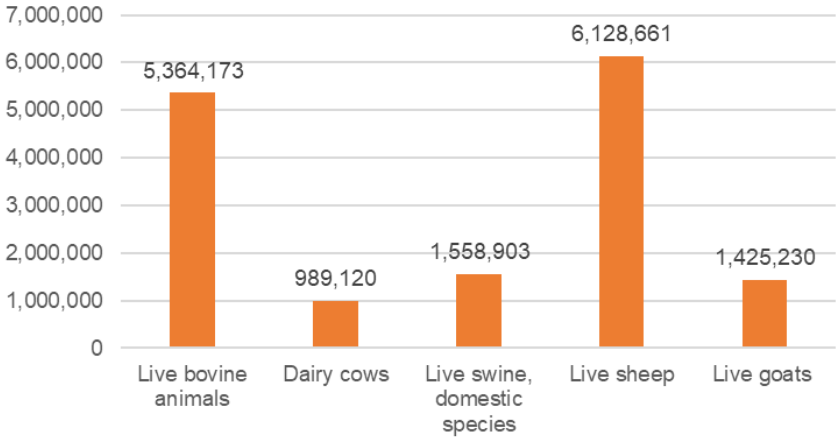


Source: Eurostat, Organic crop area by agricultural production methods and crops. Data year: 2024. Data code: org_cropar. https://doi.org/10.2908/ORG_CROPAR

[9] Percentage of overall crop area that is farmed organically in 2024 are not available for the Greece or Austria.

Sheep are the livestock most likely to be farmed organically, with 10.4% of all sheep farmed organically compared to only 4.9% of dairy cows in 2022 (Figure 46):

Figure 46. Number of animals farmed organically across the EU, 2022



Source: Eurostat, Developments in organic farming. Data year: 2022. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Developments_in_organic_farming

Agroforestry. Agroforestry integrates trees and shrubs with agricultural crops and/or livestock, potentially supporting biodiversity, soil health and carbon sequestration. The total area in Europe under agroforestry is 15.4m ha, equating to 3.6% of the territorial area and 8.8% of UAA (den Herder et al., 2017).

Community-supported agriculture (CSA) involves arrangements in which consumers establish a direct relationship with producers, often sharing production costs and risks through advance commitments or subscriptions (Community Supported Agriculture[10]). These approaches contribute to the diversity of EU food production systems, although comparable EU-wide statistics on their prevalence are limited.

4.2. Processing and Manufacturing

4.2.1. Enterprises

Small- and medium-sized enterprises. Large firms dominate turnover yet 99.2% of food and drink enterprises[11] are small- and medium-sized enterprises[12] (SMEs)[13]. In 2023, the average number of persons employed per company in EU in the food and drink industry was 15. Yet, SMEs employ 56.7% of food and drink employees[14].

[10] https://communitysupportedagriculture.org.uk/

[11] Enterprise: 'An organisational unit producing goods or services which has a certain degree of autonomy in decision-making.'

[12] **Small- and medium-sized enterprise:** Small – Less than 50 staff and turnover ≤ €10 million; Medium – Less than 250 staff and turnover ≤ €50 million.

[13] Food Drink Europe. (n.d.). Available at: https://www.fooddrinkeurope.eu/policy-area/smes/

Number of enterprises. There are 272,432 enterprises manufacturing food products compared to 35,588 manufacturing beverages. Figure 47 displays the number of food and drink manufacturing enterprises. Bakery products dominate food manufacturing numbers, making up 54.9% of the total number of food manufacturing enterprises:
There are 272,432 enterprises manufacturing food products compared to 35,588 manufacturing beverages. Figure 47 displays the number of food and drink manufacturing enterprises. Bakery products dominate food manufacturing numbers, making up 54.9% of the total number of food manufacturing enterprises:

Figure 47. The number of EU food and drink manufacturing enterprises, 2023

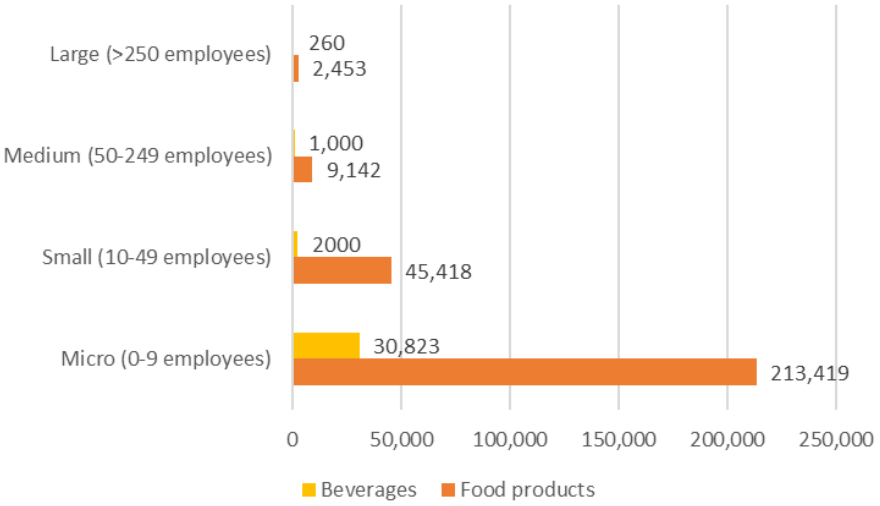


Source: Eurostat, Enterprises by detailed NACE Rev. 2 activity and special aggregates. Data year: 2023. Data code: sbs_ovw_act. Available at: https://doi.org/10.2908/SBS_OVW_ACT

Annexe Table A5 presents the number of enterprises per EU member state for categories of food and drink processing. Germany has the most meat processors (n=7,657), Spain has the most seafood processors (n=573), France has the most fruit and vegetable processors (2,048), bakery processors (38,953) and beverage processors (n=5854). Italy has the most oils and fats processors (2,572), dairy processors (n=2,909), grain milling and starches processors (1,049) and other food products (6,455) whilst Denmark has the highest number of animal feed processors (n=751).

Figure 48 shows the number of food and drink manufacturing enterprises, clearly demonstrating that the majority are either micro- or small-sized enterprises:

Figure 48. The number of EU food and drink manufacturing enterprises categorised by size, 2024

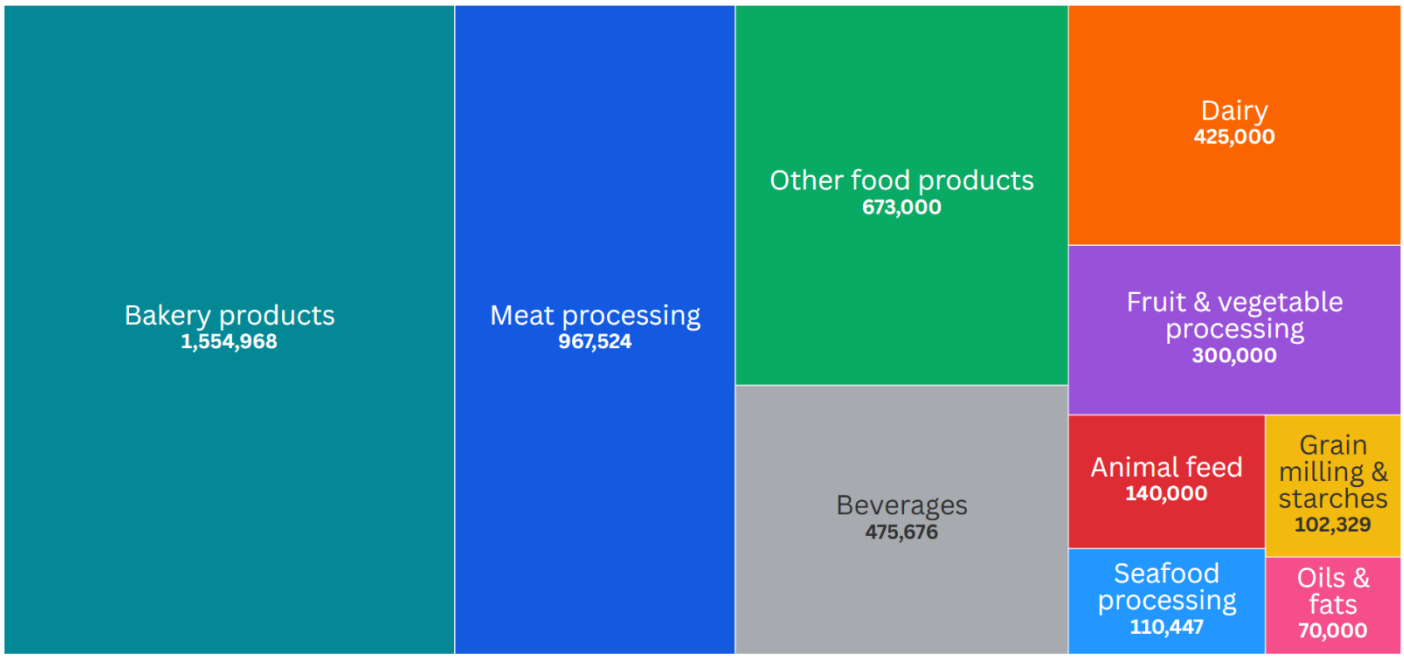


Source: Eurostat, Enterprise statistics by size class and NACE Rev. 2 activity (from 2021 onwards). Data year: 2024. Data code: sbs_sc_ovw. Available at: https://doi.org/10.2908/SBS_SC_OVW

4.2.2. Employees

In 2024, Eurostat data showed that there were around 4.3m employees in the manufacturing and processing sector. These treemaps identify which activities are particularly important for food system employment. Individuals employed in the manufacture of bakery products represent 35.8% of the overall number of food and drink manufacturing sector employees (Figure 49):

Figure 49. Employment by food and drink manufacturing sector (persons employed), 2023



Source: Eurostat, Enterprises by detailed NACE Rev. 2 activity and special aggregates. Data year: 2023. Data code: sbs_ovw_act. Available at: https://doi.org/10.2908/SBS_OVW_ACT

Annexe Table A6 shows the number of employees in each EU member state per food and drink manufacturing sector categorisation. In terms of overall employment in food manufacturing, these are the top five EU member states: Germany (n=909,126), France (696,254), Italy (n=446,095), Spain (n=445,732) and Romania (n=173,229).

4.2.4. Gross Value Added

Eurostat data from 2023 shows the gross value added across different manufacturing and processing in the food and drinks sector. This totalled €246,436m and represents 1.9% of the EU gross value added. SMEs contribute substantially – 41.7% – to overall value added. The value-added figure for dairying is confidential, so is not displayed in the below treemap (Figure 50):

Figure 50. Gross value added (€m) by food manufacturing sector, 2023



Source: Eurostat, Performance of the agricultural sector. Data year: 2023. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Performance_of_the_agricultural_sector

Annexe Table A7 presents the net turnover in €m or each EU Member State across food and drink manufacturing sectors in 2024. Germany has the highest net turnover, at €279.7b.

4.3. Retailing and Food Service Provisioning

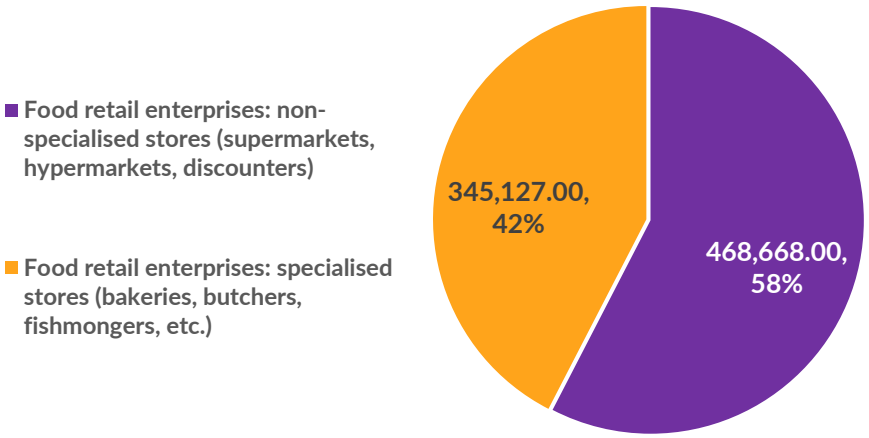
4.3.1. Retailing

Number of retail enterprises

The pie chart (**Figure 51)** shows that the total number of food retail enterprises in EU-27 in 2020 was equal to 814m. Non-specialised retailers (such as supermarkets, hypermarkets and discounters) account for 469m enterprises, or 58% of the total.

Specialised retailers (such as bakeries, butchers and fishmongers) account for 345m enterprises, or 42%.

Figure 51. Number of retail sale of food and beverages enterprises in EU-27, 2020



Source: Eurostat, Structural Business Statistics. Data year: 2020. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics/database. Note: Include NACE Rev. 2 4-digit codes under 47.1 (retail sale of food, beverages and tobacco in non-specialised stores) and 47.2 (retail sale of food and beverages and in specialised stores, aggregated G47.21 + G47.22 + G47.23 + G47.24 + G47.25 + G47.29, tobacco excluded).

The treemap breaks the 345m specialised retailers into product categories. Meat and meat-product retailers form the largest category, with around 87,000 enterprises:

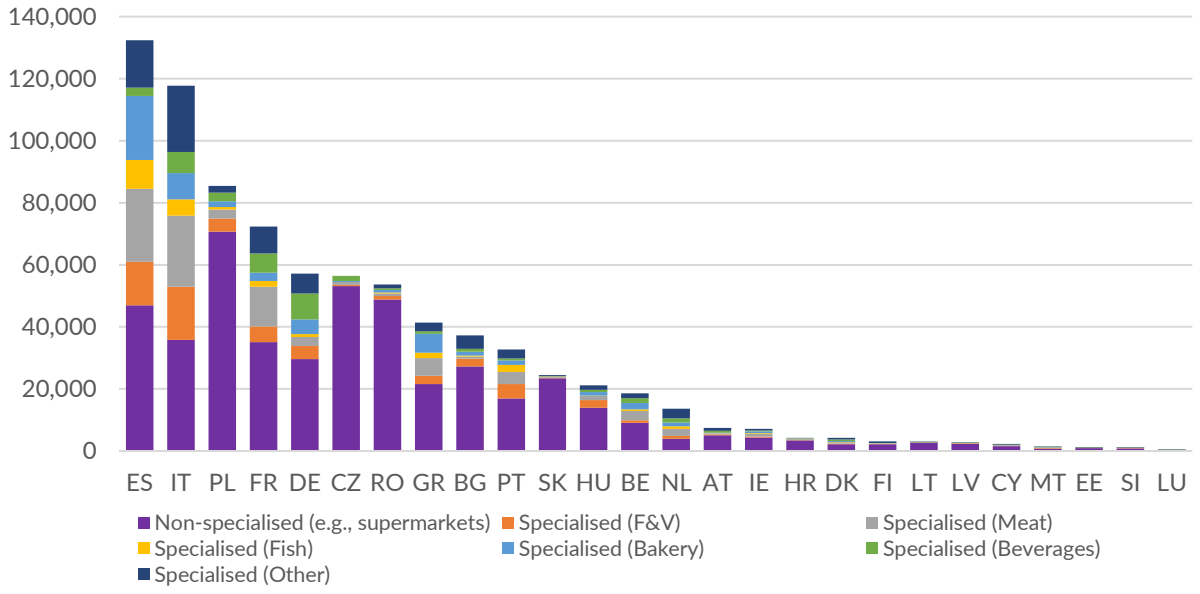
Figure 52. Number of EU-27 specialised retail sale of food and beverages, 2020



Source: Eurostat, Structural Business Statistics. Data year: 2020. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics/database. Note: include NACE Rev. 2 4-digit codes under 47.2 (retail sale of food, beverages and tobacco in specialised stores) i.e. 47.21 (fruit and vegetables), 47.22 (meat and meat products), 47.23 (fish, crustaceans and molluscs), 47.24 (bread, cakes, flour confectionery and sugar confectionery), 47.25 (beverages), and 47.29 (other specialised food stores, grouped here as "Other"). Data year: 2020.

The 100% stacked column chart compares the composition of food-retail enterprises across EU-27 Member States. Each column is divided between non-specialised retailers and six types of specialised retailer. Non-specialised stores dominate in countries such as Slovakia, Czechia and Romania, whereas specialised stores make up a much larger proportion in the Netherlands, Italy and Spain.

Figure 53. Number of specialised and non-specialised retail sale of food and beverages enterprises by Member State, 2020



Source: Eurostat, Structural Business Statistics. Data year: 2020. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics/database. Note: include NACE Rev. 2 4-digit codes under 47.1 (retail sale of food, beverages and tobacco in non-specialised stores) and 47.2 (retail sale of food and beverages and in specialised stores, aggregated G47.21 + G47.22 + G47.23 + G47.24 + G47.25 + G47.29, tobacco excluded).

4.3.2. Number of people employed

The first bubble chart (**58a**) shows the number of people employed in specialised stores, grouped by the size of the enterprise. Businesses employing 2–9 people account for the largest employment group, with 655,491 workers. The remaining employment is distributed among businesses with 10–19 employees (167,000), 20–49 employees (120,000), 250 or more employees (109,255), and 50–249 employees (82,851) suggesting that employment in specialised retail is concentrated in small enterprises.

The second bubble chart (**58b**) presents the same breakdown for non-specialised stores. Enterprises employing 250 or more people dominate, accounting for approximately 3.7 million workers. They are followed by businesses with 50–249 workers (730,000), 2–9 workers (610,000), 20–49 workers (429,273), and 0–1 workers (264,000). In contrast with specialised retail, employment is therefore concentrated in very large enterprises.

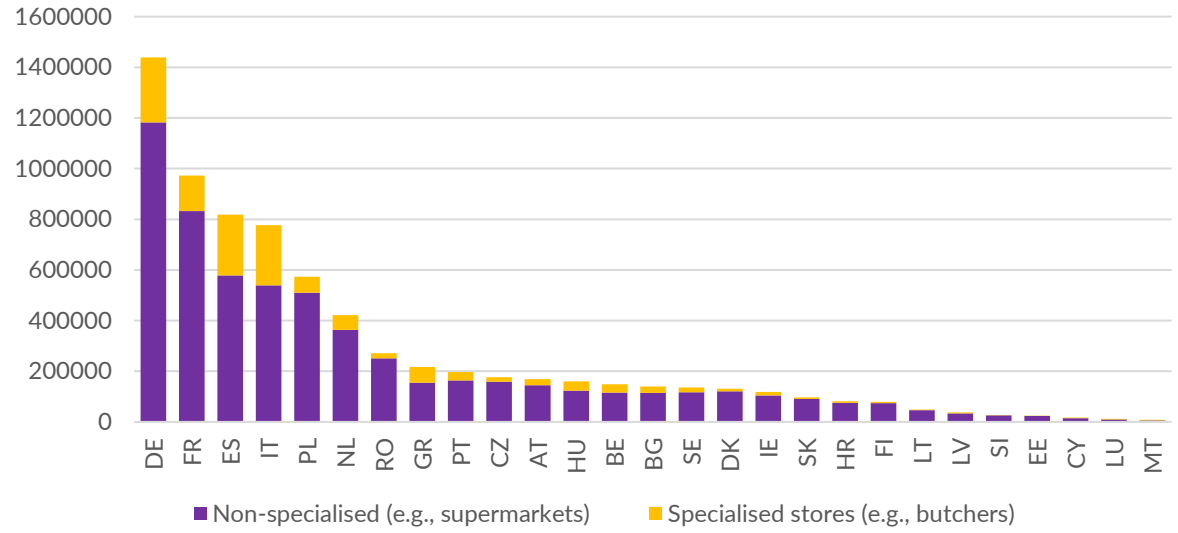
Figure 54. Number of people employed by enterprise-size class in specialised and non-specialised retail sale of food, beverages and tobacco (EU-27), 2024



Source: Eurostat, Structural Business Statistics (SBS by size class). Data year: 2024. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics/database. Note: include NACE Rev. 2 codes 47.11 (retail sale in non-specialised stores with food predominating) and 47.2 (retail sale of food, beverages and tobacco in specialised stores). Data year: 2024. The "0–9" and "2–9" size-class categories overlap in the Eurostat source and were treated as non-overlapping bands (0–1, 2–9, 10–19, 20–49, 50–249, 250+) to avoid double-counting.

The stacked column chart compares employment in non-specialised and specialised food retail across countries. Non-specialised retail supplies the majority of employment in every country shown. Germany records the largest combined employment total, at approximately 1.44 million people, followed by France, Spain and Italy. Specialised retail represents a particularly visible portion of employment in Italy, Spain and Greece.

Figure 55. Number of people employed in retail sale of food, beverages and tobacco by store type by Member State, 2024

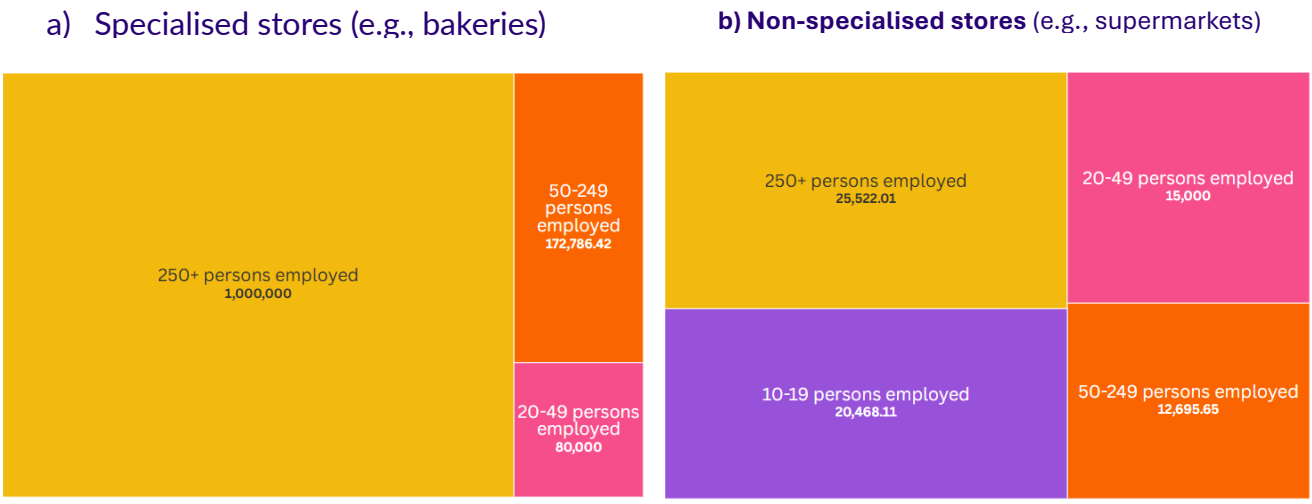


Source: Eurostat, Structural Business Statistics (SBS by size class). Data year: 2024. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics/database. Note: include NACE Rev. 2 codes 47.11 (retail sale in non-specialised stores with food predominating) and 47.2 (retail sale of food, beverages and tobacco in specialised stores). Data year: 2024. The "0–9" and "2–9" size-class categories overlap in the Eurostat source and were treated as non-overlapping bands (0–1, 2–9, 10–19, 20–49, 50–249, 250+) to avoid double-counting.

Net turnover

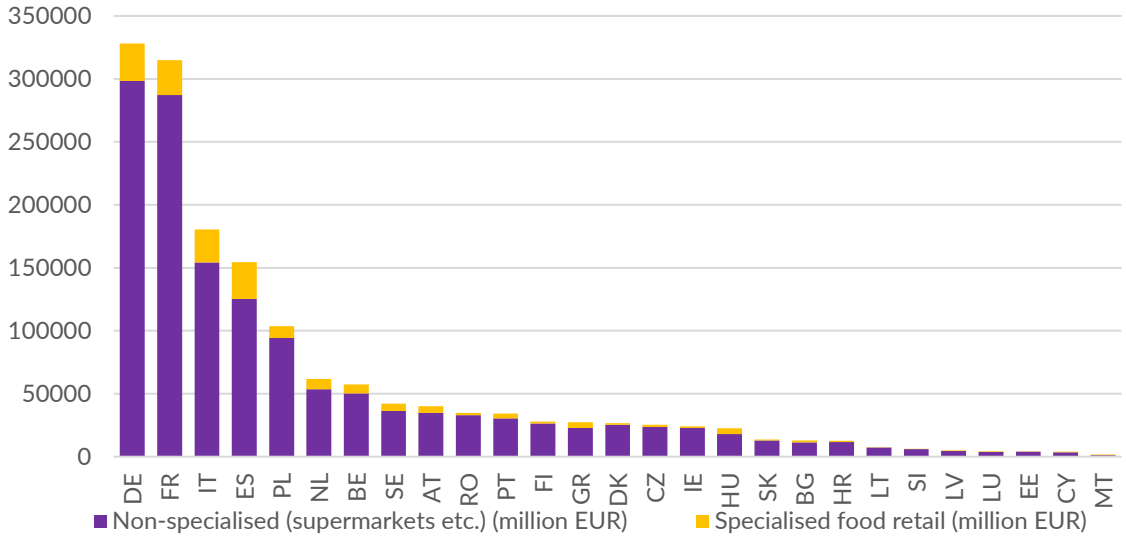
The treemaps present the net turnover in specialised and non-specialised food stores in EU-27 among four enterprise-size groups. In specialised stores (**60a**), enterprises with 250 or more employees have the largest value, 25,522.01, followed by enterprises with 10–19 employees at 20,468.11. Enterprises with 20–49 and 50–249 employees account for 15,000 and 12,695.65 respectively. The treemap of non-specialised stores (**60b**) shows a much more concentrated distribution. Enterprises with 250 or more employees account for 1,000,000, substantially exceeding the values for businesses with 50–249 employees (172,786.42) and 20–49 employees (80,000).

Figure 56. Net turnover (million EUR) by enterprise-size in specialised versus non-specialised retail sale of food, beverages and tobacco (EU-27), 2024



Source: Eurostat, Structural Business Statistics (SBS by size class). Data year: 2024. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics/database. Note: include NACE Rev. 2 codes 47.11 and 47.2, unit: million EUR. Data year: 2024. Several countries have missing values for one or more size classes; the "0–9" and "2–9" bands overlap and only non-overlapping bands (0–1, 2–9, 10–19, 20–49, 50–249, 250+) are shown.

Figure 57. Net turnover (million EUR) of non-specialised and specialised retail sale of food, beverages and tobacco by Member State, 2024



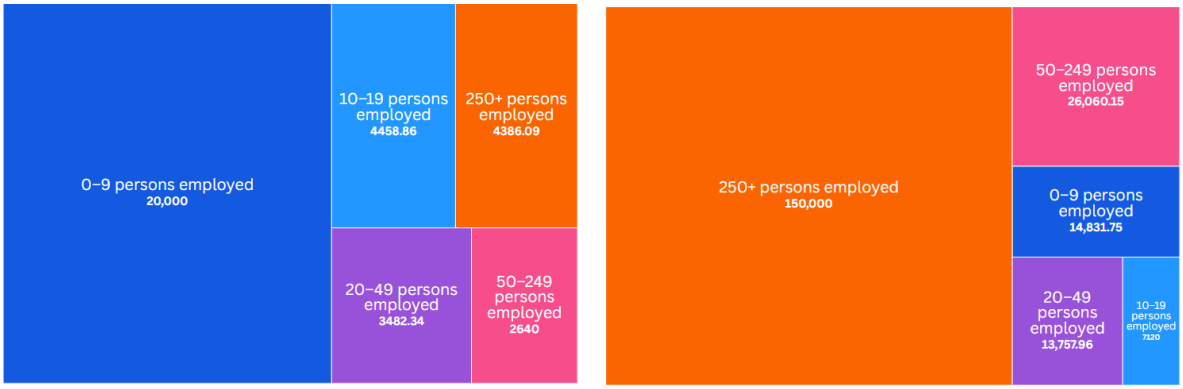
Source: Eurostat, Structural Business Statistics (SBS by size class). Data year: 2024. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics/database. Note: include NACE Rev. 2 codes 47.11 and 47.2, unit: million EUR.

Value added

The treempas compare how value added is distributed across enterprise-size classes in specialised and non-specialised food, beverage and tobacco retail in the EU-27. In specialised retail, the largest contribution comes from enterprises with 0–9 employees (20.000 million euro), while in non-specialised retail value added is strongly concentrated in enterprises with 250 or more employees (150,000 million euro), indicating a much greater role for large firms.

Figure 58. Value added (million EUR) by enterprise-size in specialised versus non-specialised retail sale of food, beverages and tobacco

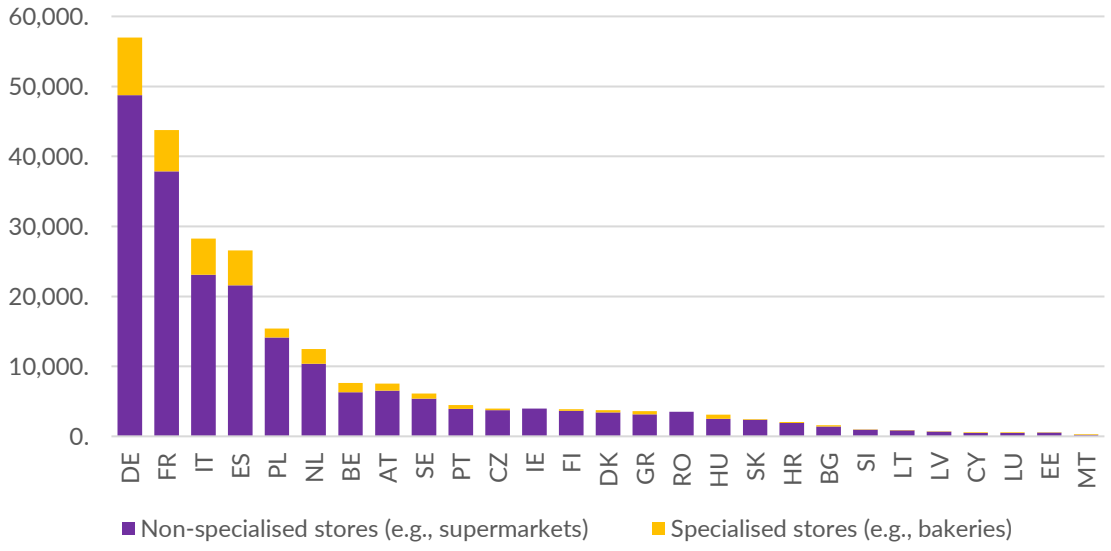
a) Specialised stores (e.g., bakeries) **b) Non-specialised stores** (e.g., supermarkets) *(EU-27), 2023*



Source: Eurostat, Structural Business Statistics (SBS by size class). Data year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics/database. Note: include NACE Rev. 2 codes 47.11 and 47.2. The value for the 50–249 persons employed class in non-specialised stores is derived using the formula: published total minus the 0–9, 10–19, 20–49 and 250+ classes.

The stacked columns show value added by Member State, divided between non-specialised and specialised retail. Non-specialised stores account for most of the total in every country shown, with Germany recording the highest combined value added, followed by Spain and Croatia; the chart also highlights substantial differences in market size across countries.

Figure 59. Value added (million EUR) in non-specialised and specialised retail sale of food, beverages and tobacco by Member State, 2023

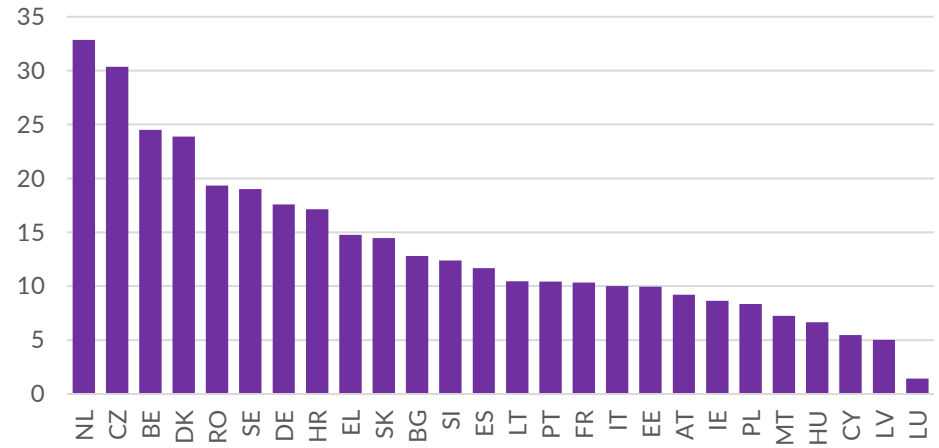


Source: Eurostat, Structural Business Statistics (SBS by size class). Data Year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics/database. Note: include NACE Rev. 2 codes 47.11 and 47.2. Only countries with 2023 data available for both sectors are included; missing or confidential cases are excluded to avoid representing them as zero values.

E-commerce

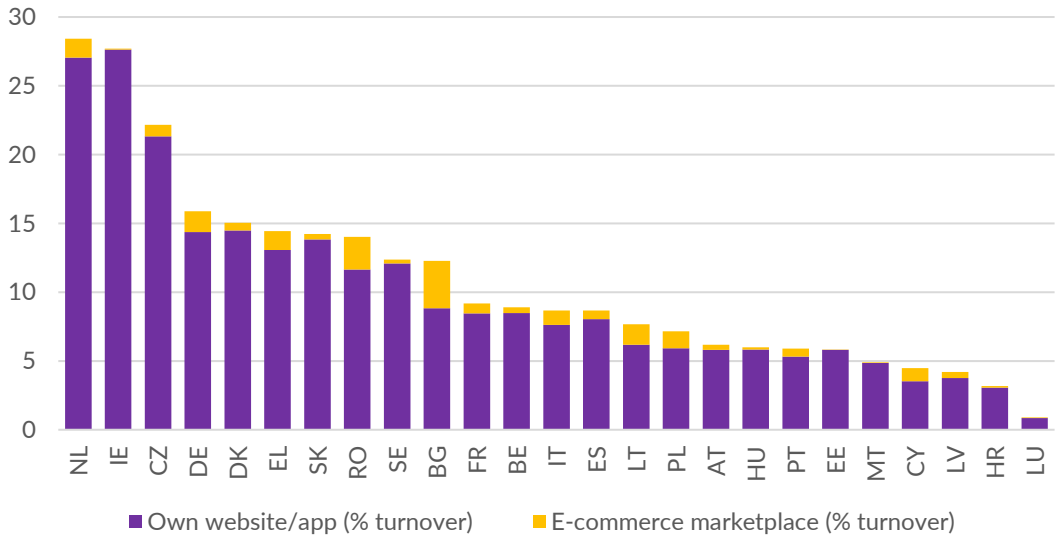
The column chart shows the proportion of turnover generated through e-commerce by Member State. The EU-27 value is approximately 14.9%, marked by a red-dashed horizontal reference line. The Netherlands and Czechia have the highest values, at about 32.9% and 30.4%, while Belgium and Denmark also exceed 20%. Luxembourg has the lowest displayed proportion, at roughly 1.4%, demonstrating a wide digital-retail gap between countries.

Figure 60. E-commerce turnover as a percentage (%) of total turnover by Member States, 2025



Source: Eurostat, "ICT usage and e-commerce in enterprises" survey (isoc_ec_evaln2). Data year: 2025. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Statistics_on_ICT_usage_and_e-commerce_introduced. Note: include NACE Rev. 2 code G471 (retail trade in non-specialised stores), enterprises with 10 or more persons employed. G471 is used as a proxy for food retail and does not include specialised food retail (NACE 47.2, e.g. bakeries, butchers); it may also include non-food turnover from generalist non-specialised stores.

Figure 61. Own online channel versus e-commerce marketplace by Member States, 2025



Source: Eurostat, "ICT usage and e-commerce in enterprises" survey (isoc_ec_evaln2). Data year: 2025. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Statistics_on_ICT_usage_and_e-commerce_introduced. Note: include NACE Rev. 2 code G471 (retail trade in non-specialised stores), enterprises with 10 or more persons employed. G471 is used as a proxy for food retail and does not include specialised food retail (NACE 47.2, e.g. bakeries, butchers); it may also include non-food turnover from generalist non-specialised stores.

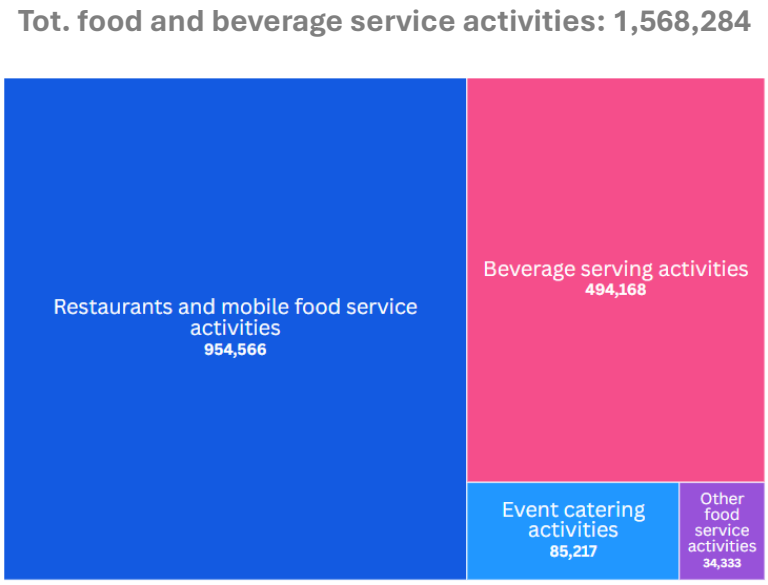
The stacked column chart separates online turnover generated through retailers' own websites or apps from turnover generated through third-party marketplaces (e.g., Amazon). Own websites and apps account for the large majority of e-commerce turnover in every country. Ireland and the Netherlands have the largest own-channel proportions, at roughly 27–28% of turnover. Marketplace sales are generally small, although they are more noticeable in Bulgaria, Romania and Lithuania. For the EU-27, approximately 11.0% of turnover comes through retailers' own channels and 1.1% through marketplaces.

4.3.2 Food service provisioning

Number of enterprises

The tree map represents the number of enterprises in food and beverage service activities (1,568,284) in EU-27, of which restaurants and mobile food service activities account for 954,566 enterprises, beverage serving activities for 494,168, event catering activities for 85,217, and other food service activities for 34,333.

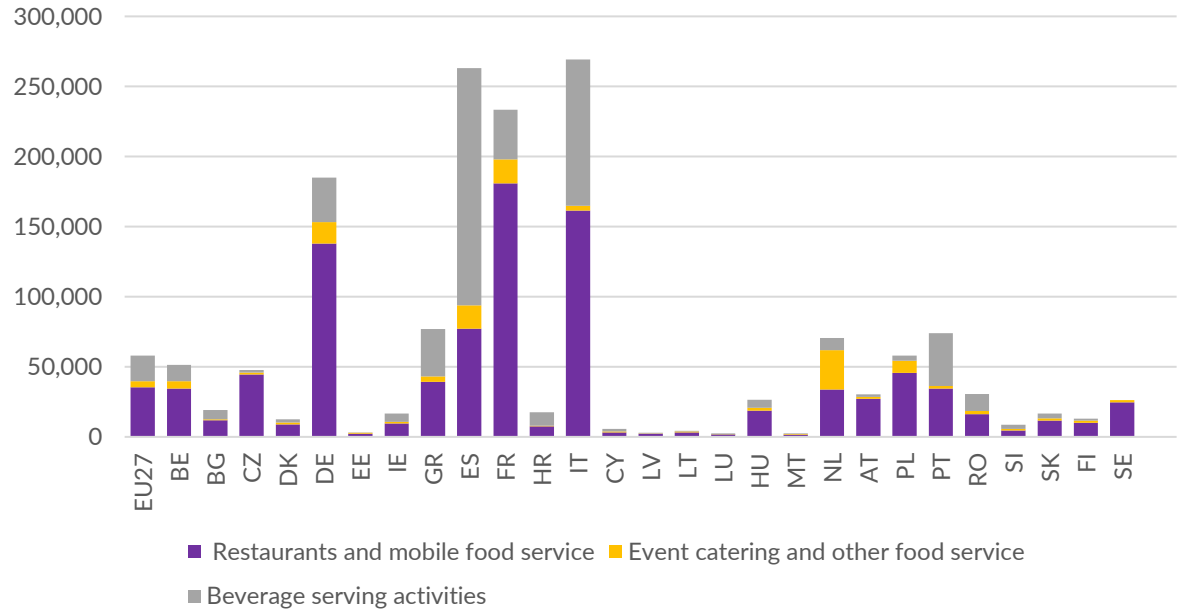
Figure 62. Number of enterprises in food and beverage activities (EU-27), 2023



Source: Eurostat, Structural Business Statistics (SBS) on food and beverage service activities. Data year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics. Note: Include NACE Rev. 2 code 56 and subsectors 56.1, 56.2, 56.21, 56.29 and 56.3, EU-27 enterprises. 56.2 includes 56.21 Event catering activities and 56.29 Other food service activities.

The stacked column chart (**Figure 63**) represents the number of enterprises in food and beverage service activities across EU countries, of which Italy has the highest total with 269,338 enterprises, followed by Spain with 262,987 and France with 233,453.

Figure 63. Number of enterprises in food and beverage activities by Member States, 2023

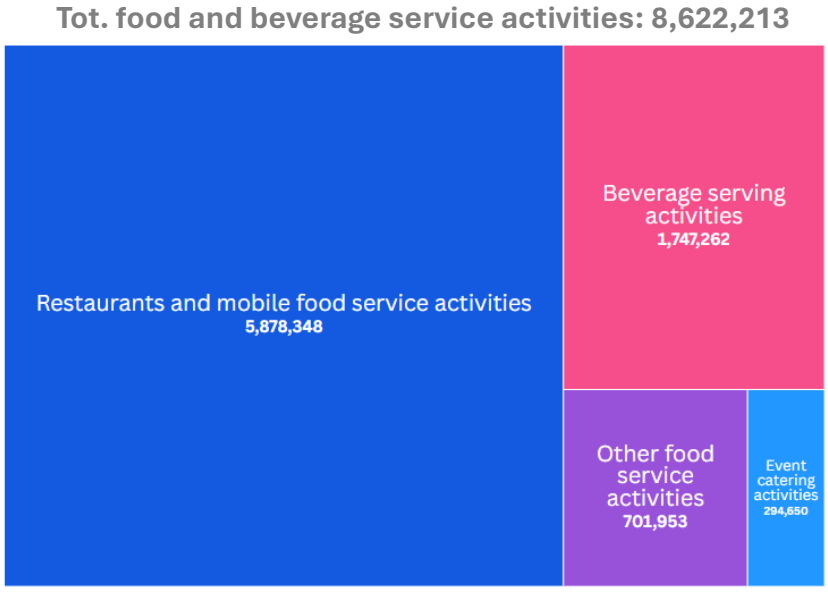


Source: Eurostat, Structural Business Statistics (SBS). Data year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics. Note: include NACE Rev. 2 code 56.1, 56.2 and 56.3. Values show the number of enterprises by Member State across restaurants and mobile food service activities, event catering activities, and beverage serving activities. EU-27 shows the average value.

Number of people employed

The tree map represents people employed in food and beverage service activities (8,622,213), in EU-27, of which restaurants and mobile food service activities account for 5,878,348 persons employed, beverage serving activities for 1,747,262, event catering activities for 294,650, and other food service activities for 701,953.

Figure 64. Number of people employed in food and beverage activities (EU-27), 2023



Source: Eurostat, Structural Business Statistics (SBS) on food and beverage service activities. Data year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics. Note: include NACE Rev. 2 code 56 and subsectors 56.1, 56.2, 56.21, 56.29 and 56.3. 56.2 includes 56.21 Event catering activities and 56.29 Other food service activities.

Figure 65. Number of people employed in food and beverage activities by Member States, 2023



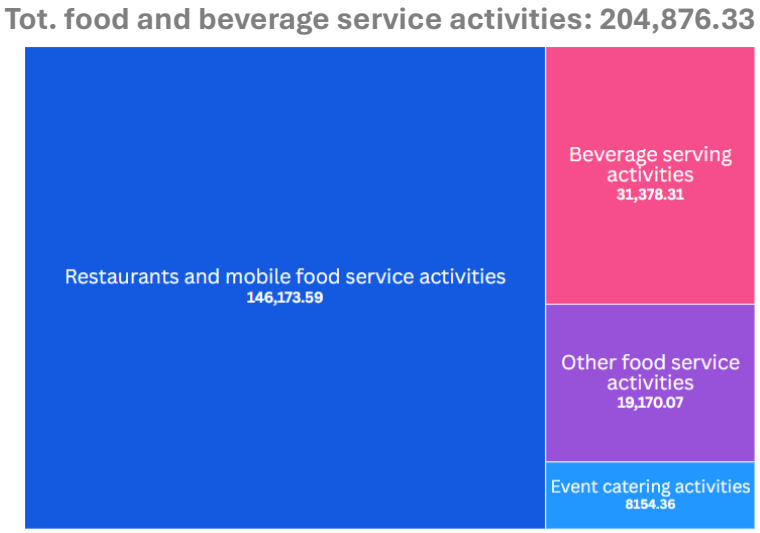
Source: Eurostat, Structural Business Statistics (SBS). Data year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics. Note: include NACE Rev. 2 code 56.1, 56.2 and 56.3. Values show the number of people employed by Member State across restaurants and mobile food service activities, event catering activities, and beverage serving activities. EU-27 shows the average value.

The stacked column chart represents people employed in food and beverage service activities across EU countries, of which Germany has the highest total with 1,622,689 persons employed, followed by Italy with 1,329,070 and Spain with 1,290,223.

Value added

The tree map represents the value added in food and beverage service activities in EU-27 (204,876.33), of which restaurants and mobile food service activities account for 146,173.59 million euro, beverage serving activities for 31,378.31 million euro, event catering activities for 8,154.36 million euro, and other food service activities for 19,170.07 million euro.

Figure 66. Value added (million EUR) in food and beverage activities (EU-27), 2023



Source: Eurostat, Structural Business Statistics (SBS) on food and beverage service activities. Data year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics. Note: include NACE Rev. 2 code 56 and subsectors 56.1, 56.2, 56.21, 56.29 and 56.3. 56.2 includes 56.21 Event catering activities and 56.29 Other food service activities.

Figure 67. Value added (million EUR) in food and beverage activities by Member States, 2023



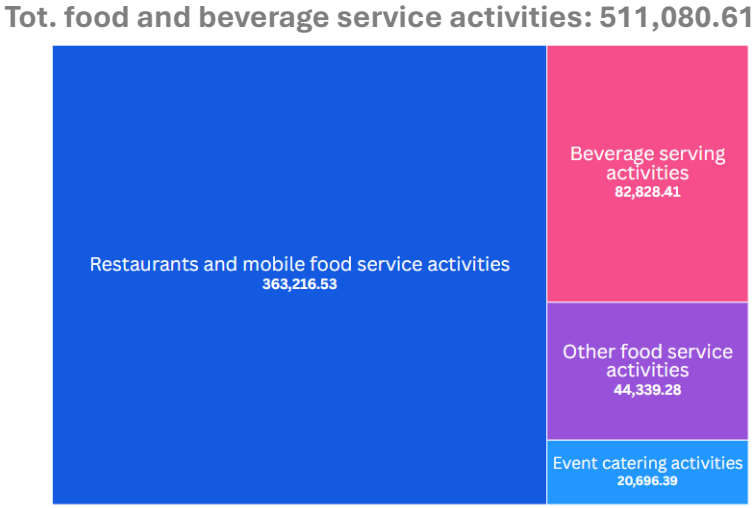
Source: Eurostat, Structural Business Statistics (SBS). Data year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics. Note: include NACE Rev. 2 code 56.1, 56.2 and 56.3. Values show the value added by Member State by restaurants and mobile food service activities, event catering activities, and beverage serving activities. EU-27 shows the average value.

The stacked column chart represents value added in food and beverage service activities across EU countries, of which Germany has the highest total with 42,626.39 million euro, followed by France with 39,325.95 million euro and Italy with 29,037.41 million euro.

Net turnover

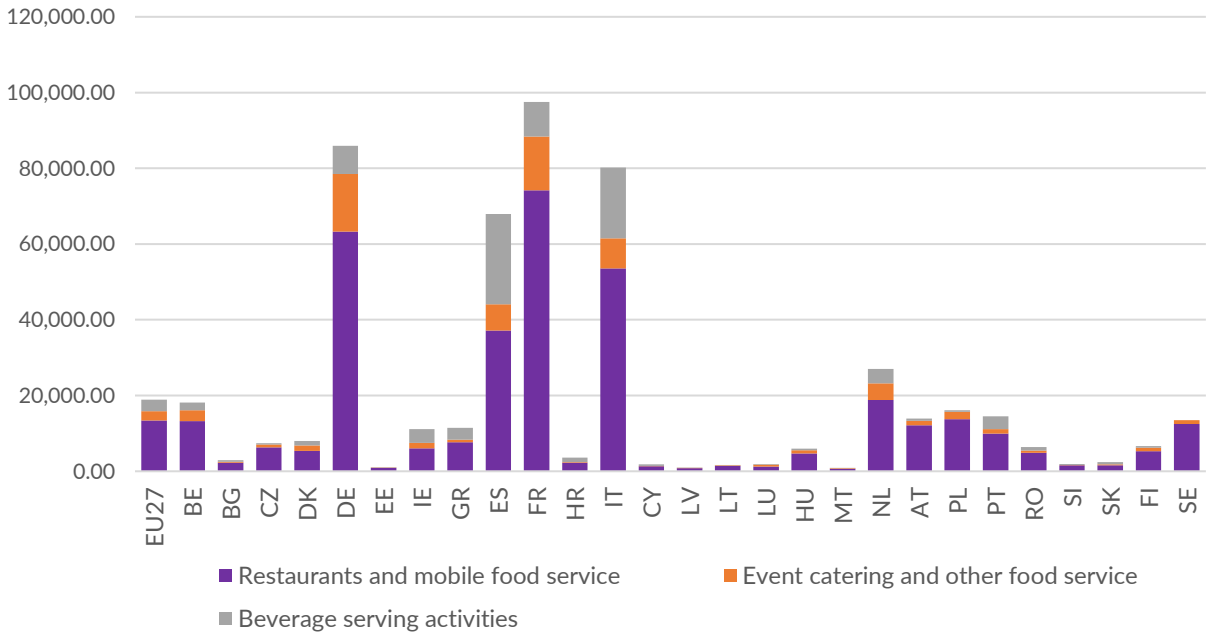
The tree map represents turnover in food and beverage service activities (511,080.61), of which restaurants and mobile food service activities account for 363,216.53, beverage serving activities for 82,828.41, event catering activities for 20,696.39, and other food service activities for 44,339.28.

Figure 68. Net turnover (Million EUR) in food and beverage activities (EU-27), 2023



Source: Eurostat, Structural Business Statistics (SBS) on food and beverage service activities. Data year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics. Note: include NACE Rev. 2 code 56 and subsectors 56.1, 56.2, 56.21, 56.29 and 56.3, EU-27 enterprises. 56.2 includes 56.21 Event catering activities and 56.29 Other food service activities.

Figure 69. Net turnover (Million EUR) in food and beverage activities by Member States, 2023.



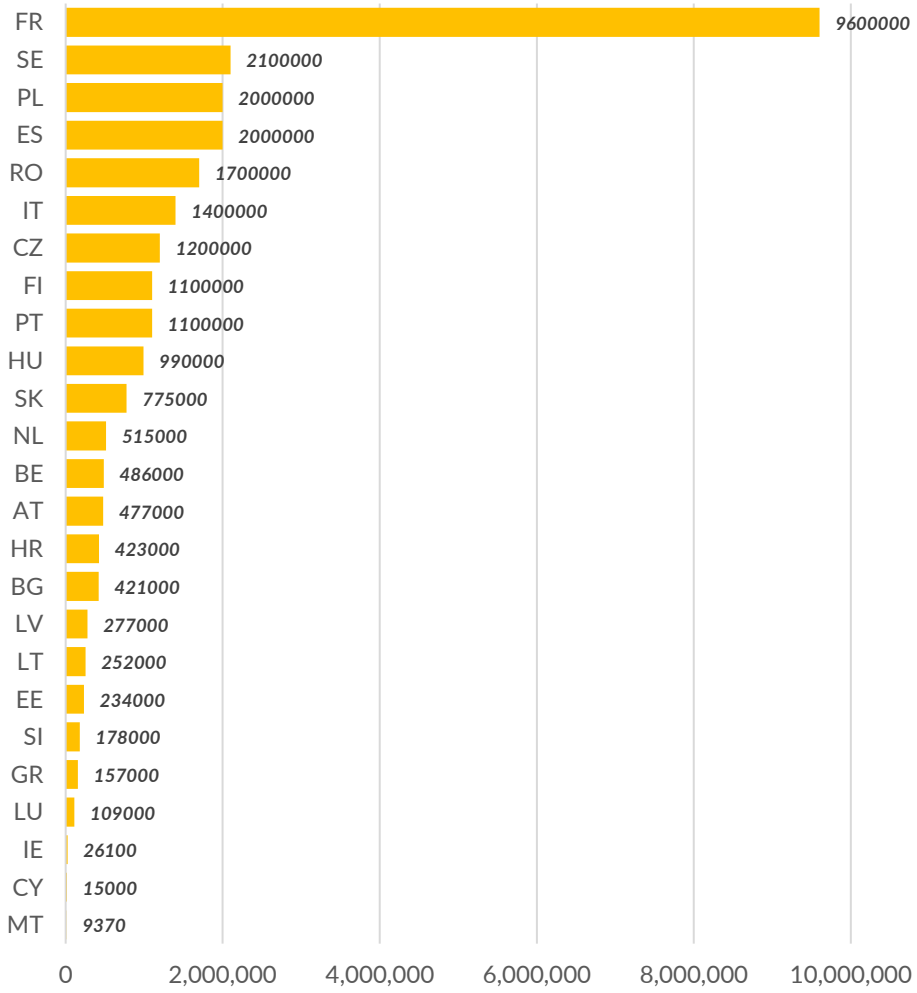
Source: Eurostat, Structural Business Statistics (SBS). Data year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics. Note: include NACE Rev. 2 code 56.1, 56.2 and 56.3. Values show the net turnover by Member State generated by restaurants and mobile food service activities, event catering activities, and beverage serving activities. EU-27 shows the average value.

The stacked column chart represents turnover in food and beverage service activities across EU countries, of which France has the highest total with 97,504.77 million euro, followed by Germany with 85,925.74 million euro and Italy with 80,174.21 million euro.

School meals

The bar chart shows the number of children receiving school meals by Member States in Europe and neighbouring countries. France has the highest number at 9.6 million, followed by Sweden (2.1 million), Poland (2.0 million), Spain (2.0 million), Romania (1.7 million), Italy (1.4 million) and Czechia (1.2 million).

Figure 70. Number of children receiving school meals by Member States, 2023



Source: World Food Programme, School Meals Coalition Global Database on School Meals, country-level data on children receiving school meals. Data year: 2023 (Italy and Portugal refer to 2020-2021 data). Available at: https://www.schoolmealscoalitiondatabase.wfp.org. Note: Data extracted from the country dashboard available at the School Meals Coalition database.

Contract catering market size (institutional)

According to Eurostat data for NACE code 56.29 ("other food service activities"), the sector generated a turnover of approximately €44.3 billion and employed around 700,000 people across the EU. This indicator includes institutional catering but also captures other forms of food service activity falling under the same NACE classification.

FoodServiceEurope[15], by contrast, estimates the contract catering segment specifically at over €25 billion in turnover and 600,000 employees, serving approximately 6 billion meals annually: a narrower, industry-defined perimeter that excludes the other forms of catering captured under the broader NACE classification.

[15] https://foodserviceeurope.org/

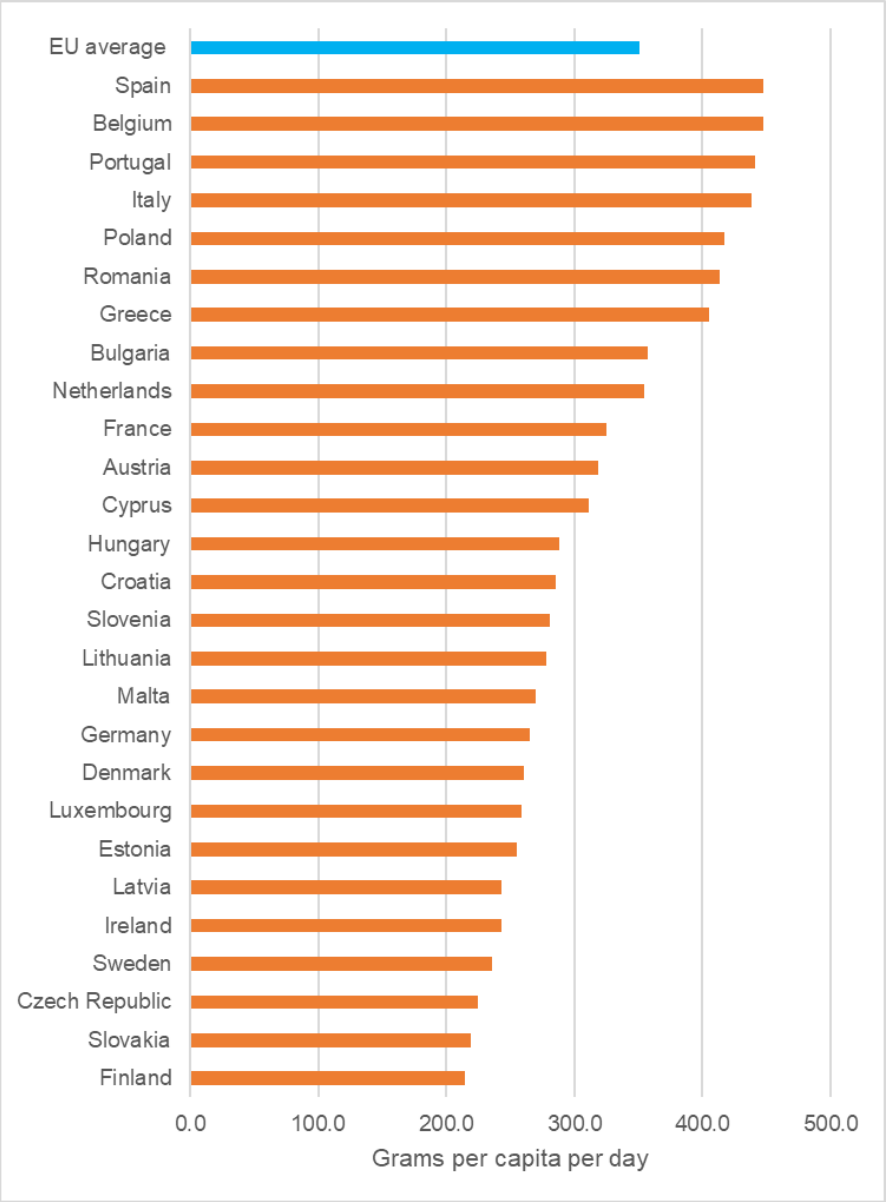
4.4. Consuming

Consuming is a key food system activity; Consumption is heavily driven by consumer preferences (see 3.3.2.) as well as wider food system conditions. Many food system outcomes relate either directly or indirectly to the act of consumption: food price, food quality, food and nutrition security status, and health status.

4.4.1. Food Consumption

Fruit and vegetable consumption: Freshfel Europe are a European Fresh Produce Association that report on fruit and vegetable consumption, monitoring consumption based on official statistics from both Eurostat and FAOSTAT. Average fruit and vegetable consumption in the EU was 350.8g per person per day in 2023, with substantial variation between Member States. Consumption was highest in Spain (447.5 g/capita/day), Belgium (447.2 g) and Portugal (441.2 g), while Finland recorded the lowest consumption (214.1 g). **Figure 71** presents this data, with the blue bar showing the EU-27 average (Freshfel, 2023):

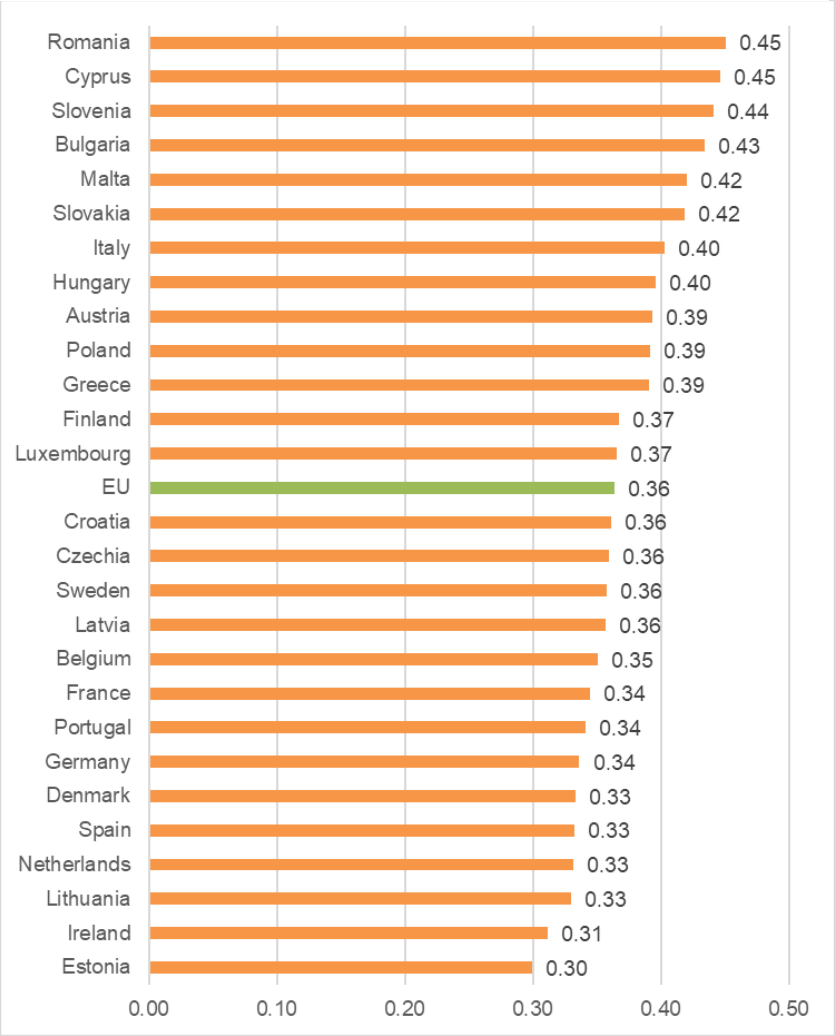
Figure 71. Average fruit and vegetable consumption (g/capita/day), 2023



Source: Freshfel. Fresh fruit and vegetable production, trade, supply and consumption monitor in the EU-27. Data year: 2023. https://freshfel.org/what-we-do/consumption-monitor/

Plant protein consumption. Figure 72 presents the contribution of plant-based protein sources to the overall supply in a diet as a ratio. Member States with the highest ratio of plant sources for protein supply include Romania, Cyprus and Slovenia.

Figure 72. Ratio plant to total protein supply, 2022

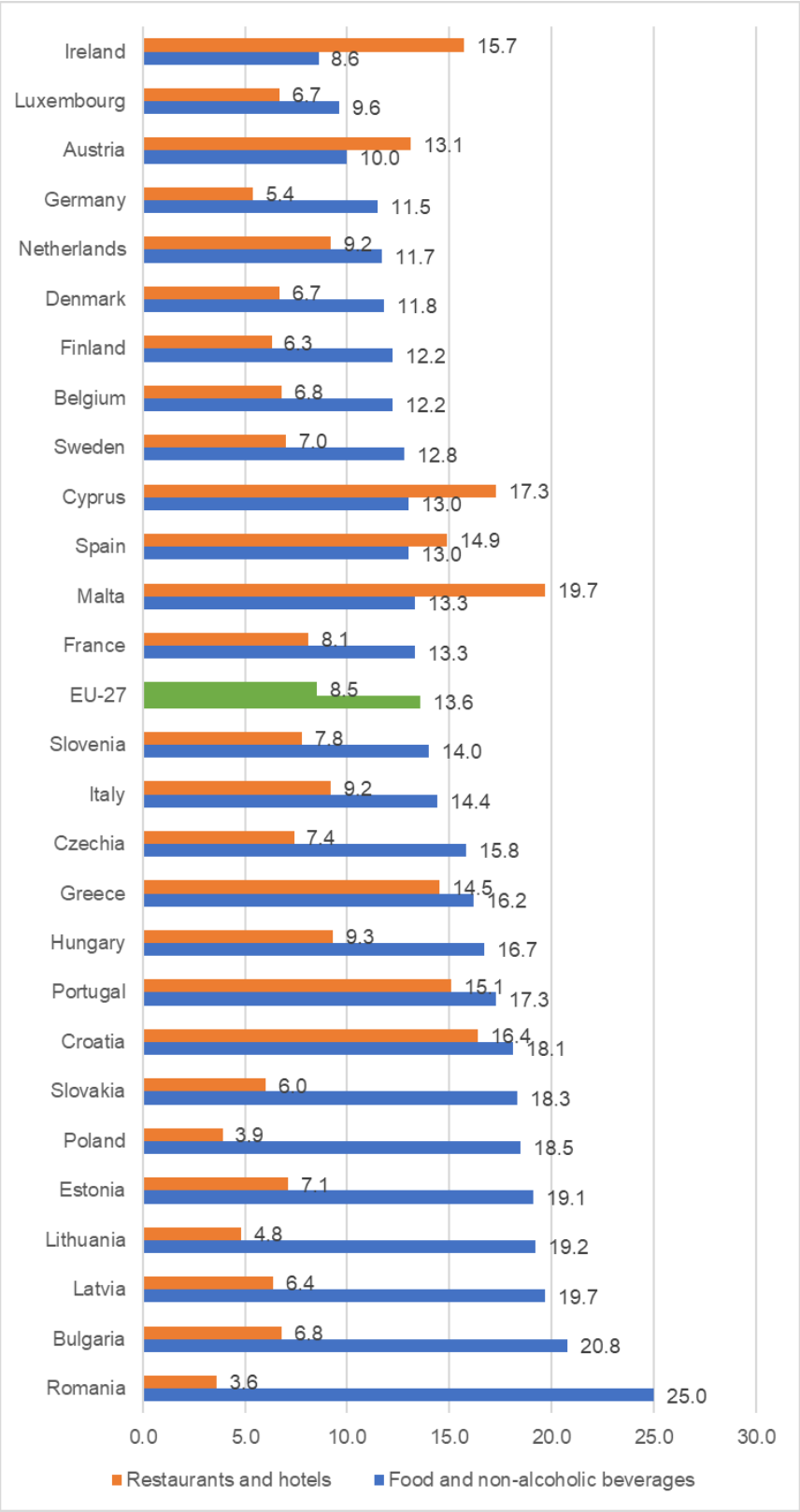


Source: FAO Stat. JRC: Ratio plant to total protein supply. Data year: 2022. Available at: https://datam.jrc.ec.europa.eu/datam/mashup/EU_FOOD_SYSTEM_MONITORING/

Household food expenditure. This metric highlights the differences in the economic importance of food within household budgets. **Figure 73** shows the percentage of household final consumption expenditure allocated to food and non-alcoholic beverages, and restaurants and hotels, across EU Member States. At an EU level, food and non-alcoholic beverages accounted for 13.6% of household expenditure, compared with 8.5% for restaurants and hotels. The highest proportion spent on food and non-alcoholic beverages was recorded in Romania (25.0%), followed by Bulgaria (20.8%) and Latvia (19.7%). In contrast, Ireland recorded the lowest proportion (8.6%). Expenditure

on restaurants and hotels was highest in Malta (19.7%), Cyprus (17.3%) and Croatia (16.4%), while Romania (3.6%) and Poland (3.9%) recorded the lowest shares.

Figure 73. Share of household final consumption expenditure on food and non-alcoholic beverages, and restaurants and hotels, by EU Member State (%), 2022



Source: Eurostat, Household final consumption expenditure by purpose (COICOP 1999). Data code: nama_10_co3_p3. Year: 2024.
https://doi.org/10.2908/NAMA_10_CO3_P3

Please note that the above figure has three key caveats. First, it shows expenditure rather than the proportion of food eaten at home versus outside the home. The latter dataset could not be identified. Secondly, the 'restaurants and hotels' category includes accommodation, as per official Eurostat wording. Spending out-of-home is not recorded separately. Third, a higher expenditure on food does not necessarily equate to higher food prices.

4.4.2. Short food supply chains

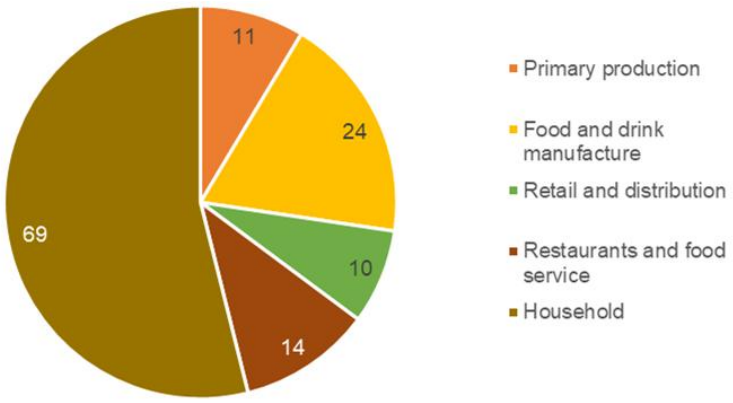
Shorter supply chains. Short Food Supply Chains (SFSCs) shorten the supply chain between production and consumption of food and may include the following sales methods: on-farm direct, off-farms sales, collective direct, farm direct deliveries or partnerships. A survey involving 2,400 consumers across 12 EU Member States (Denmark, Finland, France, Greece, Ireland, Italy, Latvia, Lithuania, Netherlands, Poland, Spain and Türkiye) found that 51.3% bought 1-25% of their food from SFSCs. Fruit and vegetables were the most commonly purchased food types, followed by baked goods, eggs and dairy (agroBRIDGES, 2023). There has not been a large-scale quantitative analysis of SFSCs since 2016.

4.5. Waste and Surplus Food Management

4.5.1. Food Waste

In this section, sectors of food system activity are split according to NACE rev.2 classifications. Around 129kg of food waste per inhabitant in the EU were generated in 2023. Over half of this was generated at a household level, accounting for 69kg on average. Spain has the lowest household waste per person, at 26kg and Portugal has the highest at 122kg, followed by Romania at 106kg. As the data is from 2023, the impacts from the COVID-19 lockdowns may have temporarily lowered the restaurants and services (14%) and retail and other distribution of food (10kg) quantities. Notably, the average amount of food waste from food and drink manufacture is 24kg at an EU level; however, Denmark supersedes this massively at 124kg. Four countries generate 10kg or less per capita in their food and drink manufacturing: Italy, Malta, Portugal, and Sloevnia. Annexe A8 displays food waste in kilograms per person in each EU member state in 2023. Figure 74 presents the average kilograms of food waste generated per person in the EU:

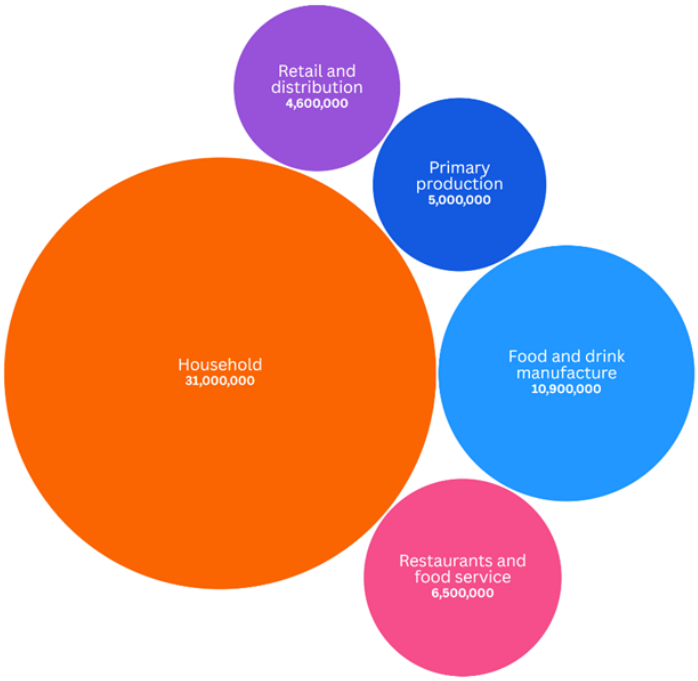
Figure 74. Average food waste in kilograms per EU inhabitant, 2023



Source: Eurostat, Food waste and food waste prevention by NACE Rev. 2 activity - tonnes of fresh mass. Data year: 2023. Data code: env_wasfw. Available at: https://doi.org/10.2908/ENV_WASFW

In 2023, there were 57,900,000 tonnes of fresh food mass wasted in the EU. As a percentage, household makes up the largest amount (53.5%), followed by processing and manufacturing (18.8%), food services (11.2%), primary production (8.6%) and retail and distribution (7.9%). The highest overall proportion of food waste was at a household level (Figure 75):

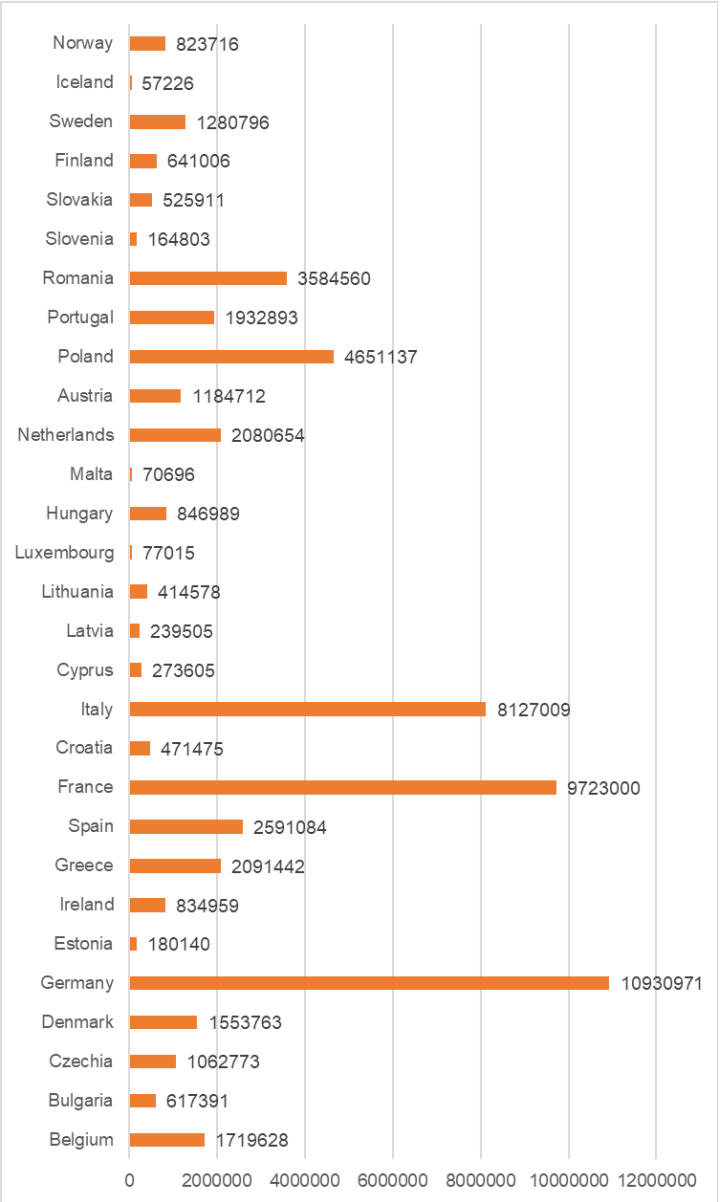
Figure 75. Total food waste (tonnes) in the EU, 2023



Source: Eurostat, Food waste and food waste prevention by NACE Rev. 2 activity - tonnes of fresh mass. Data year: 2023. Data code: env_wasfw. Available at: https://doi.org/10.2908/ENV_WASFW

Annexe A9 shows the tonnes of fresh food waste mass in each EU member state in 2023. Countries with the highest tonnage of food waste in Primary production: France (1,300,000t) and Poland (763,509t); Processing and manufacturing: France (2,345,000t), Germany (1,901,532t) and the Netherlands (856,000t); Retail and other distribution of food: France (820,000t) and Germany (724,112t); Restaurants and food services: Germany (1,789,375t) and France (1,088,000t); and household level waste: Germany (6,345,232t), Italy (5,757,571t) and France (4,170,000t). Figure 76 shows that the total food waste produced by EU countries is highest in Germany (10,930,971t), France (9,723,000t) and Italy (8,127,009t):

Figure 76. Total food waste (tonnes) per EU member state, 2023



Source: Eurostat, Food waste and food waste prevention by NACE Rev. 2 activity - tonnes of fresh mass. Data year: 2023. Data code: env_wasfw. Available at: https://doi.org/10.2908/ENV_WASFW

4.5.2. Food Redistribution

Sources of surplus food include: products that are close to their 'best-before' or 'use-by- date; products that are incorrectly labelled or have no label; products with damaged packaging; slow-moving stock or deleted lines; and ingredients and finished products that may not meet customer specifications or demands (European Cluster Collaboration Platform, n.d.). The *European Food Banks Federation* (FEBA) has 25 Full Members and 5 Associate Members. Although the UK is not part of the EU, they remain involved as a member via *FareShare*. Over 860,890 tonnes of food was redistributed by FEBA in 2025 through 42,796 charitable organisations and 480 food banks. Over 13 million people benefited from FEBA's work (FEBA, 2025).

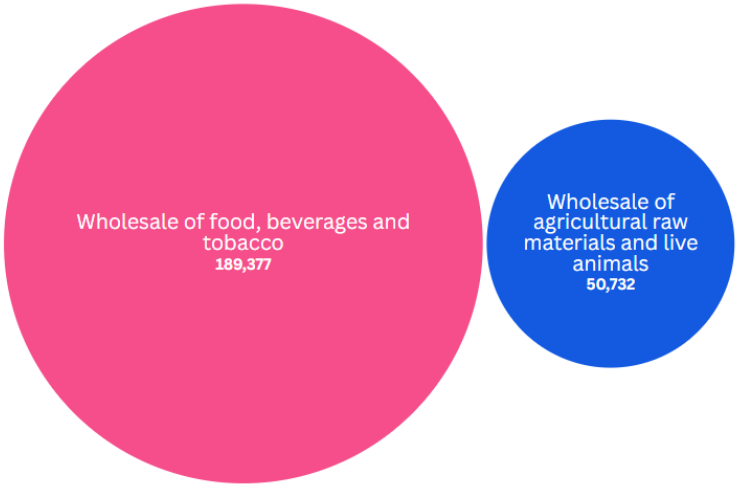
4.6. Supporting Services

4.6.1 Wholesale

Number of enterprises

Figure 77 shows wholesale enterprises in the EU-27 in 2023, of which wholesale of food, beverages and tobacco accounts for 189,377 enterprises, compared with 50,732 enterprises in wholesale of agricultural raw materials and live animals.

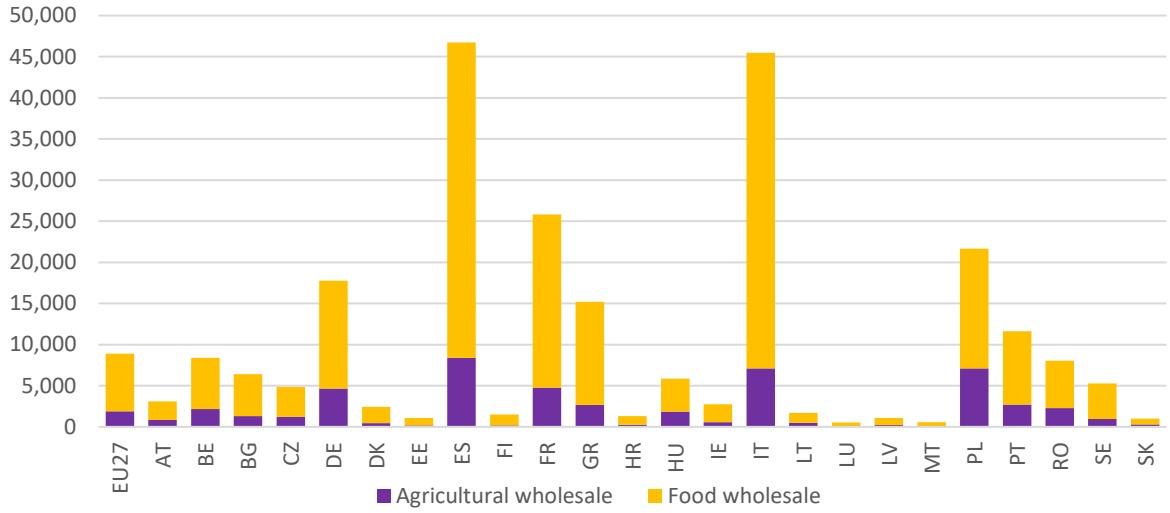
Figure 77. Number of enterprises in wholesale activities (EU-27), 2023.



Source: Eurostat, Structural Business Statistics (SBS). Data Year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics. Note: include NACE Rev. 2 codes 46.2 and 46.3.

Figure 78 shows wholesale enterprises across EU countries in 2023, with Spain recording the highest total at 46,731 enterprises, followed by Italy with 45,494, France with 25,808, and Poland with 21,643. The EU-27 mean is 8,893 enterprises.

Figure 78. Number of enterprises in wholesale activities by Member States, 2023

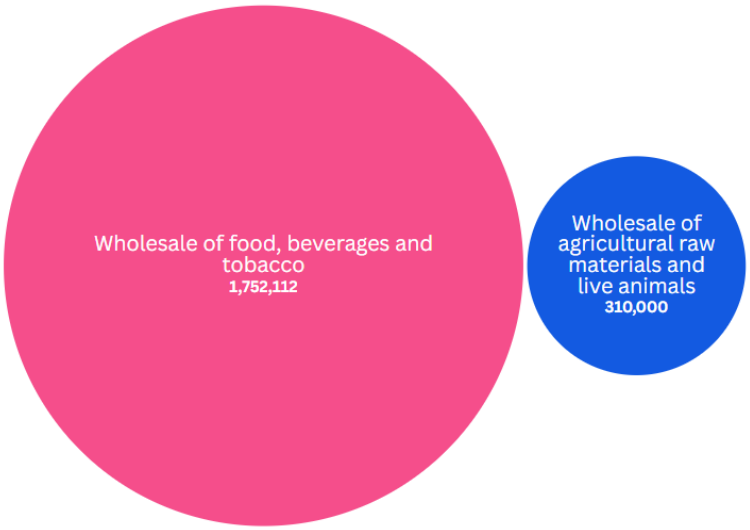


Source: Eurostat, Structural Business Statistics (SBS). Data year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics. Note: include NACE Rev. 2 codes 46.2 and 46.3. Country-level values show the sum of number of enterprises in wholesale of agricultural raw materials and live animals and wholesale of food, beverages and tobacco. EU-27 mean is calculated as the EU-27 aggregate divided by 27.

Number of people employed

The figure shows persons employed in EU-27 wholesale activities in 2023, of which wholesale of food, beverages and tobacco accounts for 1,752,112 persons employed, compared with 310,000 in wholesale of agricultural raw materials and live animals.

Figure 79. Number of people employed in wholesale activities (EU-27), 2023

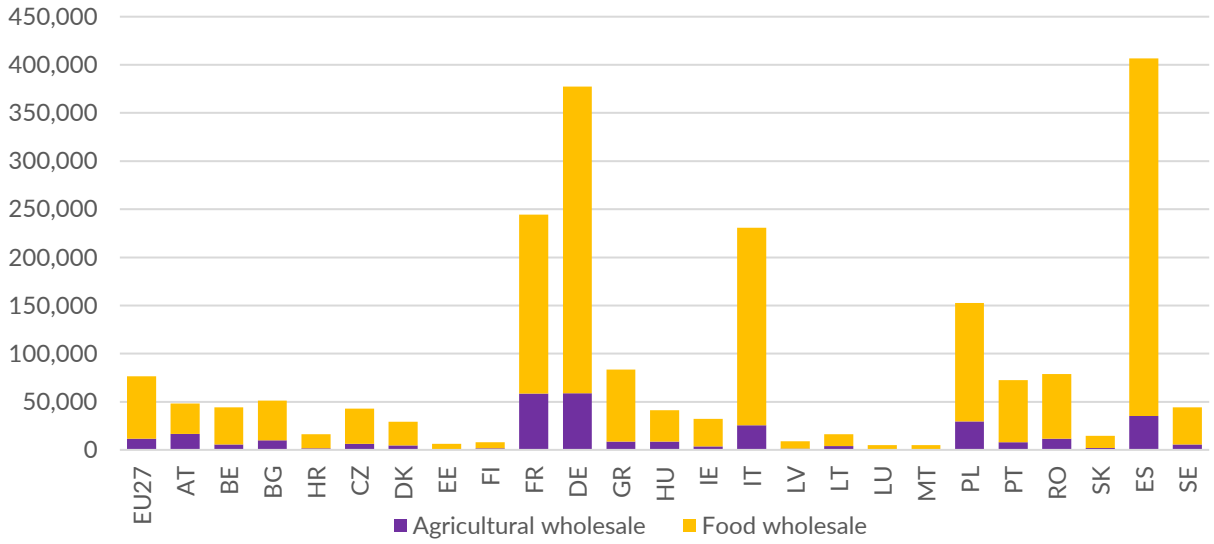


Source: Eurostat, Structural Business Statistics (SBS). Data year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics. Note: include NACE Rev. 2 codes 46.2 and 46.3.

The stacked column chart shows persons employed across EU countries in 2023, with Spain recording the highest total at 406,688 persons employed, followed by Germany

with 377,320, France with 244,377, and Italy with 230,849. The EU-27 mean is 76,375 persons employed.

Figure 80. Number of people employed in wholesale activities by Member States, 2023



Source: Eurostat, Structural Business Statistics (SBS). Data year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics. Note: inlcude NACE Rev. 2 codes 46.2 and 46.3. Country-level values show the sum of number of people employed in wholesale of agricultural raw materials and live animals and wholesale of food, beverages and tobacco. EU-27 mean is calculated as the EU-27 aggregate divided by 27.

Value added

The figure shows value added in EU-27 wholesale activities in 2023, of which wholesale of food, beverages and tobacco generates 107,762.06 million euro, compared with 20,500 million euro in wholesale of agricultural raw materials and live animals.

Figure 81. Value added (million EUR) in wholesale activities (EU-27), 2023

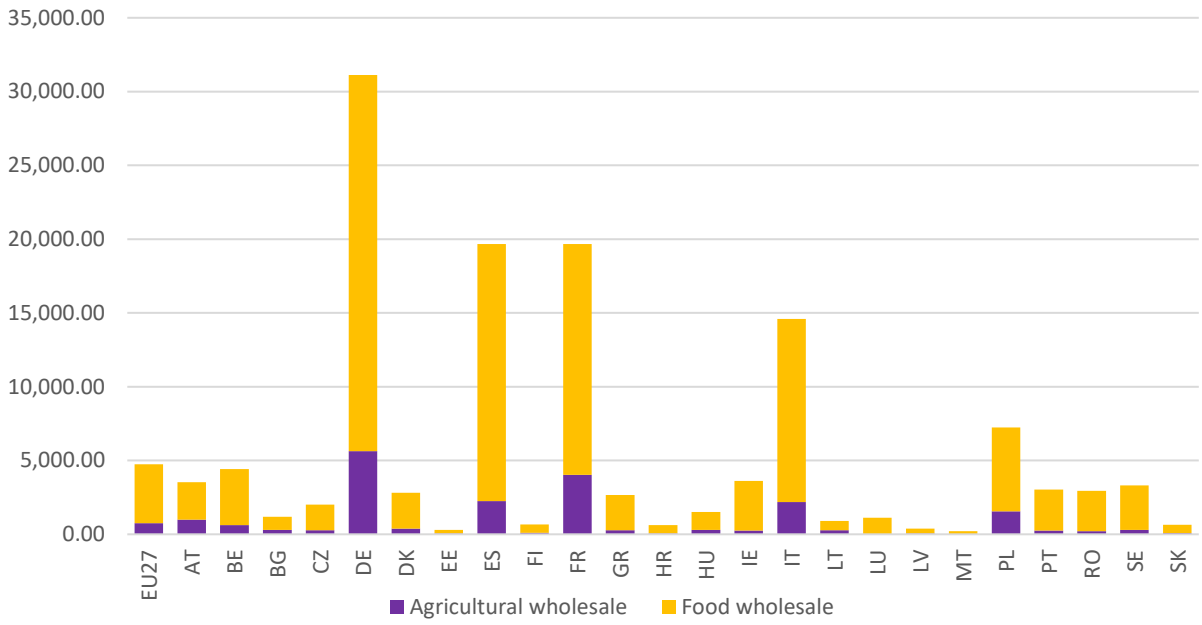


Source: Eurostat, Structural Business Statistics (SBS). Data year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics. Note: inlcude NACE Rev. 2 codes 46.2 and 46.3.

The stacked column chart shows value added across EU countries in 2023, with Germany recording the highest total at 31,130.14 million euro, followed by France with

19,675.20, Spain with 19,674.19, and Italy with 14,598.09. The EU-27 mean is 4,750.45 million euro.

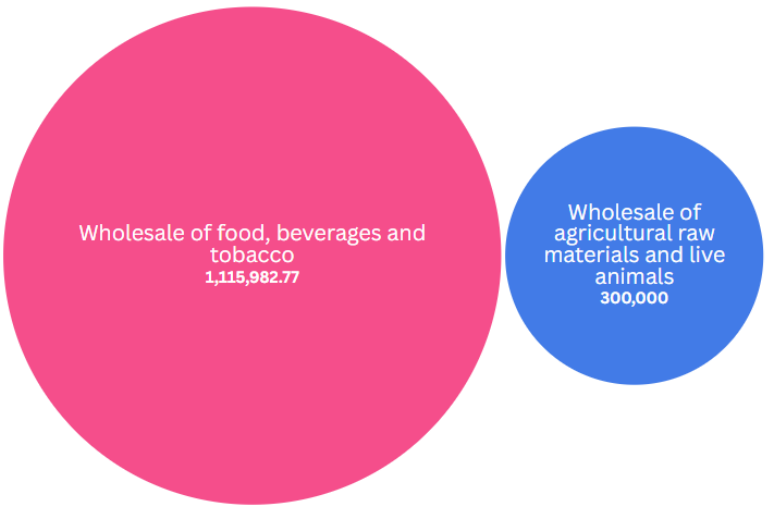
Figure 82. Value added (million EUR) in wholesale activities by Member States, 2023



Source: Eurostat, Structural Business Statistics (SBS). Data year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics. Note: include NACE Rev. 2 codes 46.2 and 46.3. Country-level values show the sum of value added in wholesale of agricultural raw materials and live animals and wholesale of food, beverages and tobacco. EU-27 mean is calculated as the EU-27 aggregate divided by 27.

Net turnover. **Figure 83** shows turnover in EU-27 wholesale activities in 2023, of which wholesale of food, beverages and tobacco generates 1,115,982.77 million euro, compared with 300,000 million euro in wholesale of agricultural raw materials and live

Figure 83. Net turnover (million EUR) in wholesale activities (EU-27), 2023

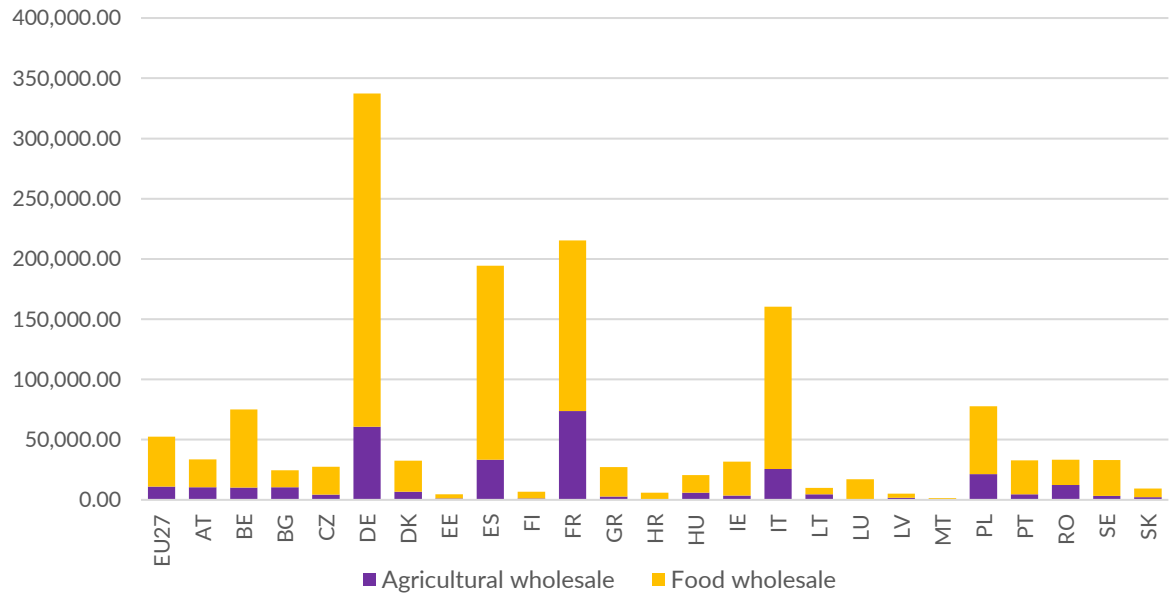


animals.

Source: Eurostat, Structural Business Statistics (SBS). Data year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics. Note: include NACE Rev. 2 codes 46.2 and 46.3.

The stacked column chart shows turnover across EU countries in 2023, with Germany recording the highest total at 337,377.00 million euro, followed by France with 215,453.97, Spain with 194,259.94, and Italy with 160,301.70. The EU-27 mean is 52,443.81 million euro.

Figure 84. Net turnover (million EUR) in wholesale activities by Member States, 2023

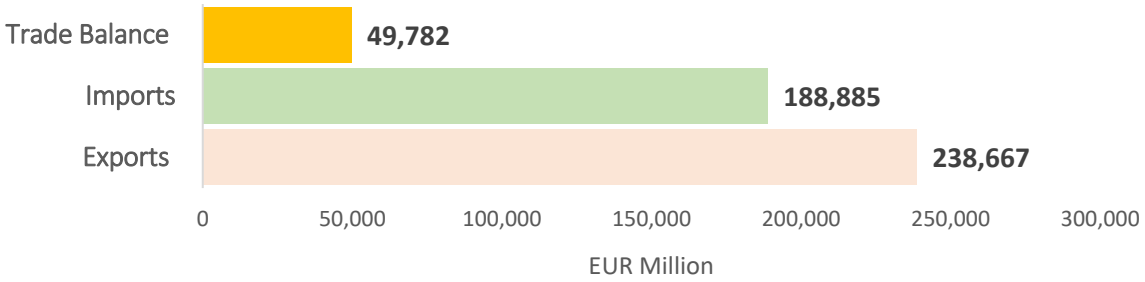


Source: Eurostat, Structural Business Statistics (SBS). Data year: 2023. Available at: https://ec.europa.eu/eurostat/web/structural-business-statistics. Note: include NACE Rev. 2 codes 46.2 and 46.3. Country-level values show the sum of net turnover of wholesale of agricultural raw materials and live animals and wholesale of food, beverages and tobacco. EU-27 mean is calculated as the EU-27 aggregate divided by 27.

4.6.2 Trade

The figure presents the value of EU-27 agri-food trade with countries outside the

Figure 85. Agri-food trade (million EUR) with extra-EU partners (EU-27), 2025



Source: European Commission, Agri-food Data Portal. Data year: 2025. Available at: https://agridata.ec.europa.eu/extensions/TradeOverview/agri-food-trade.html

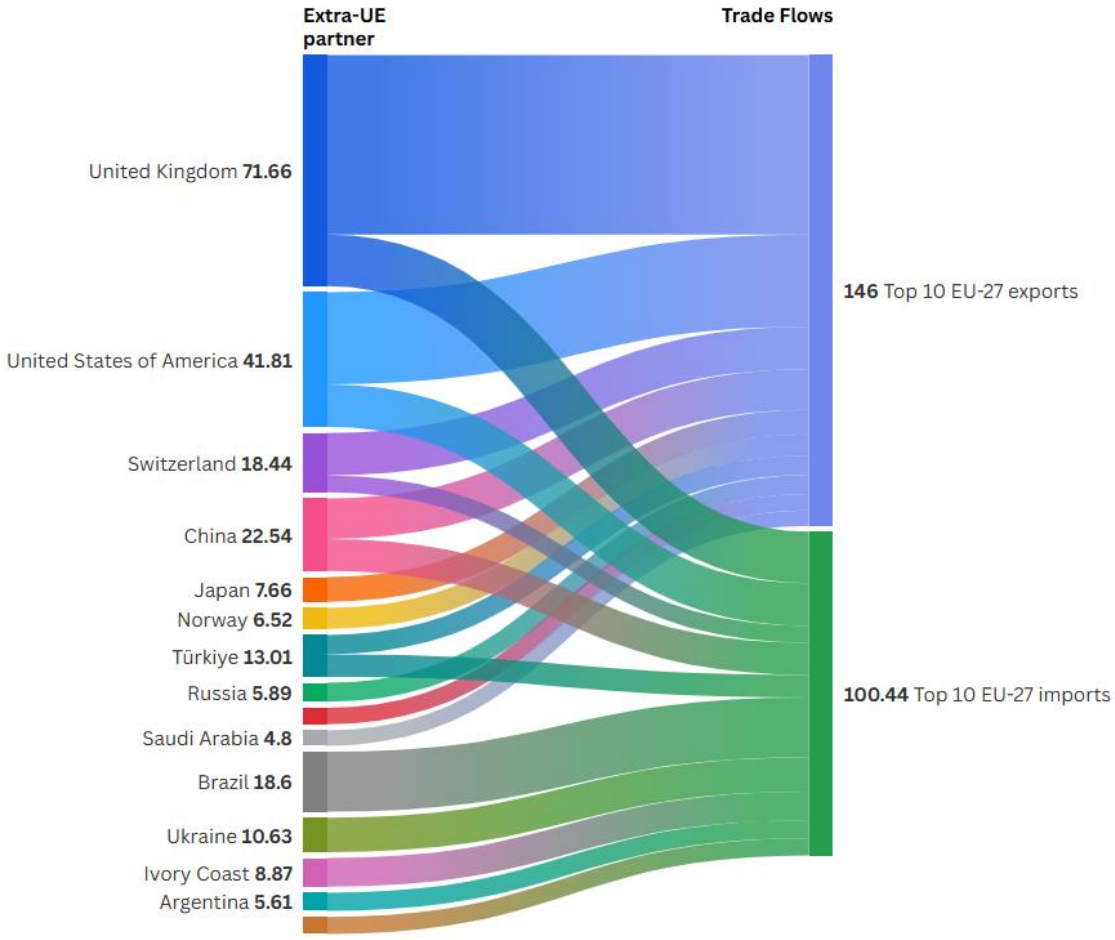
The figure presents the ten largest country flows in EU-27 extra-EU agri-food trade in 2025. The export flows included in the diagram totalled €146.0 billion, while the import flows totalled €100.4 billion.

The United Kingdom was the largest export destination, receiving €55.7 billion in EU agri-food exports, and was also the second-largest source of imports, at €16.0 billion. The United States was similarly important in both directions, accounting for €28.6 billion in exports and €13.2 billion in imports. Other major two-way partners included China, with €12.6 billion in exports and €9.9 billion in imports; Switzerland, with €13.2 billion in exports and €5.3 billion in imports; and Türkiye, with €6.0 billion in exports and €7.0 billion in imports.

Among the countries represented mainly as export destinations, the largest flows were directed to Japan (€7.7 billion), Norway (€6.5 billion), Russia (€5.9 billion), Canada (€5.1 billion) and Saudi Arabia (€4.8 billion). On the import side, Brazil was the largest supplier, at €18.6 billion, followed by Ukraine (€10.6 billion), Côte d'Ivoire (€8.9 billion), Argentina (€5.6 billion) and Vietnam (€5.3 billion).

The diagram highlights both the relative size of the flows and the different roles of the EU's principal trading partners. Numerical labels are omitted from the links to improve readability; the complete values underlying the figure are provided in *Table A.12* in the Annex. The totals refer only to the ten largest flows in each direction and therefore do not represent total EU-27 extra-EU agri-food trade.

Figure 86. EU-27 agri-food trade (EUR billion) with leading extra-EU partners, 2025



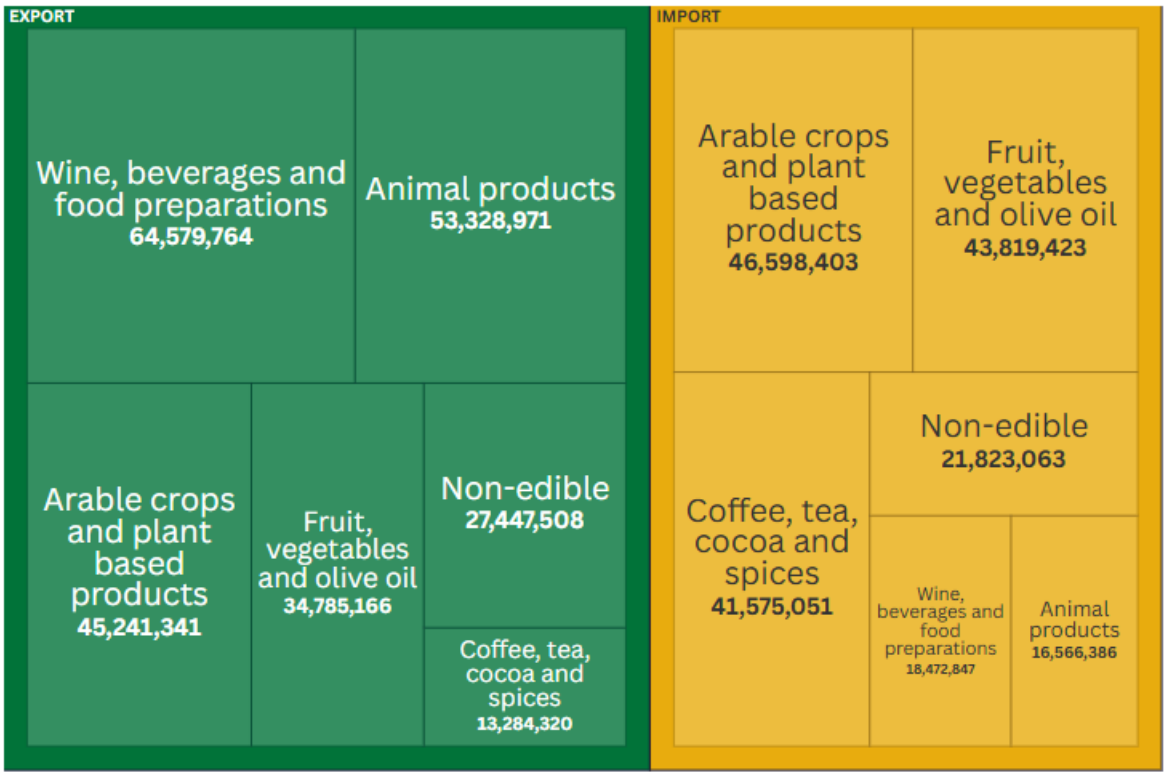
Source: European Commission, Agri-food Data Portal. Data year: 2025. Available at: https://agridata.ec.europa.eu/extensions/TradeOverview/agri-food-trade.html. Note: The Sankey diagram shows the ten largest partner-country flows for EU-27 agri-food exports and imports. The width of each link is proportional to the corresponding trade value. Exact values for all flows are reported in Table A.12 in the Annex.

The figure compares the product composition of EU-27 extra-EU agri-food exports and imports in 2025. On the export side, wine, beverages and food preparations represented the largest product class, with a value of approximately €64.6 billion. This was followed by animal products, at €53.3 billion, and arable crops and plant-based products, at €45.2 billion. Exports of fruit, vegetables and olive oil amounted to approximately €34.8 billion, while non-edible agricultural products and coffee, tea, cocoa and spices accounted for €27.4 billion and €13.3 billion, respectively.

The composition of imports was different. Arable crops and plant-based products constituted the largest import class, at approximately €46.6 billion, closely followed by fruit, vegetables and olive oil, at €43.8 billion, and coffee, tea, cocoa and spices, at €41.6 billion. Non-edible agricultural products accounted for approximately €21.8 billion, while imports of wine, beverages and food preparations and animal products reached €18.5 billion and €16.6 billion, respectively.

Overall, the treemaps reveal a clear difference between the EU's export and import profiles. Exports were particularly concentrated in processed products, beverages and animal products, whereas imports were more strongly oriented towards crop-based products, fruit and vegetables, and tropical commodities such as coffee, cocoa, tea and spices.

Figure 87. Composition of EU-27 (billion EUR) extra-EU agri-food trade by product class, 2025



Source: European Commission, Agri-food Data Portal. Data year: 2025. Available at: https://agridata.ec.europa.eu/extensions/TradeOverview/agri-food-trade.html. Note: The treemaps show the distribution of EU-27 agri-food exports and imports across six broad product classes. The area of each rectangle is proportional to the corresponding trade values.

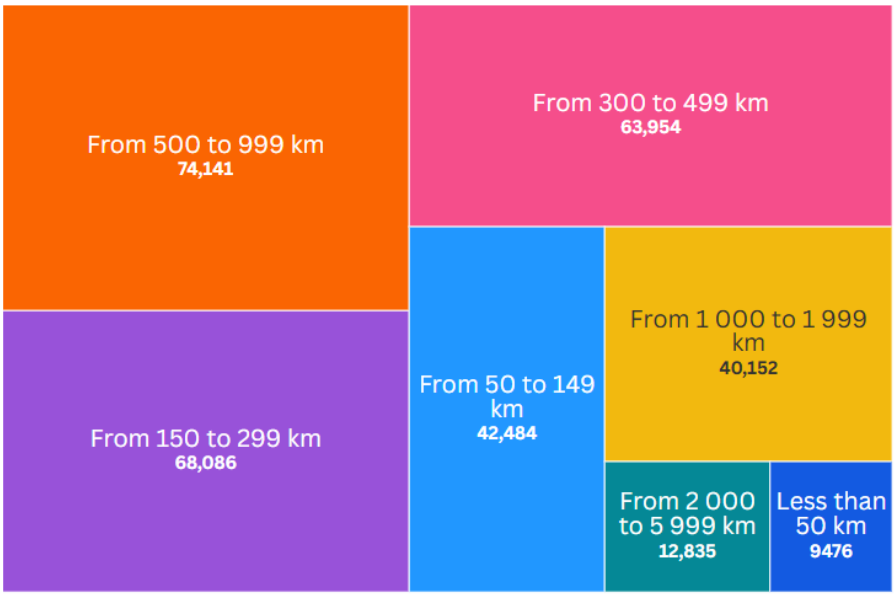
4.6.3 Transport

The figure shows how EU-27 road-freight performance for food products, beverages and tobacco was distributed across transport-distance classes in 2025. Tonne-kilometres combine the weight of the goods transported with the distance travelled and therefore measure transport activity rather than physical volume alone.

The largest contribution came from journeys of 500–999 km, which generated approximately 74.1 billion tonne-kilometres, or 23.8% of the total represented. This was followed by journeys of 150–299 km, at 68.1 billion tonne-kilometres (21.9%), and 300–499 km, at 64.0 billion tonne-kilometres (20.6%).

Taken together, journeys between 150 and 999 km accounted for approximately 206.2 billion tonne-kilometres, equivalent to 66.3% of the freight performance shown. Journeys of at least 1,000 km represented a further 53.0 billion tonne-kilometres, or

Figure 88. Road-freight performance (km) for food products, beverages and tobacco by distance class (EU-27), 2025



17.0%, despite carrying a much smaller physical volume. This reflects the strong effect of transport distance on the tonne-kilometre indicator.

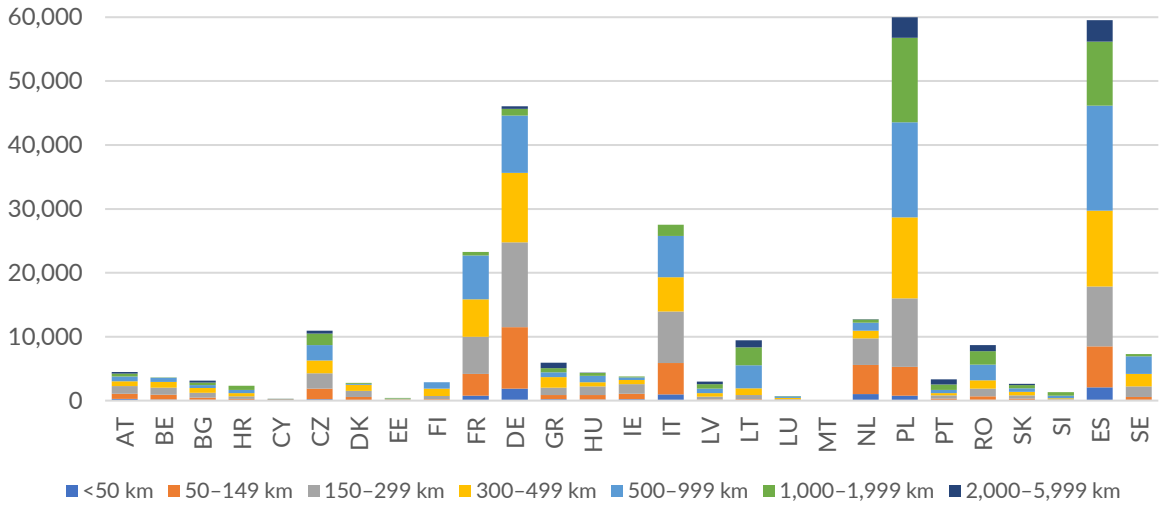
Source: Eurostat, Road freight transport by distance class and group of goods (road_go_ta_dctg), NST 2007 group 04. Data year: 2025. Available at: https://ec.europa.eu/eurostat/databrowser/view/road_go_ta_dctg/default/table?lang=en. Note: The distance class of 6,000 km or more is excluded because observations were unavailable.

The figure compares the scale and distance structure of food-related road freight performed by vehicles registered in each EU Member State. Eurostat road-freight statistics are reported according to the country in which the vehicle is registered; they therefore describe the activity of national vehicle fleets rather than exclusively freight movements occurring within each country's territory.

Based on the available distance classes, Poland recorded the highest freight performance, at approximately 60.0 billion tonne-kilometres, closely followed by Spain, at 59.5 billion. Germany ranked third with 46.1 billion tonne-kilometres, followed by Italy (27.5 billion) and France (23.3 billion).

The composition of these totals differed substantially. In Poland and Spain, journeys of 500 km or more accounted for approximately half of the available freight performance, indicating the importance of relatively long-distance transport. Germany showed a greater concentration in the intermediate classes: journeys between 50 and 499 km represented approximately 73% of its available performance.

Figure 89. Road-freight performance (km) for food products, beverages and tobacco by Member State and distance class, 2025



Eurostat, Road freight transport by distance class and group of goods (road_go_ta_dctg), NST 2007 group 04. Data year: 2025. Available at: https://ec.europa.eu/eurostat/databrowser/view/road_go_ta_dctg/default/table?lang=en. Note: The displayed country totals sum only the reported distance classes, while unavailable values are retained as blanks. Consequently, the EU-27 aggregate should not be reconstructed by adding the country bars.

The figure presents the physical volume of food products, beverages and tobacco transported by road in the EU-27 in 2025. Unlike tonne-kilometres, this indicator measures only the weight of the goods transported and does not increase when the same quantity travels a longer distance.

Figure 90. Physical volume (tonnes) of food products, beverages and tobacco transported by road (EU-27) by distance class, 2025



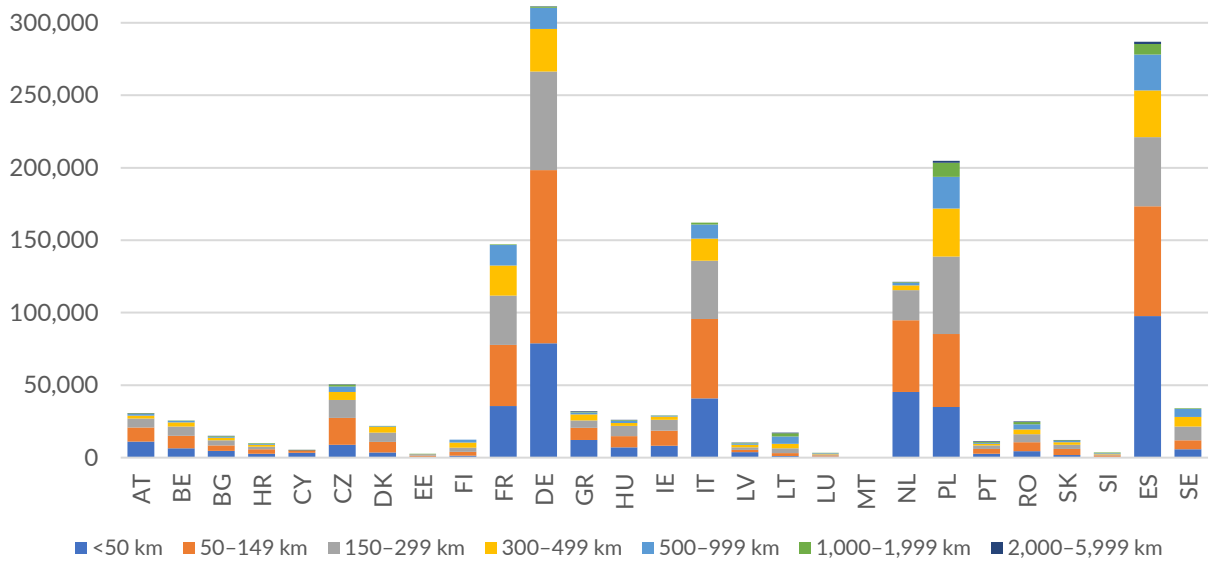
Source: Eurostat, Road freight transport by distance class and group of goods (road_go_ta_dctg), NST 2007 group 04. Data year: 2025. Available at: https://ec.europa.eu/eurostat/databrowser/view/road_go_ta_dctg/default/table?lang=en. Note: The distance class of 6,000 km or more is excluded because observations were unavailable.

Physical volumes were strongly concentrated in short- and medium-distance journeys. The 50–149 km class was the largest, accounting for approximately 499.9 million tonnes, or 31.0% of the total represented. Journeys of less than 50 km carried a further 424.2 million tonnes (26.3%), while those of 150–299 km accounted for 351.7 million tonnes (21.8%). Overall, journeys of less than 300 km transported approximately 1.28 billion tonnes, equivalent to 79.2% of the physical volume shown. By contrast, journeys of 1,000 km or more accounted for only approximately 35.4 million tonnes, or 2.2%. Comparison with the freight-performance figure illustrates the difference between the two indicators: long-distance journeys carry a relatively small share of total tonnage but make a much larger contribution to tonne-kilometres because the goods travel farther. The figure compares the physical volume of food products, beverages and tobacco transported by road by vehicles registered in the EU Member States. The results show both differences in the overall amount transported and variation in the relative importance of short, medium- and long-distance journeys. Germany recorded the largest available physical volume, at approximately 311.3 million tonnes, followed by Spain with 286.9 million tonnes and Poland with 204.8 million tonnes. Other major volumes were recorded by Italy (162.2 million tonnes), France (147.2 million tonnes) and the Netherlands (121.0 million tonnes).

Short-distance transport accounted for a substantial proportion of physical volumes in most of the largest reporting countries. In Germany, journeys below 150 km represented approximately 63.7% of the available tonnage, while the corresponding share was about 60.5% in Spain. In the Netherlands, almost 78.4% of the available volume was transported over distances below 150 km. Poland displayed a more dispersed distance profile, although journeys below 300 km still represented approximately 67.8% of its total.

The country comparison reinforces the EU-level finding that most food-related tonnage is transported over relatively short distances. Nevertheless, these short journeys make a smaller contribution to total tonne-kilometres than their share of physical volume would suggest.

Figure 91. Physical volume of food products, beverages and tobacco transported by road, by Member States and distance class, 2025

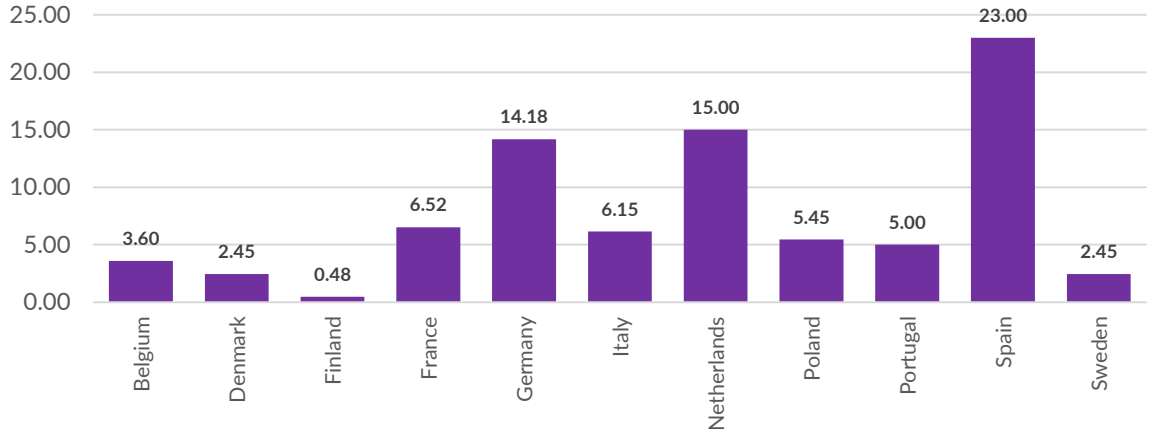


Source: Eurostat, Road freight transport by distance class and group of goods (road_go_ta_dctg), NST 2007 group 04. Data year: 2025. Available at: https://ec.europa.eu/eurostat/databrowser/view/road_go_ta_dctg/default/table?lang=en. Note: The distance class of 6,000 km or more is excluded because observations were unavailable.

4.6.4 Storage

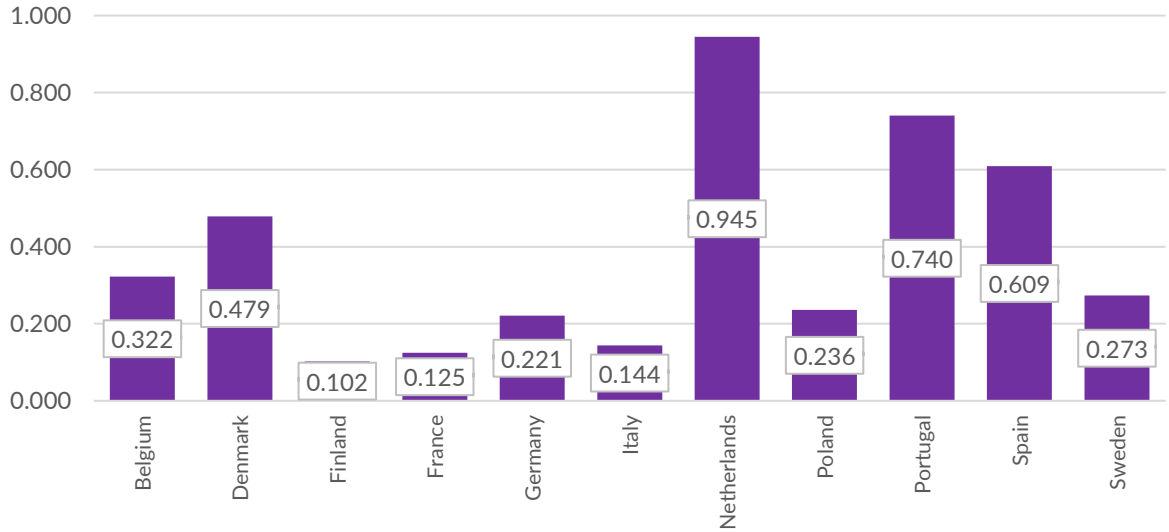
The horizontal bar chart shows the total cold storage volume per country. This is the total volume of refrigerated warehouse space available in a country, measured in cubic metres. It includes both 3PL warehouses (third-party logistics, meaning facilities available for hire by any food company) and private warehouses (owned and operated exclusively by a single food company for its own use). It covers all cold storage used for food: frozen, chilled, and controlled-atmosphere. It does not include dry/ambient storage (e.g. grain silos). Spain is by far the largest (23 million m^3), followed by the Netherlands (15 million m^3) and Germany (14.18 million m^3). This ranking is partly explained by Spain's role as a major agri-food exporter (fruit, vegetables, meat) and the Netherlands' position as Europe's main food trade and logistics hub (Rotterdam port). Finland has the smallest reported capacity (0.48 million m^3).

Figure 92. Refrigerated warehouse capacity (million m³) in selected Member States, 2020



Source: GCCA / IARW, 2020 Global Cold Storage Capacity Report. Data year: 2020. Available at: https://www.gcca.org/wp-content/uploads/2023/02/2020-GCCA-Global-Cold-Storage-Capacity-Report-FINAL-v2.pdf. *Note: The 16 EU-27 countries not reported by GCCA are absent from this chart.*

Figure 93. Market Development Index per urban resident (m³/urban resident) in selected Member States, 2020

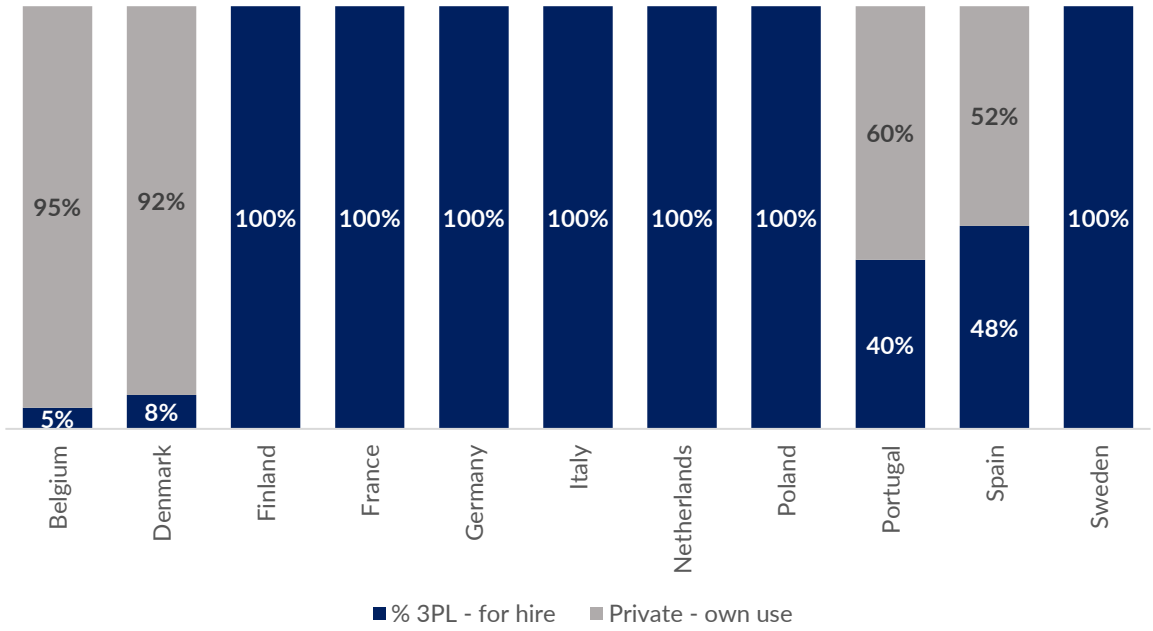


Source: GCCA / IARW, 2020 Global Cold Storage Capacity Report. Data year: 2020. Available at: https://www.gcca.org/wp-content/uploads/2023/02/2020-GCCA-Global-Cold-Storage-Capacity-Report-FINAL-v2.pdf. *Note: The 16 EU-27 countries not reported by GCCA are absent from this chart.*

This chart reranks countries by cold storage penetration relative to their urban population. This is a **normalised measure** that allows comparison across countries of different sizes. It divides total cold storage capacity by the urban population of the country. The urban population is used (rather than total population) because demand for refrigerated food is typically concentrated in cities, where middle-class consumers with higher purchasing power tend to live. A higher index means the country has more cold storage infrastructure relative to its urban demand. The ranking shifts significantly: the Netherlands tops at 0.94 m³/urban resident, followed by Portugal (0.74) and Spain (0.61). Germany, despite its large absolute capacity, falls to a mid-range position (0.22) because of its large urban population. France and Finland are below the global average

of 0.15, suggesting relative underdevelopment of their cold chain compared to their urban size.

Figure 94. Share of cold storage capacity (%): 3PL (for-hire) vs private by selected Member States, 2020



Source: GCCA 2020 Global Cold Storage Capacity Report (Table 1). Data year: 2020. Available at: https://www.gcca.org/wp-content/uploads/2023/02/2020-GCCA-Global-Cold-Storage-Capacity-Report-FINAL-v2.pdf. *Note: 100% 3PL figures likely reflect GCCA's membership base (trade association of 3PL operators) rather than true absence of private storage in those countries.*

This stacked horizontal bar chart shows how cold storage capacity is split between two business models in each reported EU-27 country: 3PL (third-party logistics), meaning warehouses commercially available for hire by any food company, and private, meaning warehouses owned and operated exclusively by one food company for its own use. Belgium and Denmark rely almost entirely on private cold storage (95% and 92% respectively), suggesting a highly vertically integrated food sector where large producers and retailers manage their own cold chain infrastructure. Spain and Portugal show a more balanced mixed model, with roughly half of capacity in the 3PL market. The remaining countries (Netherlands, France, Germany, Italy, Poland, Sweden, and Finland) appear as 100% 3PL, but this should be read with caution: GCCA is a trade association whose members are predominantly 3PL operators, so private warehouses in those countries were likely not captured by the survey rather than genuinely absent.

5. What are the outcomes of the EU-27 Food System?

5.1. Direct food system outcomes

5.1.1. Animal welfare

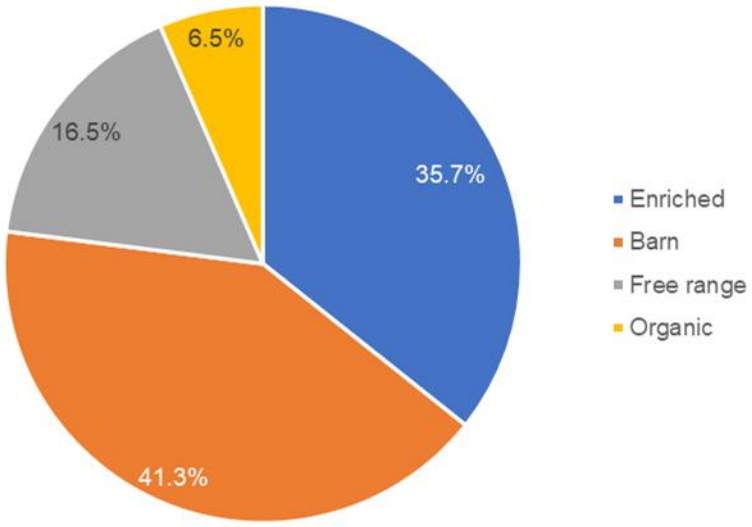
Animal welfare. The Alert and Cooperation Network (ACN) was notified of 929 animal welfare cases in 2025. 77.5% of all 2025 notifications came from Germany, the Netherlands and Denmark. 95% of notifications were due to non-compliance with transport regulation. Whereas farm (4%) and slaughter incidents (1%) were far less common. Common transport issues were temperatures either below 0°C or above 35°C, animals being injured and unfit to travel or incorrectly completed or missing journey log record documentation. The ACN report highlights that: 'Most operators involved in flagged notifications are repeat offenders, having been mentioned across multiple notifications' (European Commission - ACN, 2025: p.38).

It is important to note that the number of notifications may reflect differences in surveillance intensity, reporting practices and the volume of animal movements between Member States, rather than differences in animal welfare standards alone. Therefore, higher notification numbers should not necessarily be interpreted as evidence of poorer animal welfare outcomes. A figure was avoided for this metric as there are too many variables to enable a like-for-like comparison.

Laying hens. The EU-27 had approximately 401m laying hens in 2025 and 42.6% of the population were in the following three countries: France (n=59,333,500), Germany (n=57,824,667) and Poland (n=53,646,618) (European Commission, 2026b). Conventional battery cages were banned across the EU from 1st January 2012 under Council Directive 1999/74/EC. Under EU legislation, enriched cage systems must provide each laying hen with at least 750 cm^2 of cage area, while barn systems allow hens to move freely provided stocking density does not exceed nine laying hens per m^2 of usable area (Nielsen et al., 2023). Figure 95 shows that barn systems were the most common housing method, followed by enriched cages whilst free-range and organic systems accounted for almost one-quarter of laying hens housing[16]:

[16] Where 2025 data is unavailable, some Member States have reported 2024 or 2020 data.

Figure 95. Distribution of laying hens by housing system in the EU, 2025 (%; latest available Member State data)



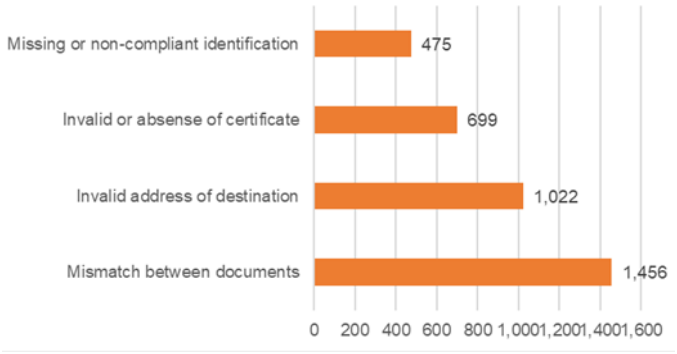
Source: European Commission (DG AGRI), Laying hens by way of keeping, 2025. Member State data on laying-hen housing systems, reported under Commission Implementing Regulation (EU) 2017/1185. Available at: https://agriculture.ec.europa.eu/farming/animal-products/eggs_e

There is considerable variation between EU Member States. For example, free-range production is particularly prevalent in Ireland (45.7%), while Luxembourg (27.6%) and Denmark (26.3%) have the highest shares of organic production. In contrast, barn cage systems dominate in Slovenia (77.4%) while 99% of laying hens in Malta are housed in enriched cage systems (European Commission – Eggs, 2026).

Pig welfare. Routine tail docking is prohibited across the EU following application of Council Directive 2016/336 on 8th March 2016. Tail docking should only be undertaken where there is evidence of injury and after measures have been taken to prevent tail-biting. Despite the legislation, routine tail-docking remains widespread across much of the EU. Unfortunately, EU-level data on the prevalence of tail-docking and tail-biting are not currently available. A 2025 study assessing tail biting and tail docking in three European countries (Spain, Netherlands and Italy) found that of the 15,000 slaughtered pigs studied, 5.4% had tail biting lesions and 88.1% were tail-docked. Tail-docking was most common in Spain (99.4%), followed by the Netherlands (86.5%) and least common in Italy (78.5%) (Romano et al., 2026).

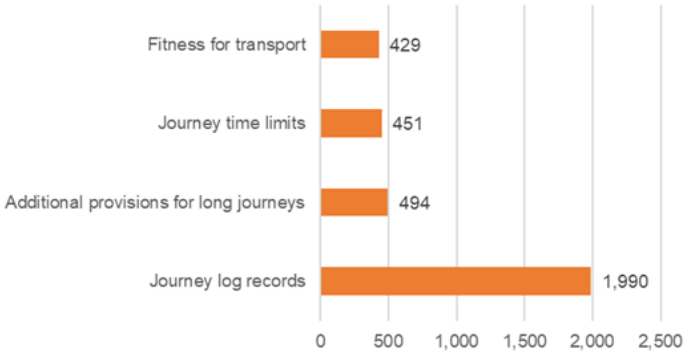
Animal transport. The 2023 TRACES annual report states that 1.8b poultry, 31.5m pigs, 5m cattle and 3m sheep were moved within the EU and between the EU and EFTA countries in 2023. Figure 96 and Figure 97 present the number and types of non-compliance recorded for intra-EU movement (INTRA) certificates (TRACES, 2023)

Figure 96. The four most frequently recorded animal health and administrative non-compliances on INTRA certificates, 2023



Source: European Commission, TRACES Annual Report 2023. Data year: 2023. Available at: https://food.ec.europa.eu/horizontal-topics/traces/information-material/traces-annual-report-2023_en

Figure 97. The top four non-compliance animal welfare infringements recorded on INTRA certificates, 2023



Source: European Commission, TRACES Annual Report 2023. Data year: 2023. Available at: https://food.ec.europa.eu/horizontal-topics/traces/information-material/traces-annual-report-2023_en

5.1.2. Antimicrobial resistance

The *European Medicines Agency's* 2023 annual report includes data for sales of antimicrobials for food-producing animals. The EU total is 4,312.6 tonnes, for a biomass of 95,716,900 tonnes of animals. This equates to 45.1mg/kg of animal biomass. Countries with particularly high mg/kg rates include Cyprus (112.9mg/kg) and Italy (104.7mg/kg). Antimicrobial sales for food-producing animals represented 98.4% of all reported 2023 sales (European Medicines Agency, 2025).

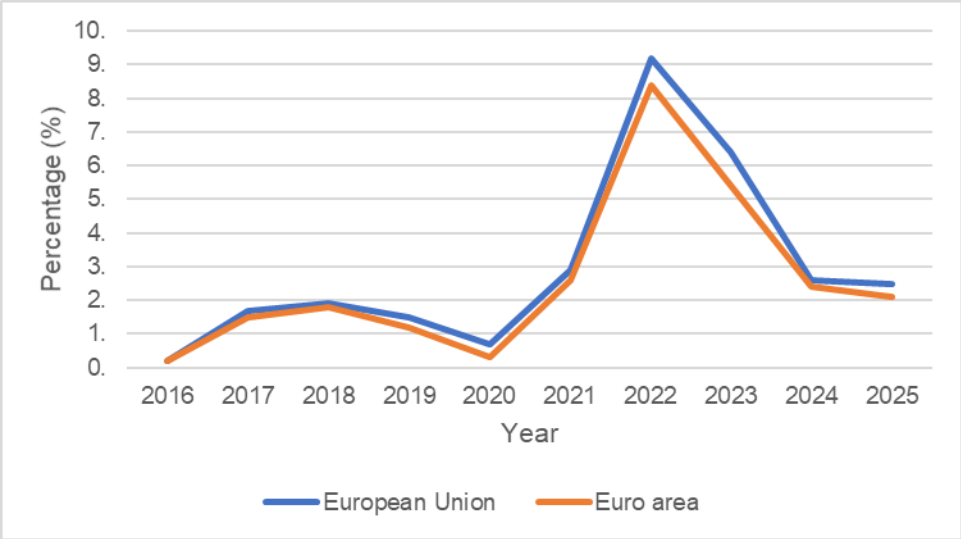
Antimicrobial resistance in foodborne bacteria. The EFSA and European Centre for Disease Prevention and Control (ECDC) surveillance show that antimicrobial resistance (AMR) in Salmonella and Campylobacter continues to be public health concern across Europe. Resistance varied considerably by bacterial species and antimicrobial; for example, 22% of Salmonella spp. isolates from laying hens were resistant to ciprofloxacin, compared with 0.1% chloramphenicol resistance in Campylobacter coli from turkeys. There is also an interactive site that shows resistance of Salmonella, E.coli

and Campylobacter in food, animals and humans at a country level in 2023 and 2024 (EFSA & ECDC, 2024). Differences in antimicrobial resistance between Member States should be interpreted with caution, as surveillance coverage, sampling methods and the populations tested may vary between countries.

5.1.3. Food price

Food prices illustrate the economic pressures facing consumers. In the EU, a consumer price index has been developed called the harmonised index of consumer prices (HICP). HICP is used to measure inflation, which peaked in the EU-27 in 2022 (9.2%). Figure 98 shows how the HICP of consumer prices has fluctuated over the last decade:

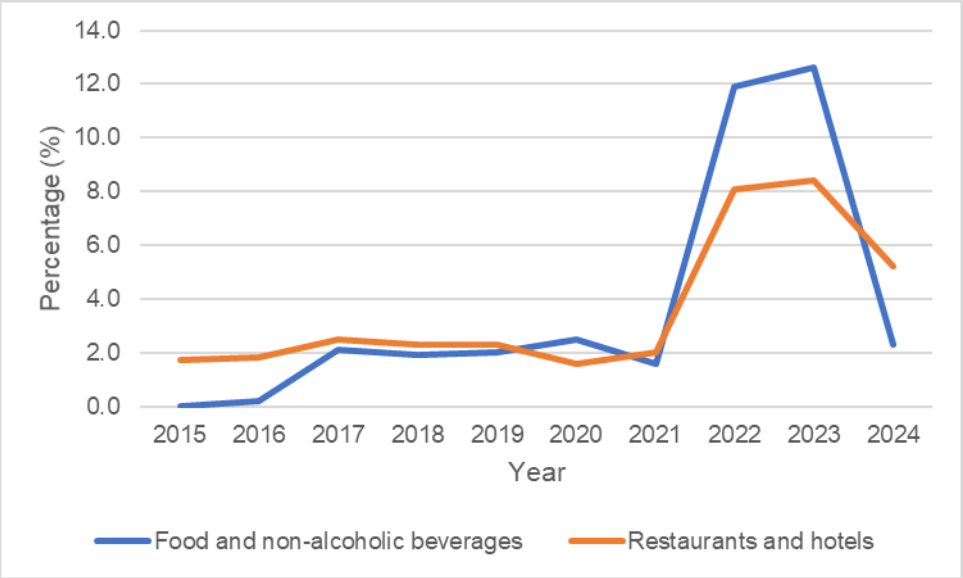
Figure 98. Harmonized index of consumer prices 2016-2025 in the European Union and Euro area



Source: Eurostat, Consumer prices - inflation. Data year: 2016-2025. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Consumer_prices_-_inflation

Between 2016 and 2025, food and non-alcoholic beverage prices rose cumulatively by 33.2% across the EU. (Statista, 2025)Eurostat data averages this out across the year. In 2023, HICP peaked at 12.3% for food and non-food alcoholic beverages and 8.4% for restaurants and hotels (Figure 99):

Figure 99. Harmonized index of consumer prices 2014-2024 for food and non-alcoholic beverages and restaurants and hotels



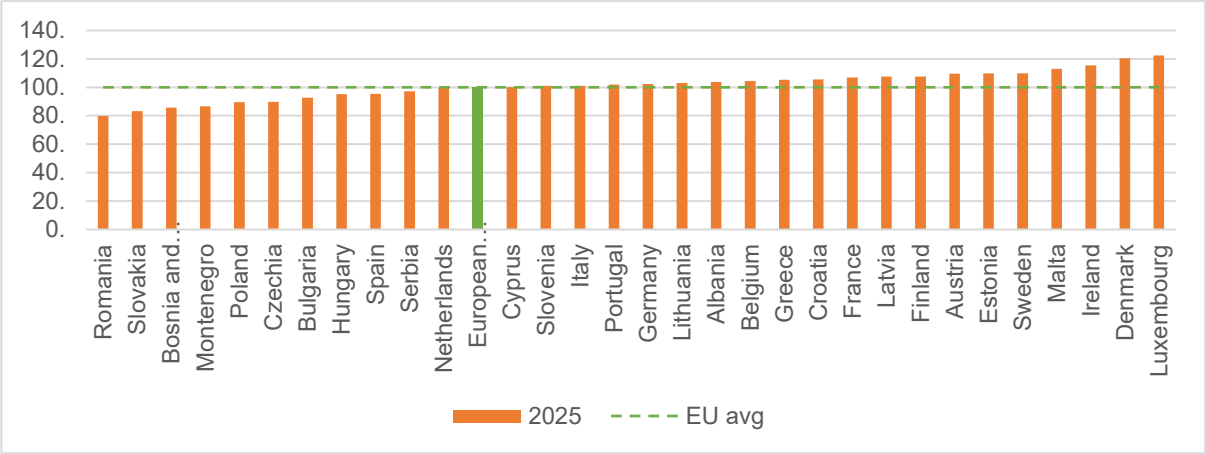
Source: Eurostat, Consumer prices - inflation. Data year: 2025. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Consumer_prices_-_inflation

Eurostat provide a breakdown of HICP monthly data from 1997 to 2025. The most recent data point is December 2025. The HICP % for the following categories is: (i) Food including alcohol and tobacco, 2%; (ii) processed food including alcohol and tobacco, 2.5%; and, (iii) Unprocessed food, 2%[17].

Annexe A20 presents the Price Level Indices (PLI) for 2022, 2023, 2024 and 2025 for food and non-alcoholic beverages. The EU-27 data remains 100 throughout for comparison in A20 and Figure 100. The PLI varies considerably, from 79.8 in Romania in and is highest in Luxembourg (122.4):

[17] *Source: Eurostat, Comparative price levels for food, beverages and tobacco. Data year: 2025. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Comparative_price_levels_for_food%2C_beverages_and_tobacco*

Figure 100. Price Level Indices for EU countries in 2025 (EU=100)



Source: Eurostat, Comparative price levels for food, beverages and tobacco. Data year: 2025. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Comparative_price_levels_for_food%2C_beverages_and_tobacco

Although HICP and PLI provide useful measures of ood price changes and differences between Member States, they do not capture the affordability of food relative to household income. Food price increases may disproportionately affect lower-income households, which typically allocate a greater proportion of their expenditure to food (see 5.2.3. Food and nutrition security status).

5.1.4. Food quality

Food quality encompasses attributes relating to food authenticity, composition, provenance, labelling and other characteristics valued by consumers, whereas food safety concerns hazards that may cause harm to human health. This section therefore focuses on authenticity, labelling, sustainability certification and consumer trust; food safety indicators are considered separately in Section 5.1.5. Quality schemes relating to geographical origin and traditional production are considered under Cultural heritage and community building (Section 5.2.5).

Sustainability certification represents one dimension of food quality. The EU organic logo can be used on food and drink products containing at least 95% organic ingredients (European Commission, 2025b). Consumer recognition of the scheme is relatively high as 58% of Europeans recognise the organic farming logo, compared with approximately one quarter who recognise the Protected Geographical Indicator (PGI) logo (European Commission, 2026c). Recognition of these certifications and quality schemes may support consumer confidence and trust by providing information on production methods, provenance and compliance with defined standards.

5.1.5. Food safety

Foodborne disease indicators. Their interactive dashboard shows that in 2024 there were 1,262 Salmonella outbreaks, causing 10,683 human cases, 1,915 hospitalisations and 17 deaths. For the same year, there were 317 Campylobacter outbreaks, 1,438 human cases, 102 hospitalisation and no deaths (EFSA, 2025a).

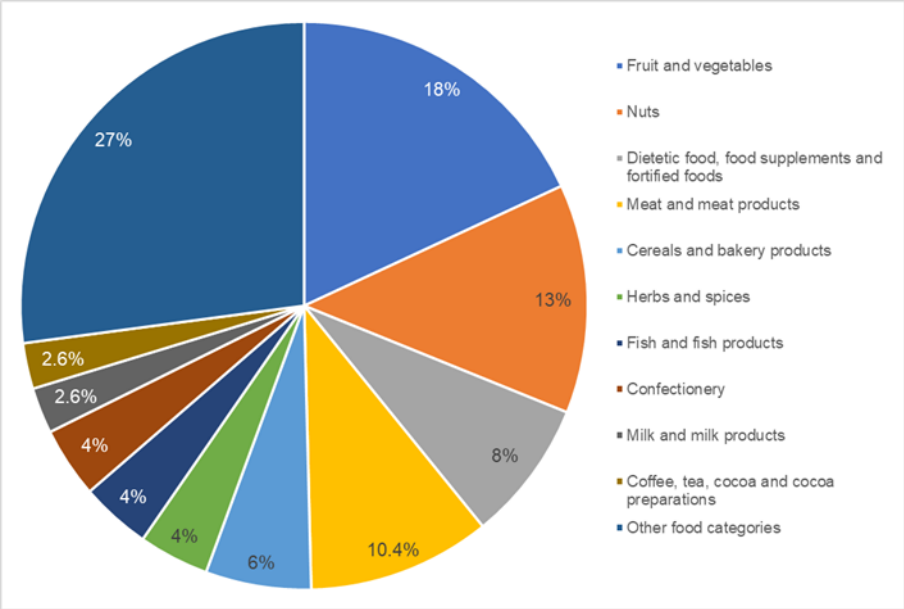
Zoonotic diseases. The EFSA and ECDC use surveillance and monitoring data from EU Member States on the occurrence of zoonotic diseases. The *EU One Health 2024 Zoonoses Report* shows that across the EU in 2024 there were 6,558 reported foodborne outbreaks, involving 62,481 human cases, 3,336 hospitalisations and 53 deaths. Campylobacteriosis was the most commonly reported zoonosis overall (n=168,396 cases), followed by Salmonellosis (n=79,703 cases). Salmonella paired with 'eggs and egg products' caused the highest number of outbreaks and hospitalisations (EFSA, 2025b).

Pesticide residue compliance. The EFSA coordinates testing via national food safety authorities, who test a representative sample across the EU. In 2024, 98.8% of 9,842 samples complied with EU pesticide-residue legislation. Only 1.2% were classified as non-compliant after measurement uncertainty was considered. Thus, the EFSA concluded that estimated dietary risk from pesticide residues was low (EFSA et al, 2026).

The European Food Safety Authority (EFSA) organises EU-coordinated sampling with EU member states as well as Norway and Iceland. In 2024, 9,842 samples were collected and 98.8% were found to be compliant with EU legislation.

The Alert & Cooperation Network (ACN) monitors food safety and compliance, consisting of the Rapid Alert System for Food and Feed (RASFF) and the Administrative Assistance and Cooperation networks (AAC). The number of ACN notifications increased by 11% compared to 2024. In terms of 2025 notifications, 5,344 were by RASFF, 294 were agri-food notifications and 3,146 were by AAC. This indicates that there is an active surveillance and enforcement system. The main agri-food fraud notification issues were: faulty labelling or claims, non-compliance composition, product tampering and record tampering. Figure 101 shows that fruit and vegetables were the most commonly notified category; however, this does not necessitate that they are 'least safe' – instead this is likely due to the perishable nature of this food stuff and high trade volumes (European Commission, 2025a):

Figure 101. The percentage of 2025 notifications for each food or drink category in the Alert & Cooperation Network



Source: European Union, 2025 Annual Report Alert & Cooperation Network. Data year: 2025. Available at: https://doi.org/10.2875/9166958

Fruit and vegetables constitute 18% (1,572[18]) of ACN notifications. The most commonly reported issue is **pesticide residues** (e.g., chloropyrifos or acetamiprid), reported in 59% of cases. Nuts constitute 13% (n=714) of ACN notifications and 53% of these notifications were reporting **mycotoxins** (e.g., aflatozins, ochratoxin A and alternariol). With regard to dietetic foods, food supplements and fortified foods – making up 8% (n=709) of ACN notifications, the most significantly reported issue at 39% was **health claims**. Unsubstantiated claims that promote misleading health benefits or the prevention of disease can deceive consumers (Medina Pastor et al., 2026).

Notifications related to meat account of 10.4% of ACN notifications and 78% of poultry cases are linked to health risks. 43% of the issues reported are **salmonella**. Cereals and bakery products represent 6% (n=487) of ACN notifications. 28% of these are from rice and the key issues are: **pesticide residues**, **mycotoxins** and **labelling issues**. Herbs and spices account for 4% (n=377) of ACN notifications and 32% of the issues are **pesticide residues** (e.g., chloropyifos or ethylene oxide) (ACN, 2025).

Fish and fish products accounted for 4% (n=347) of ACN notifications. Salmon (18%) and tuna (13%) were most commonly reported and the two key issues were **pathogenic microorganisms** (e.g., Listeria monocytogenes) and **metals** (e.g., mercury or cadmium).

[18] *1,057 notified by RASFF and 510 notified by AAC.*

Confectionery notifications represent 4% (n=339) of 2025 notifications with the biggest issues being **labelling defects** (e.g., incorrect names, missing warning and translations) or **food additives and flavourings** (e.g., titanium dioxide or tartrazine). Milk and milk products account for 2.6% (n=228) of ACN notifications, 28% of which relate to **pathogenic microorganism** issues. Lastly, notifications relate to coffee, tea, cocoa and cocoa preparations accounted for 2.6% (n=225) of all ACN notifications. The two predominant issues were **pesticides** (e.g., tolfenpyrad, dinotefuran etc.) and **novel food or unauthorised ingredients** (ACN, 2025).

5.2. Social and economic outcomes

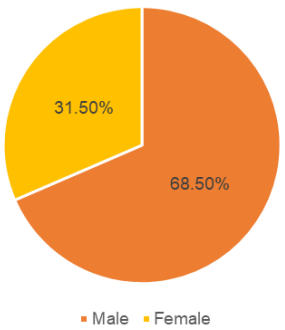
5.2.1. Cultural heritage and community building status

Protected Geographical Indicator. There are 3,619 products listed by the European Commission eAmbrosia (European Commission, 2026a) legal register that are either Protected Designation of Origin (PDO) or PGI status in the EU-27. The earliest product listed is 18th September 1973 and at time of research, the latest product was 30th July 2026. 36.8% of the products listed are in Spain (n=1,332), 22.3% are in France (n=806) and 11.4% in Italy (n=411) (

5.2.2. Equity and fairness status

Workforce. Eurostat data (2023) shows that **3.9%** of the EU population (8.4m) are employed in agriculture[19]. However, the number of persons working on farms is approximately double (16.m) due to unpaid labour. Most farm managers are male. The numbers of male and female farm managers for the following countries were not available in the 2023 data: Montenegro, North Macedonia, Serbia. Figure 102 presents the overall percentages of male and female farmers across the EU and Figure 103 splits this by country:

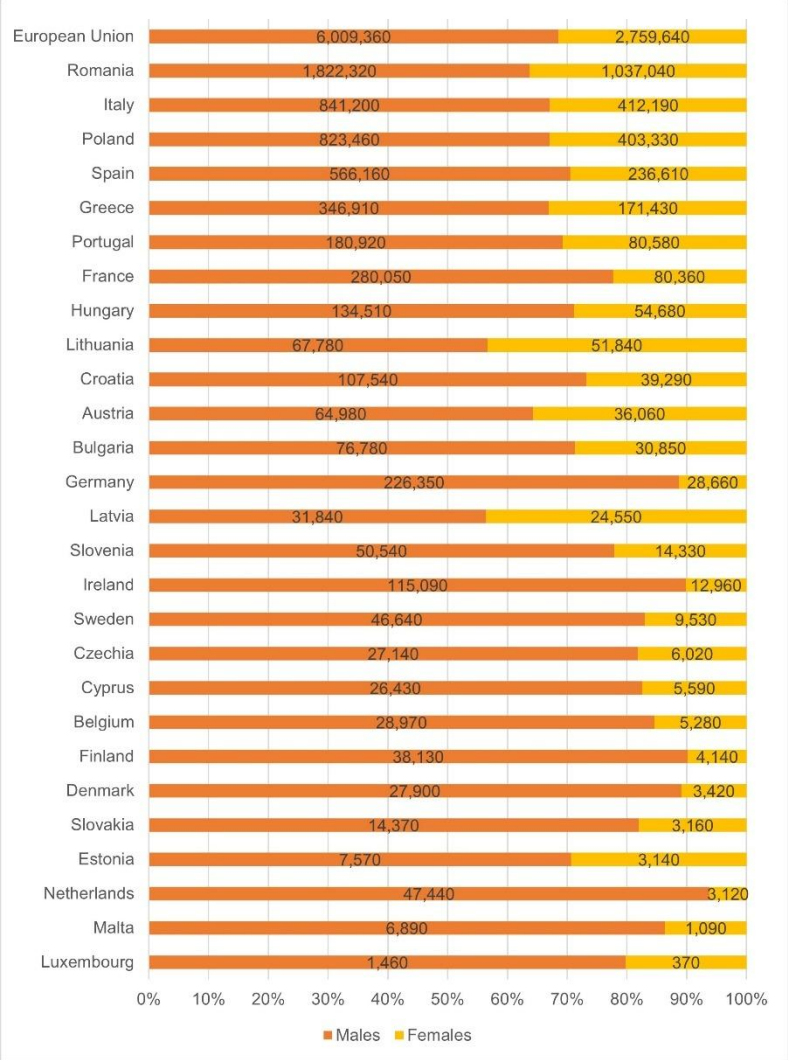
Figure 102. Percentage of EU farm managers who are male or female, 2023



[19] Crops and animal production, hunting and relating service activities

Source: Eurostat, Age structure of farmers. Data year: 2023. Data code: ef_fsi_agesex. https://ec.europa.eu/eurostat/databrowser/view/ef_fsi_agesex__custom_21500900/bookmark/table?lang=en&bookmarkId=7af5fbdc-2a3b-4c31-ab78-f5b80d63c2a8&c=1779107344000

Figure 103. Number of farm managers per gender in each EU member state, 2023



Source: Eurostat, Age structure of farmers. Data year: 2023. Data code: ef_fsi_agesex. https://ec.europa.eu/eurostat/databrowser/view/ef_fsi_agesex__custom_21500900/bookmark/table?lang=en&bookmarkId=7af5fbdc-2a3b-4c31-ab78-f5b80d63c2a8&c=1779107344000

Distribution of agricultural land. Equity within the EU food system also relates to the distribution of productive resources. Although only 7.6% of EU agricultural holdings were larger than 50 hectares, these holdings accounted for 68.3% of the EU's UAA. This demonstrates the concentration of agricultural land among larger holdings, although differences in farm size do not necessarily indicate inequitable ownership or access to resources (see section 4.1.1.). This highlights the concentration of agricultural land amongst larger holdings.

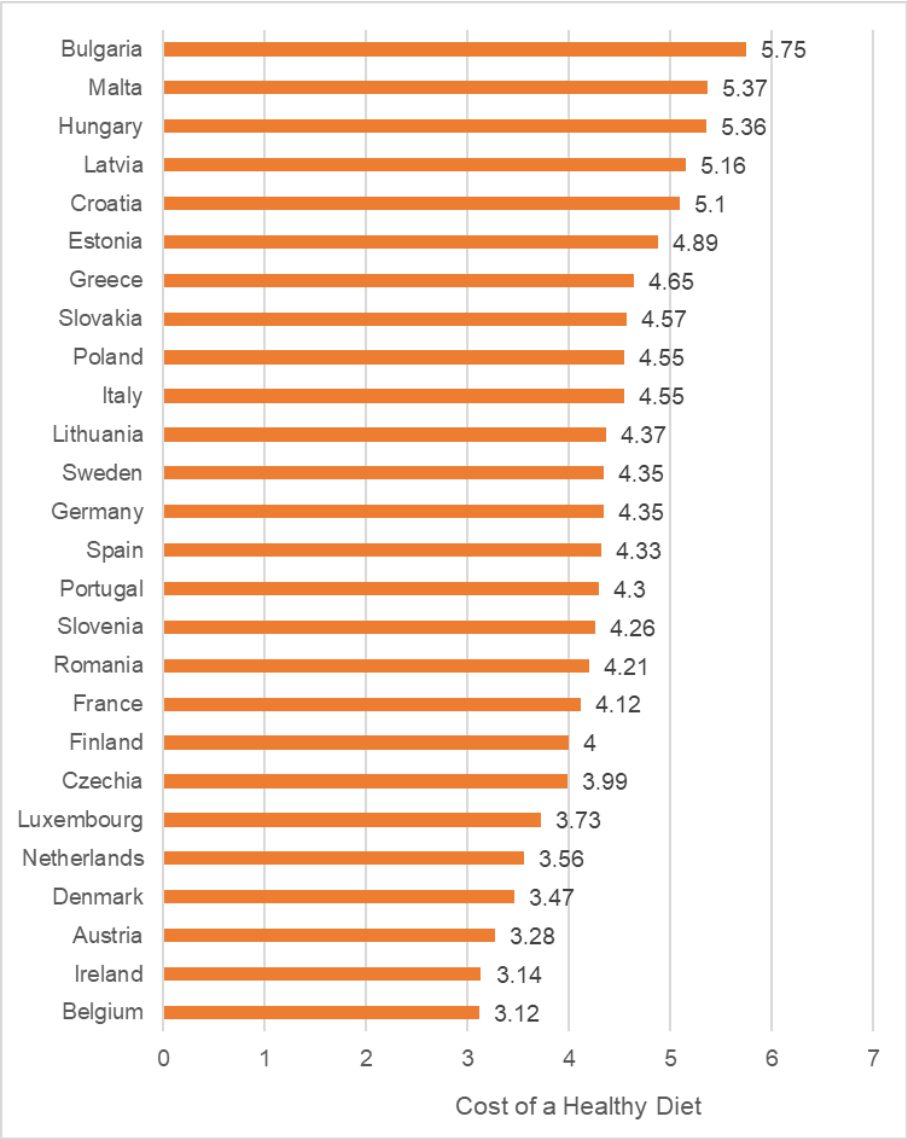
Power relations. Another area of 'equity and fairness status' is the power relations. For example, market concentration, bargaining power and unfair trading practices (see section 5.2.6).

5.2.3. Food and nutrition security status

Cost and affordability. The Food and Agriculture Organization Corporate Statistical Database (FAOSTAT) calculates the cost and affordability of a healthy diet[20] (CoAHD). The Int$ (PPP)[21] globally was 3.96 dollars in 2022 (FAO, 2024). For the CoAHD in Europe as a simple average it is 4.38 and as a weighted average, it is 3.97. Figure 104Figure 100 shows the 2025 CoAHD for each of the EU-27 member states. The cost is highest in Bulgaria (5.75) and lowest in Belgium (3.12):

[20] **Cost of a Healthy Diet (CoHD):** This indicator from FAOSTAT measures the per capita daily cost of the least expensive locally available foods required to meet energy and dietary guidelines.
[21] International Dollars adjusted for Purchasing Power Parity (PPP).

Figure 104. The Cost of a Healthy Diet in European Member States in Int$ (PPP), 2025



Source: FAOSTAT, Cost and Affordability of a Healthy Diet (CoAHD). Data year: 2025. Available at: https://www.fao.org/faostat/en/#data/CAHD

Food insecurity. The European Food Banks Federation (FEBA) 2025 annual report shows that 8.9% of the EU population are unable to afford a proper meal every other day. FAOSTAT have a suite of food security indicators, including that the prevalence of moderate or severe food insecurity in the total population is 7.7% and the number of severely insecure people is 15.9m (in 2025) (FEBA, 2025).

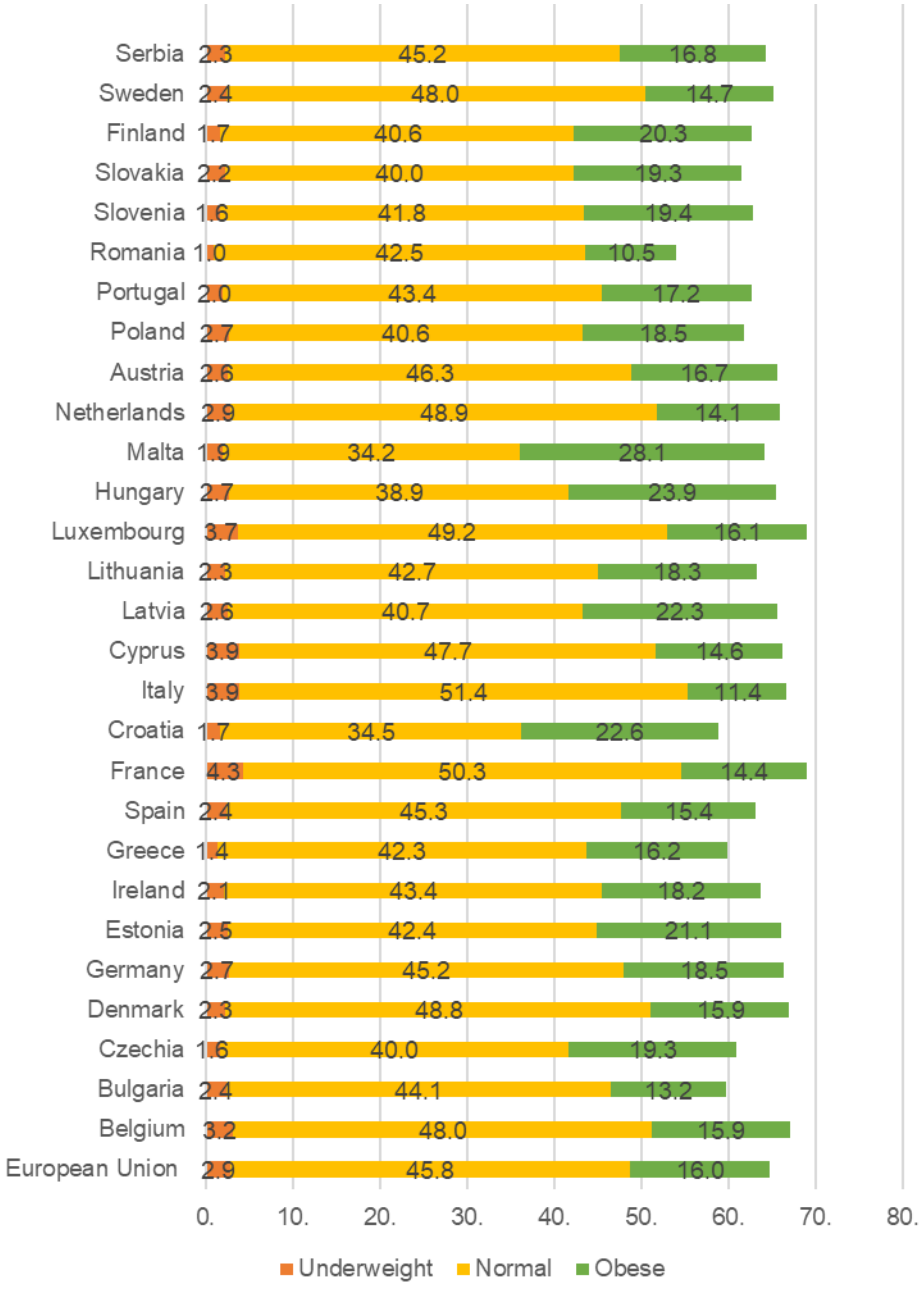
Nutrition. The prevalence of undernourishment is relatively low at an EU-level, <2.5% according to FAOSTAT 2025 data[22].

5.2.4. Health status

Body Mass Index. Another measure of food and nutrition security status is the body mass index (BMI). Eurostat EU-27 adult population-level data from 2019 indicates that 2.9% were underweight, 45.8% had a normal BMI and 16% were obese. 2019 data is presented below in Figure 105, except for Ireland which is 2014 data as the 2019 data was marked as 'low reliability. Countries with the highest levels of adult obesity include Malta (28.1%), Hungary (23.9%), Croatia (22.6%) and Latvia (22.3%). Note that the percentage numbers do not add up to 100, it is presumed that the missing amount is those that are 'overweight' (i.e., BMI between 25 and 29.9) but this data is not included as it is not presented through Eurostat:

[22] *Source: FAOSTAT, Suite of Food Security Indicators. Data year: 2025. Available at: https://www.fao.org/faostat/en/#data/FS*

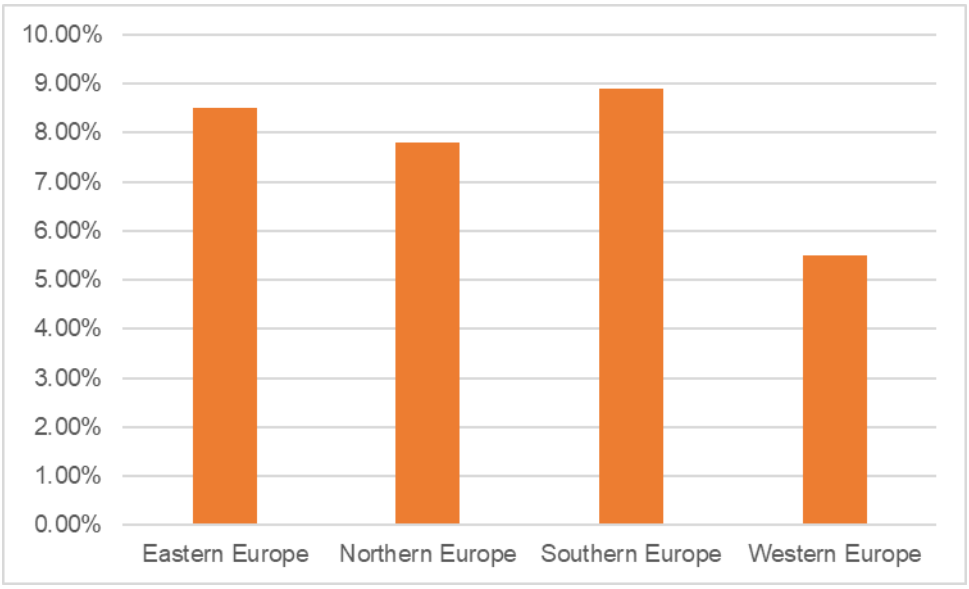
Figure 105. Percentage of population in EU Member States who had an underweight, normal or overweight BMI in 2019



Source: Eurostat, Body mass index (BMI) by sex, age and educational attainment level. Data year: 2019. Available at: https://ec.europa.eu/eurostat/databrowser/view/hlth_ehis_bm1e/default/table

The World Health Organization (WHO) provides data on the percentage of children under 5-years-old who are overweight. Figure 106 presents this data:

Figure 106. Overweight prevalence in children under 5-years-old, 2023



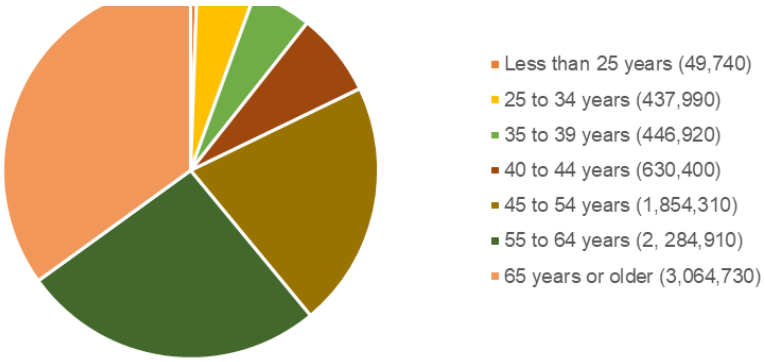
Source: WHO, Overweight prevalence among children under 5 years of age (%) (% weight-for-height >+2 SD) (survey-based estimates). Data year: varied. Available at: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/gho-jme-overweight-prevalence

5.2.5. Livelihoods and economic status

Farmers' income compared to average wages in the economy. An academic paper studied the distribution of household quintiles over 2004 to 2020. It was found that farm households have a monetary disadvantage compared to non-farm households. In an EU sample, 40% of farm households fall into the lowest quartile. However, this differs for countries – Central Eastern countries tend to be most concentrated towards the lower quartiles (Marino et al., 2023).

The *Eurostat 2020 Agricultural Census* shows that 88% of farms are family farms[23]. Farms are largely managed by males (68.5%, figures 5 and 6), and 61% of agricultural managers are over 55-years-old. Poland and Romania have the largest number of farm managers under 25-years old: 10,280 and 10,560 respectively (Figure 107 and Annex Table A2):

Figure 107. Number of EU farm manager in each age bracket, 2023



[23] Family farms: 50% or more of the agricultural labour force is provided by family members.

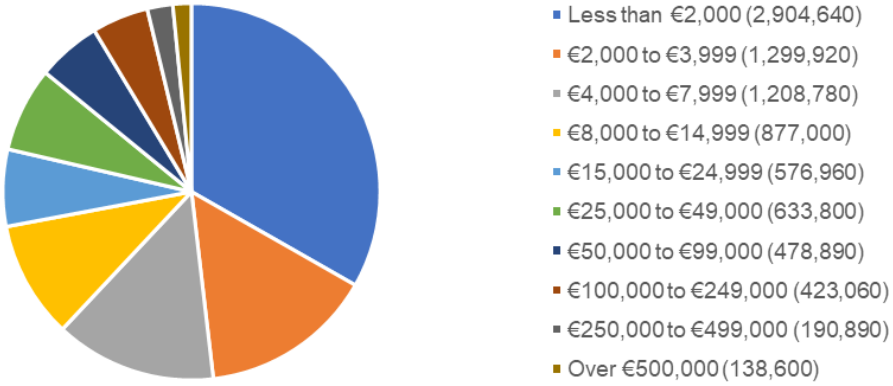
Source: Eurostat, Age structure of farmers. Data year: 2023. Data code: ef_fsi_agesex. https://ec.europa.eu/eurostat/databrowser/view/ef_fsi_agesex__custom_21500900/bookmark/table?lang=en&bookmarkId=7af5fbdc-2a3b-4c31-ab78-f5b80d63c2a8&c=1779107344000

Occupational safety. Agriculture is associated with substantial occupational risks. In 2023, agriculture, forestry and fishing accounted for 12.9% of all fatal accidents at work in the EU, despite representing a considerably smaller proportion of total employment (Eurostat hsw_n2_04).

The value of agriculture. In 2025, agriculture produced **€251.8 billion** (b) Gross Value Added (GVA). Further, agriculture contributed €246.9b towards the EU's Gross Domestic Product (GDP).

Economic output. 33% of EU farms (2.9m holdings) produce an economic output below €2,000 a year, equating to less than 1% of the EU's total farming output. France is the EU Member State with the largest economic output overall (€69.8b) (Annex Table A3). Only 3.8% of EU farms produce an economic output of over €250,000 (Figure 108):

Figure 108. Number of EU farm holdings categorised by value of economic output, 2023



Source: Eurostat, Average economic size of farms by standard output, farm type and age of farm manager. Data year: 2023. Data code: ef_fsi_ecsz. Available at: https://doi.org/10.2908/EF_FSI_ECSZ

5.2.6. Power relations

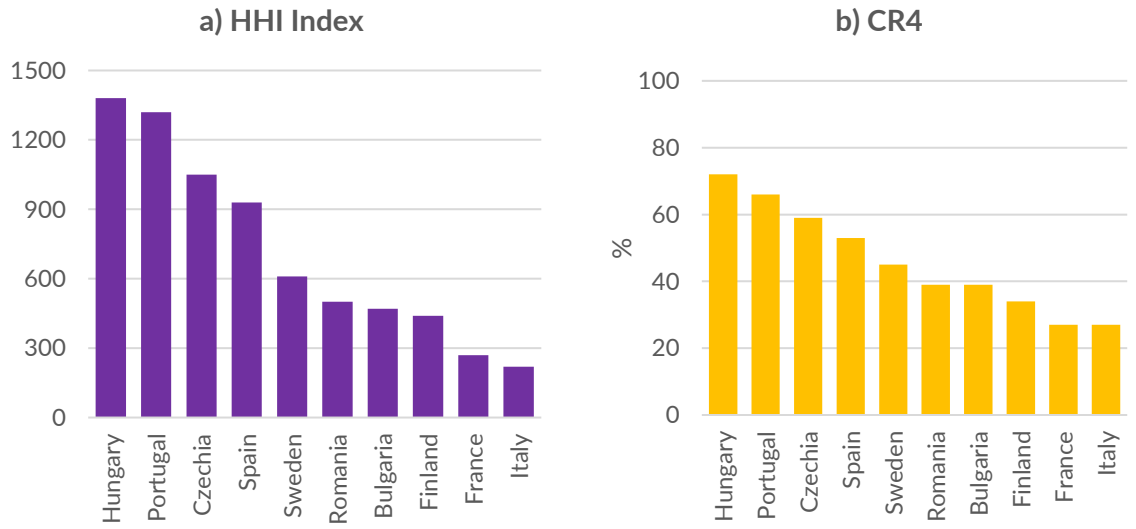
Market concentration

The column chart ranks ten countries by estimated retail-market concentration. The **HHI (Herfindahl–Hirschman Index)** measures market concentration by adding together the squared market shares of all firms. A higher HHI indicates that the market is dominated by fewer firms, while a lower HHI suggests greater competition. Higher bars in Figure **64a** represent a more concentrated retail market. Hungary has the highest

HHI, at 1,380, followed by Portugal at 1,320, Czechia at 1,050 and Spain at 930. France and Italy have the lowest displayed values, at 270 and 220 respectively.

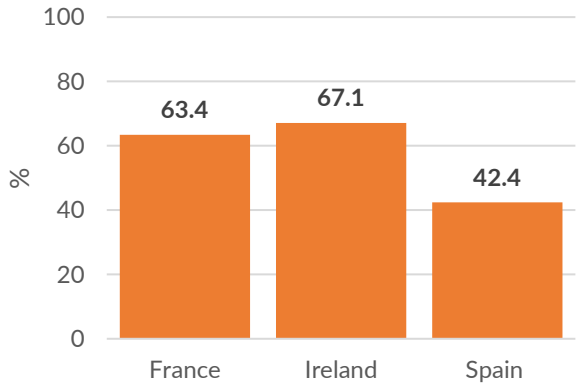
The **CR4 ratio** is the combined market share of the four largest firms. For example, a CR4 of 70% means that the four largest retailers control 70% of the market. Figure **64b** shows the estimated percentage of the market controlled by the four largest retailers. Hungary has the highest CR4, at 72%, followed by Portugal at 66%, Czechia at 59% and Spain at 53%. France and Italy have the lowest values, both at 27%. The ranking broadly mirrors that of the HHI chart.

Figure 109. Herfindahl–Hirschman Index (HHI) of retail concentration and Four-firm concentration ratio (CR4) by selected Member States, 2016



*Source: estimated from **Figure 3** of JRC report "Market Power in Food Industry in Selected EU Member States" (Nes et al., 2021), based on firm-level data from the Orbis database (Bureau van Dijk, 2019). Data year: 2016 for all Member States except France (2014). Available at: https://data.europa.eu/doi/10.2760/63613. Note: Data available only for some Member States.*

Figure 110. Three-firm concentration ratio (CR3) of selected countries, 2026



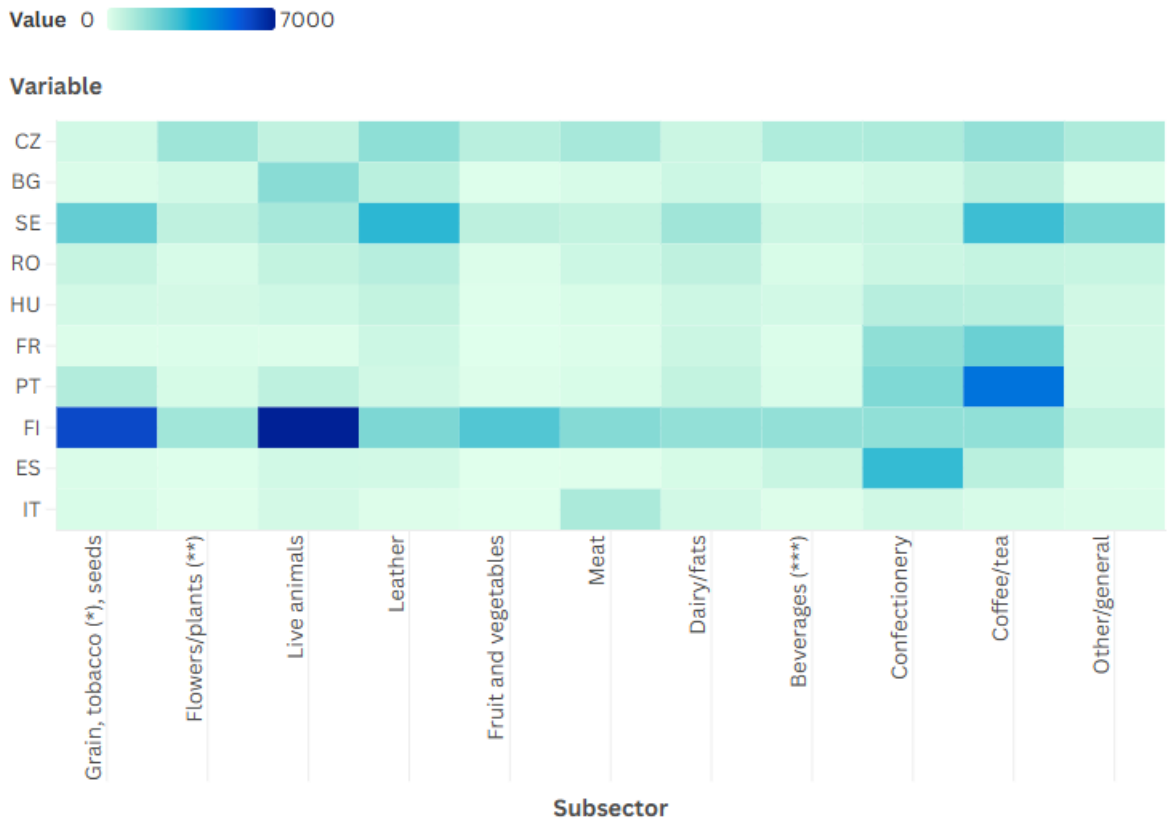
Source: Kantar/Worldpanel by Numerator, publicly available snapshot data (Ireland, Spain, France). Data year: 2026. Available at: https://www.kantar.com/campaigns/grocery-market-share. Note: Kantar/Worldpanel by Numerator is used here as it is the only source offering free, publicly accessible market share data at country level; alternative sources with broader and more granular coverage (Orbis, Euromonitor) exist but are proprietary/subscription-based and were not accessible for this report; country coverage is therefore limited to

the markets for which Kantar publishes free snapshots (Ireland, Spain, France); Top 3 figures are calculated by summing the three largest retailers' individual market shares.

More recent data (2026) show the share of the market controlled by the three largest retailers in France, Ireland and Spain (**Figure 111**). Ireland has the highest concentration at 67.1%, followed by France at 63.4%. Spain is less concentrated, with a CR3 of 42.4%.

The heatmap shows the **Herfindahl-Hirschman Index (HHI)** in wholesale trade across selected Member States and subsectors, excluding tobacco. Concentration is highest in live animals, where HHI reaches 6,861 in Finland and 1,724 in Bulgaria, and in coffee/tea, with values such as 4,944 in Portugal and 2,959 in Sweden. Lower concentration is visible in more fragmented markets such as fruit and vegetables, with HHI as low as 26 in France and 27 in Italy. The detailed country-by-country figures are reported in the A10.

Figure 111. Heatmap of Herfindahl–Hirschman Index (HHI) of concentration in wholesale retail trade activities by selected Member States, 2016

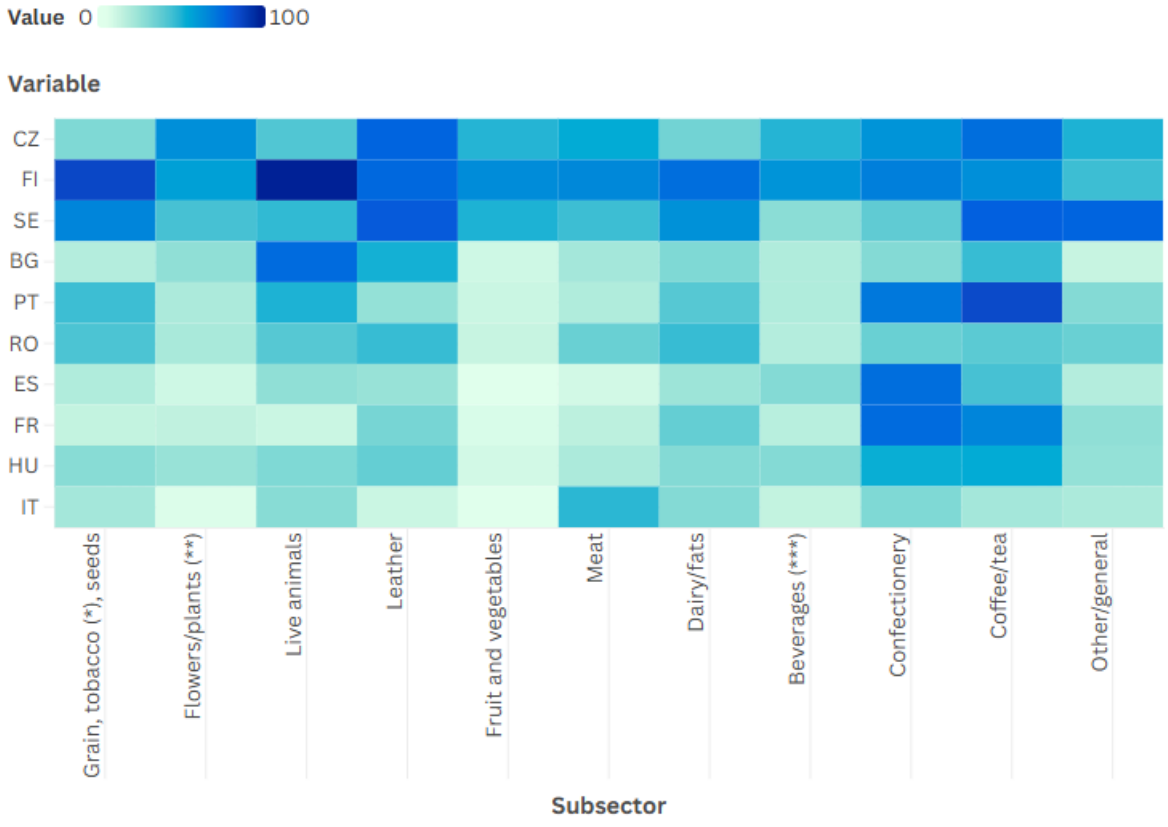


*Source: **Table 3** of JRC report "Market Power in Food Industry in Selected EU Member States" (Nes et al., 2021) based on firm-level data from the Orbis database (Bureau van Dijk, 2019). Data year: 2016 for all countries except France (2014). Available at: https://data.europa.eu/doi/10.2760/63613. Note: Data available only for some Member States. Detailed values for each country can be found in Annex 10. (*) Wholesale of unmanufactured tobacco. (**) Includes ornamental flowers and bulbs. (***) Ready-to-drink beverages.*

The heatmap shows the CR4 concentration ratio in wholesale trade across selected Member States and subsectors, excluding tobacco. The **CR4 ratio** is the combined market share of the four largest firms. For example, a CR4 of 70% means that the four

largest retailers control 70% of the market. Concentration is particularly high in live animals, where CR4 reaches 97% in Finland and 74% in Bulgaria, and in coffee/tea, where it reaches 84% in Portugal and 77% in Sweden. By contrast, fruit and vegetables remains much more competitive, with CR4 at 6% in Spain and 6% in Italy. The detailed country-by-country figures are reported in the annex.

Figure 112. Heatmap of four-firm concentration ratio (CR4) in wholesale trade activities by selected Member States, 2016



*Source: **Table 3** of JRC report "Market Power in Food Industry in Selected EU Member States" (Nes et al., 2021) based on firm-level data from the Orbis database (Bureau van Dijk, 2019). Data year: 2016 for all countries except France (2014). Available at: https://data.europa.eu/doi/10.2760/63613. Note: Data available only for some Member States. Detailed values for each country can be found in Annex 10. (*) Wholesale of unmanufactured tobacco. (**) Includes ornamental flowers and bulbs. (***) Ready-to-drink beverages.*

Bargaining power. Power across the EU food supply chain is unevenly distributed. The 9.1m farmers working across the EU are largely split into small farms whilst other activities across the food value chain are more clustered. For example, food processors and retailers are considerably more concentrated[24]. This asymmetry can weaken farmers' bargaining position when negotiating contracts and prices.

Unfair trading practices. Examples of unfair trading practices (UTPs) include: short-notice cancellations of perishable agri-food products, payments later than 60 days for non-perishable agri-food products, commercial retaliation by the buyer and refusing to confirm in writing a supply agreement[18]. EU legislation was introduced in 2019 to prohibit UTPs across the food supply chain.

5.3. Environmental outcomes

Alike environmental drivers (section 3.1.), this section is categorised by atmosphere, biosphere, geosphere and hydrosphere.

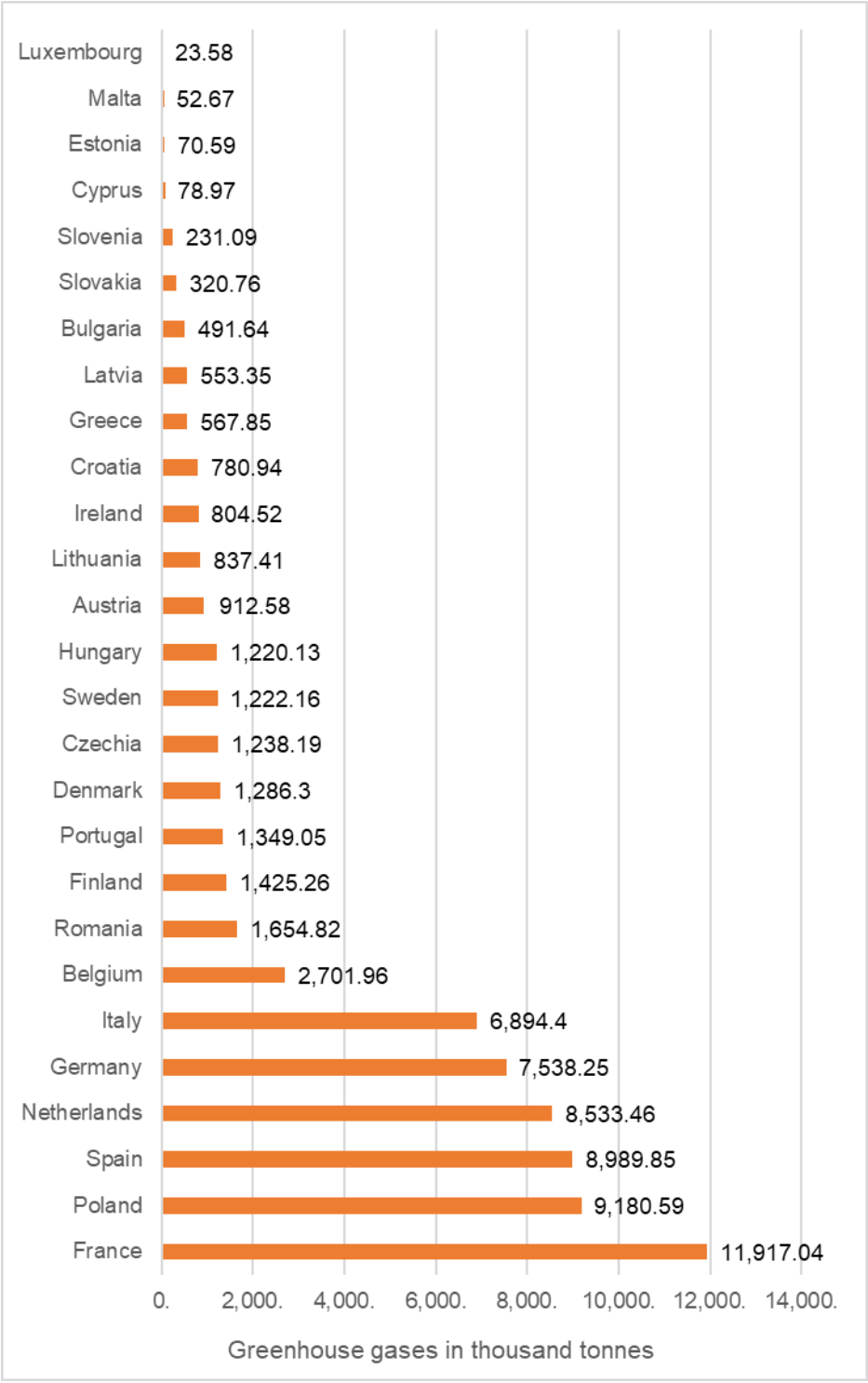
5.3.1. Atmosphere

Fuel combustion. Eurostat datasets show the greenhouses gases[25] by source sector per thousand tonnes. In 2023, EU agricultural processes emitted 365m tonnes of CO_2-equivalent greenhouse gas emissions (GHGe), representing 11.8% of total EU GHGe (EEA, 2025). Figure 113 shows the fuel combustion in agriculture, forestry and fishing. Countries highlighted in red are not part of EU-27:

[24] European Commission. (n.d.). Producer and interbranch organisations. Available at: https://agriculture.ec.europa.eu/common-agricultural-policy/agri-food-supply-chain/producer-and-interbranch-organisations_en

[25] Greenhouse gases: CO2, N2O in CO2 equivalent, CH4 in CO2 equivalent, HFC in CO2 equivalent, PFC in CO2 equivalent, SF6 in CO2 equivalent, NF3 in CO2 equivalent

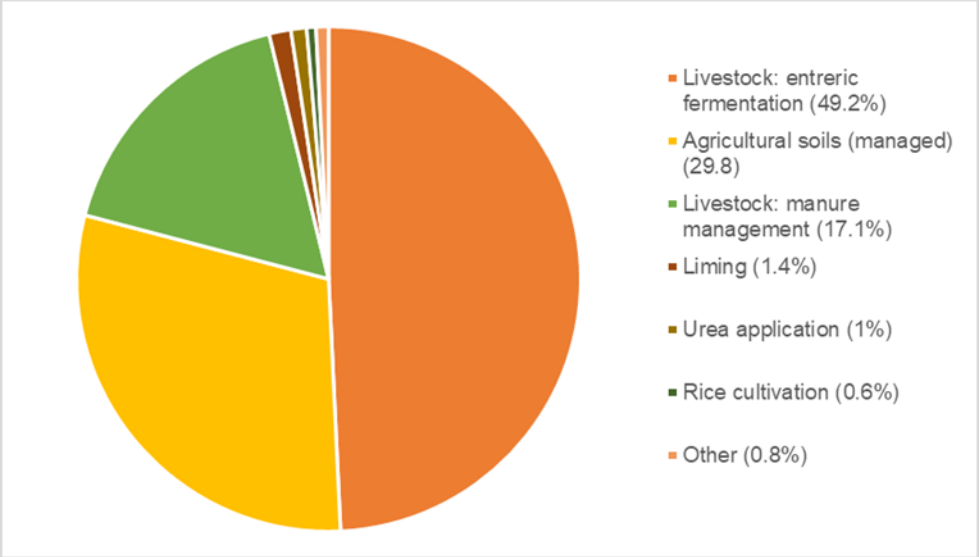
Figure 113. Greenhouse gas emissions from fuel combustion in agriculture, forestry and fishing (thousand tonnes CO_2 equivalent), 2024



Source: Eurostat, Greenhouse gas emissions by source sector Data year: 2024. Data code: env_air_gge Available at: https://doi.org/10.2908/ENV_AIR_GGE

Agricultural GHGes. Almost half of EU agricultural GHGes in 2023 resulted from enteric fermentation (Figure 114). This highlights the importance of livestock production in the EU food system's climate impacts.

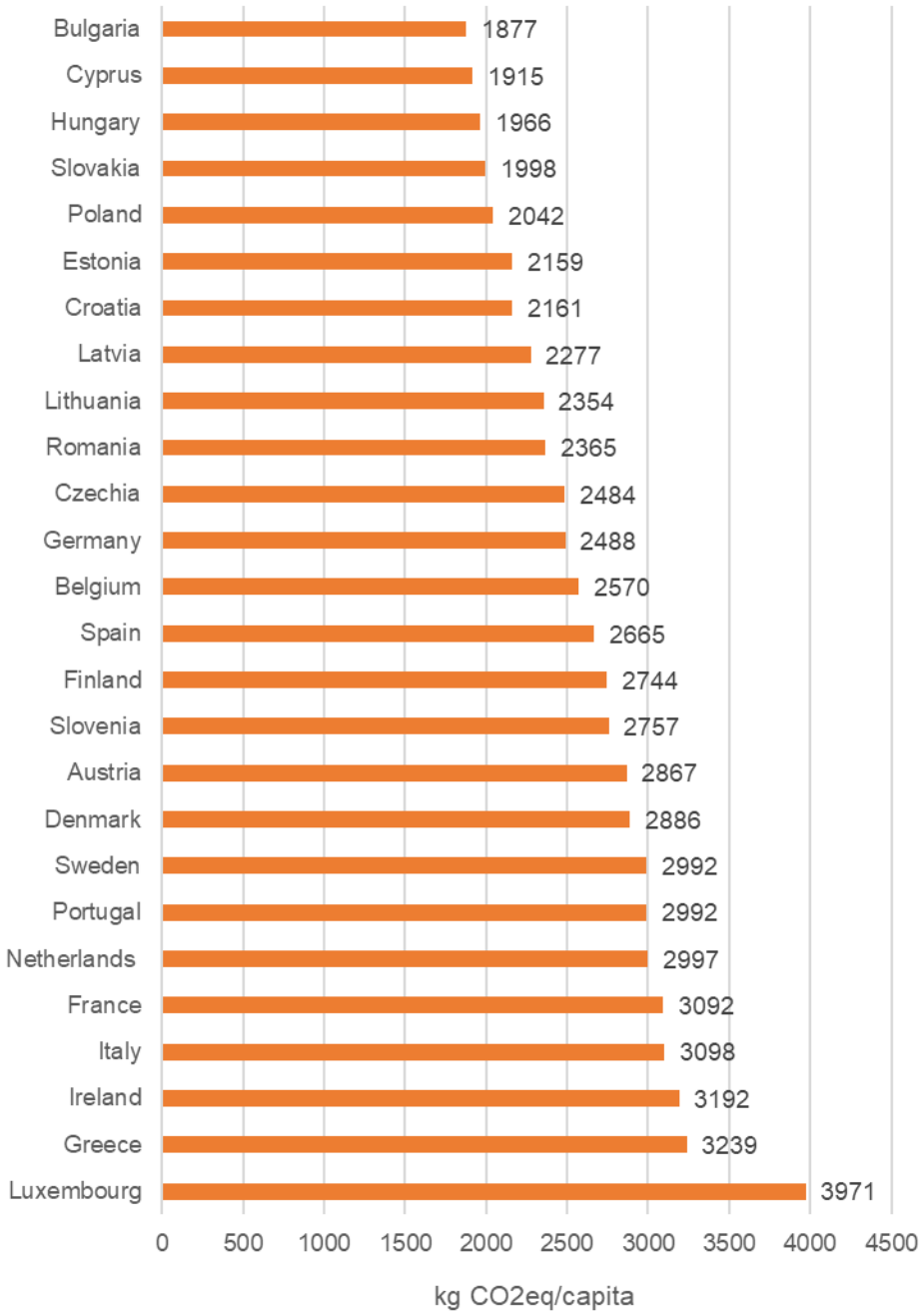
Figure 114. Sources of agricultural GHGes, 2023



Source: Eurostat, Greenhouse gas emissions by source sector Data year: 2023. Data code: env_air_gge Available at: https://doi.org/10.2908/ENV_AIR_GGE

Food system greenhouse gases. The FSMD presents data from FAOSTAT, divided by population data from the World Bank. GHGEs associated with agri-food systems include emissions from agricultural production, associated land-use change and activities occurring before and after farm production. FSMD expresses data relative to population size. Note that these are wholly production-based emissions and should not be interpreted as the carbon footprint of residents' food consumption, as emissions associated with food produced for export are attributed to the producing country. The country with the highest food system GHGEs per person is Luxembourg at 3,971 kg CO_2e/capita, followed by Greece (3,239 kg CO_2e/capita) and Ireland (3,192 kg CO_2e/capita). The Member State with the lowest level of GHGEs per person due to the food system was Bulgaria at 1,877 kg CO_2e/capita. Figure 115 presents this data for the EU-27 Member States:

Figure 115. Food systems greenhouse gas emissions per person (kg CO2eq/person), 2023



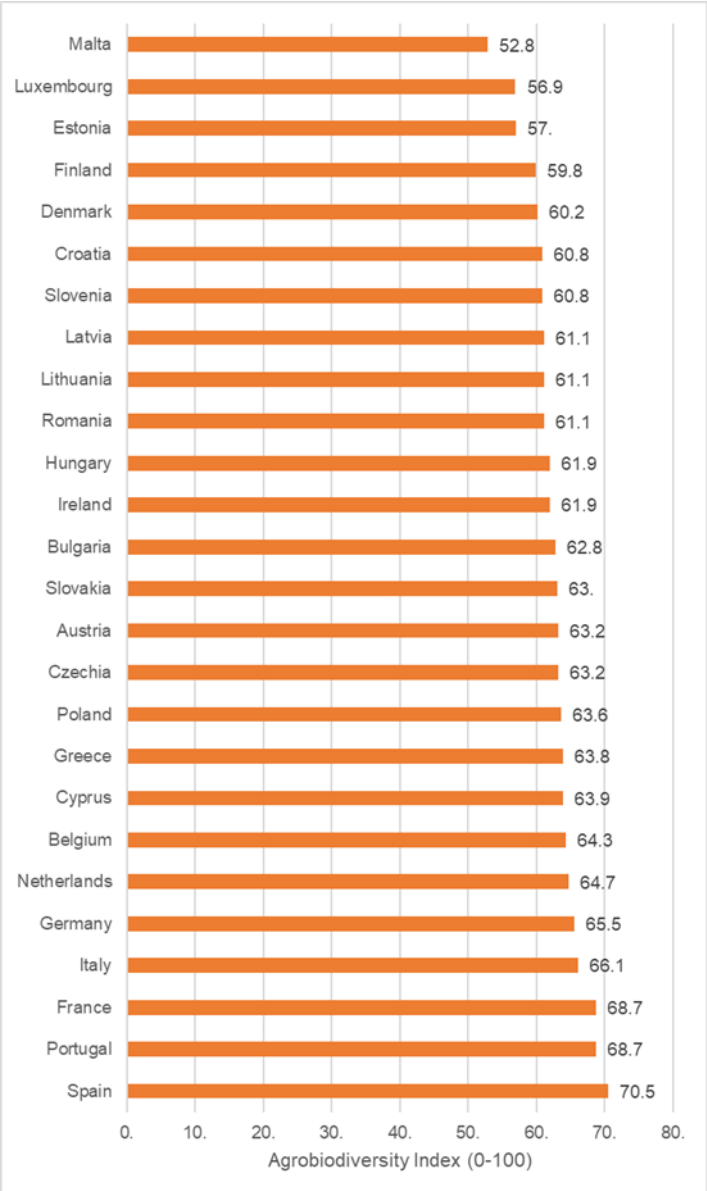
Source: FAOSTAT, Food systems greenhouse gas emissions per person (kg CO2eq/person). Data year: 2023. Available at: https://www.foodsystemsdashboard.org/indicators/outcomes/environmental-impacts/per-capita-food systems-greenhouse-gas-emissions/table

5.3.2. Biosphere

Intensive agricultural production is one of the main causes of biodiversity loss in Europe (EEA, 2020).

Agrobiodiversity. The FSMD features an Agrobiodiversity index scaled from 0 to 100, with higher scores indicating a higher level of biodiversity. The data originates from the *Harvard Dataverse* (Jones et al., 2021). Across EU Member States, scores ranged from 52.8 in Malta to 70.5 in Spain, with Spain, France and Portugal recording the highest scores (Figure 116).

Figure 116. Agrobiodiversity index across EU countries, 2020

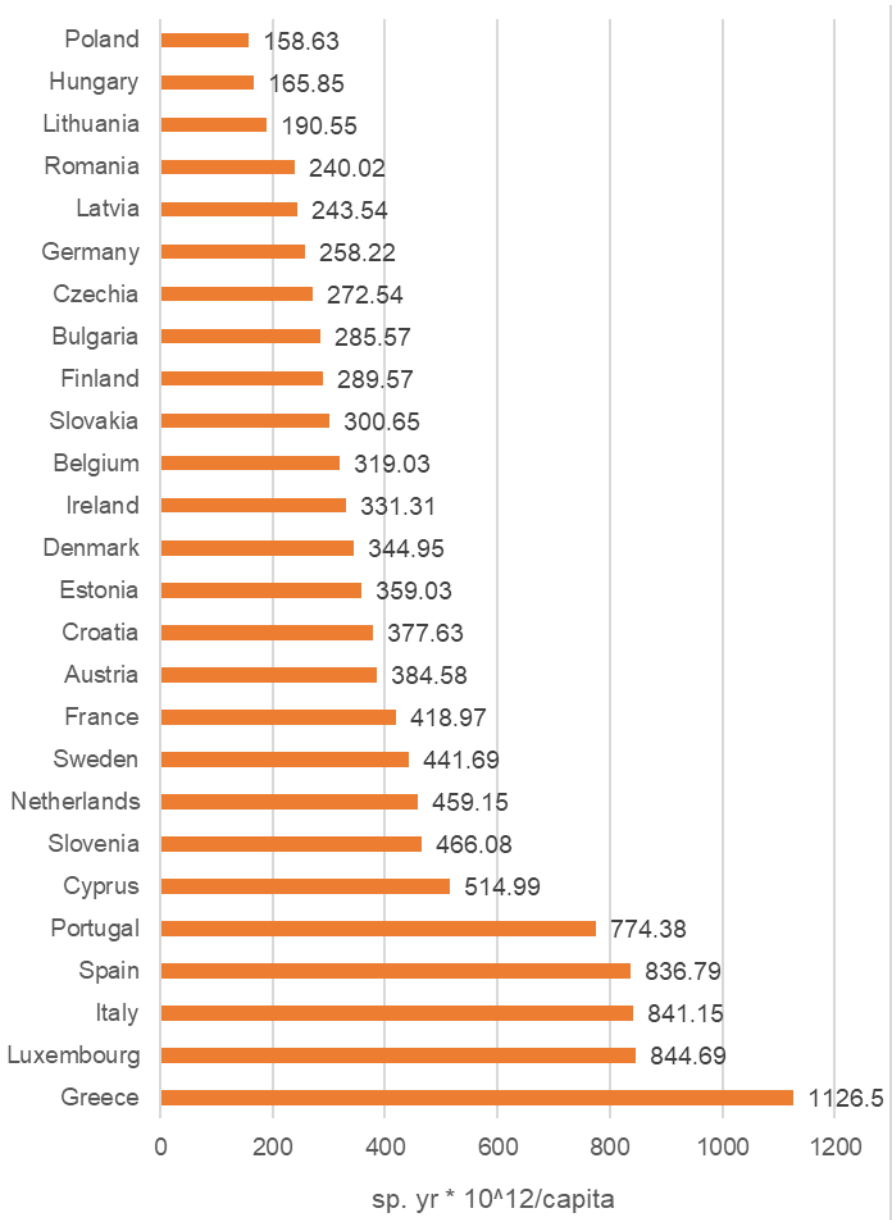


Source: Jones et al. (2021) accessed via Food Systems Dashboard. Agrobiodiversity index (Scaled score from 0 to 100. Data year: 2020. Available at: https://www.foodsystemsdashboard.org/indicators/outcomes/environmental-impacts/agrobiodiversity-index/table

Grassland butterfly index. The *European Environment Agency* (EEA) records the grassland butterfly index across Europe. Butterflies are a good environmental indicator as they are sensitive to environmental change and support ecosystem services, including pollination. Between 1991 and 2024, the health index of 17 grassland butterfly species in the EU decreased by 47% (EEA, 2026b).

Biodiversity impact of food consumption. The FSMD provides 2010 agrobiodiversity impact, defined as: the extinction rate expected under current food consumption patterns (Poore & Nemecek, 2018).

Figure 117. Biodiversity impact of food consumption per person, 2010

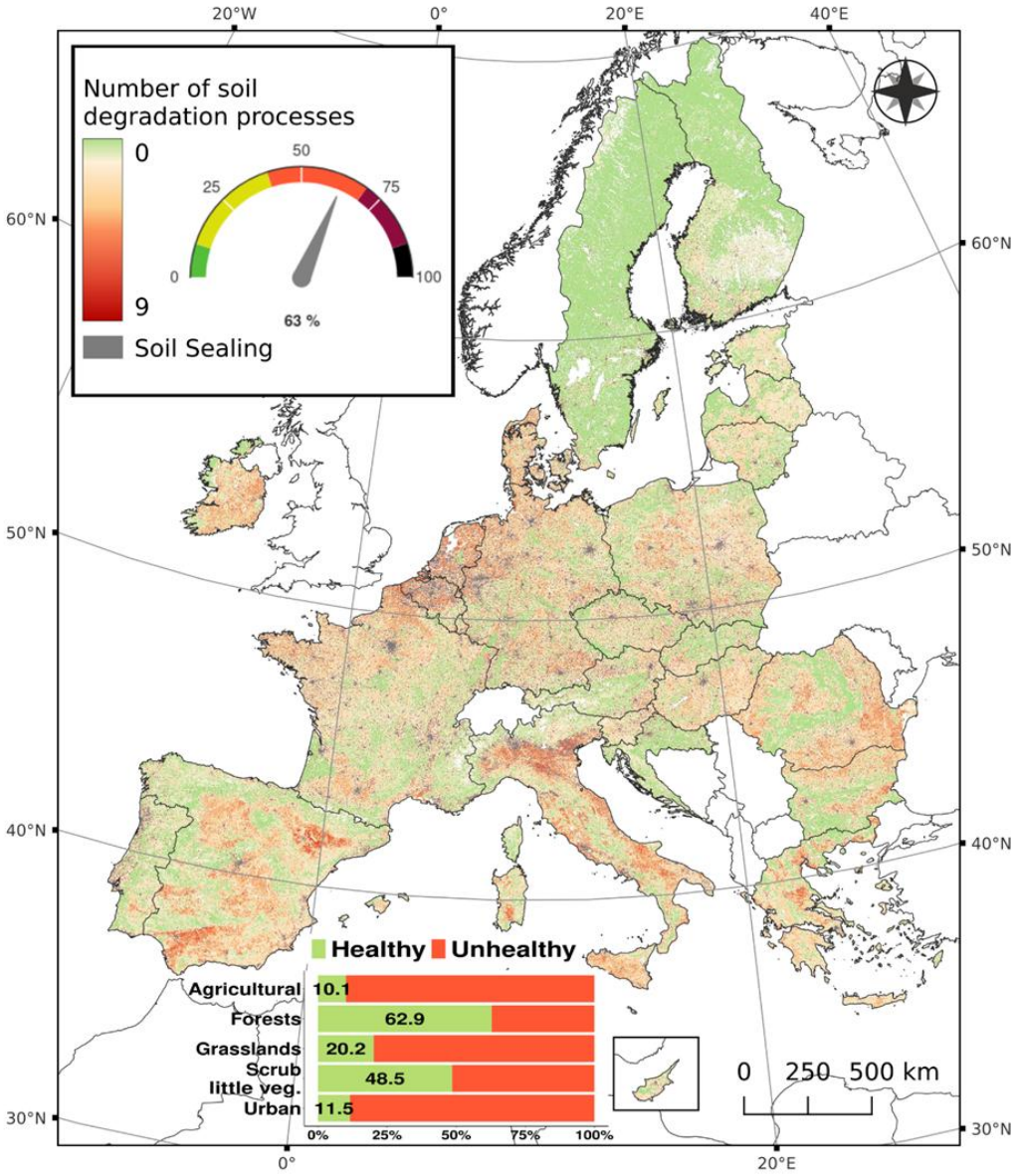


*Source: WWF adapted from Poore & Nemecek (2018) accessed via Food Systems Dashboard. Biodiversity impact of food consumption per person (sp. yr * 10^12/capita). Data year: 2020. Available at: https://www.foodsystemsdashboard.org/indicators/outcomes/environmental-impacts/per-capita-biodiversity-impact-of-food-consumption/table*

5.3.3. Geosphere

Soil degradation. Soil health is a key geosphere indicator for food system outcomes. It is fundamental for food production, supporting crop growth, nutrient cycling and water regulation. The Joint Research Centre's (JRC) European Soil Data Centre (ESDAC) assessed soil degradation across Europe using 19 soil degradation indicators provided in the EU Soil Observatory (EUSO) Soil Health Dashboard. The EUSO found that 24% of EU soils are subject to one degradation process. **Figure 118** was extracted from JRC ESDAC *(JRC & ESDAC, 2020)*. It shows that only 10.1% of agricultural land classified is 'healthy.' Soil degradation was also evident across other land-cover types, although forests had the highest proportion of healthy soils (62.9%):

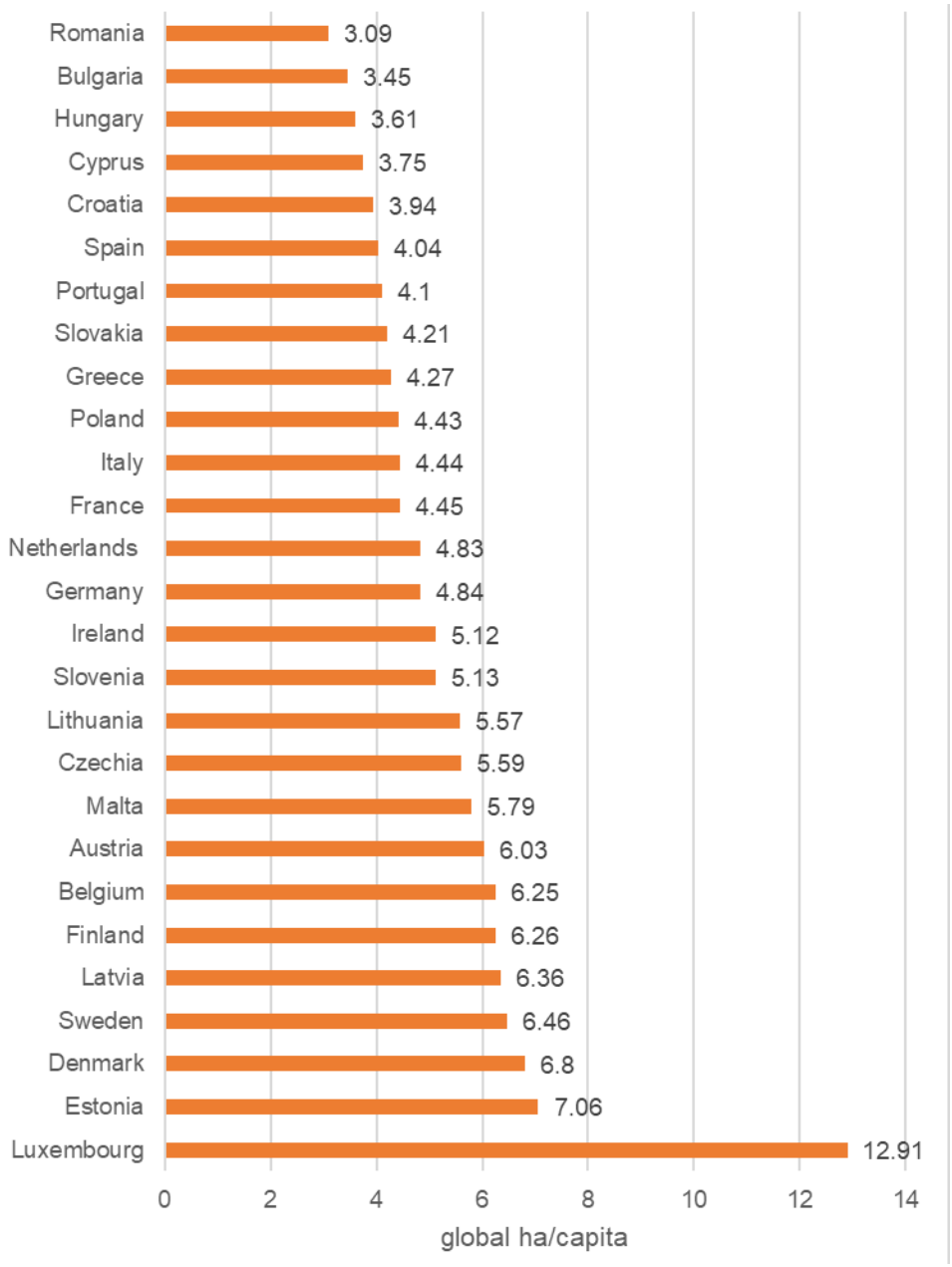
Figure 118. Soil degradation across the EU, 2020



Source: JRC and ESDAC, Soil degradation indicators in EU. Joint Research Centre. European Soil Data Centre. Data year: 2020. Available at: https://esdac.jrc.ec.europa.eu/content/soil-degradation-indicators-eu

Ecological footprint of food consumption. Here, the FSMD presents data from the Data Footprints Network (Global Footprint Network, 2019). Ecological footprint includes the biologically productive land and water area required to support consumption per person. This was highest in Luxembourg at 12.91 global hectares (gha) per capita and lowest in Romania at 3.09 gha/capita.

Figure 119. Total ecological footprint of food consumption per person, 2019



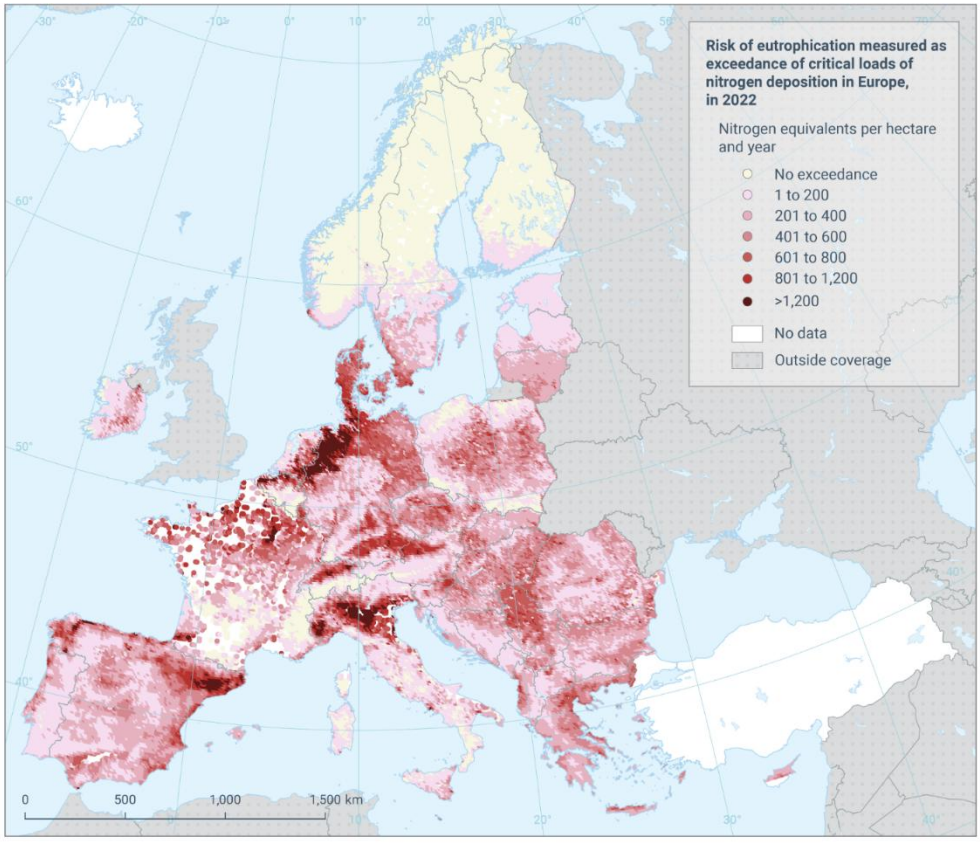
Source: Global Footprint Network accessed via Food Systems Dashboard. Total ecological footprint of food consumption per person (global ha/capita). Data year: 2019. Available at: https://www.foodsystemsdashboard.org/indicators/outcomes/environmental-impacts/total-ecological-footprint-of-production-higher-worst/table

5.3.4. Hydrosphere

Ecological footprint of food consumption also pertains to geosphere food system outcomes, this is displayed in section 5.3.3.

Nitrogen and phosphorus loading. Nitrogen and phosphorus can lead to eutrophication[26], damaging the hydrosphere. The main source of nitrogen loading is from agriculture (≈94 % of reduced nitrogen emissions, with 67 % from livestock). The European Commission's Zero Pollution Action Plan (ZPAP) launched in 2021 and aims to reduce pollution to the air, water and soil by 2050. The ZPAP aims to reduce areas affected by eutrophication due to nitrogen deposition by 25% by 2030. Figure 120 shows where areas are not exceeding as the beige areas. Gemany, the Netherlands, Belgium and Northern Italy show the highest levels of eutrophication risk:

Figure 120. Risk of eutrophication – measures of nitrogen deposition exceeding critical loads per hectare, 2022

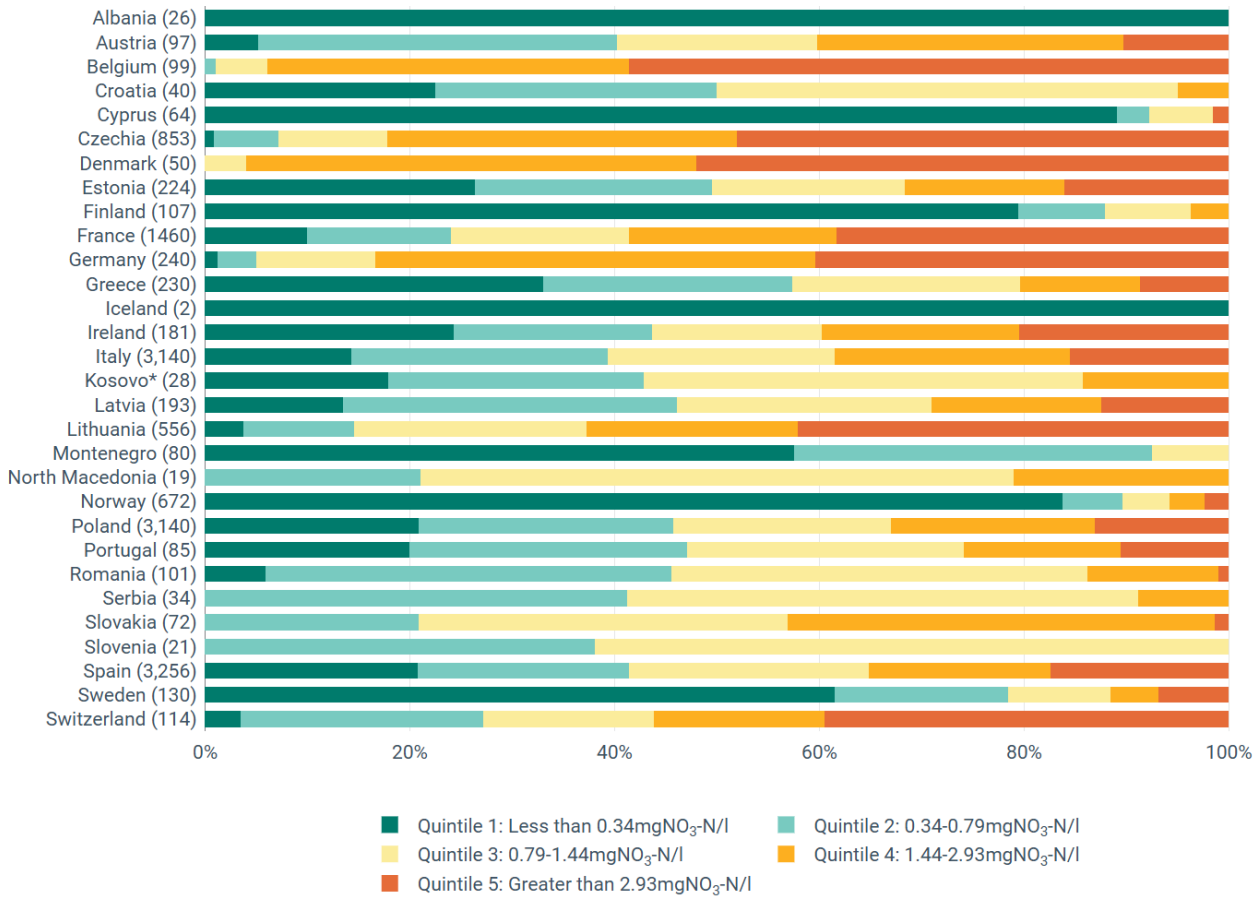


Source: EEA. Risk of eutrophication measured as exceedance of critical loads of nitrogen deposition in Europe, in 2022. European Environment Agency. Data year: 2022. Available at: https://www.eea.europa.eu/en/analysis/maps-and-charts/risk-of-eutrophication-measured

[26] **Eutrophication:** The process whereby a body of water becomes overloaded with nutrients such as nitrogen and phosphorus. This is a problem as it can lead to excessive algae and plant growth.

Figure 121 shows European countries and the number of rivers in brackets. Spain has the highest number of rivers (n=3,256) followed by Poland (n=3,140). The concentrations are in mg nitrate-nitrogen per litre (mg NO3-N/l) and countries with a particularly high level of quintiles 4 and 5 include: Belgium, Czechia, Denmark and Germany.

Figure 121. Nitrate levels in rivers in European countries, 2018-2023



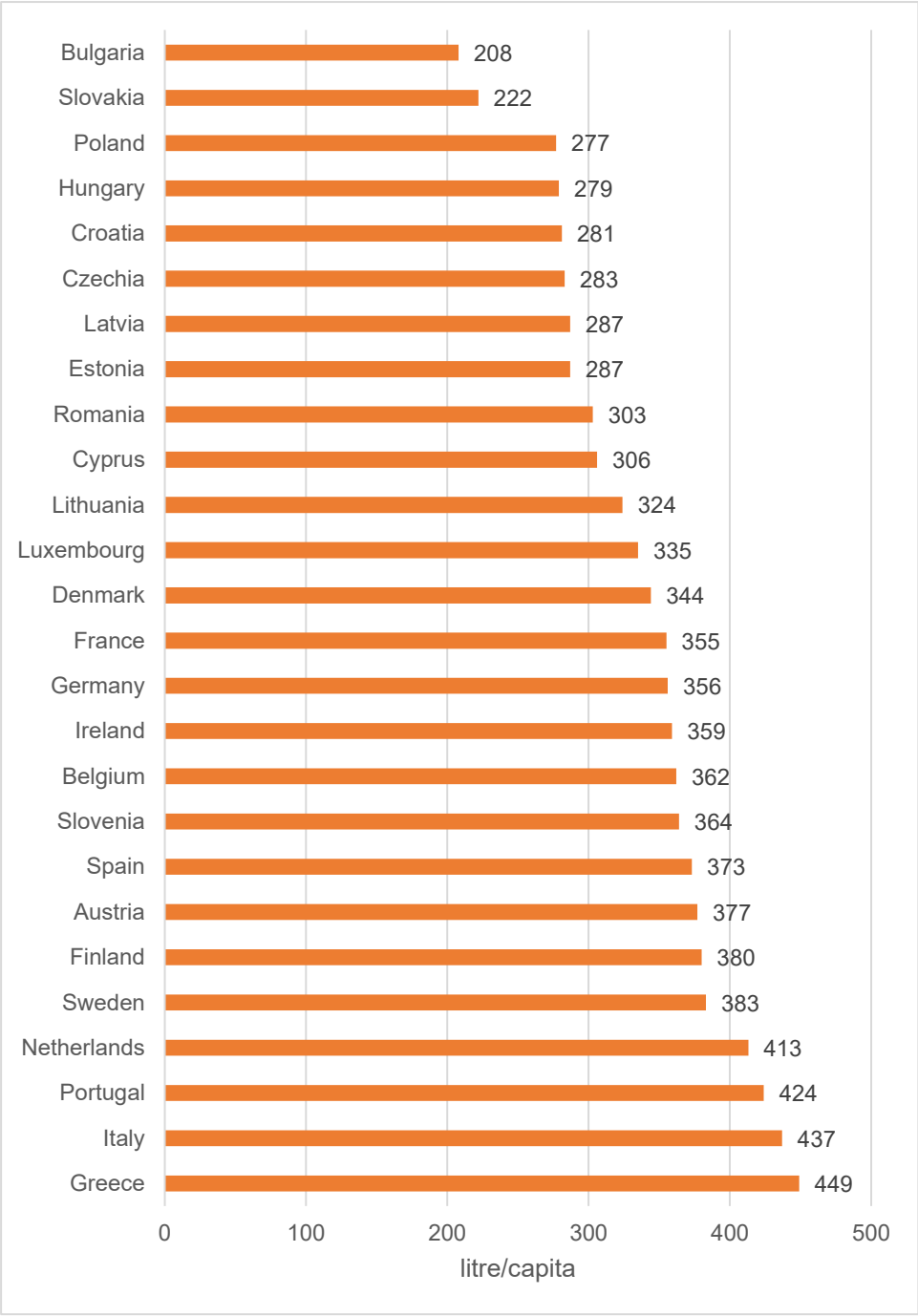
Source: EEA. Nitrate levels in rivers in European countries (2018-2023). European Environment Agency. Data year: 2022. Available at: https://www.eea.europa.eu/en/analysis/indicators/nutrients-in-freshwater-in-europe/nitrate-levels-in-rivers?activeTab=265e2bee-7de3-46e8-b6ee-76005f3f434f

Secondly, phosphates from agriculture contribute to phosphorus loading of waterways. The EEA has data from 2007 to 2023. In 2023, river phosphate levels were at 0.067 mgPO4-P/l. For the same year, lake phosphorus was at 0.032 mgP/l.

Agricultural water withdrawal. AO AQUASTAT data show that agricultural water withdrawals as a proportion of total renewable water resources range from less than 0.1% in several northern and central European countries to 17.0% in Spain, 23.2% in Cyprus and 26.1% in Malta Figure 123. The variation reflects differences in climate, agricultural production systems, irrigation requirements and water availability.

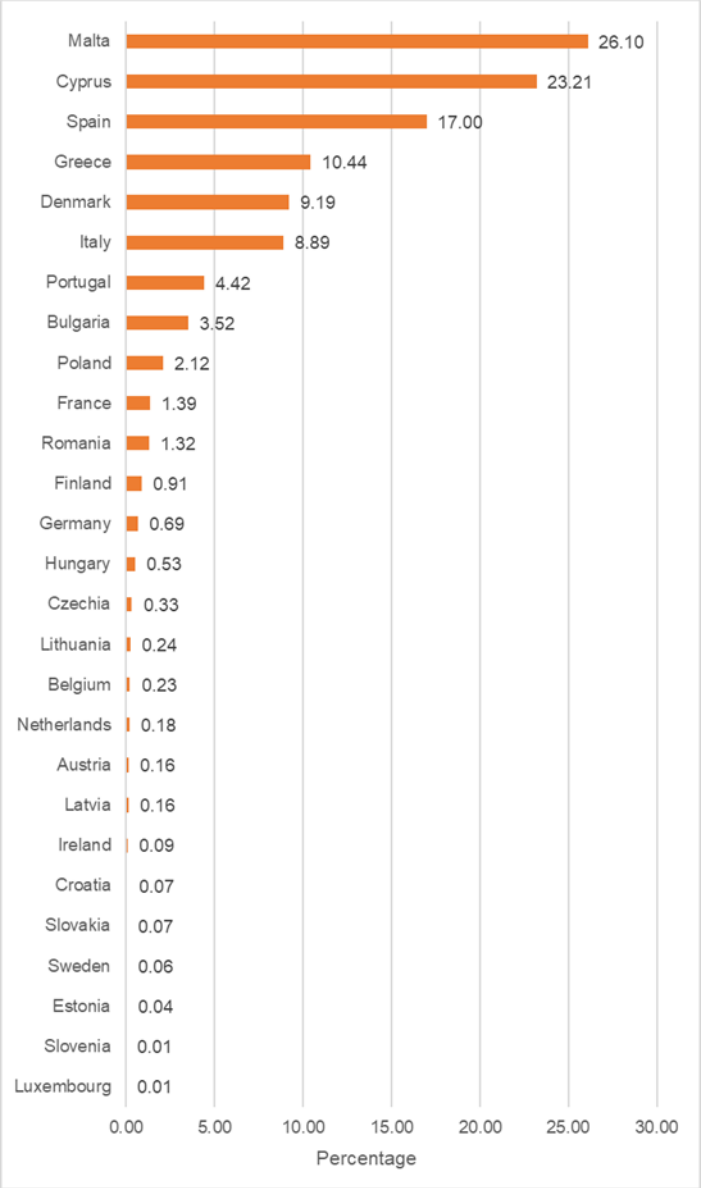
Water use linked to food consumption. Please note that the FSMD presents data from 2010 which is considerably out-of-date (Figure 122) (Poore and Nemecek, 2018). Litres per capita is highest in Greece (449), Italy (437) and Portugal (413). It is lowest in Bulgaria (208) and Slovakia (222):

Figure 122. Water use linked to food consumption per person, 2010



Source: WWF adapted from Poore & Nemecek (2018) *accessed via Food Systems Dashboard. Water use linked to food consumption per person. Data year: 2010. Available at: https://www.foodsystemsdashboard.org/indicators/outcomes/environmental-impacts/per-capita-water-use-linked-to-food-consumption/table*

Figure 123. Agricultural water withdrawal as % of total renewable water resources, 2023



Source: FAO AQUASTAT, Agricultural water withdrawal as % of total renewable water resources (%). Data year: 2023. Available at: https://data.apps.fao.org/aquastat/?lang=en

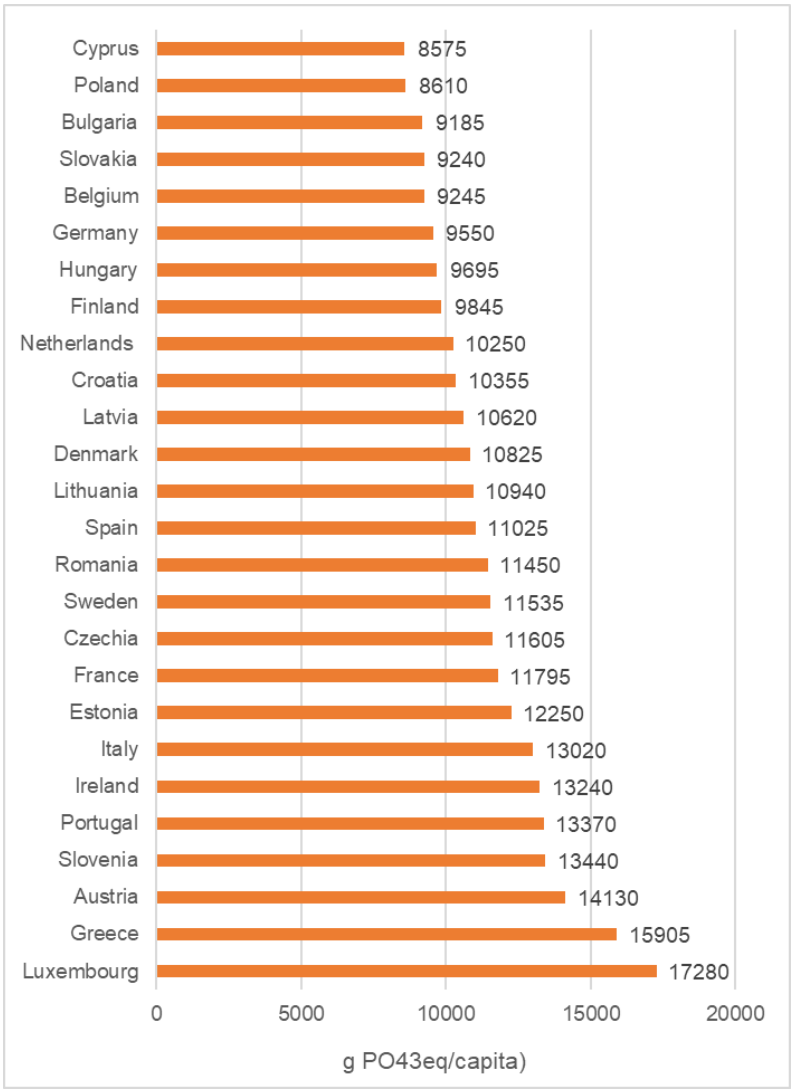
Irrigation of agricultural water. The FAO AQUASTAT site also includes irrigated agriculture water use efficiency in United States dollars per cubic metres ($USD/m³)[27]. Irrigated agricultural water-use efficiency varies substantially between EU Member States with particularly high water-use efficiency in the Netherlands (US$35.10/m³), followed by Slovenia (US$4.66/m³) and Malta (US$3.42/m³). At the other end of the

[27] Values are adjusted to the agricultural value added for the proportion attributed to rainfed agriculture. Higher water-use efficiency here means more economic output per unit of irrigation / agricultural water.

range, reported values were below US$0.10/m³ in several Member States, including Ireland, Luxembourg, Finland, Latvia, Lithuania and Bulgaria[28].

Eutrophication of food consumption per person. Again, this FSMD data is from 2010 so considered very out-of-date. The indicator measures the amount of phosphorus and nitrogen released into water and soil, expressed as phosphate equivalents, that can be traced back to an individual's diet and food choices. Figure 124 shows that this is highest in Luxembourg (17,280) and lowest in Cyprus (8,575):

Figure 124. Eutrophication of food consumption per person (g PO43eq/capita), 2010



Source: WWF adapted from Poore & Nemecek (2018) Food Systems Dashboard. Eutrophication of food consumption per person (g PO43eq/capita). Data year: 2010. Available at: https://www.foodsystemsdashboard.org/indicators/outcomes/environmental-impacts/per-capita-eutrophication-of-food-consumption/table

28 *Source: FAO AQUASTAT, Agricultural Sector Contribution to Water Stress. Data year: 2023. Available at: https://data.apps.fao.org/aquastat/?lang=en*

6. What are the feedbacks of the EU-27 Food System?

Food systems are characterised by interconnected relationships in which drivers influence actors and activities, generating outcomes that can, in turn, reshape the conditions under which the system operates.

Feedback relationships across the EU-27 food system

The mapping presented in Sections 3–5 highlights relationships through which food system activities and outcomes can feed back into the drivers shaping actors' decisions. These span environmental, social and economic, and direct food system dimensions, illustrating how changes in one part of the system can have consequences elsewhere. While the mapping does not formally quantify causal feedback loops, it provides a basis for identifying these interdependencies within the current EU food system configuration.

Environmental drivers and outcomes. The atmosphere, biosphere, geosphere and hydrosphere (**Section 3.1**) provide the biophysical conditions and resources on which food production depends, while food system activities contribute to the environmental outcomes described in **Section 5.3**. Agriculture contributes to greenhouse-gas emissions and climate change, which in turn affect productivity and production risks. Agricultural expansion and intensification contribute to biodiversity loss, while declining biodiversity can undermine ecosystem services supporting production and potentially reinforce further intensification (*e.g.*, *intensification traps* as explained by Burian et al. (2024)). Similar feedbacks occur through soils, where degradation can constrain production and increase reliance on external inputs, and water, where agricultural demand can contribute to scarcity and declining water quality, which subsequently constrain production.

Social and economic drivers and outcomes. Cultural heritage, ethics and social values influence food practices and diets, while changes in production and consumption can transform food cultures and social norms. Demographic change and epidemics affect demand and labour availability, while food security and health outcomes influence societal and economic vulnerability. Economic development shapes purchasing power and investment, while food system employment and livelihoods contribute to wider economic conditions. Education and knowledge systems influence actors' capacities to adopt technologies, interpret information and adapt production or consumption practices, while experience generated within the food system contributes to learning and innovation. Media influence perceptions of food, health, environmental impacts and production practices, while developments and controversies within the food system can shape public discourse and media attention. Geopolitical processes affect

trade, energy and input availability and food security, while dependence on particular commodities, inputs and trade relationships can create geopolitical vulnerabilities. Finally, governance systems and power dynamics influence participation in decision-making and whose interests are represented, while the distribution of economic benefits and power within the food system can reinforce or alter these institutional relationships (Clapp, 2021).

Direct food system drivers and outcomes. Consumer preferences shape demand and business strategies, while prices, availability and food environments influence subsequent preferences and consumption. Input prices affect production decisions, while changing production and demand influence input markets; investment shapes productive capacity and innovation, while profitability influences subsequent investment. Labour availability affects food system capacity, while wages and working conditions influence labour supply. Markets and trade shape prices and production decisions but are themselves affected by production, consumption and trade flows. Policy and governance, including the CAP and CFP, modify incentives and constraints, while resulting environmental and socioeconomic outcomes can generate pressure for policy adjustment. Science and technology both shape and respond to food system activities, while trust and security influence behaviour and can themselves be affected by food-safety incidents and supply disruptions.

Direct food system outcomes illustrate these relationships particularly clearly: food prices affect demand and producer incentives; food quality and safety influence trust and preferences; antimicrobial resistance can prompt regulatory and production changes; and concerns over animal welfare can influence consumer behaviour, retailer standards and policy. **Outcomes can therefore become signals to which food system actors respond, generating further adjustments within the system.**

Feedbacks and leverage points for food system transformation

Feedback loops may be reinforcing, amplifying change, or balancing, counteracting it, and may involve time lags between actions and their consequences (Meadows, 1999). They are therefore relevant to transformation because they influence whether existing system configurations persist or change. Meadows (1999) identifies feedback mechanisms as potential leverage points, alongside deeper interventions targeting information flows, institutional rules and system goals. Similarly, Abson et al. (2017) argue that sustainability transformations require attention not only to individual parameters, but also to the relationships and structures that shape system behaviour.
Interventions targeting individual drivers or outcomes may therefore have limited effects where the feedback mechanisms sustaining existing practices remain unchanged. Reducing agricultural inputs, for example, may be difficult where economic incentives favour intensification, while healthier-diet policies may be constrained by food prices, retail environments and socioeconomic inequalities. Feedback analysis can

help identify potential leverage points for transformation by revealing where reinforcing processes might be interrupted or mechanisms supporting more sustainable outcomes strengthened. However, such interventions must account for interactions across spatial and temporal scales and possible trade-offs or unintended consequences.

Despite growing recognition of feedbacks in food system thinking, their systematic integration into European research and policy remains limited. Existing research suggests that transformation strategies often focus on individual interventions rather than the feedback structures and time delays shaping system behaviour (Guerrieri et al., 2025; Sundkvist et al., 2005). Causal-loop analyses also show that important relationships can remain overlooked, including those linking diets, health and wider food system performance, although emerging applications demonstrate the value of explicitly considering feedbacks for resilience and transformation (Brons et al., 2026; Rikkonen et al., 2026). Overall, feedbacks, lock-ins and trade-offs remain comparatively underdeveloped in European food system research (Halberg & Westhoek, 2019). Strengthening their analysis is important for moving from mapping the current system towards identifying bottlenecks and potential leverage points for transformation.

7. Conclusions

This FoSSNet EU-27 food systems mapping report provides a systems-wide characterisation of the drivers, actors and activities, outcomes and feedbacks that constitute the current European food system.

Main findings

- **The EU-27 as a unit of food system analysis**. This unit has been chosen because Member States operate within shared political, regulatory, market and knowledge environments, while important drivers (e.g., EU policies, trade arrangements, research and innovation agendas, market structures) operate at supranational level. Mapping at EU-27 level therefore makes cross-country interdependencies visible and provides a scale at which common challenges and potential leverage points can be identified. This does not imply a bounded European food system: national and territorial differences remain substantial, and the EU is itself embedded in global supply chains. The EU-27 is therefore best understood as one relevant analytical level within a wider, multi-level food system.
- **Coverage of biophysical and economic dimensions.** Harmonised EU data provide comparatively strong coverage of biophysical and economic dimensions, particularly agricultural production, trade, environmental pressures and the economic scale of food-chain activities (*Table B1* in Annex B). These provide a relatively detailed picture of the material and economic structure of the EU food system.
- **Coverage of social, institutional and relational dimensions.** Coverage is substantially weaker for knowledge systems, power, labour and migration, land-tenure security and the information environment. Several concepts in the FoSSNet framework could not be matched to robust, harmonised EU-27 indicators such as traditional ecological knowledge, agricultural land-tenure security, migrant agricultural labour and exposure to food marketing and misinformation (*Table B1* in Annex B).
    - **Data availability across midstream activities.** Processing, wholesale and retail are relatively well described through structural measures such as numbers of enterprises, employment, turnover and value added, but much less is known about how these actors function within the system (e.g., through contracting, standard-setting, price transmission or concentration and exercise of market power). This partly reflects the fact that relevant data may be commercially sensitive, privately held or available only through proprietary datasets, limiting their accessibility and harmonisation for EU-wide monitoring.
- **Relationships between food system components.** Environmental, social and economic, and direct food system drivers shape actors' decisions, while activities and outcomes can feed back into these conditions. Considering these relationships

together helps reveal bottlenecks, trade-offs and potential leverage points that may remain obscured when sectors or indicators are considered separately.

Taken together, these findings make the distribution of evidence and the gaps themselves an important result of the mapping. What can be measured influences what can be monitored, compared and ultimately governed. The uneven evidence base therefore points to dimensions of the EU food system that remain comparatively invisible and provides a basis for prioritising future data collection, indicator development and research.

Comparison with existing food system monitoring frameworks

The evidence gaps revealed through the FoSSNet mapping can be considered alongside those identified by other existing food system monitoring initiatives (Table 2). The JRC EU Food System Monitoring Framework (Acs et al., 2025), developed following the screening of more than 350 indicators, similarly identifies gaps requiring further methodological development and data collection. In particular, the JRC reports weaker coverage of processing, distribution and consumption, noting that these parts of the food chain are predominantly governed by private-sector actors and that relevant data are often not publicly accessible (Tóth et al., 2025).

The FoSSNet mapping reveals similar gaps but also broadens their interpretation through its organisation of the food system into drivers, actors and activities, outcomes and feedbacks (**Figure 1**). For example, limited evidence on consumption concerns not only what people consume, but also the conditions influencing consumption, including consumer information, media and marketing, knowledge, trust, social values, food prices and the wider food environment. Similarly, gaps relating to processing and distribution extend beyond information on the size and economic contribution of these sectors to the relationships through which midstream actors influence the food system, including contracting, standard-setting, price transmission and market power. The inclusion of feedbacks further draws attention to evidence needed to understand how activities and outcomes subsequently influence actors' decisions and the conditions under which the food system operates.

Nonetheless, this mapping has a different but complementary purpose to existing monitoring initiatives. The FoSSNet map characterises the current system and identifies where evidence is available or missing. This provides a basis for identifying bottlenecks, knowledge gaps and potential transformation needs. Monitoring frameworks such as the JRC EU Food System Monitoring Framework (Tóth et al., 2025) provide regularly updated indicators through which changes in the food system can be tracked. At global level, the Food Systems Countdown Initiative (FSCI), demonstrates how targets and benchmarks can further support assessment of the direction and pace of food system transformation (Carducci et al., 2026). Together, mapping, monitoring and benchmarking provide complementary forms of evidence for transformation:

understanding where the system is and how its components interact, tracking how it changes, and assessing whether change is moving towards desired outcomes. This also underlines the need for data and metrics to be tailored to the decisions, and transformation processes they are intended to support.

Limitations of the mapping

This report acknowledges several limitations:

1. **Data availability and timeliness.** Data coverage and reference years vary across components. While some indicators extend to 2025–2026, others, particularly environmental footprint indicators, rely on data from 2010. The map therefore represents the latest suitable evidence available rather than a single cross-sectional snapshot of the EU food system.
2. **Geographical scale and comparability**. Using Member States as the principal unit of analysis supports comparison but can obscure regional, urban–rural and socioeconomic variation. Differences in population, territorial size, agricultural structure and economic scale can also affect comparisons. Country differences should therefore be interpreted in context rather than as direct measures of relative food system performance.
3. **Heterogeneity of indicators**. The evidence includes observed indicators, proxies, composite indices, modelled estimates and, in some cases, policy targets or planned values (*Table B1* in Annex B). These are not equivalent forms of evidence, and suitable thresholds or benchmarks remain unavailable for several dimensions, limiting their use for performance assessment. Recent global assessments identify similar conceptual and data constraints (Carducci et al., 2026).
4. **Feedbacks and causal relationships.** The map identifies potential relationships and feedbacks between food system components but does not establish their direction, magnitude or causal strength. It therefore provides a basis for system characterisation and joint problem analysis, while further analysis is required to identify causal relationships and leverage points for transformation.

Added value and future use of the EU-27 food system map

The FoSSNet EU-27 food system map provides a common evidence base and shared understanding envisaged at the outset of this work. By bringing drivers, actors and activities, outcomes and feedbacks into a common framework, it provides a baseline for understanding the current configuration of the EU food system, its interdependencies and differences across Member States, and where important pressures, bottlenecks and knowledge gaps may lie. Rather than identifying transformation pathways itself, the map provides a basis for subsequent analysis of where and why transformation may be needed.

Within FoSSNet, the findings provide a direct input to the project's subsequent research activities. It provides an evidence base for **D1.3**, which builds on the conceptual framework (D1.1) and food system map (D1.2) to develop participatory visualisation tools for exploring options for food system change. By characterising the current configuration of drivers, activities and outcomes, D1.2 provides a baseline against which alternative food system configurations can be considered. D1.3 can build on this baseline with stakeholders to explore how changes in drivers (e.g., policies, markets, technologies or consumer behaviour) may affect multiple outcomes, making potential trade-offs, synergies and leverage points more explicit and supporting deliberation on transition pathways.

Further, the evidence base identified through the mapping (including gaps relating to e.g., knowledge and information systems, power, labour and migration, land tenure, midstream actors and feedback relationships) can inform the identification and prioritisation of knowledge gaps and research needs and, in particular, the research roadmap developed through WP4. Hence, the FoSSNet Network provides a space to examine these gaps and potential leverage points at European level, while the Territorial Labs can investigate how they are manifested, experienced and addressed in specific contexts. Bringing these perspectives together can help identify which gaps are most consequential for transformation and where new data, methods, models or collaborative research are required. It also enables analysis across scales: how EU-level policies, markets and knowledge systems shape territorial food systems and, conversely, how place-based knowledge and experimentation can inform research and transformation at national and European levels.

Beyond FoSSNet, these findings can connect to the wider European food systems research and innovation landscape. This is particularly relevant to **Food 2040**, which provides a strategic framework for EU food systems research and innovation and builds on the systems approach established through Food 2030. FoSSNet's gaps around contracting, price transmission and market power point to research needs around fair food value chains; gaps in consumer information, marketing, knowledge and trust relate to food environments and consumer empowerment; gaps concerning migrant labour, land tenure and traditional ecological knowledge reinforce the need for inclusive and territorially grounded research. In this sense, the FoSSNet mapping can help translate broad European research priorities into more specific questions about **what remains insufficiently understood or measured in the EU food system** and where further research could support transformation.

Ongoing European initiatives also provide opportunities to address these priorities collaboratively. **FutureFoodS**, including the development of a European Food Systems Observatory, offers potential synergies around research coordination, data and indicator development, while **CLEVERFOOD** provides connections across food system

projects and place-based initiatives. Engagement with these initiatives could help avoid duplication, connect FoSSNet-identified gaps with emerging European data infrastructures and research networks, and strengthen the translation of research into policy-relevant evidence.

The map should therefore be considered a baseline measure of metrics using most recent data, rather than a final representation of the EU food system. Within FoSSNet, it can support the co-production of research priorities and the WP4 research roadmap; beyond FoSSNet, it provides a basis for connecting those priorities with wider European research, monitoring and innovation agendas. In this way, the mapping can contribute to moving from a shared understanding of the current system towards a more coordinated research agenda for food system transformation.

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9. Annex

Annex A – Underlying data of some of the figures presented in the report.

A1. Number of agricultural holdings by farm size, 2023

Source: Eurostat, Physical size of farms by utilised agricultural area and legal form. Online data code: *ef_fsi_physz*. Data year: 2026. https://doi.org/10.2908/EF_FSI_PHYSZ

Member States	up to 4.9ha	5 to 49.9ha	over 50ha
European Union	5507780	2593970	669620
Belgium	5330	19410	9520
Bulgaria	66000	28570	13060
Czechia	8420	15730	9030
Denmark	3760	17050	10510
Germany	20090	153330	81590
Estonia	1140	6540	3030
Ireland	12150	88800	27140
Greece	382020	130620	5760
Spain	390290	306140	106030
France	64830	120980	174590
Croatia	102920	39770	4170
Italy	761150	450740	43850
Cyprus	28170	3390	460
Latvia	25710	24160	6510
Lithuania	59490	48750	11370
Luxembourg	310	560	970
Hungary	103990	65200	20000
Malta	7740	245	0
Netherlands	10160	27780	12610
Austria	16090	72340	12590
Poland	622540	560740	43740
Portugal	185800	63030	12650
Romania	2578730	253420	27230
Slovenia	37360	26690	820
Slovakia	5940	7920	3670
Finland	1260	26190	14840
Sweden	6390	35920	13870

A2. Number of farm managers by age bracket, 2023

Source: Eurostat, Average economic size of farms by standard output, farm type and age of farm manager. Online data code: ef_fsi_ecsz. Data year: 2026. https://doi.org/10.2908/EF_FSI_PHYSZ

	Less than 25 years	25 to 34 years	35 to 39 years	40 to 44 years	45 to 54 years	55 to 64 years	65 years or older

European Union	49,740	437,990	446,920	630,400	1,854,310	2,284,910	3,064,730
Belgium	100	2,190	2,230	2,740	7,580	11,180	8,240
Bulgaria	1,250	7,530	7,620	9,050	23,240	25,540	33,400
Czechia	610	3,090	2,340	3,760	9,390	7,140	6,850
Denmark	2,860	1,210	930	1,540	5,860	9,860	9,060
Germany	1,240	18,430	18,810	24,230	62,880	92,230	37,210
Estonia	80	860	870	850	2,500	2,560	3,000
Ireland	530	5,120	5,590	8,910	25,840	33,820	48,240
Greece	2,210	16,700	18,830	31,800	106,240	146,210	196,350
Spain	4,040	29,210	29,720	48,710	151,190	220,840	319,050
France	3,730	35,640	35,310	39,700	93,490	111,520	41,030
Croatia	2,330	9,890	7,540	10,040	25,790	39,250	51,990
Italy	5,190	50,240	41,100	59,520	206,590	318,410	572,340
Cyprus	30	600	660	1,150	3,970	8,860	16,740
Latvia	240	2,520	2,800	3,570	12,370	16,650	18,230
Lithuania	860	7,270	5,940	8,580	24,820	33,450	38,710
Luxembourg	10	180	170	160	400	540	380
Hungary	810	8,600	9,550	14,720	42,780	43,110	69,630
Malta	10	340	340	540	1,350	1,940	3,460
Netherlands	200	2,380	2,580	3,390	12,260	17,680	12,060
Austria	1,330	12,060	10,930	12,360	30,530	26,920	6,910
Poland	10,280	108,570	113,640	151,870	333,220	322,220	186,980
Portugal	240	5,690	7,000	11,440	37,660	63,750	135,710
Romania	10,560	99,170	112,260	167,880	597,010	680,660	1,191,830
Slovenia	230	3,160	2,580	4,230	12,600	17,800	24,280
Slovakia	270	1,690	1,350	1,800	4,220	4,150	4,040
Finland	180	2,520	3,050	4,030	10,040	13,510	8,940
Sweden	320	3,130	3,180	3,820	10,510	15,140	20,080

A3. Total economic farm output (€) and number of holdings per EU Member State, 2023

Source: Eurostat, Average economic size of farms by standard output, farm type and age of farm manager
Online data code: ef_fsi_ecsz. Data year: 2026. https://doi.org/10.2908/FISH_FLEET_ALT

	Euros	Number of holdings
European Union	393,987,235,640	8,771,360
Luxembourg	393,563,270	1,830

Malta	102,691,760	7,980
Estonia	1,033,359,850	10,710
Slovakia	2,252,716,210	17,520
Cyprus	862,157,470	32,020
Finland	3,567,306,990	42,270
Netherlands	27,544,989,750	50,560
Sweden	6,115,396,430	56,170
Latvia	1,778,672,860	56,390
Slovenia	1,232,561,990	64,870
Austria	7,353,132,590	101,040
Lithuania	2,793,416,960	119,620
Ireland	8,521,163,390	128,080
Croatia	2,310,651,470	146,840
Hungary	7,959,681,890	189,180
Portugal	8,287,602,630	261,500
France	69,795,874,680	360,410
Greece	8,490,903,010	518,400
Spain	45,678,484,010	802,450
Poland	32,989,204,860	1,227,020
Italy	58,599,201,220	1,255,740
Romania	14,755,321,380	2,859,360

A4. Primary production fishing characteristics of the EU food system, 2025

Source: Eurostat, Fishing fleet by age, length and gross tonnage. Online data code: fish fleet. Data year: 2026. https://doi.org/10.2908/FISH_FLEET_ALT

	Number of fishing fleet	Gross tonnage	Kilowatt
European Union	68,318	1,232,936	5,039,364
Belgium	61	13,957	45,374
Bulgaria	1,741	5,824	52,703
Denmark	1,708	63,058	190,201
Germany	1,087	56,079	122,147
Estonia	2,058	14,342	45,533
Ireland	2,022	62,421	174,635
Greece	11,452	60,426	347,366
Spain	8,324	301,135	729,770
France	5,856	144,888	901,802
Croatia	6,648	35,953	309,976
Italy	12,321	146,253	951,153
Cyprus	811	3,752	39,523
Latvia	671	26,390	45,146
Lithuania	105	34,869	40,706
Malta	845	6,652	70,231

Netherlands	767	99,586	243,331
Poland	662	33,102	72,082
Portugal	6,782	83,667	341,520
Romania	151	1,651	6,341
Slovenia	133	558	8,755
Finland	3,200	14,520	171,018
Sweden	913	23,853	130,050

A5. Number of enterprises in each EU Member State by food and drink manufacturing sector, 2024

Source: Eurostat, Enterprises by detailed NACE Rev. 2 activity and special aggregates. Online data code: sbs_ovw_act. Data year: 2024. https://doi.org/10.2908/SBS_OVW_ACT

	Manufacture of food products	Meat processing	Seafood processing	Fruit & vegetable processing	Oils & fats	Dairy	Grain milling & starches	Bakery products	Other food products		Animal feed	Beverages
European Union	270,432	32,684	3,390	13,481	8,188	13,247	5,639	149,595	38,309		6,000	35,588
Belgium	6,648	695	61	232	:	609	96	3,528	1,198		:	794
Bulgaria	5,061	455	47	389	67	304	114	2,726	867		92	848
Czechia	10,522	2,316	23	169	24	223	208	4,691	2,404		464	3,400
Denmark	1,381	117	82	78	14	82	30	548	372		58	273
Germany	23,673	7,667	190	810	179	829	543	10,225	2,479		**751**	2,489
Estonia	919	74	71	100	14	35	17	316	264		28	130
Ireland	2,150	258	118	112	21	162	55	735	529		160	284
Greece	14,565	414	95	876	1,836	881	259	8,776	1,201		227	1,207
Spain	23,846	3,184	**573**	1,319	1,649	1,648	343	11,099	3,311		720	4,948
France	54,457	4,923	381	**2,048**	266	1,484	416	**38,953**	5,646		340	**5,854**
Croatia	2,791	350	44	178	124	101	39	1,566	348		41	608
Italy	45,877	3,017	384	1,497	**2,572**	**2,909**	**1,049**	27,570	**6,455**		424	3,167
Cyprus	854	47	:	49	:	104	8	472	109		28	101
Latvia	1,231	166	101	153	10	60	18	439	250		34	194
Lithuania	2,499	247	88	347	24	33	28	1,227	470		35	104
Luxembourg	105	7	0	4	1	10	2	58	22		1	34
Hungary	4,856	540	11	554	58	140	95	2,533	749		176	2,113
Malta	416	25	0	25	2	30	2	252	72		8	15
Netherlands	8,672	910	206	318	67	429	116	4,575	1,795		256	1,421
Austria	4,368	840	26	229	89	224	119	2,020	685		136	706
Poland	18,587	3,035	330	1,312	254	942	503	8,791	2,756		664	812
Portugal	9,580	852	162	461	441	467	135	5,992	945		125	2,041
Romania	13,432	1,050	41	877	163	764	1,056	7,771	1,271		439	1,698

Slovenia	2,709	442	6	469	153	278	109	918	316		18	273
Slovakia	5,111	383	:	249	:	159	105	1,391	2,490		304	1,084
Finland	2,357	224	156	231	19	80	73	1,009	479		86	250
Sweden	3,765	446	190	395	47	260	101	1,414	826		86	740
Bosnia and Herzegovina	2,350	357	:	168	:	107	64	1,391	188		54	131
Montenegro	:	:	:	:	:	:	:	:	:		:	:
North Macedonia	1,685	63	1	137	6	91	45	1,029	291		22	123
Albania	2,872	:	:	:	:	:	:	:	:		:	:
Serbia	7,114	730	33	1,020	58	312	202	3,716	874		169	954

A6. Employment by each EU Member State by food and drink manufacturing sector (persons employed), 2024

Source: Eurostat, Enterprises by detailed NACE Rev. 2 activity and special aggregates. Online data code: sbs_ovw_act. Data year: 2024. https://doi.org/10.2908/SBS_OVW_ACT

	Manufacture of food products	Meat processing	Seafood processing	Fruit & vegetable processing	Oils & fats	Dairy	Grain milling & starches	Bakery products	Other food products	Animal feed	Beverages
European Union	4,349,095	967,524	110,447	300,000	70,000	425,000	102,329	1,554,968	673,000	140,000	475,676
Belgium	100,053	15,068	1,463	13,845	:	8,609	4,310	27,407	22,173	:	13,123
Bulgaria	77,585	17,881	1,646	7,212	2,617	8,040	2,576	24,500	11,095	2,018	11,129
Czechia	100,471	21,881	774	3,415	935	8,626	3,239	33,932	21,897	5,771	18,222
Denmark	55,859	13,398	2,551	1,153	556	11,960	1,185	15,002	7,628	2,426	4,796
Germany	909,126	226,731	6,862	36,645	5,753	53,576	20,478	390,648	140,705	27,728	108,387
Estonia	12,950	2,690	1,199	608	97	1,878	146	3,003	2,931	398	1,597
Ireland	56,400	19,515	2,509	1,731	405	10,909	516	8,728	9,460	2,627	4,772
Greece	136,102	12,029	1,628	19,388	6,104	14,606	2,785	62,645	14,536	2,381	10,756
Spain	445,732	124,704	25,079	46,187	15,730	33,281	7,195	103,912	72,180	17,463	62,099
France	696,254	130,701	14,441	36,721	9,310	94,577	10,937	290,622	90,302	18,643	65,012
Croatia	51,412	7,540	1,571	2,403	947	7,535	543	20,275	10,013	585	7,333
Italy	446,095	67,493	6,907	37,800	10,656	51,320	11,652	169,596	82,453	8,218	43,528
Cyprus	14,156	1,622	:	685	:	2,374	297	7,764	790	418	1,247

Latvia	20,637	5,245	2,651	1,623	52	3,108	667	5,135	1,938	218	2,479
Lithuania	39,073	6,772	5,819	1,717	318	7,087	1,168	9,372	4,482	2,338	3,201
Luxembourg	4,709	1,025	0	:	:	:	:	2,799	:	:	493
Hungary	97,645	29,223	116	8,198	1,335	5,039	3,186	29,515	13,504	7,529	14,456
Malta	3,501	456	0	415	1	214	53	1,683	546	133	1,020
Netherlands	135,127	14,920	3,346	11,225	3,103	18,512	3,970	43,241	28,105	8,707	10,019
Austria	86,955	19,758	199	6,083	1,193	6,926	3,366	33,137	13,201	3,092	11,704
Poland	438,012	120,194	18,025	40,895	3,801	38,961	10,378	113,098	74,419	18,241	24,334
Portugal	98,015	21,653	9,237	6,081	2,543	7,706	1,920	36,389	8,812	3,674	18,400
Romania	173,229	50,650	1,369	6,039	3,266	11,613	8,188	76,375	13,474	2,255	20,923
Slovenia	18,669	6,150	:	1,214	387	2,183	:	5,776	2,138	541	1,570
Slovakia	42,411	8,927	:	1,558	:	3,920	1,235	14,630	10,685	935	5,481
Finland	35,616	9,335	1,041	2,071	223	5,639	1,181	9,595	5,881	650	3,352
Sweden	53,301	11,963	1,747	4,803	915	6,605	891	16,189	9,347	841	6,243
Bosnia and Herzegovina	23,866	5,003	:	927	:	1,604	899	11,056	2,420	1,419	2,384
Montenegro	:	:	:	:	:	:	:	:	:	:	:
North Macedonia	16,657	1,285	1	1,751	215	1,724	561	6,831	4,225	64	2,324
Albania	17,066	:	:	:	:	:	:	:	:	:	:
Serbia	92,844	17,312	442	12,910	2,545	7,731	3,236	34,001	10,800	3,867	9,629

A7. Net turnover by each EU Member State by food and drink manufacturing sector (€ million), 2024

Source: Eurostat, Annual enterprise statistics by NACE Rev. 2 activity. Data code: sbs_ovw_act. Year: 2024. https://doi.org/10.2908/SBS_OVW_ACT

	Manufacture of food products	Meat processing	Seafood processing	Fruit & vegetable processing	Oils & fats	Dairy	Grain milling & starches	Bakery products	Other food products	Animal feed	Beverages
European Union	1,350,815.24	292,295.85	35,964.10	109,000.00	:	:	58,098.35	160,951.88	264,000.00	100,000.00	194,867.78
Belgium	73,812.34	9,280.14	837.53	9,579.39	:	6,850.46	6,115.14	5,623.37	13,643.62	:	9,535.63
Bulgaria	8,474.40	2,142.77	142.81	667.46	1,010.05	826.40	785.96	1,076.62	1,415.87	406.46	1,317.30

Czechia	17,694.80	3,514.35	175.30	584.78	923.83	2,702.25	724.83	2,448.33	4,251.04	2,370.09	4,040.36
Denmark	30,574.58	7,213.22	1,780.57	440.49	:	:	923.42	1,818.01	2,474.71	3,389.15	1,740.22
Germany	245,685.92	58,050.01	3,580.19	14,003.31	6,554.74	49,391.51	12,421.38	30,725.15	50,934.61	20,025.03	33,970.35
Estonia	2,856.26	460.11	249.65	88.14	126.61	643.87	74.62	309.83	646.51	256.93	362.42
Ireland	36,607.34	6,546.11	600.38	516.27	114.70	7,813.13	162.10	1,834.19	17,251.04	1,769.43	5,041.18
Greece	21,944.86	3,108.51	239.29	3,703.38	2,228.50	3,881.47	856.98	4,007.10	2,406.49	1,513.14	2,869.93
Spain	158,681.57	42,100.40	7,971.12	15,809.13	19,469.69	15,522.75	5,448.07	12,997.00	22,419.43	16,943.98	22,355.05
France	228,063.00	47,457.86	5,987.30	14,813.49	10,699.80	54,009.37	6,088.13	35,746.73	40,000.63	13,259.68	36,918.90
Croatia	5,892.82	1,202.18	144.94	540.36	244.85	1,183.62	51.18	1,050.06	1,334.97	140.67	1,364.45
Italy	166,337.30	31,350.44	3,141.80	17,372.62	12,157.61	28,740.62	11,164.43	26,515.54	28,492.31	7,401.94	27,207.39
Cyprus	2,123.18	397.60	:	154.97	:	578.56	76.98	534.46	104.86	221.65	267.60
Latvia	2,529.62	605.78	323.82	203.72	:	541.09	:	336.46	186.03	:	348.38
Lithuania	5,871.54	875.90	878.39	255.18	97.39	1,530.65	366.95	604.26	584.51	678.32	668.32
Luxembourg	946.85	169.53	0.00	:	:	:	:	323.69	:	:	180.56
Hungary	15,872.42	4,556.80	11.39	1,483.14	2,157.58	954.49	772.21	1,665.14	1,996.16	2,275.51	2,976.18
Malta	520.39	101.16	0.00	65.38	:	49.79	:	109.87	129.99	46.02	150.57
Netherlands	118,620.31	14,420.72	1,521.21	10,904.27	6,145.99	20,935.52	3,494.68	7,487.87	41,488.39	12,221.67	10,370.00
Austria	27,121.42	7,208.23	77.80	2,784.96	683.57	4,165.50	2,082.98	3,660.36	4,650.82	1,807.19	10,861.78
Poland	102,114.36	31,152.87	5,057.01	9,841.94	2,488.15	14,550.21	2,737.79	9,781.08	18,253.64	8,251.66	7,579.70
Portugal	20,122.10	4,418.45	2,010.14	1,619.46	2,566.05	2,312.85	958.52	2,443.68	1,720.61	2,072.33	4,404.72
Romania	16,345.48	5,579.75	202.78	785.01	1,494.55	2,019.94	1,062.80	3,392.27	1,334.01	474.37	4,381.87
Slovenia	3,254.84	1,021.41	:	197.97	87.61	589.34	:	537.41	604.75	172.36	373.62
Slovakia	6,404.75	1,469.81	:	345.61	:	1,056.74	344.98	1,090.30	1,557.12	259.37	1,032.45
Finland	12,362.72	3,086.57	393.69	627.39	176.46	3,059.87	566.28	1,881.61	2,160.10	410.75	1,652.93

Sweden	19,980.08	4,805.21	582.17	1,894.95	1,173.14	3,103.58	422.85	2,951.52	4,292.05	754.63	2,895.91
Bosnia and Herzegovina	2,522.92	858.35	:	117.82	:	279.65	119.76	412.91	344.31	275.48	332.14
Montenegro	:	:	:	:	:	:	:	:	:	:	:
North Macedonia	1,071.91	127.69	0.09	198.06	18.42	199.31	38.70	192.36	287.14	10.14	342.01
Albania	678.92	:	:	:	:	:	:	:	:	:	:
Serbia	10,269.61	1,935.81	75.26	1,695.74	763.69	1,134.92	533.38	1,553.98	1,439.22	1,137.61	1,395.79

A8. Food waste in kilograms per person in each EU member state, 2023

Source: Eurostat, 130 kg of food wasted per person annually in the EU. Available at: https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20251016-2

	Total	Primary production	Processing and manufacturing	Retail and other distribution of food	Restaurants and food services	Household level
European Union	129	11	24	10	14	69
Belgium	146	6	53	12	11	63
Bulgaria	96	10	24	6	15	41
Czechia	98	2	13	6	17	59
Denmark	261	19	124	18	13	87
Germany	131	2	23	9	21	76
Estonia	131	17	17	11	9	78
Ireland	157	9	57	16	33	42
Greece	201	23	47	20	23	89
Spain	54	3	11	9	5	26
France	142	19	34	12	16	61
Croatia	122	24	11	16	16	55
Italy	138	11	10	10	9	98
Cyprus	286	51	70	59	32	74
Latvia	127	14	15	10	11	77
Lithuania	144	29	19	9	2	86

Luxembourg	116	10	18	11	10	67
Hungary	88	1	18	5	2	62
Malta	128	1	10	4	31	82
Netherlands	116	10	48	6	5	47
Austria	130	1	22	8	29	70
Poland	127	21	15	13	8	70
Portugal	183	12	5	22	21	122
Romania	188	32	22	1	30	103
Slovenia	78	0	10	7	26	34
Slovakia	97	9	15	6	2	65
Finland	115	6	26	8	15	60
Sweden	122	9	29	10	14	60

A9. Tonnes of fresh food waste mass in each EU member state, 2023

Source: Eurostat, Food waste and food waste prevention by NACE Rev. 2 activity - tonnes of fresh mass. Data code: env_wasfw. Year: 2023. https://doi.org/10.2908/ENV_WASFW

	Total	Primary production	Processing and manufacturing	Retail and other distribution of food	Restaurants and food services	Household level
European Union	57,900,000	5,000,000	10,900,000	4,600,000	6,500,000	31,000,000
Belgium	1,719,628	74,845	627,536	140,714	133,184	743,348
Bulgaria	617,391	63,880	153,534	36,981	98,661	264,335
Czechia	1,062,773	16,895	146,548	68,701	184,528	646,101
Denmark	1,553,763	115,343	737,599	107,676	78,071	515,074
Germany	10,930,971	170,720	1,901,532	724,112	1,789,375	6,345,232
Estonia	180,140	23,612	22,986	14,462	11,746	107,334
Ireland	834,959	50,032	305,121	83,806	175,048	220,951
Greece	2,091,442	238,604	485,336	204,360	236,633	926,509

Spain	2,591,084	149,897	514,649	434,814	246,643	1,245,082
France	9,723,000	1,300,000	2,345,000	820,000	1,088,000	4,170,000
Croatia	471,475	93,440	42,188	63,541	60,576	211,730
Italy	8,127,009	652,001	590,432	592,380	534,625	5,757,571
Cyprus	273,605	48,702	66,759	56,363	30,644	71,137
Latvia	239,505	25,994	28,875	18,723	21,657	144,255
Lithuania	414,578	82,251	53,971	27,028	4,321	247,007
Luxembourg	77,015	6,714	12,279	7,081	6,467	44,474
Hungary	846,989	13,166	173,828	44,886	20,309	594,800
Malta	70,696	358	5,421	2,414	16,938	45,565
Netherlands	2,080,654	183,000	856,000	111,000	83,000	847,654
Austria	1,184,712	4,600	203,840	71,403	266,564	638,305
Poland	4,651,137	763,509	552,136	481,170	293,062	2,561,260
Portugal	1,932,893	131,266	55,811	232,420	223,067	1,290,330
Romania	3,584,560	613,337	422,892	26,709	563,510	1,958,112
Slovenia	164,803	93	21,731	15,005	55,956	72,018
Slovakia	525,911	51,439	80,046	31,056	11,771	351,599
Finland	641,006	32,621	147,310	45,097	81,182	334,796
Sweden	1,280,796	92,109	304,934	100,615	148,935	634,202

A10. Herfindahl-Hirschman Index (HHI) in wholesale trade across selected Member States.

Source: Table 3 of JRC report "Market Power in Food Industry in Selected EU Member States" (Nes, Colen & Ciaian, 2021), based on firm-level data from the Orbis database (Bureau van Dijk, 2019). Data year: 2016 for all countries except France (2014). Data available only for some Member States. (*) Wholesale of unmanufactured tobacco. (**) Includes ornamental flowers and bulbs. (***) Ready-to-drink beverages.

Subsector	BG	CZ	ES	FR	IT	HU	PT	RO	FI	SE
Grain, tobacco (*), seeds	149	328	151	101	197	326	977	564	5,917	2,361
Flowers/plants (**)	331	1,351	77	112	45	288	232	215	1,284	718
Live animals	1,724	670	336	100	302	404	740	617	6,861	1,189
Leather	799	1,625	312	436	83	632	359	874	1,949	3,168
Fruit and vegetables	71	839	26	40	27	63	85	90	2,646	758

Meat	204	1,185	51	105	1,098	193	180	439	1,808	631
Dairy/fats	445	459	237	473	309	427	629	713	1,541	1,322
Beverages (***)	176	1,025	532	119	81	323	172	182	1,550	456
Confectionery	323	1,062	3,075	1,613	359	879	1,902	473	1,575	559
Coffee/tea	754	1,535	811	2,262	207	820	4,944	591	1,572	2,959
Other/general	81	1,048	129	295	140	339	311	539	630	1,981

A11. Four-firm concentration ratio (CR4) in wholesale trade activities in wholesale trade across selected Member States.

Source: Table 3 of JRC report "Market Power in Food Industry in Selected EU Member States" (Nes, Colen & Ciaian, 2021), based on firm-level data from the Orbis database (Bureau van Dijk, 2019). Data year: 2016 for all countries except France (2014). Data available only for some Member States. (*) Wholesale of unmanufactured tobacco. (**) Includes ornamental flowers and bulbs. (***) Ready-to-drink beverages.

Subsector	BG	CZ	ES	FR	IT	HU	PT	RO	FI	SE
Grain, tobacco (*), seeds	18%	31%	19%	14%	22%	29%	45%	42%	85%	66%
Flowers/plants (**)	27%	63%	11%	15%	7%	25%	20%	21%	57%	43%
Live animals	74%	41%	27%	12%	29%	31%	50%	40%	97%	47%
Leather	51%	76%	25%	33%	12%	37%	26%	46%	75%	79%
Fruit and vegetables	11%	49%	6%	8%	6%	10%	12%	13%	64%	50%
Meat	22%	53%	10%	16%	48%	20%	19%	36%	65%	45%
Dairy/fats	31%	34%	24%	37%	30%	30%	40%	46%	73%	62%
Beverages (***)	19%	49%	30%	17%	14%	30%	19%	18%	61%	28%
Confectionery	30%	61%	73%	74%	31%	52%	70%	36%	68%	38%
Coffee/tea	46%	73%	43%	66%	22%	53%	84%	39%	63%	77%
Other/general	13%	50%	18%	27%	20%	26%	30%	36%	45%	76%

A.12 EU-27 agri-food trade with leading extra-EU partners, 2025.

Source: European Commission, Agri-food Data Portal. The table shows the ten largest partner-country trade values for EU-27 agri-food exports and import.

Extra-EU partner	Exports, € bn	Imports, € bn
United Kingdom	55.656	16.004
United States	28.59	13.222
China	12.605	9.937
Brazil	–	18.596
Switzerland	13.179	5.262
Türkiye	6.029	6.977
Ukraine	–	10.626
Côte d'Ivoire	–	8.872
Japan	7.656	–
Norway	6.521	–
Russia	5.888	–
Argentina	–	5.61
Vietnam	–	5.334
Canada	5.071	–
Saudi Arabia	4.802	–
Total of top 10 flows	**145.997**	**100.441**

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Annex B – Summary of the indicators presented in the report.

B1. Inventory of indicators mapped against the FoSSNet CF. Legend is reported below the table.

FoSSNet CF Dimension	FoSSNet CF Element	Indicator	Unit	Type	Level	DataYear	Source	Figure number(s)
Environmental Drivers	Atmosphere	Average temperature over European land	˚ C	Estimated	EU	1979-2026	European State of the Climate report (C3S/ECMWF & WMO, 2026)	Narrative indicator
Environmental Drivers	Atmosphere	GHGs including LULUCF	MtCO2eq	Estimated	EU-27 + Member States	2023	FAOSTAT	Figure 3
Environmental Drivers	Atmosphere	Total economic losses by hazard type and Member States	EUR billion	Estimated	EU-27 + Member States	1980-2024	EEA	Figure 4, Figure 5
Environmental Drivers	Atmosphere	Projected likelihood of wheat and maize crop failure under low (SSP1-2.6) and high (SSP3-7.0) emissions scenarios	Percentage	Projection	EU-27 + Member States	2021	Jägermeyr et al. (2021).	Figure 6
Environmental Drivers	Biosphere	Conservation status of hoverfly species	Number of species	Observed	EU-27	2022-2023	European Commission, Vujić et al., 2023	Figure 7
Environmental Drivers	Biosphere	Conservation status of habitats	Percentage	Observed	EU-27 + Member States	2013-2018	EEA	Figure 8
Environmental Drivers	Biosphere	Plant genetic resources for food and agriculture secured in medium or long term conservation facilities	Number of accessions	Observed	EU-27 + Member States	2024	FAOSTAT	Figure 9
Environmental Drivers	Biosphere	Conservation status of local livestock breeds by extinction-risk category	Number of breeds	Observed	EU-27	2000-2024	EEA based on FAO Domestic Animal Diversity Information System (DAD-IS), SDG 2.5.2	Figure 10
Environmental Drivers	Geosphere	Current distribution of soil organic carbon stocks agricultural land	Mt C/kg of soil	Estimated	EU-27 + Member States	2018	European Commission, Joint Research Centre.	Figure 11, Figure 12
Environmental Drivers	Geosphere	Change in soil organic carbon in agricultural land	Percentage	Estimated	EU-27 + Member States	2018	European Commission, Joint Research Centre.	Figure 13

Environmental Drivers	Geosphere	Percentage of area at risk of severe soil erosion by water	Percentage	Estimated	EU-27 + Member States	2023	European Commission, Joint Research Centre.	Figure 14
Environmental Drivers	Hydrosphere	Share of country territory affected by drought	Percentage	Estimated	EU-27 + Member States	2025	EEA & EDO Soil Moisture Index (SMI)	Figure 15
Environmental Drivers	Hydrosphere	Long-term average renewable freshwater resources per inhabitant	1,000 m^3 per inhabitant	Observed	EU-27 + Member States	2026	Eurostat	Figure 16
Environmental Drivers	Hydrosphere	Water Exploitation Index Plus (WEI+)	Percentage	Index	EU-27 + Member States	2023	EEA	Figure 17
Environmental Drivers	Hydrosphere	Chemical status of surface water and groundwater	Percentage	Estimated	EU-27 + Member States	2000-2015	EEA	Figure 18
Socioeconomic Drivers	Cultural heritage		Gap — no indicator identified					
Socioeconomic Drivers	Demographics and epidemics	Population change by component	Annual crude rates per 1000 persons	Observed	EU	1960-2025	Eurostat	Narrative indicator
Socioeconomic Drivers	Demographics and epidemics	Population composition by urban-rural typology and broad age group	Percentage of national population	Observed	EU-27 + Member States	2025	Eurostat	Figure 19
Socioeconomic Drivers	Demographics and epidemics	Share of migrant workers agricultural workforce	Percentage	Estimated	EU-27	2022	Joint Research Centre and Knowledge Centre on Migration and Demography	Narrative indicator
Socioeconomic Drivers	Economic development	Change in real GDP per capita	Euro and percentage	Observed	EU-27 + Member States	2020-2025	Eurostat	Figure 20
Socioeconomic Drivers	Economic development	Gini coefficient of equivalised disposable income	Index	Index	EU-27 + Member States	2025	Eurostat	Figure 21
Socioeconomic Drivers	Economic development	At risk of poverty or social exclusion (AROPE)	Percentage of population	Observed	EU-27 + Member States	2025	Eurostat	Narrative indicator
Socioeconomic Drivers	Education	Education attainment of the population aged 25-64	Percentage of population	Observed	EU-27 + Member States	2025	Eurostat	Figure 22
Socioeconomic Drivers	Ethics and social value	Factors influencing food purchase	Percentage of respondents	Observed	EU-27 + Member States	2020	European Commission, Special Eurobarometer 505	Narrative indicator

Socioeconomic Drivers	Geopolitical process and context	Political Stability Indicator	Index	Index	EU-27 + Member States	2024	World Bank	Figure 23
Socioeconomic Drivers	Geopolitical process and context	EU energy import dependency rate	Percentage	Observed	EU-27 + Member States	2004-2024	Eurostat	Figure 24
Socioeconomic Drivers	Governance systems and power dynamics	Government Effectiveness	Index	Index	EU-27 + Member States	2024	World Bank	Figure 25
Socioeconomic Drivers	Governance systems and power dynamics	Regulatory Quality	Index	Index	EU-27 + Member States	2024	World Bank	Figure 26
Socioeconomic Drivers	Governance systems and power dynamics	Gender Equality	Index	Index	EU-27 + Member States	2025	European Institute for Gender Equality (EIGE)	Figure 27
Socioeconomic Drivers	Knowledge systems	Government support to agricultural research and development	Euro per inhabitant	Observed	EU-27 + Member States	2025	Eurostat	Figure 28
Socioeconomic Drivers	Knowledge systems	Traditional ecological knowledge	Gap — no indicator identified					
Socioeconomic Drivers	Knowledge systems	Food and drink industry R&D expenditure	EUR billion	Observed	EU	2010–2022	FoodDrinkEurope (2026)	Narrative indicator
Socioeconomic Drivers	Media	EU citizens using social media	Percentage	Observed	EU-27	2025	Eurostat	Narrative indicator
Socioeconomic Drivers	Media	Mix of information channels	Percentage	Observed	EU-27	2025	EFSA	Narrative indicator
Direct food system Drivers	Consumer preferences	Choice for maintaining a healthy diet	Percentage of respondents	Observed	EU-27 + Member States	2022	EFSA	Narrative indicator
Direct food system Drivers	Consumer preferences	Self-reported dietary pattern	Percentage of respondents	Observed	Selected Member States	2023	Smart Protein	Narrative indicator
Direct food system Drivers	Input prices	Evolution of agricultural input prices indices by type of input	Percentage	Observed	EU-27	2020-2025	Eurostat	Figure 29
Direct food system Drivers	Investment	Gross fixed capital formation in agriculture as share of agricultural gross value added	Percentage	Observed	EU-27 + Member States	2024	Eurostat	Figure 30

Direct food system Drivers	Investment	Net investment in tangible food and beverage manufacturing	Euro	Observed	EU-27 + Member States	2020	Eurostat	Figure 31
Direct food system Drivers	Labour skills and availability	Total agricultural labour input	Thousand annual working units	Observed	EU-27 + Member States	2025	Eurostat	Figure 32
Direct food system Drivers	Markets and trade	Self-sufficiency rates for selected key agricultural commodities	Percentage	Observed	EU-27	2015-2024	European Commission	Figure 33
Direct food system Drivers	Markets and trade	Planned CAP support for better supply organisation	Share/coverage of farms targeted by the intervention	Target	EU-27 + Member States	2023-2027	European Commission, PMEF	Figure 34
Direct food system Drivers	Markets and trade	Planned concentration of supply through producer organisations by agricultural sector	Percentage of marketed production targeted b the intervention	Target	EU-27	2023-2027	European Commision, PMEF	Figure 35
Direct food system Drivers	Policy and governance	CAP expenditure	Euro	Observed	EU-27	2023	European Commission	Narrative indicator
Direct food system Drivers	Policy and governance	CFP expenditure	Euro	Observed	EU-27	2021	European Commission	Narrative indicator
Direct food system Drivers	Policy and governance	Presence of a national food system transformation pathway	Yes/No	Observed	EU-27	2025	FAO	Figure 36
Direct food system Drivers	Policy and governance	Number of signatory cities to Milan Urban Food Policy Pact	Number	Observed	EU	2025	MUFPP Secretariat (2026)	Narrative indicator
Direct food system Drivers	Science and technology	Agricultural total factor productivity index	Index	Index	EU-27 + Member States	2025	European Commission, PMEF	Figure 37
Direct food system Drivers	Science and technology	Use of digital technologies on farms	Percentage of farms	Estimated	Selected Member States	2025	JRC survey, Tur Cardona et al. (2025)	Narrative indicator
Direct food system Drivers	Trust and security	Trust institutions	Percentage of respondents	Observed	EU-27 + Member States	2025	EFSA	Narrative indicator
Direct food system Drivers	Trust and security	Awareness of the institutional food-safety framework	Percentage of respondents	Observed	EU-27 + Member States	2025	EFSA	Narrative indicator

Activities	Producing	Number of farm holdings	Number	Observed	EU-27 + Member States	2023	Eurostat	Figure 38
Activities	Producing	Average farm size and farm size distribution	Percentage of agricultural holdings	Observed	EU-27 + Member States	2023	Eurostat	Figure 39, Figure 40
Activities	Producing	Area under selected crops	Hectares	Observed	EU-27	2024 and 2025	Eurostat	Figure 41
Activities	Producing	Meat production by animal type	Million tonnes	Observed	EU-27	2024	Eurostat	Figure 42
Activities	Producing	Fisher employment	Number	Observed	EU-27	2023	European Commission, JRC	Figure 43
Activities	Producing	Percentage share in tonnes and euros of the main aquaculture species	Percentage of tonnes and euros	Observed	EU-27	2024	Eurostat	Figure 44
Activities	Producing	Percentage of total UAA used for organic farming	Percentage	Observed	EU-27 + Member States	2024	Eurostat	Figure 45
Activities	Producing	Number of animals farmed organically	Number	Observed	EU-27	2022	Eurostat	Figure 46
Activities	Processing and Manifacturing	Number of food and drink manufacturing enterprises	Number	Observed	EU-27	2023	Eurostat	Figure 47
Activities	Processing and Manifacturing	Number of food and drink manufacturing enterprises categorised by size	Number	Observed	EU-27	2024	Eurostat	Figure 48
Activities	Processing and Manifacturing	Employment by food and drink manufacturing sector	Number	Observed	EU-27	2023	Eurostat	Figure 49
Activities	Processing and Manifacturing	Gross value added by food manufacturing sector	€m	Observed	EU-27	2023	Eurostat	Figure 50
Activities	Retailing	Number of retail sale of food and beverages enterprises	Number	Observed	EU-27	2020	Eurostat	Figure 51
Activities	Retailing	Number of EU-27 specialised retail sale of food and beverages	Number	Observed	EU-27	2020	Eurostat	Figure 52

Activities	Retailing	Number of specialised and non-specialised retail sale of food and beverages enterprises	Number	Observed	EU-27 + Member States	2020	Eurostat	Figure 53
Activities	Retailing	Employment by enterprise-size class in specialised and non-specialised retail sale of food, beverages and tobacco	Number	Observed	EU-27	2024	Eurostat	Figure 54
Activities	Retailing	Number of people employed in retail sale of food, beverages and tobacco by store type	Number	Observed	EU-27 + Member States	2024	Eurostat	Figure 55
Activities	Retailing	Net turnover by enterprise-size in specialised versus non-specialised retail sale of food, beverages and tobacco	million EUR	Observed	EU-27 + Member States	2024	Eurostat	Figure 56, Figure 57
Activities	Retailing	Value added by enterprise-size in specialised versus non-specialised retail sale of food, beverages and tobacco	million EUR	Observed	EU-27 + Member States	2023	Eurostat	Figure 58, Figure 59
Activities	Retailing	E-commerce turnover as a percentage of total turnover	%	Observed	EU-27 + Member States	2025	Eurostat	Figure 60
Activities	Retailing	Own online channel versus e-commerce marketplace	% of turnover	Observed	EU-27 + Member States	2025	Eurostat	Figure 61
Activities	Food Services	Number of enterprises in food and beverage activities	Number	Observed	EU-27 + Member States	2023	Eurostat	Figure 62, Figure 63
Activities	Food Services	Number of people employed in food and beverage activities	Number	Observed	EU-27 + Member States	2023	Eurostat	Figure 64, Figure 65

Activities	Food Services	Value added in food and beverage activities	million EUR	Observed	EU-27 + Member States	2023	Eurostat	Figure 66, Figure 67
Activities	Food Services	Net turnover in food and beverage activities	Million EUR	Observed	EU-27 + Member States	2023	Eurostat	Figure 68, 69
Activities	Food Services	Number of children receiving school meals	Number	Observed	EU-27 + Member States	2023	World Food Programme, School Meals Coalition Global Database on School Meals	Figure 70
Activities	Consuming	Average fruit and vegetable consumption	g/capita/day	Observed	EU-27 + Member States	2023	Freshfel	Figure 71
Activities	Consuming	Ratio plant to total protein supply	Ratio	Estimated	EU-27 + Member States	2022	FAOSTAT	Figure 72
Activities	Consuming	Share of household final consumption expenditure on food and non-alcoholic beverages, and restaurants and hotels	Percentage	Observed	EU-27 + Member States	2022	Eurostat	Figure 74
Activities	Consuming	Share of consumers purchasing from Short Food Supply Chains	Percentage of respondents	Observed	Selected Member States	2016	agroBRIDGES	Narrative indicator
Activities	Food Waste	Average food waste in kilograms per inhabitant	kilogram	Estimated	EU-27	2023	Eurostat	Figure 75
Activities	Food Waste	Total food waste	tonnes	Observed	EU-27	2023	Eurostat	Figure 76
Activities	Food Waste	Total food waste per EU member state	tonnes	Observed	EU-27 + Member States	2023	Eurostat	Figure 77
Activities	Supporting Services	Number of enterprises in wholesale activities	Number	Observed	EU-27 + Member States	2023	Eurostat	Figure 78, Figure 79
Activities	Supporting Services	Number of people employed in wholesale activities	Number	Observed	EU-27 + Member States	2023	Eurostat	Figure 80, Figure 81
Activities	Supporting Services	Value added in wholesale activities	Euro	Observed	EU-27 + Member States	2023	Eurostat	Figure 82, Figure 83

Activities	Supporting Services	Net turnover in wholesale activities	Euro	Observed	EU-27 + Member States	2023	Eurostat	Figure 85
Activities	Supporting Services	Agri-food trade with extra-EU partners	Euro	Observed	EU-27	2025	European Commission, Agri-food data portal	Figure 86
Activities	Supporting Services	Agri-food trade with leading extra-EU partners	Euro	Observed	EU-27 + Member States + Extra EU partners	2025	European Commission, Agri-food data portal	Figure 87
Activities	Supporting Services	Composition of EU-27 extra-EU agri-food trade by product class	Euro	Observed	EU-27	2025	European Commission, Agri-food data portal	Figure 88
Activities	Supporting Services	Road-freight performance for food products, beverages and tobacco by distance class	km	Observed	EU-27 + Member States	2025	European Commission, Agri-food data portal	Figure 89, Figure 90
Activities	Supporting Services	Physical volume of food products, beverages and tobacco transported by road by distance class	tonnes	Observed	EU-27 + Member States	2025	European Commission, Agri-food data portal	Figure 91, Figure 92
Activities	Supporting Services	Refrigerated warehouse capacity	million m3	Observed	Selected Member States	2020	GCCA / IARW, 2020	Figure 93
Activities	Supporting Services	Market Development Index per urban resident	m3/urban resident	Index	Selected Member States	2020	GCCA / IARW, 2020	Figure 94
Activities	Supporting Services	Share of cold storage capacity: 3PL (for-hire) vs private	%	Observed	Selected Member States	2020	GCCA / IARW, 2020	Figure 95
Direct food system outcomes	Animal welfare	Percentage of laying hens in each housing system	Percentage	Observed	EU	2025	European Commission	Figure 96
Direct food system outcomes	Animal welfare	The top four non-compliance health infringements recorded on INTRA certificates	Number	Observed	EU	2023	TRACES, 2023	Figure 97
Direct food system outcomes	Animal welfare	The top four non-compliance animal welfare infringements	Number	Observed	EU	2023	TRACES, 2024	Figure 98

		recorded on INTRA certificates						
Direct food system outcomes	Food price	Harmonised index of consumer prices in the European Union and Euro area	Index	Index	EU	2016-2025	Eurostat	Figure 99
Direct food system outcomes	Food price	Harmonised index of consumer prices for food and non-alcoholic beverages and restaurants and hotels	Index	Index	EU	2014-2024	Eurostat	Figure 100
Direct food system outcomes	Food price	Price Level Indices for EU countries in	Index	Index	EU-27 + Member States	2025	Eurostat	Figure 101
Direct food system outcomes	Food safety	Percentage of notifications for each food or drink category in the Alert & Cooperation Network	Percentage	Observed	EU-27	2025	Alert & Cooperation Network	Figure 102
Socioeconomic outcomes	Equity and fairness status	Percentage of EU farm managers who are male or female	Percentage	Observed	EU-27	2023	Eurostat	Figure 103
Socioeconomic outcomes	Equity and fairness status	Number of farm managers per gender in each EU member state	Number	Observed	EU-27 + Member States	2023	Eurostat	Figure 104
Socioeconomic outcomes	Food and nutrition security status	The Cost of a Healthy Diet in European Member States in Int$ (PPP)	International Dollars	Estimated	EU-27 + Member States	2025	FAOSTAT	Figure 105
Socioeconomic outcomes	Health status	Percentage of population who had an underweight, normal or overweight BMI in	Percentage	Observed	EU-27 + Member States	2019	Eurostat, Body mass index (BMI) by sex, age and educational attainment level. Data year: 2019. Available at:	Figure 106
Socioeconomic outcomes	Health status	Overweight prevalence in children under 5-years-old	Percentage	Observed	Selected Member States	2023	WHO	Figure 107
Socioeconomic outcomes	Livelihoods and economic status	Number of farm managers in each age bracket	Number	Observed	EU	2023	Eurostat	Figure 108

Socioeconomic outcomes	Livelihoods and economic status	Number of EU farm holdings categorised by value of economic output	Number	Observed	EU	2023	Eurostat	Figure 109
Socioeconomic outcomes	Power relations	Herfindahl–Hirschman Index (HHI) of retail concentration and Four-firm concentration ratio (CR4)	Index	Index	Selected Member States	2016	Estimated from Figure 3 of JRC report "Market Power in Food Industry in Selected EU Member States"	Figure 110
Socioeconomic outcomes	Power relations	Three-firm concentration ratio (CR3) of selected countries	Ratio	Estimated	Selected Member States	2026	Kantar/Worldpanel by Numerator, publicly available snapshot data (Ireland, Spain, France).	Figure 111
Socioeconomic outcomes	Power relations	Heatmap of four-firm concentration ratio (CR4) in wholesale trade activities	Ratio	Estimated	Selected Member States	2016	Table 3 of JRC report "Market Power in Food Industry in Selected EU Member States".	Figure 113
Socioeconomic outcomes	Power relations	Heatmap of Herfindahl–Hirschman Index (HHI) of concentration in wholesale retail trade activities	Index	Index	Selected Member States	2016	Table 3 of JRC report "Market Power in Food Industry in Selected EU Member States".	Figure 112
Environmental outcomes	Atmosphere	Greenhouse gas emissions from fuel combustion in agriculture, forestry and fishing	thousand tonnes CO_2 equivalent	Estimated	EU-27	2024	Eurostat	Figure 114
Environmental outcomes	Atmosphere	Sources of agricultural GHG emissions	Percentage	Estimated	EU-27	2023	Eurostat	Figure 115
Environmental outcomes	Atmosphere	Food systems greenhouse gas emissions per person	kg CO2eq/person	Estimated	EU-27 + Member States	2023	FAOSTAT	Figure 116
Environmental outcomes	Biosphere	Agrobiodiversity index	Index	Index	EU-27 + Member States	2020	Jones et al., 2021	Figure 117
Environmental outcomes	Biosphere	Biodiversity impact of food consumption per person	Extinction Rate	Estimated	EU-27 + Member States	2010	WWF adapted from Poore, J., & Nemecek, T. (2018).	Figure 118
Environmental outcomes	Geosphere	Soil degradation	Percentage	Estimated	EU-27	2020	JRC and ESDAC, Soil degradation indicators in EU.	Figure 119

							Joint Research Centre. European Soil Data Centre. Data year: 2020. Available at:	
Environmental outcomes	Geosphere	Total ecological footprint of food consumption per person	global ha/capita	Estimated	EU-27 + Member States	2019	Global Footprint Network	Figure 120
Environmental outcomes	Hydrosphere	Risk of eutrophication – measures of nitrogen deposition exceeding critical loads per hectare	Nitrogent equivalents	Estimated	EU-27 + Member States	2022	EEA	Figure 121
Environmental outcomes	Hydrosphere	Nitrate levels in rivers in European countries	Percentage	Observed	EU	2018–2023	EEA	Figure 122
Environmental outcomes	Hydrosphere	Water use linked to food consumption per person	litre/capita	Estimated	EU-27 + Member States	2010	WWF adapted from Poore, J., & Nemecek, T. (2018).	Figure 123
Environmental outcomes	Hydrosphere	Agricultural water withdrawal as % of total renewable water resources	Percentage	Estimated	EU-27 + Member States	2023	FAO AQUASTAT	Figure 124
Environmental outcomes	Hydrosphere	Eutrophication of food consumption per person	g PO43eq/capita	Estimated	EU-27 + Member States	2010	WWF adapted from Poore, J., & Nemecek, T. (2018).	Figure 125

Legend:
FoSSNet CF Dimension: Main conceptual-framework component.
FoSSNet CF Element: Element within the FoSSNet conceptual framework.
Indicator: Concise name of the phenomenon or metric measured. *EU and Member State presentations combined only when equivalent.
Unit: Measurement scale for the reported indicator (*e.g.*, Number, percentage, EUR, index, tonnes)
Type: Primary classification of how the indicator is represented: *Observed* = direct measurement/records/survey; *Estimated* = modelled or inferred; *Projection* = scenario-based future; *Index* = constructed index; *Proxy* = indirect representation; *Target* = planned level.
Level: Geographical scale used in this report. Levels: *EU* = Europe-wide geographic coverage; *EU-27* = EU-27 aggregate; *EU-27 + Member States* = EU aggregate and national breakdowns; Selected Member States = subset of countries.
Data Year: Year or period to which data refer.
Source: Dataset, reports and publications. Specific information on sources can be found in ***Section 8*** (References) and under each figure in the report.
Figure number(s): Matching figure(s) in the report. Narrative indicates no dedicated figure.