

Agriculture, forestry and fishery statistics

2016 edition



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**Agriculture, forestry
and fishery statistics**

2016 edition

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Foreword

Agriculture uses almost half of the land area of the European Union, has a large impact on climate change and the environment, and many rural communities depend on agriculture. While the EU is self-sufficient, producing enough food for its population, trade (imports and exports) of agricultural products is an important aspect. The EU needs high-quality statistics to design, implement and monitor policies that benefit all citizens of Europe.



In this context, Eurostat launched a major programme for the modernisation of EU agricultural statistics called the *Strategy for Agricultural Statistics for 2020 and beyond*, in close collaboration with EU Member States. The Strategy aims to meet today's and tomorrow's needs and requirements for European agricultural statistics with the stepwise introduction of two new, flexible and targeted legal frameworks. The proposal for the first regulation, Integrated Farm Statistics or IFS, was adopted by the European Commission in December 2016. It addresses the increased challenges in this area of statistics, which include changes in world agriculture due to globalisation, climate and social change, changes in the Common Agricultural Policy (CAP) and other related EU policies. It will also tackle the need to modernise the collection and production of statistical data in reaction to technological progress, emerging data sources, and continued pressure on available resources.

The *Agriculture, forestry and fishery statistics* statistical book gives an overview of the EU's statistics in these areas. It covers production data (such as tonnes of cereals, fish or wood) and includes a large and wide variety of indicators such as the size of farms and the prices of agricultural products, as well as data related to aspects that are relevant for the environmental features of agriculture (e.g. irrigation methods, use of pesticides, or wood used for energy). The emphasis is on the most recent data available. Moreover, for most indicators, time series are available so that data can be compared over time and between Member States. This edition also includes a contribution to the UN International Year of Dry Pulses with a special focus chapter on dry pulses in EU agriculture.

You can find the content of this Statistical book, in a richer format, online in Statistics Explained, and the latest versions of the data can be downloaded from the Eurostat website.

I hope you enjoy the statistical book.

Marcel Jortay

Director, Sectoral and Regional Statistics



Abstract

This *Agriculture, forestry and fishery statistics* statistical book provides a selection of topical data. Information is presented for the European Union (EU) and its Member States, and is supplemented (when available) with data for EFTA members and for the acceding and candidate countries to the EU. This publication aims to cover some of the most popular data within the domain of agriculture, forestry and fishery statistics. It may be viewed as an introduction to European statistics in this area and provides a starting point for those who wish to explore the wide range of data that is freely available on Eurostat website at: <http://ec.europa.eu/eurostat>.

Eurostat is the statistical office of the EU, situated in Luxembourg. Its task is to provide the EU with statistics at a European level that enable comparisons between countries and regions. Eurostat's mission is to be the leading provider of high quality statistics on Europe.

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For more information please consult

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Introduction

The *Agriculture, forestry and fishery statistics* statistical book introduces a selection of data on a wide array of agricultural, forestry and fishery topics, covering the 28 EU Member States. Whenever possible the most recent data are presented, the latest reference year (for some data sets) being 2015.

The official statistics in this publication are aimed at both specialists (including policymakers at EU and Member State level, enterprises, farms, producers' and consumers' associations, consultancy bodies, trade unions *et al.*) and generalists who have an interest in the subject. Statistics provide tools to help inform, monitor and measure progress towards agreed goals. As such, they are a key component of governance — for identifying needs, formulating objectives and orientating policies and goals — through evidence-based decision-making. For the European Commission, statistics are also required to support dialogue with the EU Member States and other partners.

The Common agricultural policy (CAP) is the agricultural policy of the EU. Its main objectives are to ensure a decent standard of living for farmers, to provide a stable and safe food supply chain at affordable prices for consumers, and to ensure the development of rural areas throughout the EU. A reform of the CAP presented in June 2013 focused on the sustainable management of resources. Each of these objectives has been taken into account when statistics were selected for this statistical book.

The EU has no common forestry policy; rather, the Member States have their own national forestry policies. An EU Forest Action Plan was nevertheless adopted in 2006. Of the four objectives it presented, statistics were the most readily available to help examine the need to improve the long-term competitiveness of the EU's forest sector.

The Common fisheries policy (CFP) is the fisheries policy of the EU. It sets catch limits, restricts the size of the fishing fleet that sets to sea, and lays down technical measures such as those relating to fishing gear. In addition, the CFP aims to help producers get a fair price for their produce and ensure that consumers can trust the seafood that they eat. A January 2014 reform of the CFP focused on environmental, economic and social sustainability. Statistics related to fishing production, catches, landings and the fishing fleet are presented in this publication.

The European agricultural statistics system (EASS) has been developed since the early 1950s and covers more than 50 data sets that are transmitted to the European Commission (Eurostat) by National Statistical Institutes or other statistical authorities, with the main aims of supporting decision-making and policy design, implementation, monitoring and evaluation in areas related to agriculture, such as the CAP and climate change policies. It covers seven domains (structural data, agri-monetary data, crop production, organic farming, permanent crops, livestock and animal products, and agri-environmental indicators), and data are collected from a variety of sources (micro-data collected at farm level, aggregated data, administrative sources etc.).



This edition of *Agriculture, forestry and fishery statistics* is divided into seven parts.

2016 was declared the International Year of Pulses by the UN General Assembly. The aim was to raise public awareness on the nutritional benefits of pulses and their importance in sustainable food production. The first chapter of the publication provides an overview of pulse production in the EU, along with a country-by-country analysis of pulse cultivation and a brief summary of the economic value of dry pulses in the EU.

Chapter 2 is dedicated to the farm structure survey (FSS) and provides an overview of the structures of EU farms, including their specificities in the different countries that make up the EU, their activities or the composition of their labour force.

Chapters 3 to 5 present the EU's agricultural industry with information on the latest reference period and developments over time. Moving beyond a structural presentation of the EU's agricultural industry, these chapters provide information on agri-environmental issues, reflecting recent reforms of the CAP:

- Chapter 3 covers economic developments within the agricultural industry and presents data on output and input values, income indicators, as well as price trends;
- Chapter 4 presents the most recent data on some of the most important EU agricultural products, first for crops (cereals, sugar beet, oilseeds, vegetables, fruit, grapes and olives), then for livestock and meat (livestock numbers and meat production);
- Chapter 5 provides a selection of indicators that focus on the interaction between agriculture and the environment. This year's edition puts the spotlight on pollution risks, irrigation and pesticide sales.

The final two chapters take a look beyond agriculture and provide an overview of the state of the EU's forestry and fishery industries:

- Chapter 6 is dedicated to the most recent forestry data;
- Chapter 7 offers a summary of the state of the EU's fishing fleet, fishery production, aquaculture, catches and landings of fishery products.

This publication reflects only a relatively small proportion of the statistics that are collected on the agricultural, forestry and fishery industries. More detailed data as well as methodological information both for these topics and a much broader range of economic, social and environmental themes can be found on the Eurostat website at: <http://ec.europa.eu/eurostat>.

The Eurostat website offers free access to Eurostat's databases, predefined tables, methodological documents and publications.

1

Dry pulses in EU agriculture





Introduction

Dry pulses are edible seeds (dry grains) of annual plants in the leguminous family; they grow in pods each having between one and twelve grains, and have a variety of shapes, sizes and colours. Most common are peas and beans.

Dry pulses are key crops because of their high protein content and ability to fix atmospheric nitrogen in the soil. This means that dry pulses are a good source of protein both for livestock (fodder) and humans. Secondly, cultivating dry pulses increases the nitrogen level in the soil.

The 68th UN General Assembly declared 2016 the International Year of Pulses. The aim was to raise public awareness of the nutritional benefits of pulses and of their importance in sustainable food production. The Food and Agriculture Organization of the United Nations (FAO) focuses on 11 types of pulses (1) which are cultivated all around the world in different pedo-climatical conditions and agricultural systems. In Europe the most common are field peas, field and broad beans and sweet lupins harvested after the stage of lactic ripeness. Those crops are mainly cultivated for fodder.

The recently-reformed EU [Common agricultural policy \(CAP\)](#) (2) aims at providing consumers with a stable, sustainably-produced supply of safe and quality food at affordable prices while preserving the natural resources necessary for agricultural productivity. Among other measures, the new CAP for 2014–20 introduced the green direct payment scheme, a new policy instrument to enhance the sustainability of agriculture in the European Union. There are several ways in which farmers can be eligible for the new compulsory green direct payment scheme, and one is by cultivating nitrogen-fixing crops. Those crops, which include dry pulses, protect the soil from erosion and improve soil organic matter.

New CAP measures boost production of dry pulses

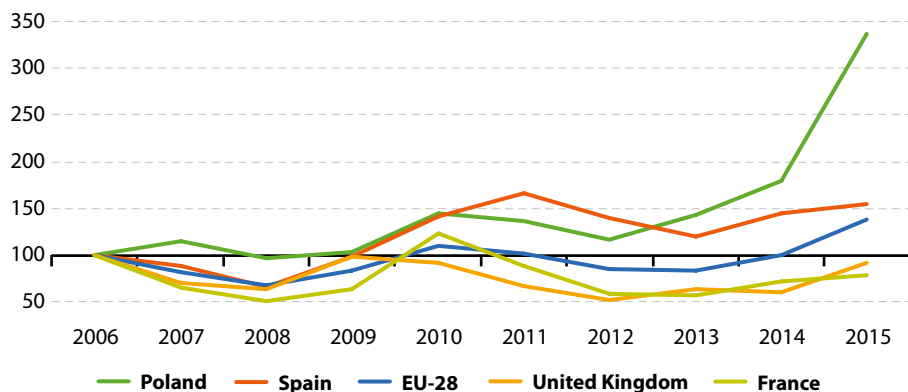
The area used to cultivate [dry pulses](#) in the [EU-28](#) has fluctuated between 1.5 and 2.1 million hectares (ha) over the last 10 years (see [Figure 1.1](#)). However, since 2013 the area has grown considerably. The increase between 2013 and 2015 was 64.7% at EU-level and up to 350.7% in Latvia, 253.6% in Lithuania and 181.4% in Bulgaria.

(1) Dry beans, dry broad beans, dry peas, chickpeas, lupins, lentils, vetches, cow peas, pigeon peas, Bambara beans and pulses not elsewhere specified (i.e. minor pulses that do not fall into one of the other categories).

(2) [Regulation \(EU\) No 1307/2013](#).



Figure 1.1: Evolution of dry pulses area, by main cultivating Member States and EU-28, 2006–15
(2006 = 100)



Source: Eurostat (online data code: [apro_acs_a](#))

This is largely a result of the new CAP greening measures. The new CAP introduced the green direct payment scheme, which began to be implemented in 2015. In particular, nitrogen-fixing crops (such as dry pulses) are one of the options available for implementing the ecological focus areas ⁽³⁾. In addition, 16 Member States decided to support the protein crop sector within the voluntary coupled support framework. In 2015, those Member States allocated a total of EUR 443 million to the protein crop sector, which was 11 % of the total voluntary coupled support ceiling fixed by the Commission. Farmers have responded to these measures by sowing larger areas with dry pulses.

This chapter offers a statistical overview of the dry pulses sector in EU agriculture, and presents data on cultivated areas, harvested production, farms and the economic value of the sector.

⁽³⁾ Compulsory on 5% of the holding arable area for those farmers with arable land exceeding 15 hectares.



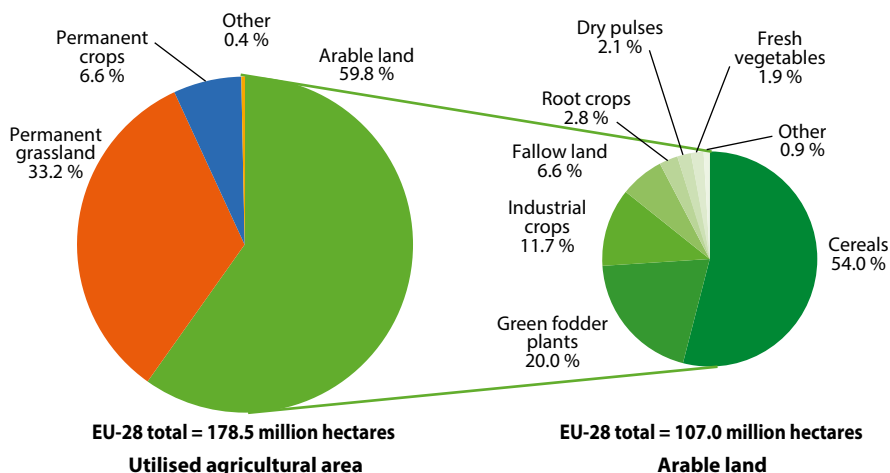
1.1 Role of dry pulses in EU agriculture

Dry pulses are grown on 2.1 % of European arable land, and this has increased over the last three years

In 2015, the EU-28's utilised agricultural area was 178.5 million ha. The largest share (59.8 %) was devoted to arable land (107 million ha), one third (33.2 %) was covered by permanent grassland and permanent crops were cultivated on 11.7 million ha (6.6 %).

Arable land was mainly cultivated for cereals (54.0 %). Green fodder crops were produced on 20.0 % of arable land, industrial crops covered 11.7 %, 6.6 % of land was fallow and root crops were grown on 2.8 % (see Figure 1.2).

Figure 1.2: Utilised agricultural area and arable land by land use, EU-28, 2015
(%)



Source: Eurostat (online data code: [apro_acs_a](#))



In 2015, dry pulses were cultivated on almost 2.2 million ha, which was 2.1 % of all EU arable land. In 2014, 1.5 % of all EU arable land was used for dry pulses compared with 1.1 % in 2013, while previously the share fluctuated smoothly on a yearly basis.

Dry pulses are cultivated in almost all EU Member States; the largest area (22.5 %) is in Spain

Dry pulses are grown in all Member States except Malta. However, there are some differences at individual Member State level: Lithuania registered the highest share of arable land dedicated to dry pulses (7.3 %), while in Belgium and Croatia that share was only 0.3 % (see Map 1.1).

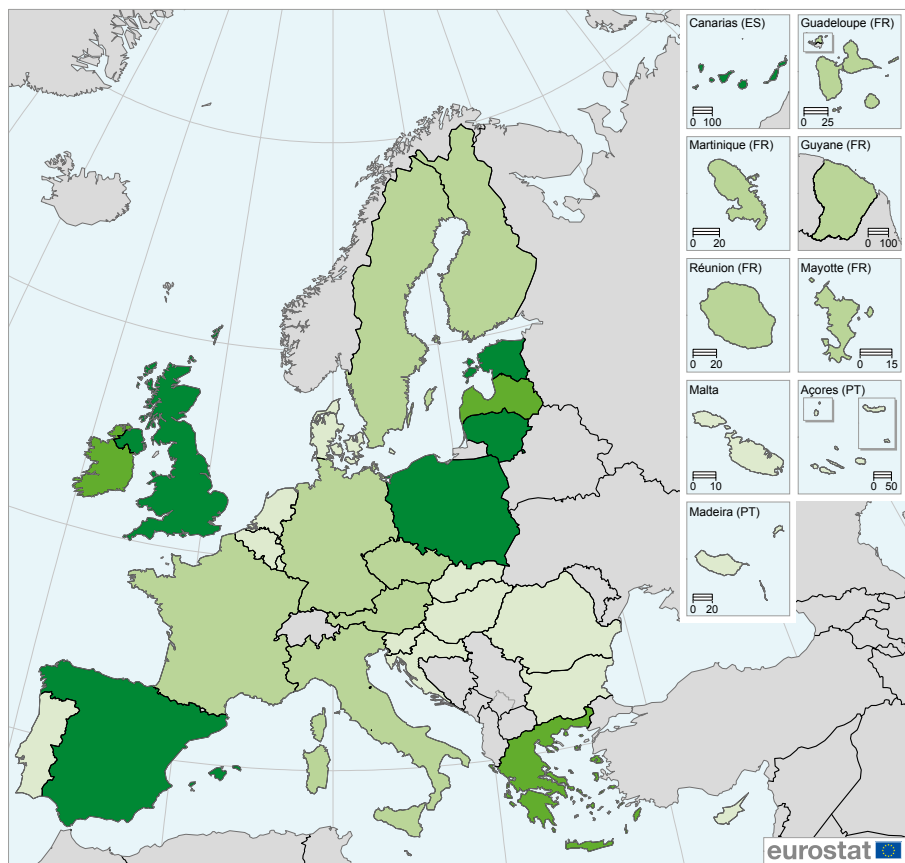
A quarter (22.5 %) of the area used to cultivate dry pulses in the EU-28 was located in Spain, followed by Poland (18.6 %), France (12.4 %) and the United Kingdom (9.8 %). This means that almost two thirds (63.3 %) of the area under dry pulses was located in four Member States (see Table 1.1).

Field peas, broad and field beans are the leading pulses

Among the dry pulses, field peas covered more than one third (34.2 %) of the total area under dry pulses, and broad and field beans came second (28.7 %). Sweet lupins were grown on 11.9 % of the area and the diverse group of 'other dry pulses' (lentils, chick peas, beans, etc.) were present on the last quarter (26.4 %) ⁽⁴⁾.

⁽⁴⁾ The sum of shares does not total 100 % due to the estimation for sweet lupins.

Map 1.1: Share of dry pulses area in total arable land, 2015 (%)



Administrative Boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — IMAGE, 25/11/2016

EU-28 = 2.1

<= 1

1 – 2.1

2.1 – 3

> 3

Data not available

0 200 400 600 800 km

Source: Eurostat (online data code: [apro_acs_a](#))

**Table 1.1:** Distribution of area under dry pulses by main species, 2015

	Dry pulses area/Total arable land	Dry pulses	Field peas	Broad and field beans (1 000 ha)	Sweet lupins	Other dry pulses
	(%)					
EU-28 (1)	2.1	2 201.5	743.8	624.2	260.3	573.2
Belgium	0.3	2.7	1.0	0.7	0.0	1.0
Bulgaria	0.7	17.5	8.8	3.4	0.5	4.9
Czech Republic	1.3	33.1	23.9	0.0	2.6	6.7
Denmark	0.5	12.0	5.0	7.0	0.0	0.0
Germany	1.4	160.4	79.1	37.6	29.6	13.9
Estonia	4.7	31.3	22.1	9.2	0.0	0.0
Ireland	2.4	10.7	0.8	9.9	0.0	0.0
Greece	2.4	66.9	9.7	4.6	2.4	50.3
Spain	3.9	489.4	161.8	50.1	3.9	273.7
France	1.5	295.4	175.8	86.3	6.9	26.4
Croatia	0.3	2.3	0.6	1.5	0.1	0.1
Italy	1.2	73.5	11.2	48.0	0.0	14.3
Cyprus	0.7	0.7	0.1	0.2	0.0	0.4
Latvia	2.6	31.1	3.9	25.6	0.1	1.5
Lithuania	7.3	157.0	79.4	61.4	3.6	12.6
Luxembourg	0.9	0.6	0.4	0.1	0.0	0.1
Hungary	0.6	25.6	23.3	0.9	0.2	1.3
Malta	0.0	0.0	0.0	0.0	0.0	0.0
Netherlands	0.3	2.8	0.0	0.0	0.0	0.0
Austria	1.8	23.6	7.3	10.8	0.2	5.4
Poland	3.7	403.9	12.0	35.3	207.8	148.7
Portugal	1.0	11.6	0.0	3.2	0.0	7.9
Romania	0.5	54.3	31.5	22.2	0.0	0.6
Slovenia	0.5	0.9	0.5	0.0	0.0	0.4
Slovakia	0.8	10.1	7.5	0.1	0.0	2.6
Finland	1.1	23.2	11.9	11.3	0.0	0.0
Sweden	1.9	48.0	22.4	25.0	0.0	0.6
United Kingdom	3.7	213.0	44.0	170.0	0.0	0.0
Switzerland	n.a.	5.0	0.6	4.4	0.1	0.1
FYR of Macedonia	1.2	13.6	13.6	0.0	0.0	0.0
Albania	3.6	14.9	0.0	0.0	0.0	14.9
Serbia	n.a.	13.8	12.7	0.0	0.0	1.1
Turkey	3.3	690.0	99.0	1.0	0.4	590.0
Kosovo (2)	1.6	2.9	0.0	0.0	0.0	2.9
Bosnia and Herzegovina	1.6	9.0	0.0	1.3	0.0	7.7

Note: The full name of dry pulses in Eurostat database is Dry pulses and protein crops.

(1) Sweet lupins value estimated by Eurostat.

(2) This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.

Source: Eurostat (online data code: [apro_acs_a](#))



Spain and France dominate the cultivation of field peas in the EU; the United Kingdom has the largest area for broad and field beans

Different Member States led the production of each single dry pulse crop (see Table 1.1). France was the leader in cultivating field peas, with a share of 23.6%, Spain came second with 21.7%, followed by Lithuania (10.7%) and Germany (10.6%).

The United Kingdom had the single largest share (27.2%) for broad and field beans cultivation; France (13.8%) and Lithuania (9.8%) ranked second and third.

Poland is a clear leader in cultivating sweet lupins (80.6%) followed by Germany (11.5%). Almost half (47.7%) of the area dedicated to 'other dry pulses' ⁽⁵⁾ was situated in Spain, while an additional one quarter (25.9%) was in Poland.

Member States have different specialisation patterns in cultivating dry pulses

Some Member States specialised in producing certain dry pulses: field peas accounted for 90.7% of the total area under dry pulses in Hungary, 74.0% in Slovakia, 72.1% in the Czech Republic and 70.6% in Estonia. By contrast, field peas were cultivated on 7.5% of dry pulse area in Ireland ⁽⁶⁾ and 3.0% in Poland.

Broad and field beans were the dry pulses predominantly cultivated in Ireland (92.5%), Latvia (82.3%) and the United Kingdom (79.8%), but covered only 0.6% of total dry pulse area in Slovakia.

Sweet lupins were prevalent in Poland and were cultivated on more than half (51.4%) of the dry pulse area.

The 'other dry pulses' covered two thirds of the dry pulse area in Greece (75.1%) and accounted for more than half of the dry pulse area in Portugal (67.8%), Cyprus (62.1%) and Spain (55.9%).

Production of dry pulses: 5 million tonnes

In 2015, the EU-28's total harvest of dry pulses was 5.1 million tonnes (see Table 1.2). Production in 2015 was 1.6 million tonnes higher than in 2014, an increase of 43.8%. The 2015 dry pulse harvest was 50.6% higher than the average production of 3.4 million tonnes registered in 2010–14.

Field pea production was a little more than 2 million tonnes, accounting for 40.3% of production volume, and broad and field bean production was 1.9 million tonnes (38%). Sweet lupins accounted for 7.4% of the total production volume of dry pulses.

In 2015, the EU-28 imported a total of 0.9 million tonnes of dry pulses, which was a 14.2% less than in 2014 and 16.8% less than the average of imported quantities registered in 2010–14.

⁽⁵⁾ The group 'Other dry pulses' includes dry common/French beans and runner beans, chick peas, dry lentils and dry vetches.

⁽⁶⁾ Data for Ireland include dry and fresh pulses.



Table 1.2: Harvest production of dry pulses by species, 2015
(1 000 Tonnes)

	Dry pulses	Field peas	Broad and field beans	Sweet lupins	Other dry pulses
EU-28	5 153	2 076	1 948	378	759
Belgium	10	4	3	0	4
Bulgaria	31	19	3	1	7
Czech Republic	96	78	0	4	14
Denmark	51	21	30	0	0
Germany	466	277	133	38	0
Estonia	86	59	28	0	0
Ireland	69	3	66	0	0
Greece	97	16	6	4	71
Spain	503	193	66	3	242
France	930	662	251	17	41
Croatia	3	1	1	0	0
Italy	137	26	92	19	0
Cyprus	1	0	0	0	0
Latvia	104	12	87	0	5
Lithuania	455	229	192	5	29
Luxembourg	2	1	0	0	0
Hungary	68	64	2	0	3
Malta	0	0	0	0	0
Netherlands	6	0	0	0	6
Austria	55	19	25	0	11
Poland	715	23	85	291	316
Portugal	7	0	2	0	5
Romania	76	55	20	0	1
Slovenia	2	1	0	0	1
Slovakia	27	23	0	0	3
Finland	52	25	27	0	0
Sweden	183	83	99	0	1
United Kingdom	920	180	740	0	0
Switzerland	17	15	1	0	0
FYR of Macedonia	13	0	13	0	0
Albania	28	0	0	0	28
Serbia	14	0	13	0	1
Turkey	1 079	3	249	0	827
Kosovo (¹)	9	0	0	0	9
Bosnia and Herzegovina	10	2	0	0	0

(¹) This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.
Source: Eurostat (online data code: [apro_acs_a](#))



France and the United Kingdom are the largest producers

Four Member States produced over 3 million tonnes of dry pulses, which was a 59.6% share of production volume. France, with 930 000 tonnes, was the largest EU producer of dry pulses and accounted for 18.1% of production volume. This was almost equalled by the United Kingdom with 17.9% of production volume. Poland accounted for 715 000 tonnes and ranked third (13.9%), while Spain was fourth with 503 000 tonnes (9.8%).

The fact that Member States rank differently for cultivation area and production is due mainly to France and the United Kingdom specialising in the more productive dry pulse crops (field peas and field and broad beans), while Spain cultivates large areas of the heterogeneous group of 'other dry pulses'. In addition, the farms in both France and the United Kingdom that cultivate dry pulses are larger and are more likely to take advantage of scale economies.

France was the leading country for field pea production. It harvested 662 000 tonnes (31.9% of production volume) and was far ahead of Germany (13.3%), Lithuania (11.0%) and Spain (9.3%).

The United Kingdom, with 740 000 tonnes, was the main producer of broad and field beans (37.8%), followed at some distance by France (12.8%), Lithuania (9.8%) and Germany (6.8%).

Poland alone produced 291 000 tonnes of sweet lupins, which was 76% of production volume, followed by Germany (10%). 'Other dry pulses' were produced mainly in Poland (41.6% of production volume) and Spain (31.8%).

1.2 Structure of production

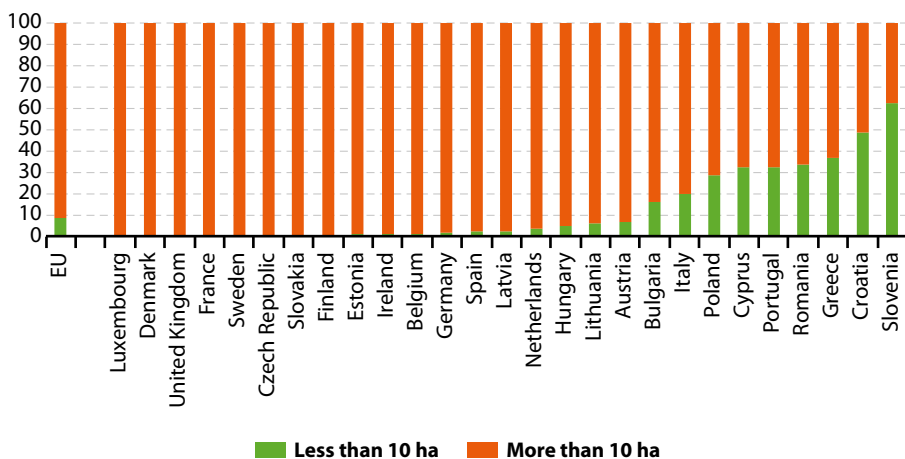
Almost 350 000 farms cultivate dry pulses; 90% of the area is cultivated by farms with over 10 ha of arable land

According to the most recent farm structure survey (2013), 346 000 holdings in the EU cultivated dry pulses, which represented 3.2% of all EU holdings. Four in five of these holdings (80.3%) also cultivated cereals, probably for crop rotation. However, dry pulses were present on a 5.1% share of holdings with cereals.

Production of dry pulses is intensive: larger farms (over 10 ha of arable land) cultivated 91.4% of the EU dry pulses area, although they represent only 36.7% of all farms with area under dry pulses (see Figures 1.3 and 1.4).



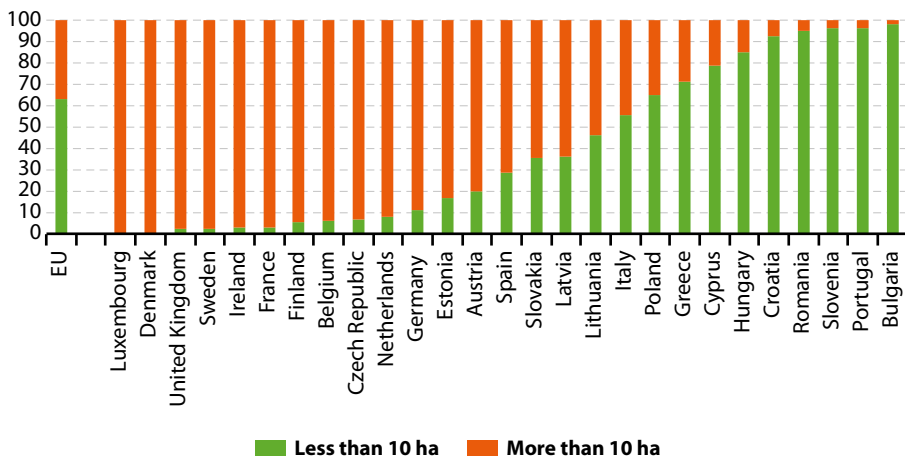
Figure 1.3: Share of dry pulses area by farm size, 2013
(% of total arable land)



Note: No data for Malta, since no dry pulses are grown there.

Source: Eurostat (online data code: [ef_alarableecs](#)); Farm Structure Survey, 2013

Figure 1.4: Share of total number of farms cultivating dry pulses by farm size, 2013
(% of farm holdings)



Note: No data for Malta, since no dry pulses are grown there.

Source: Eurostat (online data code: [ef_alarableecs](#)); Farm Structure Survey, 2013



The main producing Member States recorded higher shares both for the number of farms and for area. In the United Kingdom and France virtually all the dry pulses area (respectively 99.7 % and 99.6 %) was located in farms with 10 ha or more of arable land, which were respectively 97.9 % and 97.2 % of all dry pulses farms. The only exception was Poland where both shares were lower than the EU level (34.9 % for farms and 71.3 % for area).

The largest numbers of farms cultivating dry pulses were situated in Romania (28.8 %) and Poland (19.3 %). However Romanian farms cultivated only 2.4 % of the European dry pulse area. In contrast, the United Kingdom and France accounted for 0.1 % and for 0.3 % respectively of the number of farms, although those few farms cultivated 10.4 % and 15.7 % of the EU-28's dry pulse area.

Organic dry pulses cover 2.2 % of the dry pulse area; Italy has the biggest share under organic production (20 %)

In 2015, the share of organic production was 2.2 % of the total area under dry pulses, while 7.9 % of farms cultivated organic dry pulses. Most of the farms with organic area dedicated to dry pulses were located in Italy (20.2 %), Germany (15.5 %), Austria (14.8 %) and France (12.8 %).

1.3 Economic value of dry pulses

Dry pulses' output values: EUR 1 300 million (0.6 % of crop output)

The output value for dry pulses (?) in 2015 was EUR 1 317 million at basic prices, which was 0.32 % of the total agricultural output and 0.62 % of the crop output. The value for 2015 was 28 % higher than in 2014 and 41 % higher than in 2013.

The contribution of dry pulses to both agricultural and crop outputs also increased. In 2014, dry pulses accounted for 0.25 % of agricultural output and 0.49 % of crop output, while in 2013 these shares were 0.22 % and 0.42 %.

Half of the output value for dry pulses was created by Poland, France and the United Kingdom

One fifth of the output value for dry pulses was generated by Poland (22.5 %), while France accounted for 17.8 % and the United Kingdom for 13.1 %. This means that more than half (53.4 %) of the output value of EU dry pulse crops was created by three Member States (see Figure 1.5).

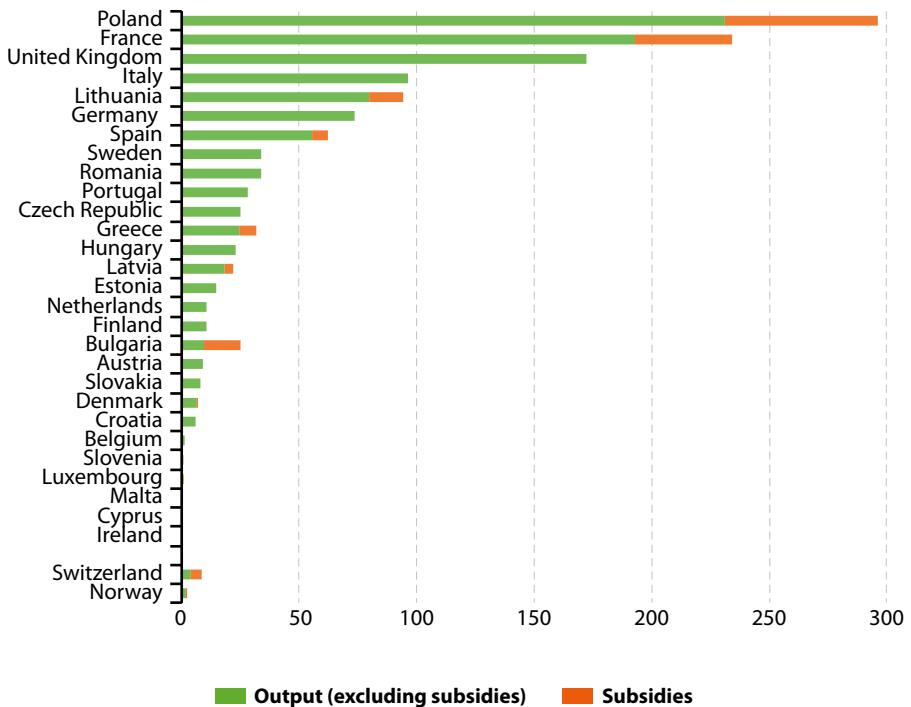
Despite its leading position in terms of area and its fourth place in terms of tonnes harvested, Spain ranked only seventh in terms of value with 4.7 % share.

(?) The aggregate 'protein crops' in the EAA includes the same crop as 'dry pulse and protein crops' in annual crop statistics.

Subsidies: EUR 154 million to dry pulses

In 2015, EUR 154 million in subsidies was provided to dry pulses at EU-28 level. This was 11.7 % of the output value of dry pulses at basic prices. In 2014 and 2013, subsidies to dry pulses were far lower than that amount: respectively EUR 90.7 and EUR 85.2 million. The subsidies to the dry pulses sector were registered in just nine Member States: among those Poland recorded the highest value (EUR 64.9 million), while France came second with EUR 41.5 million.

Figure 1.5: Output value of dry pulses and subsidies, 2015
(million EUR)



Note: Values at basic prices.

Source: Eurostat (online data code: aact_eaa01)



DATA SOURCES AND AVAILABILITY

Statistics on crop production

Statistics on crop products are obtained by sample surveys, supplemented by administrative data and estimates based on expert observations. The sources vary from one EU Member State to another because of national conditions and statistical practices. National statistical institutes or Ministries of Agriculture are responsible for data collection in accordance with EC Regulations. The finalised data sent to [Eurostat](#) are as harmonised as possible. Eurostat is responsible for establishing EU aggregates. The statistics collected on agricultural products cover more than 100 individual crop products. Information is collected for the area under cultivation (expressed in 1 000 ha), the quantity harvested (expressed in 1 000 tonnes) and the yield (expressed in 100 kg per ha). For some products, data at a national level may be supplemented by regional statistics at NUTS level 1 or level 2.

Statistics on the structure of agricultural holdings (FSS)

A comprehensive [Farm structure survey \(FSS\)](#) is carried out by EU Member States every 10 years (the full scope being the agricultural census) and intermediate sample surveys are carried out twice between these basic surveys. The statistical unit is the agricultural holding; the EU Member States collect information from individual agricultural holdings, covering:

- land use;
- livestock numbers;
- rural development (for example, activities other than agriculture);
- management and farm labour input (including age, sex and relationship to the holder).

Survey data are aggregated to different geographic levels (countries, regions, and for basic surveys also districts) and arranged by size class, area status, legal status of holding, objective zone and farm type. In the FSS organic data has been collected since the 2000 Census.



Economic accounts for agriculture (EAA)

Data on EAA provide an insight into:

- the economic viability of agriculture;
- agriculture's contribution to each EU Member State's wealth;
- the structure and composition of agricultural production and input;
- the remuneration of factors of production;
- relationships between prices and quantities of both input and output.

The output of agricultural activity includes output sold (including trade in agricultural goods and services between agricultural units), changes in stocks, output for own final use (own final consumption and own-account gross fixed capital formation), output produced for further processing by agricultural producers, as well as intra-unit consumption of livestock feed products. The output of the agricultural sector is made up of the sum of the output of agricultural products and of the goods and services produced in inseparable non-agricultural secondary activities; animal and crop output are the main product categories of agricultural output.

2

Small and large farms in the EU





Introduction

The general pattern of development within the agricultural sector of the EU has been towards a greater concentration of agriculture within the hands of relatively few large (often corporately-owned) farms. The number of farms is in steady decline, and when people migrate away from sparsely populated agricultural areas, the farming land which remains is often acquired by larger farms. Thus, over time, land use and agricultural production have become more concentrated. Indeed, there is an interesting dichotomy between small family-run, labour-intensive, diversified farms and larger corporate farms which tend to be relatively specialised and rely on capital investment in machinery to benefit from economies of scale.

Small farms support rural employment and can make a considerable contribution to territorial development, providing specialist local produce/products as well as supporting social, cultural and environmental services.

Small farms have always been a cornerstone of [agricultural activity in the EU](#). There is no fixed definition as to what constitutes a 'small' or a 'large' farm. In addition, there is no fixed definition as to when a small farm is rather a subsistence household producing food for its own consumption and is thus not an economic unit. It should be noted that no cut-off thresholds for identifying subsistence households have been introduced. There are two main criteria that have been used to delineate farm size: one is based on a classification of farms in economic terms based on their [standard output](#), while the other one is based on the [utilised agricultural area \(UAA\)](#).

The total number of farms in the EU fell by more than one quarter in less than a decade

For several decades, the number of farms in the EU has followed a downward path. Between 2005 and 2013 the total number of farms in the EU-28 (excluding Croatia) fell by 26.2%, equivalent to an average decline of 3.7% per annum. The largest declines in farm numbers were recorded in Slovakia (– 12.5% per annum), Bulgaria (– 8.9% per annum), Poland (– 6.6% per annum), Italy (– 6.5% per annum), the Czech Republic (– 5.8% per annum), Latvia (– 5.5% per annum) and the United Kingdom (– 5.3% per annum). By contrast, Ireland was the only EU Member State to record an increase in its number of farms between 2005 and 2013, with an average increase of 0.6% per annum, equivalent to an additional 7 thousand farms.



There was little change in the utilised agricultural area farmed in the EU during recent years, as the average rate of change was 0.1 % per annum for the EU-28 (excluding Croatia) between 2005 and 2013. The total utilised agricultural area for the EU-28 stood at 174.6 million hectares in 2013. This relatively stable agricultural area, coupled with a declining number of farms has resulted in farms across the EU becoming, on average, bigger. Some of the fastest changes were recorded among those Member States that joined the EU in 2004 or more recently, as a process of structural adjustment took place.

One third of the farms in the EU were located in Romania

The structure of agriculture in the EU Member States varies depending upon differences in geology, topography, climate and natural resources, as well as the diversity that is found in terms of (former) political and economic systems, regional infrastructure and social customs. The differences witnessed between Member States in relation to the average size of their farms are however largely linked to ownership patterns, as those countries with high numbers of small farms are characterised by semi-subsistence, family holdings, whereas larger farms are more likely to be corporately-owned, joint stock and limited liability farms, or cooperatives.

Romania accounted for one third (33.5 %) of the total number of farms in the EU-28 in 2013, while Poland (13.2 %) was the only other EU Member State to record a double-digit share; many of the farms in these two Member States can be considered subsistence households. In terms of utilised agricultural area, most agricultural land was found in France (15.9 % of the EU-28 total in 2013), followed by Spain (13.3 %), while the United Kingdom (9.9 %), Germany (9.6 %), Poland (8.3 %) and Romania (7.5 %) had the next highest shares.

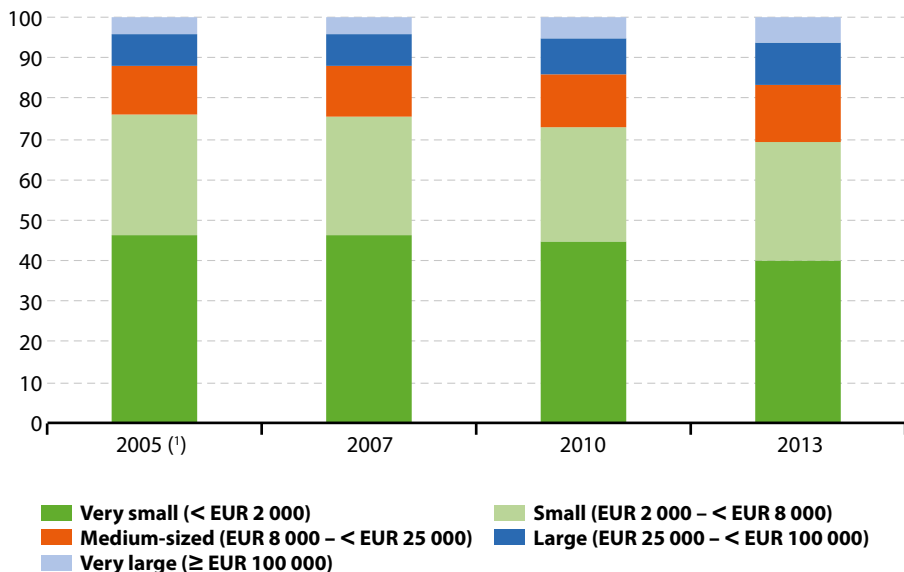


2.1 Economic size of farms

The analysis of the structure of farms in the EU in economic terms is based on their standard output, a measure of the monetary value of agricultural output at farm-gate prices for crops and livestock; note that the standard output does not take account of input costs and therefore does not provide an indication as to the profitability of farms. Five different classes have been defined according to their economic size: very small; small; medium-sized; large; and very large.

In 2013, there were 4.4 million farms in the EU-28 that had a standard output that was less than EUR 2 000, while a further 3.1 million farms had an output within the range of EUR 2 000–EUR 8 000. Together these very small and small farms accounted for more than two thirds (69.1 %) of all the farms in the EU-28 (see Figure 2.1), whereas their share of standard output was considerably lower, at 5.0%. This may be explained, at least in part, by the relatively high number of very small, subsistence households in the EU (see below for more information concerning farms where more than 50 % of their output is self-consumed).

Figure 2.1: Share of total number of farm holdings, by economic size of farm, EU-28, 2005–13
(% of total)



(¹) Excluding Croatia.

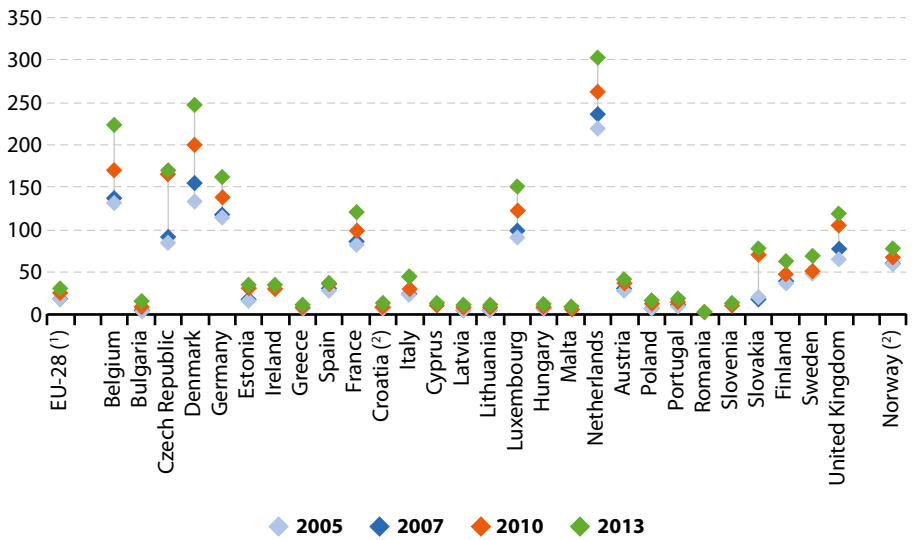
Source: Eurostat (online data code: [ef_kvcsleg](#))

By contrast, there were 680 thousand farms in the EU-28 with a standard output of at least EUR 100 000; these very large farms accounted for 6.3 % of the total number of farms and for 71.4 % of the agricultural standard output in 2013. It should be noted that while many of these farms with a high level of standard output occupied considerable areas of agricultural land, there are specific types of farming which may have considerable output in monetary terms from very small areas of agricultural land, for example, horticulture or poultry farming.

The standard output of farms in the EU increased by almost 56 % between 2005 and 2013

The Netherlands recorded the largest farms, generating an average of EUR 303 800 of standard output (see Figure 2.2); note that many farms in the Netherlands are specialised in growing high value products, for example, flowers, fruit and vegetables (often under glass). The average economic size of farms was also relatively high in Denmark, Belgium, the Czech Republic, Germany, Luxembourg, France and the United Kingdom, ranging from EUR 246 700 to EUR 117 800; none of the other EU Member States recorded an average economic size of more than EUR 80 000 per farm.

Figure 2.2: Average economic size of farm holdings, 2005–13
(thousand EUR)



Note: the economic size is measured in relation to the standard output.

(1) 2005: EU-27.
(2) 2005: not available.

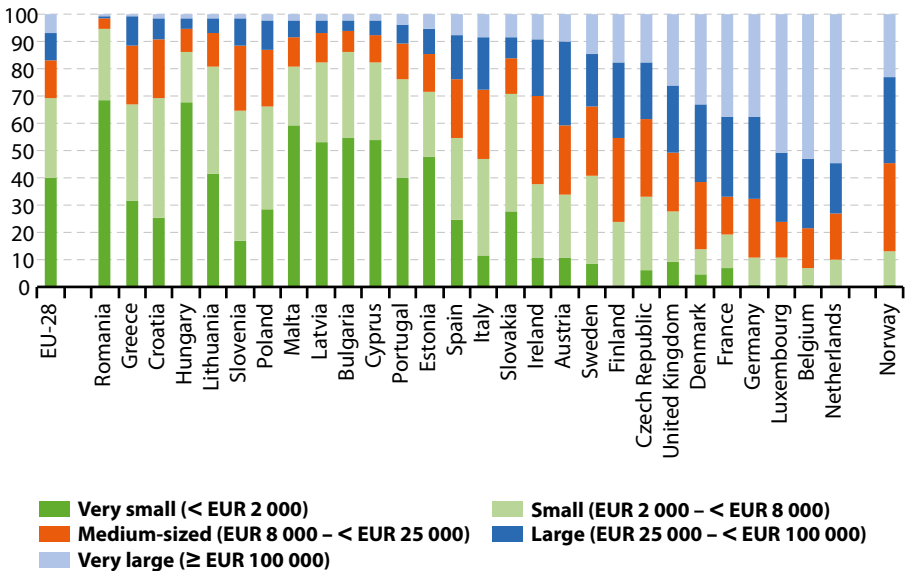
Source: Eurostat (online data code: ef_kvftaa)

At the other end of the range, there were 10 EU Member States where the average economic size of farms was below EUR 15 000, all but one of these recorded a ratio in 2013 that was within the range of EUR 10 000–15 000, the exception being Romania, where farms averaged EUR 3 300 of standard output. As such, comparing the results for the Netherlands with those for Romania, the average economic size of farms in the former was approximately 92 times larger than the latter.

A high proportion of farms in the Benelux were very large

There were considerable divergences between the EU Member States as regards the economic size of their farms in 2013 (see Figure 2.3). While 6.3 % of the total number of farms in the EU-28 were considered as being very large as a result of generating a standard output of at least EUR 100 000, this share was considerably higher in several Member States. Indeed, more than half of all the farms in the three Benelux Member States generated at least EUR 100 000 of standard output, peaking at 54.8 % in the Netherlands, while very large farms accounted for the highest share of the total number of farms in the United Kingdom (26.0 % of the total), Denmark (33.2 %), France (37.5 %) and Germany (37.8 %).

Figure 2.3: Share of total number of farm holdings, by economic size of farm, 2013
(% of total)



Note: ranked on the share of very large farms defined in economic terms as those with a standard output \geq EUR 100 000.

Source: Eurostat (online data code: ef_kvecslseg)



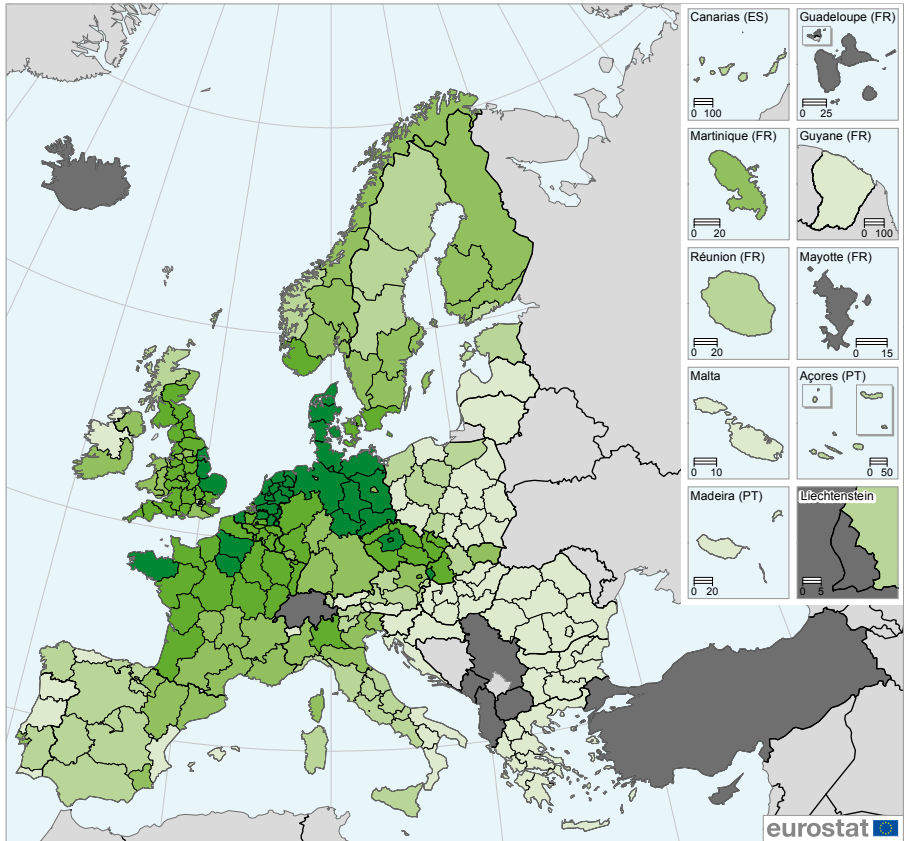
By contrast, there were nine EU Member States where the very small farms with less than EUR 2 000 of standard output were the most common economic size of farms. These farms were particularly prevalent in Romania (68.7 % of all farms) and Hungary (67.6 %), while they also accounted for more than half of the total number of farms in Malta, Bulgaria, Cyprus and Latvia. As such, farms in the western EU Member States tended, on average, to be much larger in economic size than those in many of the Member States that joined the EU in 2004 or more recently.

On average, farms in the German region of Sachsen-Anhalt had the highest standard output

Map 2.1 shows the average economic size of farms for NUTS level 2 regions. There were 35 regions across the EU-28 where the standard output per farm averaged at least EUR 200 000 (as shown by the darkest shade in the map). These regions were located in the Netherlands (every region except for Zeeland), Germany (eight NUTS level 1 regions), Belgium (four regions), Denmark, France and the United Kingdom (three regions each), the Czech Republic (two regions) and Slovakia (one region). Standard output per farm peaked at EUR 541 800 in the German region of Sachsen-Anhalt, while two other German regions — Mecklenburg-Vorpommern and Thüringen — were also present among the top five regions in the EU with the largest farms in economic terms; they were joined by the Czech capital city region of Praha and the Dutch region of Zuid-Holland.

At the other end of the range, there were 10 regions in the EU-28 where farms on average generated EUR 5 000 or less of standard output in 2013. All eight of the Romanian regions figured in this list, along with the Greek island region of Ionia Nisia and the Polish region of Podkarpackie. The region with the lowest level of standard output per farm (EUR 2 600) was Sud-Vest Oltenia in Romania.

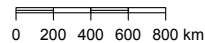
Map 2.1: Average economic size of farm holdings, by NUTS 2 regions, 2013
(thousand EUR)



EU-28 = 30.5



Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 03/2016



Note: all German regions, NUTS 1; Slovenia, national data; London (UK), NUTS 1.

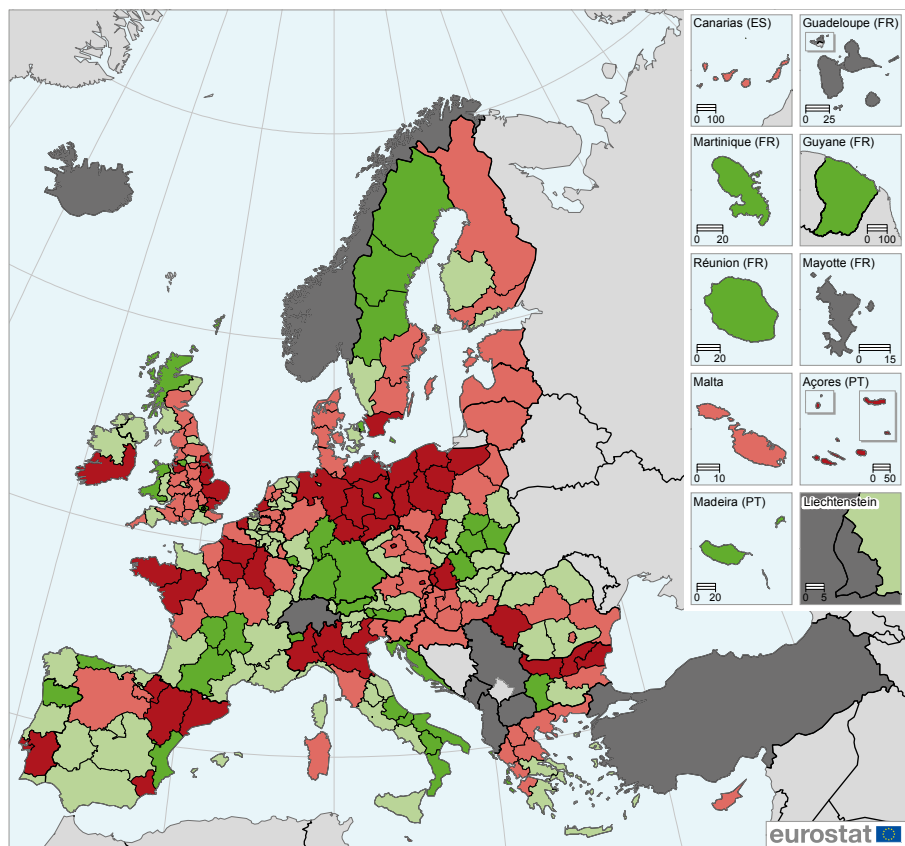
Source: Eurostat (online data code: [ef_kvecsleg](#))



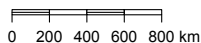
The information presented in Map 2.2 is based on an alternative analysis of the economic size of farms. It shows differences in standard output between regions within a single EU Member State. The national average is used as a benchmark and the standard output in each region is shown as a percentage of the national average. Note that those Member States with only a single NUTS level 2 region have, by definition, a value of 100 for this indicator. The regions where farms tended to be larger than the national average (in economic terms) are shown in shades of orange, whereas the regions which were characterised by farms that were smaller than the national average are shown in green.

In several of the EU Member States, farms in the capital city region often had a relatively high level of standard output compared with the national average; this was particularly the case in the Czech Republic, Austria, Portugal and Slovakia (note that these capital city regions may also contain land that encircles the capital city itself) and the values recorded in some of these regions may be linked to farmers providing high value horticultural products to local markets. By contrast, the lowest average levels of standard output were recorded either in capital city regions, for example, Berlin or London (where there is practically no space for agricultural activity within the region) or in very remote, often upland/highland regions, where it may be difficult to farm or transport goods to market, for example, the overseas French regions of Guyane and La Réunion, the southern Polish region of Podkarpackie, the island Região Autónoma da Madeira (Portugal) and the Highlands and Islands of Scotland (the United Kingdom).

Map 2.2: Average economic size of farm holdings, by NUTS 2 regions, 2013
(national average = 100)



Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 03/2016



Note: all German regions, NUTS 1; Slovenia, national data; London (UK), NUTS 1.

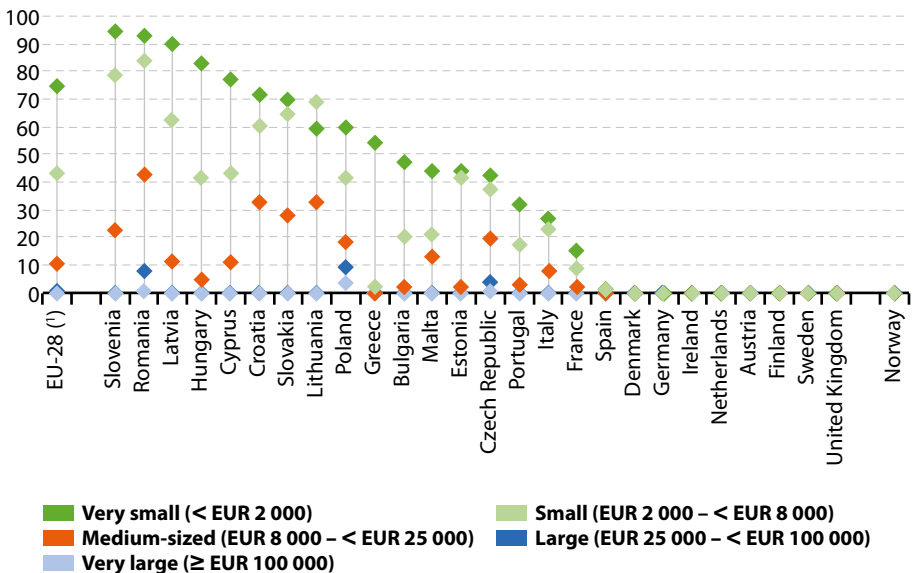
Source: Eurostat (online data code: [ef_kvecsleg](#))

Almost three quarters of farms in the EU that are very small in economic terms were subsistent

Many small farms are characterised by the fact that farm holders may struggle to make a living. A characteristic of very small farms is that they are often subsistence households. Figure 2.4 shows the proportion of farms where more than half of the production of the farm is self-consumed, the information is once again analysed according to the economic size of farms. Across the whole of the EU-28, almost three quarters (74.4%) of very small farms (in economic terms) consumed more than half of their own production in 2013, while just over two fifths (42.6%) of small farms were classified as subsistent. A high proportion (the share rising above 90%) of the very small farms in Latvia, Romania and Slovenia were subsistence households.

Figure 2.4: Share of farm holdings with more than half of production being self-consumed, by economic size of farm, 2013

(%)



Note: ranked on the share of very small farms defined in economic terms as those with a standard output < EUR 2 000. Belgium and Luxembourg: not available.

(*) Excluding Belgium and Luxembourg.

Source: Eurostat (online data code: ef_kvecsleg)

An alternative form of analysis is presented in Table 2.1. This analysis provides details as to the wide-ranging differences that exist in the average size of farms in the EU. Again it looks at the distribution of farms within each of the EU Member States according to their economic size, but instead of having fixed thresholds to determine the economic size of a farm, it classifies all farms into five groups called quintiles. All of the farms are ranked by economic size; the output of the smallest farms is combined until the sum reaches one fifth of the total standard output; the same approach is adopted for the next largest farms and so on until five groups of farms have been created, containing different numbers of farms, but each group accounting for one fifth of the total standard output. The information that is presented in this part of the analysis (using these quintiles) focuses on the large number of farms in the bottom quintile and small number of farms in the top quintile. The lower threshold shown in the table refers to the level of standard output below which the cumulative output of the smallest farms equates to one fifth of the national total; the upper threshold shows the level of standard output above which the cumulative output of the largest farms also equates to one fifth of the national total.

There were relatively few small farms in the Benelux countries, France and Austria. The smallest farms in Luxembourg that accounted for one fifth of standard output in 2013 made up 60 % of the total number of farms, while in Belgium and France one fifth of standard output was produced by the smallest two thirds of all farms and this share of farm numbers was just under 70 % in Austria and the Netherlands. By contrast the smallest farms in Slovakia that collectively generated one fifth of the total standard output made up 96 % of the number of farms, with this share also over 90 % in Hungary, Estonia, Bulgaria, the Czech Republic, Cyprus and Latvia.

The lower threshold below which one fifth of total standard output was generated by the smallest farms ranged across the EU Member States from a low of EUR 2 842 in Romania up to EUR 378 thousand in Denmark, with Slovakia and the Czech Republic both recording thresholds that were close to EUR 375 thousand. At the other end of the scale, the threshold above which one fifth of total standard output was generated by the largest farms reached EUR 4.5 million and EUR 3.6 million respectively in the Czech Republic and Slovakia, where just 0.5 % and 0.2 % of the total number of farms were in the top quintile. By contrast, there were relatively high numbers of farms in Luxembourg in the top quintile, where one fifth of total standard output was generated by the largest farms which made up 4.6 % of the farm population; the next highest shares were recorded in Belgium (2.6 %), France (2.4 %) and Austria (2.0 %).

A comparison between the number of farms in the top and bottom quintiles reveals that some of the widest disparities in the distribution of farms by economic size were recorded in Romania and Latvia: using the lower and upper quintiles for standard output there were, on average, more than one thousand smaller farms for each larger farm in 2013 in both of these EU Member States. However, the difference was even wider in Hungary, where this ratio peaked at 2 360 : 1. By contrast, there were relatively few smaller farms in Luxembourg for each larger farm (12.9 : 1), and there were less than 50 farms in the bottom quintile for each large farm in the top quintile in Belgium, France, Austria, Finland and the Netherlands; this was also the case in Norway.

**Table 2.1:** Distribution of farm holdings, by economic size of farm, 2013

	Average standard output per holding	Lower threshold ⁽¹⁾	Average standard output per holding for farms below the lower threshold	Number of farms below the lower threshold	Upper threshold ⁽²⁾	Average standard output per holding for farms above the upper threshold	Number of farms above the upper threshold	Ratio of number of farms below the lower threshold to number of farms above the upper threshold
	(EUR)	(EUR)	(EUR)	(% of all farms)	(EUR)	(EUR)	(% of all farms)	
Belgium	222 628	204 805	68 055	65.4	1 063 572	1 732 218	2.6	25.5
Bulgaria	13 112	21 252	2 801	93.6	1 136 028	2 133 941	0.1	780.2
Czech Republic	169 434	374 061	36 874	91.9	4 466 029	6 912 652	0.5	187.5
Denmark	246 728	378 054	59 997	82.2	2 343 481	3 674 177	1.3	61.4
Germany	162 269	151 375	45 028	72.1	1 465 853	2 892 182	1.1	64.3
Estonia	35 250	85 892	7 502	94.0	2 338 574	4 403 482	0.2	587.3
Ireland	35 908	29 469	9 732	73.8	277 942	605 813	1.2	62.0
Greece	11 421	10 023	3 169	72.1	81 332	175 383	1.3	55.4
Spain	37 284	46 489	8 807	84.7	948 095	2 159 638	0.4	241.9
France	120 528	116 138	36 193	66.6	562 725	1 001 382	2.4	27.6
Croatia	12 888	9 561	3 470	74.3	332 825	1 471 381	0.2	412.6
Italy	43 346	45 095	10 537	82.3	1 307 613	3 238 192	0.3	304.7
Cyprus	14 001	22 615	3 050	91.8	1 115 372	2 947 655	0.1	918.1
Latvia	12 103	17 179	2 670	90.7	1 050 328	2 624 553	0.1	1 007.3
Lithuania	11 171	9 658	2 643	84.5	856 560	2 086 702	0.1	768.4
Luxembourg	151 089	146 390	50 639	59.6	433 454	655 877	4.6	12.9
Hungary	11 352	23 242	2 405	94.4	2 578 865	5 242 525	0.0	2 360.3
Malta	10 336	15 871	2 306	88.0	325 375	528 100	0.4	220.1
Netherlands	303 760	295 081	87 451	69.5	2 283 829	4 101 551	1.5	46.9
Austria	40 384	38 355	11 663	69.3	224 306	398 359	2.0	34.1
Poland	15 254	13 507	3 951	77.2	305 404	843 231	0.4	214.5
Portugal	17 053	22 183	3 842	88.7	625 199	1 431 537	0.2	369.8
Romania	3 303	2 842	856	77.2	380 088	1 104 177	0.1	1 286.3
Slovenia	13 944	9 397	4 002	69.7	147 229	368 586	0.8	91.7
Slovakia	76 901	375 437	16 053	95.8	3 578 628	6 886 134	0.2	435.3
Finland	61 568	57 512	17 000	72.4	446 295	796 518	1.6	46.7
Sweden	69 207	89 818	16 375	84.5	1 188 940	2 664 026	0.5	162.6
United Kingdom	118 619	136 271	30 049	79.0	1 311 523	2 720 761	0.9	90.7
Norway	78 322	71 069	22 343	70.1	457 061	865 033	1.8	38.7

(1) Individual farms with a standard output below this threshold together accounted for 20% of the total standard output.

(2) Individual farms with a standard output above this threshold together accounted for 20% of the total standard output.

Source: Eurostat (FSS — farm structure survey)

2.2 Structure of the farm labour force

There were 22.2 million persons in the EU-28's farm labour force in 2013. Although engaged in production on farms, these people did not necessarily work on a full-time basis. Information on the agricultural labour force may be converted into **annual work units (AWUs)**, which correspond to a full-time equivalent person working a whole year. On this basis there were 9.5 million AWUs in the EU-28's labour force (composed of sole holders, other family labour and non-family labour) directly working on farms in 2013. Note that a large part (4.2 million AWUs) of this labour force was composed of sole holders, while family members accounted for in excess of 3.0 million AWUs. As such, many members of the labour force do not work as paid employees and are instead paid in kind for their work. Note also that the overall figure for the number of AWUs was lower than the 10.8 million farms that were active across the whole of the EU in 2013 and as such, there was, on average, less than one AWU for each farm.

Of the 9.5 million AWUs of labour input on EU-28 farms in 2013, Poland accounted for just over one fifth (20.2%) of the total, while the next highest share was recorded by Romania (16.3%), where the agricultural labour force was almost twice the size as in Spain and Italy, which both accounted for 8.6% of the EU-28 total. In 2013, average labour input per farm ranged from lows of 0.4 AWUs per farm in Romania, 0.5 AWUs in Cyprus and Malta and 0.7 AWUs in Greece, up to an average of 2.1 AWUs per farm in Slovakia and 2.3 AWUs in the Netherlands, peaking at 4.0 AWUs per farm in the Czech Republic.

Very large farms played an important role in providing agricultural labour opportunities

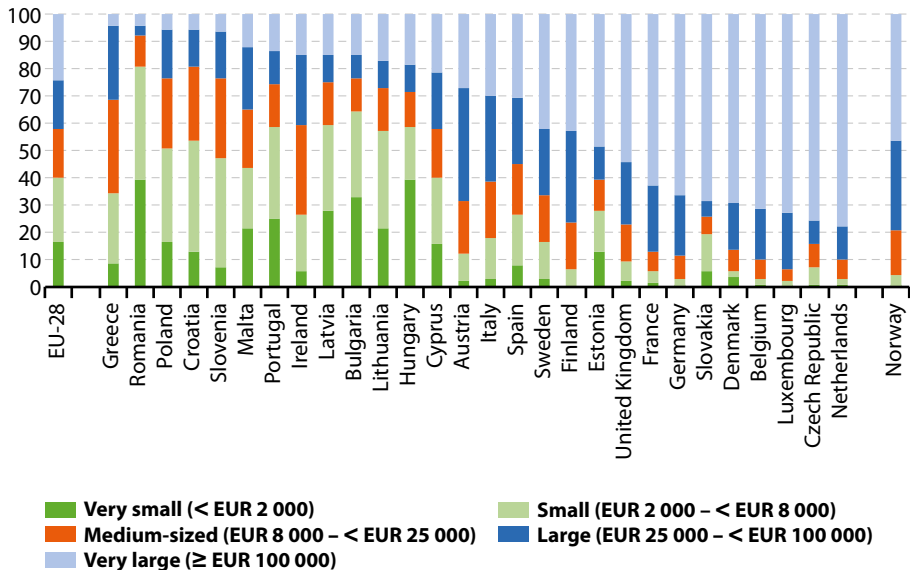
An analysis, based on the economic size of farms, shows that small farms (with a standard output of EUR 2 000 – < EUR 8 000) accounted for almost one quarter (24.2%) of the EU-28's agricultural labour force (composed of sole holders, other family labour and non-family labour) that worked directly on farms; an identical share was recorded for very large farms (with a standard output of ≥ EUR 100 000), with the shares of total regular labour input for the other size classes all quite similar, between 16.3% and 17.7% — see Figure 2.5.

There was a wide variation between the EU Member States as regards the share of their agricultural labour forces that were working on farms of different economic sizes in 2013. In Bulgaria (33.3%) and Hungary (39.4%), very small farms (with a standard output of < 2 000 EUR) accounted for a higher share of labour input than farms of any other size class. There were eight Member States where the largest agricultural labour force was recorded on small farms, as their share of the total number of AWUs rose above 40.0% in Slovenia, Romania and Croatia. Medium-sized farms (with a standard output of EUR 8 000 – < EUR 25 000) provided work to a greater share of the agricultural labour force than any other size class in Ireland (32.8%) and Greece (33.9%), while the highest shares of labour input in Malta, Italy and Austria were recorded for large farms (with a standard output of EUR 25 000 – < EUR 100 000). However, the most striking aspect of Figure 2.5 is that very large farms provided the highest share of agricultural labour input (in terms of AWUs) in almost half (13) of the EU Member States. Among these, there were nine where a majority of the labour force was working on very large farms, this share rising to more than three quarters of the total in the Czech Republic (75.2%) and the Netherlands (78.0%).



Figure 2.5: Share of the labour force directly working on farms, by economic size of farm, 2013

(% of total AWUs)



Note: ranked on the share of very large farms defined in economic terms as those with a standard output \geq EUR 100 000; farm labour force directly working on farms includes sole holders, family members and non-family labour.

Source: Eurostat (online data code: [ef_kvccsleg](#))

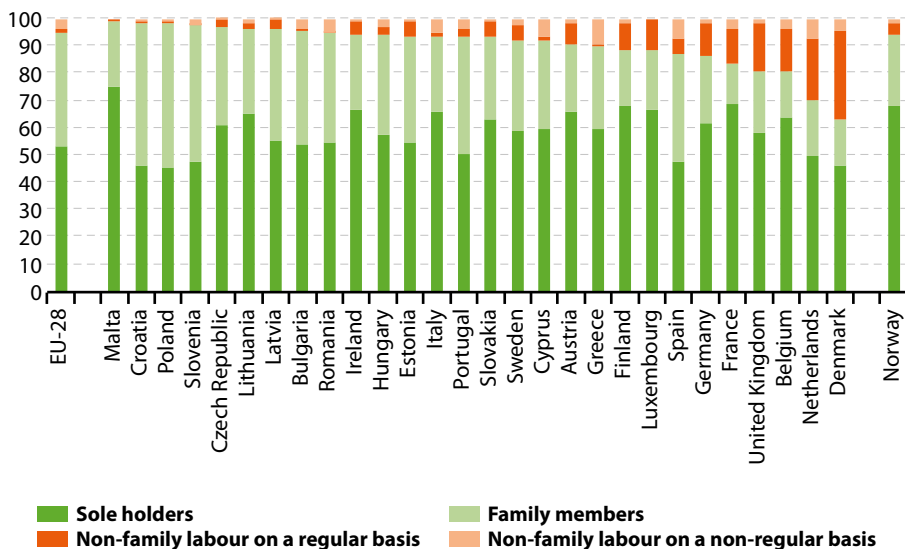
Farming is predominantly a family activity within the EU

As noted above, very small and small farms (in economic terms) are often unable to provide a viable income for farmers and their families. As such, they are often run either as part-time operations, in conjunction with other gainful activities, or to supplement pensions; these small farms are typically characterised by a high share of family labour. On larger farms it is more common to find that a higher share of the labour force is engaged on a full-time basis, and these farms are also more likely to employ non-family labour.

Approximately three quarters (76.5%) of EU-28's agricultural labour force in 2013 was provided by family members (either *sole holders* or other *family members* working on the farm). This share rose above 90.0% in Ireland, Croatia, Slovenia and Poland and family labour accounted for more than half of the agricultural labour force in the vast majority of the other EU Member States: Estonia (46.4%), France (40.9%), Slovakia (27.6%) and the Czech Republic (25.8%) were the only exceptions to this rule, with a majority of their agricultural labour force being accounted for by non-family members.

The relative importance of family labour was particularly pronounced in very small and small farms, defined here in relation to their economic size. Figure 2.6 shows that across the EU-28 more than half (53.2%) of the labour input in very small and small farms was provided by sole holders. Family members accounted for more than two fifths (41.7%) of the labour force in these very small and small farms, such that the share of non-family labour was relatively low, at 5.1% of the total agricultural labour force. When very small and small farms did employ non-family labour they preferred to do so on a non-regular basis (3.4%) rather than a regular basis (1.7%).

Figure 2.6: Share of the labour force directly working on very small and small farms in economic terms, by type of labour, 2013
(% of total labour force in AWUs)



Note: for this analysis very small and small farms are defined in economic terms as those with < EUR 8 000 of standard output; farm labour force directly working on farms includes sole holders, family members and non-family labour; ranked on the share of sole holders and family members.

Source: Eurostat (online data code: [ef_olfftecs](#))

Almost half of the labour force on very large farms in the EU was accounted for by non-family labour

Economies of scale and a higher degree of mechanisation may encourage some very large farms (in economic terms) to replace labour by capital and this results in quite different patterns of employment

distribution. In 2013, very large farms accounted for 71.4 % of the standard output generated in the EU-28's agricultural sector, which could be contrasted with their 24.1 % share of the agricultural labour force.

In the EU-28, non-family members accounted for almost two thirds (65.8 %) of the labour input in very large farms in 2013 (see Figure 2.7). Almost half (49.0 %) of the labour force in very large farms was composed of non-family workers employed on a regular basis, their share being almost three times as high as that for non-family labour employed on a non-regular basis (16.9 %).

In a majority (19) of the EU Member States, non-family labour accounted for more than half of the agricultural labour force on very large farms. In 2013, this was most notably the case in Hungary, Bulgaria, Estonia, the Czech Republic, Romania and Slovakia, where non-family labour accounted for more than 90 % of the labour input. It is interesting to note that sole holders accounted for less than 5.0 % of the labour input on farms in these Member States, suggesting that they often had a different ownership status (cooperatives or corporate farms).

Figure 2.7: Share of the labour force directly working on very large farms in economic terms, by type of labour, 2013
(% of total labour force in AWUs)



Note: for this analysis very large farms are defined in economic terms as those with ≥ EUR 100 000 of standard output; farm labour force directly working on farms includes sole holders, family members and non-family labour; ranked on the share of sole holders and family members.

Source: Eurostat (online data code: ef_olfaa)

By contrast, there were nine EU Member States where family labour (sole holders and other family members) accounted for a majority of the agricultural labour force in very large farms. In 2013, the share of family labour was within the range of 50.0–60.0% in Greece, the United Kingdom, the Netherlands, Malta, Finland and Austria, rising to 64.7% in Luxembourg, 65.1% in Belgium and 82.3% in Ireland.

Older farm managers tended to work in very small and small farms

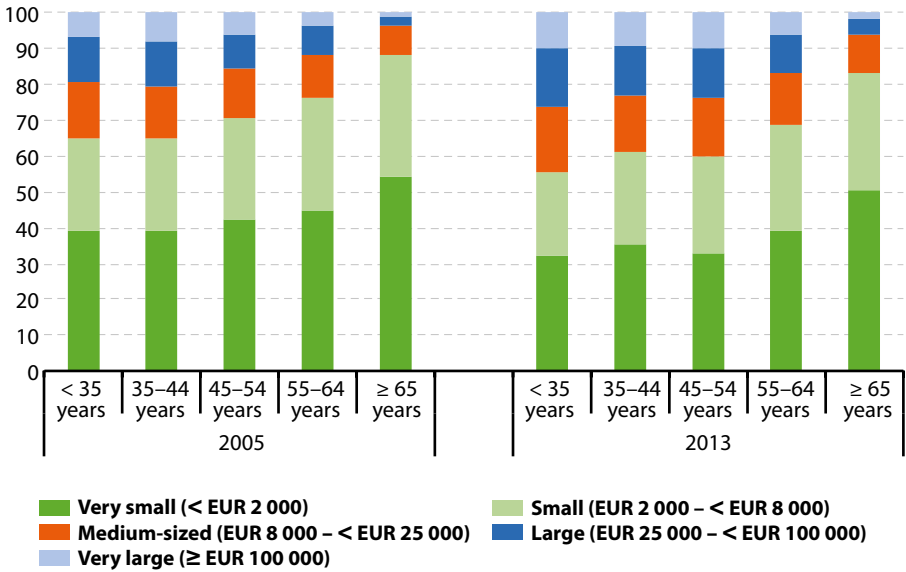
Of the 10.8 million farm managers in the EU-28's agricultural sector in 2013, there were relatively few young farm managers. Those aged less than 35 years accounted for 6.0% of the total, while the highest share of farm managers was recorded among those aged 65 and above (some 3.3 million managers, or 31.1% of the total). Agriculture is the economic sector in which it is most common to find people continuing to work after the age of 65.

Between 2005 and 2013, the share of young farm managers in the total number of managers in the EU fell slightly, as it had stood at 6.9% for the EU-28 (excluding Croatia); the share of farmers aged 65 years and above also fell during this period, while the largest relative gain was recorded among farmers aged between 55 and 64, as their share of the total number rose from 22.2% of all EU-28 (again excluding Croatia) farm managers in 2005 to 24.7% by 2013.

Elderly farm managers tend to work on very small and small farms (measured in economic terms) which are characterised by low levels of income and subsistence households; elderly farmers are less likely to have participated in professional training. While these very small and small farms tend to record relatively low levels of income, productivity and profitability, some play an important role in reducing the risk of rural poverty, providing additional income and food.

By contrast, young farmers tend to manage larger farms (in economic terms): this may be linked to the fact that they are more likely to have higher levels of educational attainment and to have followed professional training courses, which may lead to the introduction of new and innovative farming practices. As can be seen in Figure 2.8, during the period from 2005 to 2013 the share of young farm managers (aged less than 35 years) who were managing medium-sized, large and very large farms increased. The share of young farm managers who were managing smaller farms (measured in economic terms) was consequently lower.

Figure 2.8: Age of farm managers, by economic size of farm, EU-28, 2005 and 2013
(% of total)



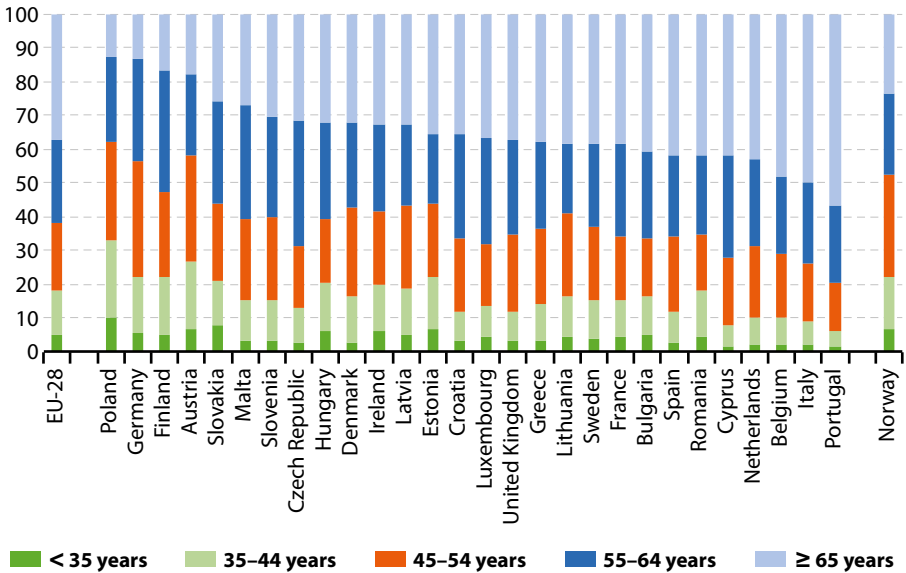
Note: 2005, excluding Croatia.
Source: Eurostat (Farm Structure Survey)

More than half of the farm managers in very small and small Portuguese farms were aged 65 and above...

Figures 2.9 and 2.10 show the contrast (measured in economic terms) between the age of farm managers in very small and small farms on the one hand and very large farms on the other. In a majority (21) of the EU Member States, elderly managers (aged 65 and above) in very small and small farms accounted for the highest share of farm managers (see Figure 2.9). In 2013, the share of those aged 65 and above in the total number of farm managers of small and very small farms peaked at 56.4% in Portugal, while shares of more than 40.0% were also recorded in Italy, Belgium, the Netherlands, Cyprus, Romania, Spain and Bulgaria. In the remaining EU Member States, where those aged 65 and above did not account for the highest share (among any age group) of farm managers of small and very small farms, the most common age group was either 55-64 years (four of the Member States) or 45-54 years (three of the Member States). At the other end of the age spectrum, Poland (10.3%) stood out, as it was the only Member State where farm managers aged less than 35 years accounted for a double-digit share of the total number of farm managers in very small and small farms.

Figure 2.9: Age of farm managers on very small and small farms in economic terms, 2013

(% of total)



Note: for this analysis very small and small farms are defined in economic terms as those with < EUR 8 000 of standard output. Ranked on the share of those aged 65 years or more.

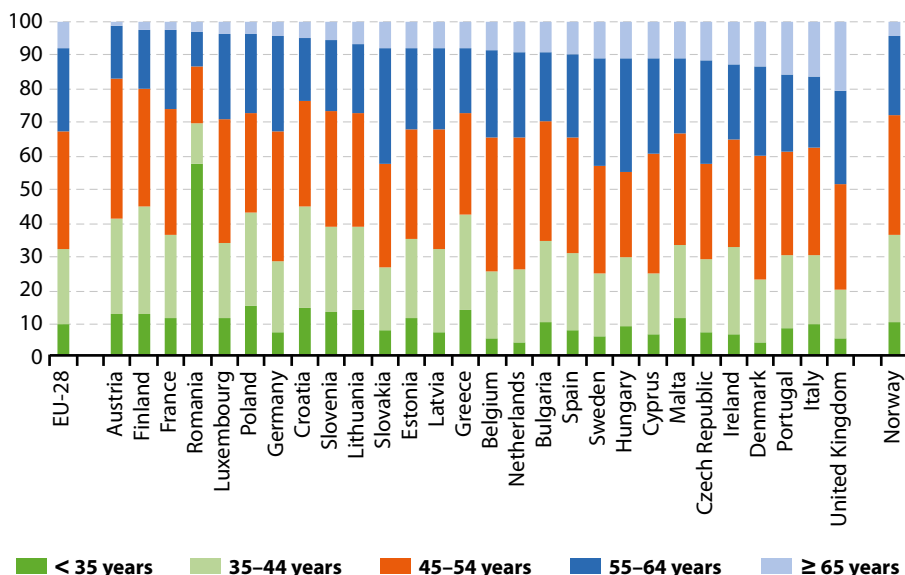
Source: Eurostat (Farm Structure Survey)

...while more than half of the managers of very large Romanian farms were aged less than 35 years

In 2013, more than one third (35.7%) of EU-28 farm managers working in very large farms were aged 45–54 years, the highest share for any of the age groups shown in Figure 2.10. By contrast, those aged less than 35 years accounted for just less than one tenth (9.3%) of the total, a share that was similar to that recorded for managers aged 65 and above (8.1%). This pattern was repeated in all but four of the EU Member States, with the share of farm managers aged 45–54 years peaking at 42.3% for very large farms in Austria. Among the four exceptions, three — the Czech Republic, Hungary and Slovakia — reported that the most common age of managers in very large farms was 55–64 years. However, the largest exception that stands out in Figure 2.10 is the high proportion (57.3%) of farm managers in very large Romanian farms who were aged less than 35 years: their share was more than six times as high as the EU average.



Figure 2.10: Age of farm managers on very large farms in economic terms, 2013
(% of total)



Note: for this analysis very large farms are defined in economic terms as those with \geq EUR 100 000 of standard output. Ranked on the share of those aged 65 years or more.

Source: Eurostat (Farm Structure Survey)

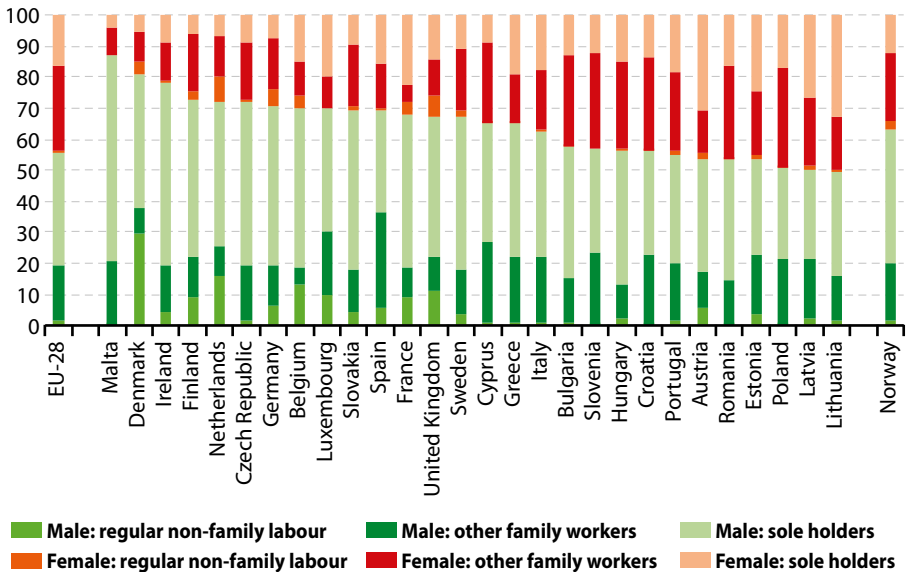
There was a higher propensity for women to work on smaller farms

An analysis of the farm labour force by sex and by economic size is not available for the non-regular labour force. For this reason, the data presented in Figures 2.11 and 2.12 focus exclusively on the regular labour force (composed of sole holders, other family labour and non-family labour). In 2013, the EU-28's regular agricultural labour force was composed of 8.7 million AWUs; men accounted for almost two thirds (64.8%) of the total. This pattern was repeated among all of the EU Member States, as the share of the regular labour force accounted for by men was consistently higher than that for women. Men accounted for more than four fifths of the regular labour force in Ireland and Cyprus, with their share peaking at 88.1% in Malta. At the other end of the range, there was almost parity between the sexes in Latvia, Lithuania and Poland, as the male share of the regular labour force was situated within the range of 53.7–54.9%.

The distribution of agricultural work between the sexes was somewhat more balanced in very small and small farms (measured in economic terms). In 2013, men accounted for 55.8% of the EU-28's regular labour force in these farms. More than three quarters of the regular labour force in very small and small farms in Ireland, Denmark and Malta was composed of men, while at the other end of the scale, a small majority (50.6%) of the labour force in such farms in Lithuania was composed of women, the only Member State to report a gender gap in favour of women.

Figure 2.11: Regular farm labour force on very small and small farms in economic terms, by sex, 2013

(% of regular labour force in AWUs)



Note: for this analysis very small and small farms are defined in economic terms as those with < EUR 8 000 of standard output.

Source: Eurostat (online data code: [ef_lflegcs](#))

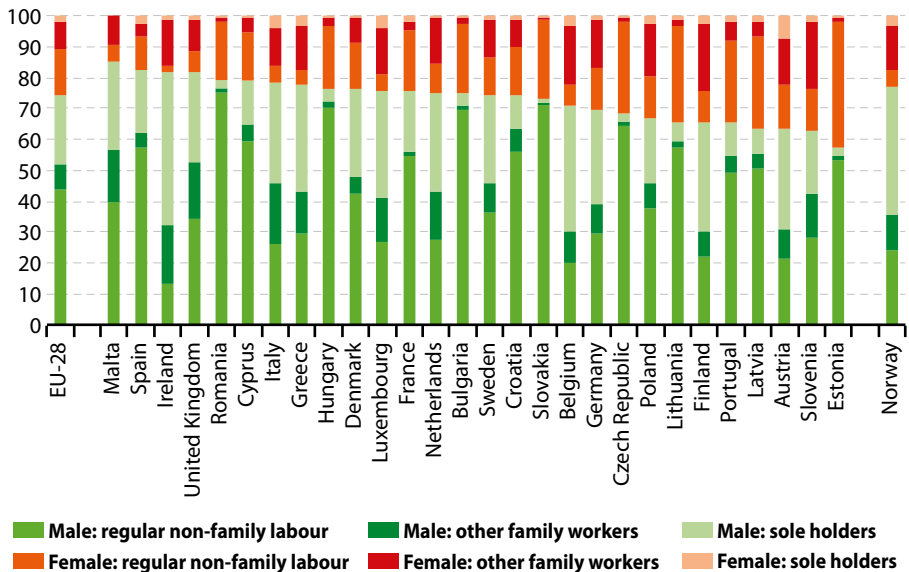
A closer analysis of the information for sole holders reveals that there were higher numbers of male (compared with female) sole holders in very small and small farms for each of the EU Member States. Across the whole of the EU-28, there were 2.2 times as many male as female sole holders in 2013, while there were between 7 and 8 times as many male sole holders in Germany, the Netherlands, Denmark and Finland, rising to 15 times as many in Malta. At the other end of the range, the number of male and female sole holders in very small and small farms was almost balanced in the Baltic Member States and Austria.

Figure 2.12 shows a similar set of information for very large farms (again on the basis of the economic size of farms). The gender gap in these farms was more pronounced, as men accounted for almost three quarters (74.4%) of the EU-28's regular farm labour force in 2013. It is also interesting to note a majority of the labour input for both of the sexes came from regular non-family employment.

Among the EU Member States, the regular male labour force in very large farms was consistently larger than the regular female labour force, with their share rising to more than four fifths of the regular labour force in the United Kingdom, Ireland, Spain and Malta (where the highest share was once again recorded, at 84.9%). The highest proportion for women working in very large farms was recorded in Estonia, where the regular female labour force represented 43.0% of the total.

A closer analysis of the information for sole holders reveals that a much higher proportion of very large farms had male (compared with female) sole holders. In 2013, the ratio of male to female sole holders in very large farms was 11.5 : 1 in the EU-28. Considerably higher ratios were recorded in a number of the EU Member States, most notably in the United Kingdom, Ireland, Denmark and the Netherlands. By contrast, in Latvia the number of male sole holders in very large farms was 3.7 times as high as the corresponding number of female sole holders.

Figure 2.12: Regular farm labour force on very large farms in economic terms, by sex, 2013
(% of regular labour force in AWUs)



Note: for this analysis very large farms are defined in economic terms as those with ≥ EUR 100 000 of standard output.

Source: Eurostat (online data code: ef_lflegecs)

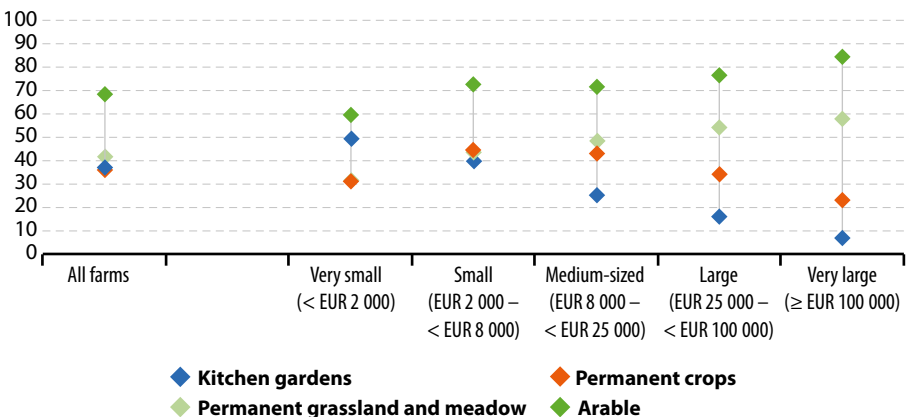
2.3 Land use and farming specialisation

Larger farms tended to engage in more specialised forms of farming...

In terms of farming activity, Figure 2.13 shows that across the EU-28 in 2013, smaller farms (in economic terms) tended to practise a range of different activities on the farm, for example, mixed cropping, mixed livestock, or mixed crop and livestock farming. When they did specialise in a single type of farming this tended to be either pig or poultry farming, or the production of permanent crops (especially olives). Larger farms were more likely to specialise in a particular type of farming, especially horticulture, dairy farming, pig farming and cattle rearing.

Figure 2.13: Share of farm holdings, by different crops and by economic size of farm, EU-28, 2013

(% of total)



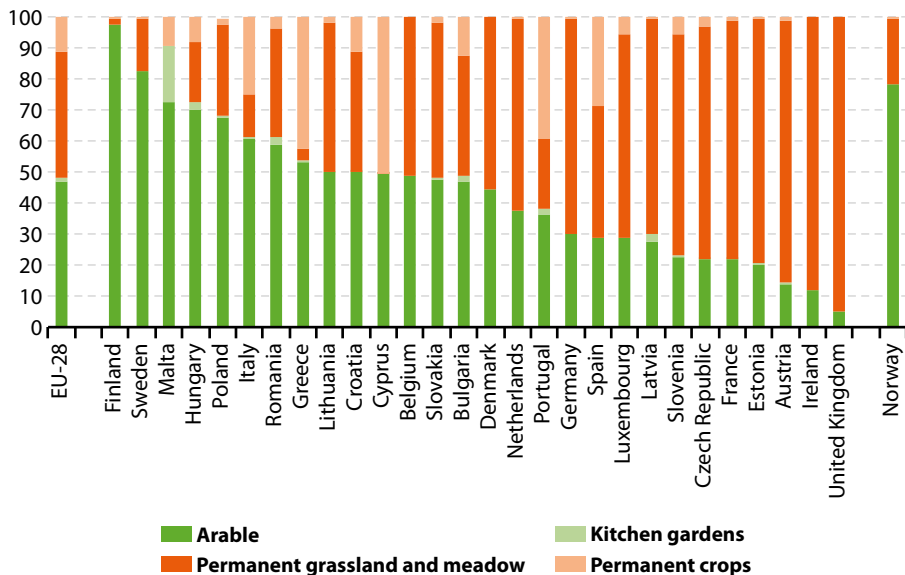
Note: many farms practice mixed farming (a farm with more than one crop); as such, there is an element of double-counting insofar as those farms with different crops are counted under each heading.

Source: Eurostat (online data code: [ef_oluecsreg](#))

Almost all (97.5 %) of the farms in the EU-28 that had mixed pig and poultry farming (mixed granivores) were very small and small farms. These farms also accounted for more than four fifths of the total number of several other types of farming: specialised poultry farming; combined various crops and livestock farming; and specialist olive farming. By contrast, more than half (53.3 %) of the farms in the EU-28 that were specialist dairy farms were large or very large farms, while close to two thirds of all specialist indoor horticulture farms and other horticulture farms were also large or very large farms.



Figure 2.14: Share of utilised agricultural area on very small and small farms in economic terms, by crop, 2013
(% of total)



Note: for this analysis very small and small farms are defined in economic terms as those with < EUR 8 000 of standard output; several of the EU Member States do not collect information on kitchen gardens.

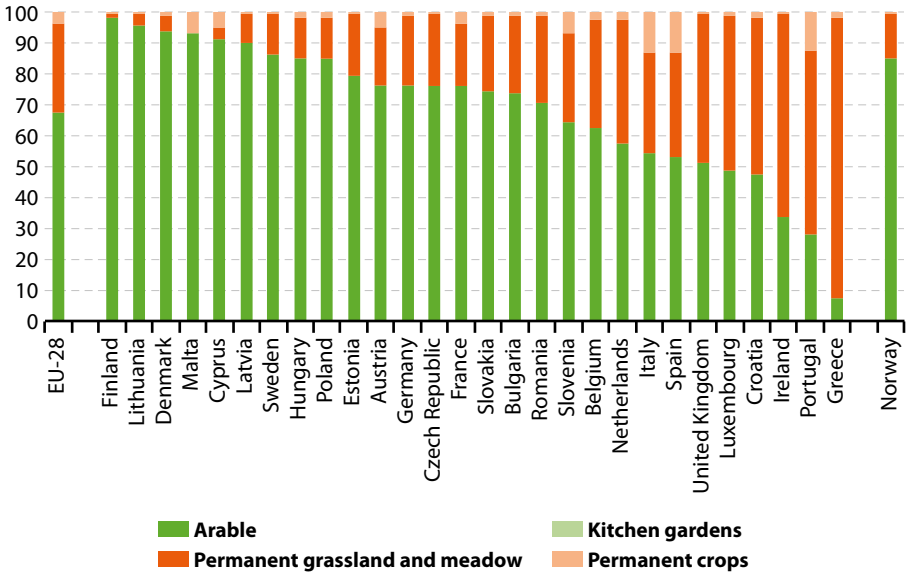
Source: Eurostat (online data code: [ef_0lucesreg](#))

Figure 2.14 provides more information as to how the dominant farm type varies with the economic size of farms.

...although small and very small farms were specialised in olive farming

The analysis of farming types according to the economic size of farms is extended in Figure 2.15, which is based on an analysis of the utilised agricultural area rather than the number of farms. It is important to note that certain types of farming can be practised without any agricultural area: this is the case, for example, in relation to animals grazing on common land, animals reared entirely indoors, or specialised horticulture (such as growing mushrooms), as common land and indoor areas/buildings are excluded from the total utilised agricultural area. That said, Figure 2.16 confirms many of the previous results, with the caveat that the relative shares of large and very large farms were, unsurprisingly, higher in terms of their share of the total utilised agricultural area than their share of the number of holdings.

Figure 2.15: Share of utilised agricultural area on very large farms in economic terms, by crop, 2013
(% of total)

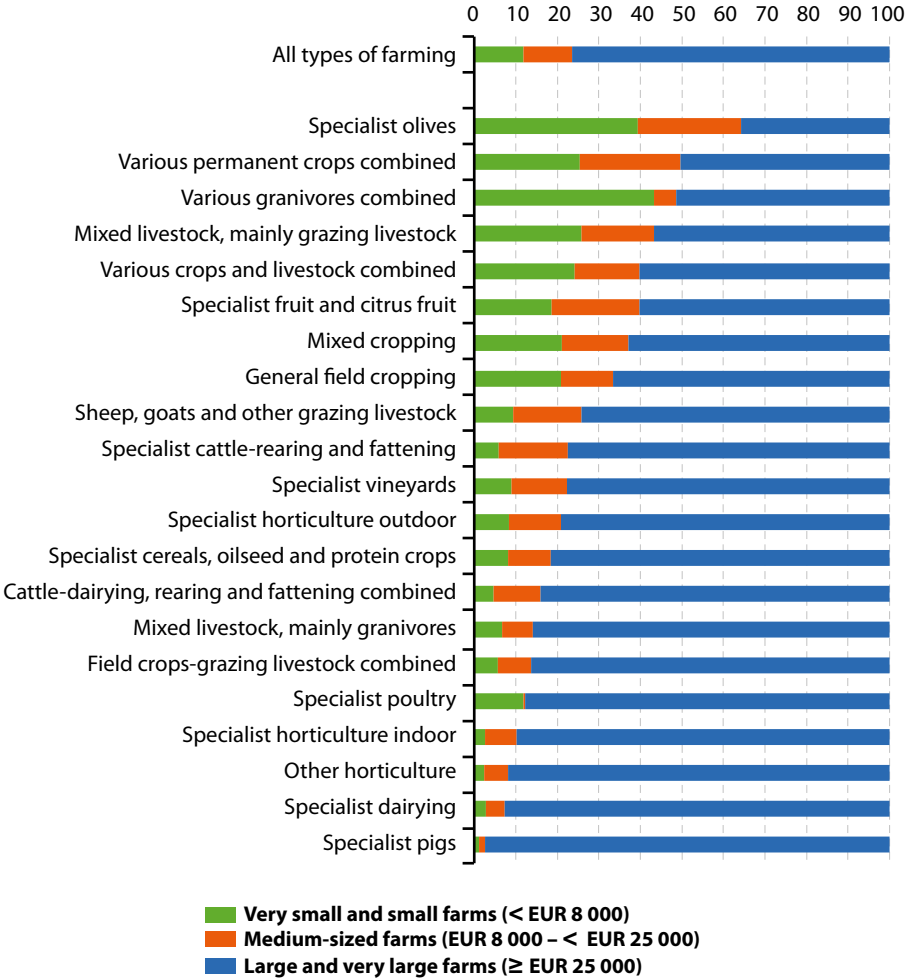


Note: for this analysis very large farms are defined in economic terms as those with \geq EUR 100 000 of standard output; several of the EU Member States do not collect information on kitchen gardens.

Source: Eurostat (online data code: [ef_oluecsreg](#))

In 2013, large and very large farms accounted for more than 90 % of the total utilised agricultural area in the EU-28 that was devoted to the following activities: other horticulture; specialist dairying; and specialist pig farming. Large and very large farms accounted for more than half of the total agricultural area utilised by all but one of the different types of farming shown in Figure 2.16. The only exception was specialist olive farming, where very small and small farms accounted for 39.4 % of the utilised agricultural area, compared with 35.7 % for large and very large farms.

Figure 2.16: Share of utilised agricultural area, by type of farming and by economic size of farm, EU-28, 2013
(% of total)



Source: Eurostat (online data code: ef_kvftecs)

In very small and small farms there was a wide range of different patterns of crop specialisation...

Figures 2.14 and 2.15 show the different patterns of crops (according to the economic size of farms) with a focus on very small and small farms on the one hand, and very large farms on the other. In 2013, almost half of the total agricultural area utilised by very small and small farms in the EU-28 was devoted to arable land (47.0%), while permanent pasture and meadow accounted for approximately two fifths (40.9%), leaving permanent crops with slightly more than one tenth (11.0%) of the area utilised by these farms; kitchen gardens had a very small share (1.1 %).

In 2013, arable land accounted for more than four fifths of the total agricultural area utilised by very small and small farms in Sweden and Finland, while permanent grassland and meadow accounted for a similar share of the utilised agricultural area among very small and small farms in Austria, Ireland the United Kingdom, where a high proportion of very small and small farms were specialised in grazing livestock. A different pattern was observed in most of the southern EU Member States, most notably in Cyprus, Greece and Portugal, where a relatively high proportion of the utilised agricultural area of very small and small farms was devoted to permanent crops (for example, olives and grapes).

...whereas very large farms tended to specialise in arable farming

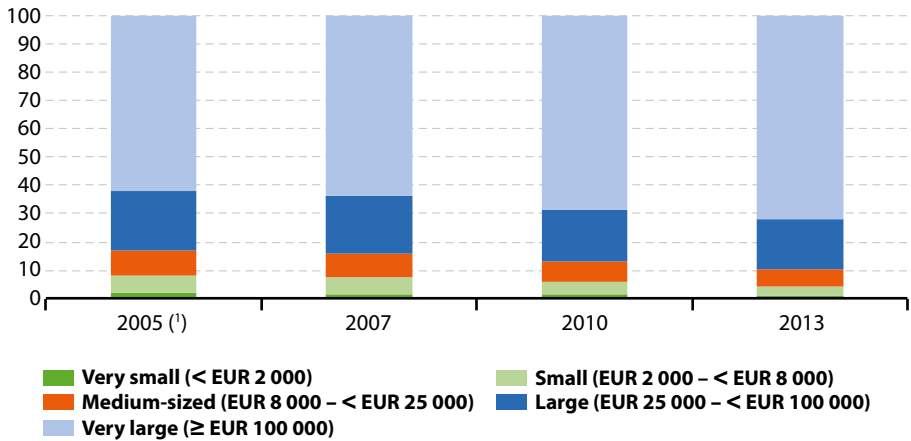
While the patterns of crops were quite varied for very small and small farms (with climate and topography appearing to play an important role in determining the broad crop patterns), very large farms tended to specialise in arable farming. Figure 2.15 shows that in 2013 just over two thirds (67.9%) of the utilised agricultural area of very large farms in the EU-28 was devoted to arable land, with permanent grassland and meadow accounting for more than one quarter (28.4%) of the total, and permanent crops for the remaining 3.7%.

Among the EU Member States, the relative specialisation in arable farming (as measured by its share of the utilised agricultural area) on very large farms was particularly pronounced in Latvia, Cyprus, Malta, Denmark, Lithuania and Finland, where arable land accounted for more than 90.0% of their total area in 2013. There were only five Member States where less than half of the total agricultural area on very large farms was utilised as arable land: in Luxembourg, Croatia, Ireland, Portugal and Greece a majority of the agricultural area of very large farms was devoted to permanent pasture and meadow. Italy, Spain and Portugal were the only Member States where permanent crops had a double-digit share of the agricultural area utilised by very large farms.

Almost three quarters of the livestock in the EU were reared on very large farms

Livestock units (LSUs) facilitate the aggregation of livestock data for different species and ages, by the use of coefficients to make the data on different animals comparable. On this basis, the livestock herd in the EU-28 equated to 130.2 million units in 2013: the highest shares were recorded in France (16.8%), Germany (14.1%), Spain (11.1%) and the United Kingdom (10.2%).

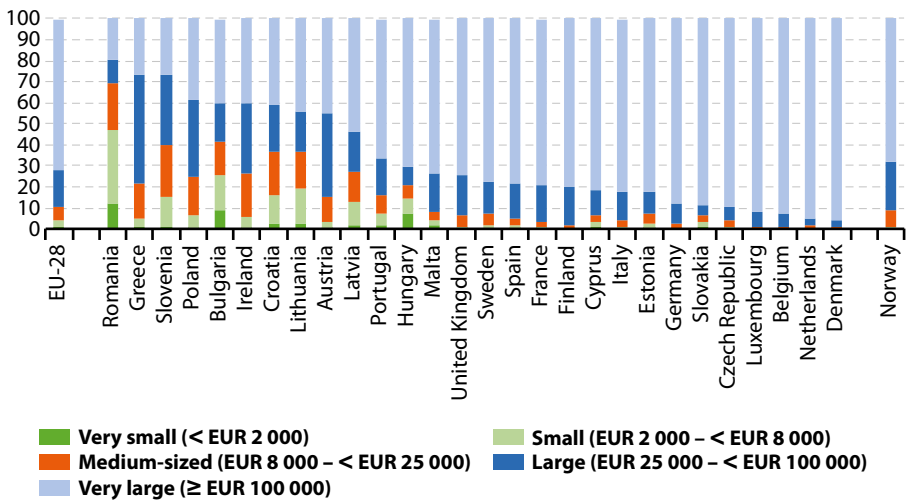
Figure 2.17: Share of livestock units, by economic size of farm, EU-28, 2005–13 (% of total)



(¹) Excluding Croatia.

Source: Eurostat (online data code: ef_olsecreg)

Figure 2.18: Share of livestock units, by economic size of farm, 2013 (% of total)



Source: Eurostat (online data code: ef_olsecreg)



The analyses presented in Figures 2.17 and 2.18 relate to livestock farming, with an analysis according to the economic size of farms. On this basis, almost three quarters (72.2%) of the livestock units in the EU-28 in 2013 were reared on very large farms. In recent years there has been a considerable shift towards a higher number of livestock units being reared on very large farms: their number rose by almost 10 million units between 2005 and 2013 to reach 94 million LSU. By contrast, the number of livestock units fell for all of the remaining size classes during this period, with the total number of livestock units reared on very small farms more than halving (to just over one million LSUs). A more detailed analysis suggests that some of the largest farms in the EU increased their livestock density, suggesting they were making use of more intensive farming practices. The rising number of livestock units on very large farms and falling numbers for all other size classes resulted in a large increase in the share of livestock units reared on very large farms, as shown in Figure 2.17.

The relative importance of very large farms (in economic terms) for livestock rearing is clear in Figure 2.18, which shows that these farms accounted for the highest share of livestock units in 2013 in all but three of the EU Member States. Indeed, more than three quarters of all livestock units were reared on very large farms in half of the Member States, with this share peaking at over 90% in the Benelux Member States and Denmark.

By contrast, large farms accounted for the highest share of livestock units in two of the EU Member States in 2013: their share rose to one third (33.3%) of the total in Slovenia and to more than half (51.2%) in Greece, greater than the shares of any other economic size classes. The only other exception — where neither very large nor large farms recorded the highest share of livestock units — was Romania, where more than one third of all livestock units were reared on small farms. Romania also stood out in relation to its share of livestock units reared on very small farms, insofar as they accounted for 12.2% of the total, the only Member State where a double-digit share was recorded. Very small farms also had relatively high shares of the total number of livestock units in Bulgaria (9.0%) and Hungary (7.5%); in the remaining Member States their share never rose above 2.2%.



2.4 Physical size of farms

This final part of the analysis provides an alternative analysis of farm size, based instead on the physical size of farms, as measured by their utilised agricultural area. For this analysis, farms have been split into four different classes so as to identify very small, small, medium-sized and large farms. Table 2.2 shows that there was a total of 10.8 million farms in the EU-28 in 2013; the vast majority of these were relatively small, family-run farms which are often passed down from one generation to the next. Indeed, in 2013, there were 4.9 million physically very small (< 2 hectares of utilised agricultural area) and 4.5 million physically small (2–20 hectares) farms in the EU-28. Together, these farms with less than 20 hectares of utilised agricultural area accounted for almost 9 out of 10 (86.3 %) farms in the EU and for more than two thirds (68.1 %) of the labour force directly working on farms. Unsurprisingly, the relative weight of physically very small and small farms was much lower in terms of their share of the utilised agricultural area, which stood at less than one fifth (18.5 %) of the total.

By contrast, there were 337 thousand physically large farms in the EU-28 — defined here as those with at least 100 hectares of utilised agricultural area. Together they accounted for 3.1 % of all farms in 2013 and they provided 12.5 % of the total agricultural labour force that was directly working on farms. Their share of the total utilised agricultural area was considerably higher, at 52.1 %. Given that these physically large farms occupied more than half of the total agricultural area, the farming practices that they adopt may be considered to be particularly important from an environmental perspective.

Physically very small and small farms (with less than 20 hectares of utilised agricultural area) accounted for just over two thirds (68.1 %) of the EU-28 farm labour force that was directly working on farms. There were much higher shares recorded in some of the EU Member States, as physically very small and small farms provided more than 80 % of the labour input in Portugal, Poland, Cyprus, Croatia, Slovenia and Greece, rising to more than 90 % in Romania and Malta (where the highest share was recorded, at 98.4 %).

By contrast, physically large farms (with at least 100 hectares of utilised agricultural area) provided work to more than two thirds of the farm labour force in Slovakia (67.6 %) and the Czech Republic (68.2 %). These shares were considerably higher than in any of the other EU Member States, as the next highest shares were recorded in the United Kingdom, Denmark and Estonia, where 40–50 % of the agricultural labour force was working on physically large farms (see Table 2.2).

Table 2.2: Main indicators for farm holdings, by physical size of farm, 2013 (part 1)

	Number of farm holdings (thousands)		Utilised agricultural area (thousand hectares)		Standard output (million EUR)		Farm labour force directly working on the farm (thousand AWU)		Livestock units on holdings with livestock (thousand LSU)				
	All farms	Very small and small farms	All farms	Very small and small farms	All farms	Very small and small farms	All farms	Very small and small farms	All farms	Very small and small farms			
EU-28	10841	9353	337	174614	32 276	90 966	331 105	107 887	110 792	1 188	130 174	40 046	406 009
Belgium	38	17	2	1 308	150	320	8 407	2 316	1 170	57	23	5	3 584
Bulgaria	254	239	6	4 651	350	3 891	3 336	1 027	1 968	320	253	44	1 025
Czech Republic	26	14	5	3 491	107	3 065	4 447	631	3 480	105	20	72	1 728
Denmark	39	17	8	2 619	158	1 808	9 580	1 441	6 393	54	15	25	4 133
Germany	285	128	35	16 700	1 257	9 514	46 252	7 301	20 440	523	147	158	18 407
Estonia	19	14	2	958	92	704	676	111	491	22	8	11	310
Ireland	140	60	5	4 959	658	1 152	5 013	652	887	164	53	9	5 929
Greece	710	676	1	4 857	2 049	1 689	8 103	6 217	320	464	413	3	2 143
Spain	965	758	52	23 300	3 559	12 939	35 979	16 129	9 049	814	484	134	14 502
France	472	202	98	27 739	1 164	17 170	56 914	10 977	24 481	725	211	221	21 871
Croatia	157	147	1	1 571	557	629	2 029	1 080	427	175	152	6	864
Italy	1 010	880	15	12 099	4 171	3 259	43 794	20 066	7 608	817	563	53	9 374
Cyprus	35	34	0	109	58	19	495	337	45	17	14	0	175
Latvia	82	67	3	1 878	406	996	990	206	536	82	52	14	486
Lithuania	172	150	5	2 861	801	1 334	1 919	576	900	145	98	24	839

Note: very small and small farms are defined by a utilised agricultural area < 20 hectares; large farms are defined by a utilised agricultural area ≥ 100 hectares.

Source: Eurostat (online data code: eF_kvftaa)

Table 2.2: Main indicators for farm holdings, by physical size of farm, 2013 (part 2)

	Number of farm holdings (thousands)			Utilised agricultural area (thousand hectares)			Standard output (million EUR)			Farm labour force directly working on the farm (thousand AWU)			Livestock units on holdings with livestock (thousand LSU)		
	All farms	Very small farms	Large farms	All farms	Very small farms	Large farms	All farms	Very small farms	Large farms	All farms	Very small farms	Large farms	All farms	Very small farms	Large farms
EU-28	10841	9353	337	174614	32276	90966	331105	107887	110792	9509	6471	1188	130174	40046	40609
Luxembourg	2	1	0	131	4	70	314	27	162	4	1	1	165	3	93
Hungary	491	461	8	4657	708	3001	5578	1790	2852	434	316	71	2259	1058	925
Malta	9	9	0	11	11	0	97	96	0	4	4	0	35	35	0
Netherlands	67	38	2	1848	255	369	20498	9216	2066	153	80	11	6602	2983	446
Austria	140	98	3	2727	724	448	5671	1941	389	111	60	5	2439	829	69
Poland	1429	1295	11	14410	6943	3044	21797	11394	3565	1919	1616	53	9165	4569	1139
Portugal	264	241	6	3642	814	2107	4509	2196	1152	323	266	22	2036	947	612
Romania	3630	3591	13	13056	5675	6300	11990	7848	3278	1553	1445	65	4975	4049	495
Slovenia	72	69	0	486	334	34	1009	661	70	82	73	2	488	321	25
Slovakia	24	19	2	1902	80	1719	1812	266	1424	51	13	34	645	159	452
Finland	54	20	5	2282	218	705	3398	563	991	58	13	10	1173	128	422
Sweden	67	37	8	3036	334	1677	4679	627	2789	59	19	19	1715	262	962
United Kingdom	185	71	41	17327	639	13003	21819	2196	13859	275	59	116	13106	1516	7270
Norway	43	25	1	996	242	94	3410	1099	275	44	19	2	1241	429	63

Note: very small and small farms are defined by a utilised agricultural area < 20 hectares; large farms are defined by a utilised agricultural area ≥ 100 hectares.

Source: Eurostat (online data code: ef_kvftaa)



Farms in the Czech Republic were, on average, 115 times as large as in Malta

Combining these basic indicators for the number of farms and the utilised agricultural area, the average physical size of each farm in the EU-28 stood at 16.1 hectares in 2013. This marked a considerable increase when compared with the corresponding ratio from 2005, when the average for the EU-28 (excluding Croatia) had been 11.9 hectares.

In 2013, the largest average farm size (in physical terms) was recorded in the Czech Republic, at 133.0 hectares of utilised agricultural area, followed at some distance by the United Kingdom (93.6 hectares) and Slovakia (80.7 hectares). There were six EU Member States that reported their average farm size was less than 10.0 hectares in 2013, they were: Hungary, Greece, Slovenia, Romania, Cyprus and Malta (where the lowest average was recorded, at 1.2 hectares per farm). Comparing these two extremes, on average, farms in the Czech Republic were approximately 115 times as large as in Malta.

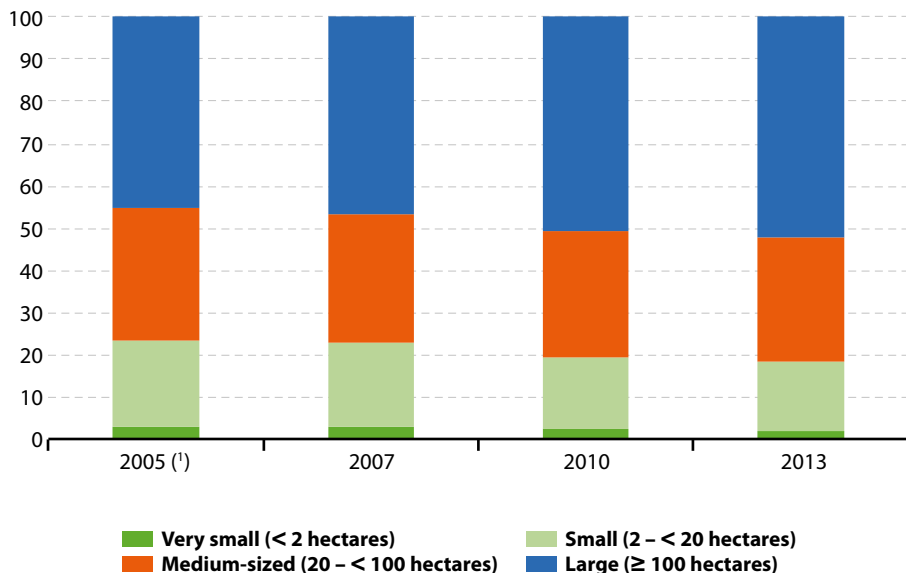
Physically large farms accounted for more than half of the utilised agricultural area

Physically large farms in the EU-28 utilised 91.0 million hectares of agricultural area in 2013, which was 1.8 times as high as the area utilised by physically medium-sized farms, 3.2 times as high as the area utilised by physically small farms, and 25.4 times as high as the area utilised by physically very small farms. Figure 2.19 shows the division of the utilised agricultural area between farms of different physical sizes, and demonstrates the important role that is played by physically large farms within the EU's agricultural sector.

In 2013, physically large farms accounted for a majority (52.1 %) of the EU-28's utilised agricultural area, which may be contrasted with a 45.2 % share recorded across the EU-28 (excluding Croatia) in 2005. The total utilised agricultural area of physically large farms in the EU-28 (again excluding Croatia) rose by 12.6 million hectares between 2005 and 2013, equivalent to an overall increase of 16.2 %. The area occupied by farms classified to one of the other size categories fell, with the biggest reductions recorded for physically small farms.



Figure 2.19: Share of total utilised agricultural area, by physical size of farm, EU-28, 2005–13
(% of total)



(1) Excluding Croatia.

Source: Eurostat (online data code: ef_kvftaa)

Physically very small and small farms accounted for more than 19 out of 20 farms in Greece, Cyprus, Romania and Malta

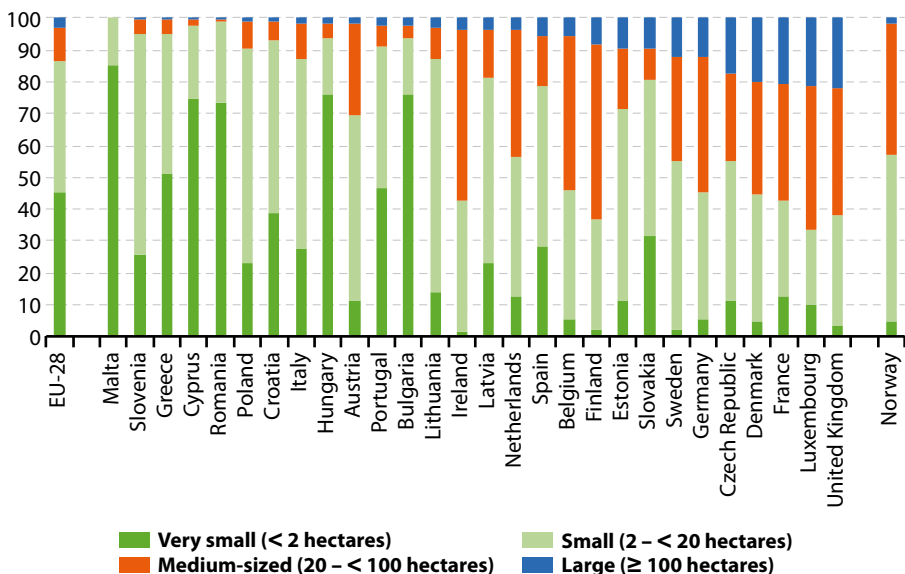
In 2013, physically very small and small farms with less than 20 hectares of utilised agricultural area accounted for 95 % or more of all farms in Slovenia, Greece, Cyprus, Romania and Malta (see Figure 2.20). A closer analysis reveals that more than half (54.4 %) of all the physically very small farms in the EU-28 were located in Romania. By contrast, the proportion of physically very small and small farms was relatively low in Luxembourg (33.7 % of all farms), Finland (36.9 %) and the United Kingdom (38.1 %) and was also below 50 % in Ireland, France, Denmark, Germany and Belgium.

The share of physically large farms in the total number of farms peaked in the United Kingdom, at 22.1 %, while Luxembourg (21.6 %), France (20.7 %) and Denmark (20.3 %) were the only other EU Member States where physically large farms accounted for more than one fifth of the total. At the other end of the range, there were seven Member States where physically large farms accounted for less than 1.0 % of all farms: Croatia, Poland, Romania, Cyprus, Greece, Slovenia and Malta (where there were no physically medium-sized or large farms).



An analysis for 2013 reveals that the most common size of farm in the EU-28 was one with 2 – < 20 hectares of utilised agricultural area. These physically small (but not very small) farms accounted for the highest share of the total number of farms in half (14) of the EU Member States, while there were seven EU Member States where the highest number of farms (by physical size) was recorded among physically very small farms and another seven where physically medium-sized farms were most common.

Figure 2.20: Share of total number of farm holdings, by physical size of farm, 2013
(% of total)



Note: ranked on the share of large farms defined by a utilised agricultural area ≥ 100 hectares.

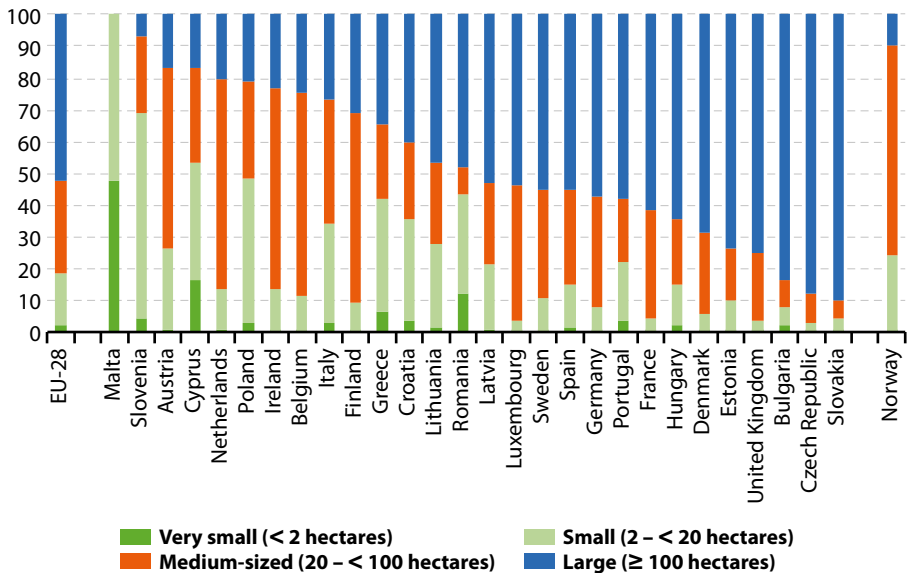
Source: Eurostat (online data code: ef_kvftaa)

In most EU Member States, a small number of physically large farms account for a high proportion of the agricultural area

Figure 2.21 shows the relative importance of different size farms in terms of their share of the utilised agricultural area. In 2013, there were 17 EU Member States where physically large farms had the highest share of the utilised agricultural area, with 14 reporting that these physically large holdings farmed more than half of the agricultural area, this share rising to more than four fifths of the total in Bulgaria (83.6%), the Czech Republic (87.8%) and Slovakia (90.4%).

There were six EU Member States where the highest share of the utilised agricultural area was accounted for by physically medium-sized farms: of these, Austria, Finland, Ireland, Belgium and the Netherlands each reported that more than half of their agricultural area in 2013 was farmed by physically medium-sized farms, this share peaking at close to two thirds (66.2%) of the total area in the Netherlands. Physically small farms accounted for the highest share of the total utilised agricultural area in Greece, Cyprus and Poland, and their share rose to more than half of the total agricultural area in Malta (52.3%) and Slovenia (64.5%).

Figure 2.21: Share of total utilised agricultural area, by physical size of farm, 2013
(% of total)



Note: ranked on the share of large farms defined by a utilised agricultural area ≥ 100 hectares.

Source: Eurostat (online data code: ef_kvftaa)

DATA SOURCES AND AVAILABILITY

Surveys and legislation

A basic farm structure survey (FSS) is carried out by all EU Member States. It has a common methodology and takes place at regular intervals, providing comparable and representative statistics across countries and time, as well as at a regional level (down to NUTS level 3). A comprehensive farm structure survey is carried out every 10 years — this full scope survey being an agricultural census, the last of which was held in 2010 — and intermediate sample surveys are carried out three times between these comprehensive surveys.

The legal basis for the FSS is [Regulation \(EU\) No 1166/2008](#) of 19 November 2008. EU Member States collect information from individual agricultural holdings (farms) and, observing strict rules of confidentiality, data are forwarded to Eurostat. The basic information collected in the FSS covers: land use, livestock numbers, rural development, management and farm labour input (including the age, sex and relationship to the holder). The survey data can be aggregated to different geographic levels (countries, regions, and for comprehensive surveys also districts) and arranged by size class, area status, legal status of the holding, objective zone and farm type.

The unit underlying the FSS is the agricultural holding (referred to in this article as a farm), a technical-economic unit under single management engaged in agricultural production. Until 2007, the FSS covered all agricultural holdings with a utilised agricultural area (UAA) of at least one hectare (ha) and those holdings with a UAA of less than one hectare if their market production exceeded certain natural thresholds. Under the new legislation, the minimum threshold for agricultural holdings changed from one to five hectares. This new five hectare threshold was adopted in the Czech Republic, Germany and the United Kingdom. In Luxembourg, the threshold was changed to three hectares, in Sweden to two hectares, and in the Netherlands the threshold was changed to a minimum of EUR 3 000 of standard output.

The new legislation also changed the coverage of the FSS to 98 % of the UAA (excluding common land) and 98 % of the livestock on farms. Common land (land shared by several holdings) is not (always) included in the UAA in the case of Germany, where the common land belonging to alpine pasture cooperatives in Bavaria is excluded. In all other countries, common land either does not exist or has been included in the survey.

Key definitions

The utilised agricultural area (UAA) is a measure (in hectares) of the area used for farming. It includes the land categories: [arable land](#); [permanent grassland](#); [permanent crops](#);



kitchen gardens. It does not cover unused agricultural land, woodland and land occupied by buildings, farmyards, tracks, ponds, and so on.

The standard output of an agricultural product (crop or livestock) is the average value of agricultural output at farm-gate prices, in euro per hectare or per head of livestock; this concept excludes direct payments (a type of subsidy).

The farm labour force is made up of all individuals who have completed their compulsory education (having reached school-leaving age or duration) and who carried out work on farms during the 12 months up to the survey date. The figures include farm holders, even when not working on the farm, whereas their spouses are counted only if they carry out work on the farm. The holder is the natural person (sole holder or group of individuals) or the legal person (for example, a cooperative or other institution) on whose account and in whose name the farm is operated and who is responsible in legal and economic terms for the farm — in other words, the entity or person that takes the economic risks of the farm; for group holdings, only the main holder (one person) is counted. The regular farm labour force covers the family labour force (sole holders and other family members) and permanently employed (regular) non-family workers. One annual work unit (AWU) corresponds to the work performed by one person who is occupied on an agricultural holding on a full-time basis. Full-time means the minimum hours required by the national provisions governing contracts of employment. If these provisions do not explicitly indicate the number of hours, then 1 800 hours are taken to be the minimum (225 working days of eight hours each).

A livestock unit (LSU), is a reference unit which facilitates the aggregation of livestock from various species and age, through the use of specific coefficients established initially on the basis of the nutritional or feed requirement of each type of animal (with a set of coefficients for 23 different categories of animal). The reference unit used for the calculation of livestock units (= 1 LSU) is one adult dairy cow. For example, a single LSU corresponds to 10 sheep or goats.

Size classes

There is no fixed definition as to what constitutes a 'small' or a 'large' farm. A range of different classifications are available and this information may be aggregated in order to analyse farms of different sizes. For the purpose of the analyses presented in this article the following categories have been used to differentiate farms by size.

By economic size based on standard output in euro:

- Very small farms: < EUR 2 000
- Small farms: EUR 2 000 – < EUR 8 000
- Medium-sized farms: EUR 8 000 – < EUR 25 000
- Large farms: EUR 25 000 – < EUR 100 000
- Very large farms: ≥ EUR 100 000

By economic size based on standard output in euro, grouped into quintiles:

In order to compare the relative weight of the agricultural holdings in each country, farms were sorted from smallest to largest by their economic size and then divided into five groups (quintiles):

- the smallest farms, defined as those with the lowest levels of economic output who together cumulatively account for 20% of the total standard output;
- the largest farms, defined as those with the highest levels of economic output who together cumulatively account for 20% of the total standard output.

With this approach, the definition of 'small' or 'large' farms depends not on a uniform threshold (for the EU as a whole), but reflects the distribution in each of the EU Member States. In doing so, the size of the farms may be presented relative to their standard output in each Member State.

By physical size based on utilised agricultural area in hectares:

- Very small farms: < 2 hectares
- Small farms: 2 hectares – < 20 hectares
- Medium-sized farms: 20 hectares – < 100 hectares
- Large farms: \geq 100 hectares

3

Agricultural accounts and prices



Introduction

One of the principal objectives of the [Common agricultural policy \(CAP\)](#) is to provide farmers with a reasonable standard of living. Although this concept is not defined explicitly within the CAP, a range of indicators — including those on income development from farming activities — may be used to determine the progress being made towards this objective. Economic accounts for agriculture (EAA) provide an insight, among others, into:

- the economic viability of agriculture;
- the income received by farmers;
- the structure and composition of agricultural production and intermediate consumption;
- relationships between prices and quantities of both inputs and outputs.

A 2003 reform of the CAP introduced a new system of direct payments, known as the single payment scheme. Its goal was to ensure a safety net for farmers in the form of basic income support, decoupled from production, while stabilising farmer's incomes from their sales to market (which are subject to volatility). To maximise their profits, farmers were encouraged to respond to market signals — producing goods that consumers want — and to look after the farmland while fulfilling environmental, animal welfare and food safety standards.

The [European Commission](#) launched a public debate on the future of the CAP during 2010. Its outcome, coupled with input from the European Council and Parliament, led the Commission to present a Communication in November 2010, titled '[The CAP towards 2020: meeting the food, natural resources and territorial challenges of the future](#)' (COM(2010) 672 final). This was followed, in October 2011, by a set of legal proposals concerning the future of the CAP. After almost two years of negotiations, a political agreement was reached on 26 June 2013, and these new proposals came into effect as of 1 January 2014. With a budget of EUR 303.1 billion foreseen for the period 2014–20, direct payments will continue to form a significant part of the EU's agricultural and rural development budget.

3.1 Agricultural output

The economic accounts for agriculture show that the total output of the agricultural industry (comprising the output values of crops and animals, agricultural services and the goods and services produced from inseparable non-agricultural secondary activities) in the [EU-28](#) in 2015 was an estimated EUR 411.2 billion at basic prices (see Table 3.1). The equivalent of 60.0% of the value of agricultural output generated was spent on intermediate consumption (input goods and services). The residual [gross value added](#) at basic prices was the equivalent of 40.0% of the value of total output in 2015 or EUR 164.7 billion (see Table 3.2).

**Table 3.1:** Output value of the agricultural industry, 2010 and 2013–15

	Value (million EUR)				Share of EU-28 (%)	
	2010	2013	2014	2015	2010	2015
EU-28	367 754.3	425 683.6	418 713.2	411 156.9	100.0	100.0
Belgium	7 758.2	8 614.1	8 124.2	8 116.8	2.1	2.0
Bulgaria	3 821.9	4 393.8	4 302.0	4 033.2	1.0	1.0
Czech Republic	4 058.1	4 935.8	4 976.1	4 550.4	1.1	1.1
Denmark	9 740.9	10 963.4	11 034.2	10 269.2	2.6	2.5
Germany	46 019.0	57 738.6	55 921.6	51 548.2	12.5	12.5
Estonia	668.3	924.1	900.2	935.1	0.2	0.2
Ireland	5 822.0	7 671.4	7 293.8	7 397.1	1.6	1.8
Greece	10 567.5	10 365.3	10 302.6	10 665.3	2.9	2.6
Spain	40 371.2	44 064.7	43 993.8	45 490.7	11.0	11.1
France	68 125.2	74 184.5	75 189.7	75 167.4	18.5	18.3
Croatia	2 914.3	2 535.4	2 280.8	2 277.4	0.8	0.6
Italy	48 159.8	57 519.7	54 193.3	55 203.9	13.1	13.4
Cyprus	685.7	697.2	662.6	693.4	0.2	0.2
Latvia	941.6	1 299.3	1 288.7	1 402.1	0.3	0.3
Lithuania	2 042.5	2 855.9	2 805.9	2 971.8	0.6	0.7
Luxembourg	325.3	444.8	445.4	401.4	0.1	0.1
Hungary	6 121.8	7 810.5	7 957.0	7 925.5	1.7	1.9
Malta	126.1	132.0	126.1	128.1	0.0	0.0
Netherlands	25 318.7	28 241.2	27 086.0	26 708.2	6.9	6.5
Austria	6 315.5	7 008.9	6 947.0	6 778.8	1.7	1.6
Poland	19 768.8	23 663.4	23 041.7	22 320.2	5.4	5.4
Portugal	6 451.7	6 797.4	6 823.1	7 079.9	1.8	1.7
Romania	15 301.4	17 756.2	16 770.8	15 535.9	4.2	3.8
Slovenia	1 103.6	1 159.7	1 226.4	1 263.6	0.3	0.3
Slovakia	1 886.6	2 407.0	2 391.8	2 160.7	0.5	0.5
Finland	4 214.0	4 844.5	4 605.4	4 270.2	1.1	1.0
Sweden	5 379.0	6 405.5	6 215.6	6 239.5	1.5	1.5
United Kingdom	23 745.7	30 249.7	31 807.5	29 623.1	6.5	7.2
Iceland	292.2	376.1	427.8	425.3	0.1	0.1
Norway	4 626.4	5 177.2	5 105.2	5 507.4	1.3	1.3
Switzerland	7 278.9	8 376.2	8 801.8	8 323.0	:	:

Note: values at basic prices.

Source: Eurostat (online data code: [aact_eaa01](#))

Final output

In 2015 France was the largest agricultural producer in the EU-28 (EUR 75.2 billion or 18.3 % of the EU-28 total), followed by Italy (13.4 %), Germany (12.5 %) and Spain (11.1 %); relative to its size, the Netherlands accounted for quite a high share of the EU-28's agricultural output (6.5 %).

Compared with 2010, the value of agricultural industry rose in 2015 in all of the EU Member States other than Croatia (where output decreased by around 22 %). The highest increases in output value (in absolute terms) were recorded for the EU's larger producers, rising by EUR 7.0 billion in France and Italy, EUR 5.9 billion in the United Kingdom, EUR 5.5 billion in Germany and EUR 5.1 billion in Spain. There was also a relatively large increase (EUR 2.6 billion) in agricultural output in Poland within the same period.

Table 3.2: Main components of the agricultural industry, EU-28, 2014–15

	2014	2015	Change 2014–15 (%)	Share in output value of the agricultural industry, 2015 (%)
	(million EUR)			
Output of agricultural industry	418 713	411 157	-1.8	100.0
Crop output	211 042	212 972	0.9	51.8
Animal output	172 361	162 939	-5.5	39.6
Agricultural services	19 893	19 940	0.2	4.8
Secondary activities	15 250	15 254	0.0	3.7
- Intermediate consumption	252 148	246 507	-2.2	60.0
= Gross value added	166 565	164 650	-1.1	40.0
- Consumption of fixed capital	61 490	61 230	-0.4	-
- Taxes on production	5 140	5 399	5.1	-
+ Subsidies on production	53 978	50 073	-7.2	-
= Factor income	153 914	148 093	-3.8	-

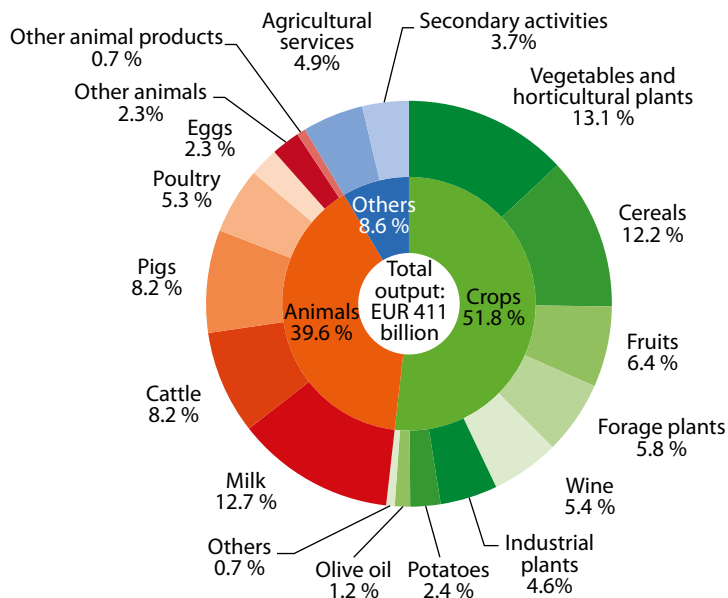
Note: production value at basic price.

Source: Eurostat (online data code: aact_eaa01)

Table 3.2 shows the main components of the EU-28's agricultural industry at basic prices. In 2015 **crop output** was 51.8 % of the total output value of the agricultural industry and **animal output** was 39.6 %; agricultural services and inseparable secondary activities, generally the processing of agricultural products, provided the residual shares (4.8 % and 3.7 %). The agricultural products accounting for the highest share of output value in the EU-28's agricultural industry in 2015 were 'vegetables and horticultural plants' (13.1 %), 'milk' (12.7 %) and **cereals** (12.2 %), while **pig** and **cattle** output also accounted for relatively large shares (both with 8.2 %) (see Figure 3.1).



Figure 3.1: Output of the agricultural industry, EU-28, 2015
(% of total output)



Note: values at basic prices.

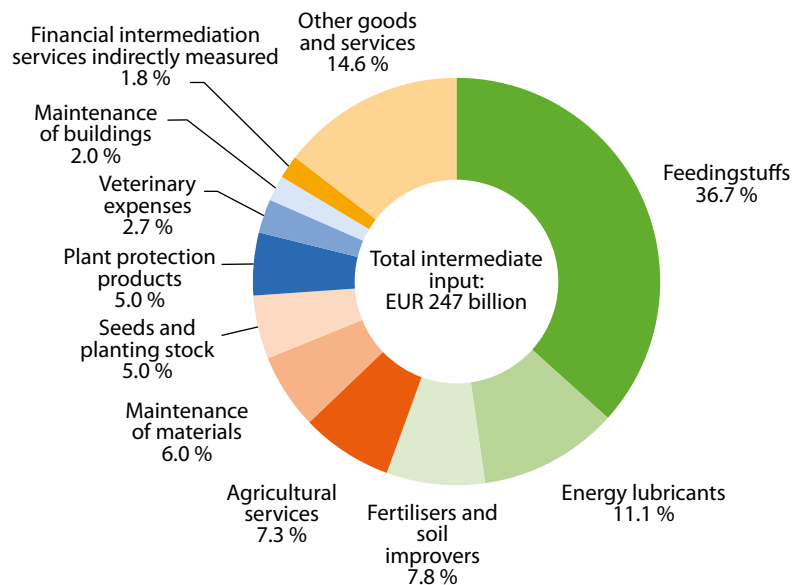
Source: Eurostat (online data code: aact_eaa01)

Intermediate consumption

Intermediate consumption covers purchases made by farmers for raw and auxiliary materials that are used as inputs for crop and animal production; it also includes expenditure on veterinary services, repairs and maintenance, and other services. Intermediate consumption within the EU-28's agricultural industry in 2015 was valued at EUR 246.5 billion at basic prices. The intermediate consumption in the agricultural industry decreased by 2.2% from 2014 (EUR 252 billion, or 60.2%) to 2015 (EUR 247 billion, or 60.0%).

Feedingstuffs for animals accounted by far for the highest share (36.7%) of total intermediate inputs within the EU-28's agricultural activity in 2015, valued at more than three times the share of energy and lubricants (11.1%); the latter are used for both animal and crop production. Fertilisers and soil improvers (7.8%) accounted for the highest share of intermediate inputs among those inputs used exclusively for crop production (see Figure 3.2).

Figure 3.2: Intermediate inputs consumed by the agricultural industry, EU-28, 2015
(% of total intermediate inputs)



Note: values at basic prices.

Source: Eurostat (online data code: [aact_eaa01](#))



Table 3.3: Share of main intermediate inputs in crop and animal production, 2010 and 2013–15
(% of total intermediate inputs)

	Seeds, fertilisers and plant protection in crop production				Feedingstuffs and veterinary expenses in animal production			
	2010	2013	2014	2015	2010	2013	2014	2015
EU-28 (*)	18.5	20.1	21.0	20.7	60.3	60.4	57.7	59.5
Belgium	21.4	21.9	24.9	23.2	67.9	76.7	73.7	76.4
Bulgaria	18.6	18.8	15.3	17.6	74.9	68.2	71.0	62.8
Czech Republic	23.5	21.7	21.4	22.6	76.8	77.2	71.6	76.5
Denmark	21.6	25.6	26.4	23.9	54.2	56.5	51.2	61.3
Germany (*)	20.0	20.5	24.3	24.9	69.0	60.0	63.6	68.5
Estonia	21.4	23.2	24.8	24.0	59.7	60.4	58.6	70.0
Ireland	33.3	36.2	40.2	40.9	59.4	60.2	50.5	48.8
Greece	11.4	11.6	12.0	11.4	63.6	75.0	74.3	70.9
Spain	11.5	14.2	15.1	13.9	69.0	68.5	64.1	69.9
France	20.5	23.9	23.4	23.0	64.2	68.4	62.7	64.4
Croatia	24.2	25.5	24.2	24.3	61.5	76.5	71.0	65.8
Italy	12.1	11.7	12.8	12.5	58.4	55.9	54.0	51.4
Cyprus	16.2	18.4	20.6	15.8	56.9	46.2	50.5	61.8
Latvia	29.6	37.3	33.9	31.7	59.2	62.2	61.5	62.1
Lithuania	29.1	28.9	31.4	28.0	62.1	60.3	56.8	64.8
Luxembourg	21.2	17.0	17.6	21.0	81.9	103.8	96.7	93.5
Hungary	27.7	28.1	26.6	27.2	66.9	62.9	55.3	56.4
Malta	13.3	12.5	13.1	11.6	47.9	55.3	51.8	48.7
Netherlands	18.0	18.6	18.9	18.6	49.3	55.2	50.9	53.7
Austria	15.0	17.9	18.2	18.3	49.9	49.4	49.4	49.9
Poland	20.4	23.8	26.4	30.4	49.1	51.5	52.2	47.2
Portugal	11.4	12.2	12.4	11.6	74.6	76.9	71.3	73.5
Romania	16.3	16.9	16.5	15.9	89.7	83.5	76.3	71.0
Slovenia	17.5	18.4	16.8	15.9	77.8	76.2	74.5	77.6
Slovakia	31.0	33.4	32.4	35.4	40.1	37.7	41.7	45.9
Finland	35.2	36.8	40.2	40.8	37.7	45.2	41.0	46.3
Sweden	26.3	27.2	25.4	24.5	49.5	54.0	51.6	50.5
United Kingdom	37.7	34.3	34.5	35.0	40.7	43.0	39.3	41.7
Iceland	25.0	23.8	19.0	23.6	49.7	57.1	59.0	45.2
Norway	18.5	21.4	20.5	19.2	46.5	49.6	50.9	51.9
Switzerland	14.6	15.4	14.9	15.2	55.8	51.4	50.5	51.2

Note: values at basic prices.

(*) 2011: break in time series.

Source: Eurostat (online data code: aact_eaa01)

Three main intermediate inputs are used for the production of crops: seeds and plantings, fertilisers, and plant protection products which together accounted for 20.7 % of the production value of crops in the EU-28 in 2015 (2.1 percentage points higher than in 2010). The two main intermediate inputs for animal production: feedingstuffs and veterinary expenses, together accounted for 59.5 % of the EU-28's production value for animals in 2015. This was 0.8 percentage points lower than in 2010 (see Table 3.3).

Gross value added and subsidies

Gross value added at basic prices of the EU-28's agricultural industry in 2015 was an estimated EUR 164.7 billion, while subsidies on production amounted to EUR 50.1 billion (see Table 3.4). The highest subsidies were generally granted to those EU Member States with the highest levels of output (France, Germany, Spain and Italy). Certain Member States received relatively more subsidies — considering their contribution to the gross value added — than others. In particular, Germany accounted for 14.0 % of subsidies on production in the total EU, but only for 8.1 % of EU-28 gross value added (a difference of 5.9 percentage points). Poland (3.4 percentage points), Finland (2.6 percentage points) and Ireland (1.4 percentage points) also registered a higher share of subsidies in relation to their contribution to gross value added.

The type of subsidies provided to the EU-28's agricultural industry has changed over time as a result of successive reforms of the CAP, 'decoupling' subsidies from particular crops and moving towards a system of single-farm payments. Subsidies on products in the EU-28 declined from EUR 5.7 billion in 2010 to EUR 3.8 billion by 2014. However, they increased to EUR 5.1 billion in 2015 with the introduction of certain coupled payments. Differences in other subsidies on production were less significant, changing from EUR 50.7 billion in 2010 to EUR 50.1 billion by 2015.



Table 3.4: Agricultural gross value added and subsidies, 2010 and 2013–15
(million EUR)

	Gross value added				Subsidies on production			
	2010	2013	2014	2015	2010	2013	2014	2015
EU-28	151 117	171 573	166 565	164 650	50 712	52 530	53 978	50 073
Belgium	2 491	2 312	2 142	2 304	691	598	643	645
Bulgaria	1 356	1 694	1 732	1 621	466	852	821	677
Czech Republic	966	1 427	1 486	1 346	1 062	1 059	1 198	1 072
Denmark	2 665	2 800	3 209	2 349	982	999	964	940
Germany	14 261	20 968	15 558	13 266	7 136	7 285	7 630	6 991
Estonia	235	333	344	277	165	192	168	150
Ireland	1 389	2 001	2 174	2 371	1 695	1 640	1 603	1 472
Greece	5 617	4 964	4 973	5 543	2 793	2 558	2 547	2 388
Spain	22 366	22 619	22 996	23 995	6 081	5 878	5 944	5 673
France	27 862	26 381	28 940	29 474	8 545	8 274	8 053	8 552
Croatia	1 370	1 126	1 025	1 075	46	32	28	112
Italy	26 448	33 024	30 359	32 239	4 406	4 797	5 914	4 091
Cyprus	315	321	268	275	40	51	66	69
Latvia	236	255	271	366	249	304	298	309
Lithuania	651	1 058	1 022	1 121	199	196	202	194
Luxembourg	85	107	114	95	65	65	66	71
Hungary	1 980	2 903	3 231	3 213	1 288	1 574	1 617	1 302
Malta	58	56	55	61	25	18	20	19
Netherlands	9 673	10 194	9 965	9 879	922	1 144	1 031	1 056
Austria	2 567	2 730	2 674	2 612	1 545	1 512	1 435	1 359
Poland	7 759	9 419	8 441	7 797	3 045	3 855	4 077	4 066
Portugal	2 608	2 539	2 486	2 634	724	723	688	604
Romania	6 591	7 621	7 110	6 518	1 012	1 460	1 839	1 514
Slovenia	404	409	477	525	242	259	251	244
Slovakia	361	598	602	474	433	469	489	467
Finland	1 445	1 282	1 263	984	1 832	1 738	1 711	1 602
Sweden	1 548	1 614	1 696	1 872	976	1 068	1 014	922
United Kingdom	7 811	10 818	11 953	10 363	4 047	3 931	3 663	3 515
Iceland	86	90	122	143	4	1	1	1
Norway	1 999	2 093	2 077	2 313	604	740	710	718
Switzerland	2 776	3 251	3 485	3 173	2 084	2 375	2 424	2 420

Note: values at basic prices.

Source: Eurostat (online data code: aact_eaa01)

3.2 Agricultural labour input

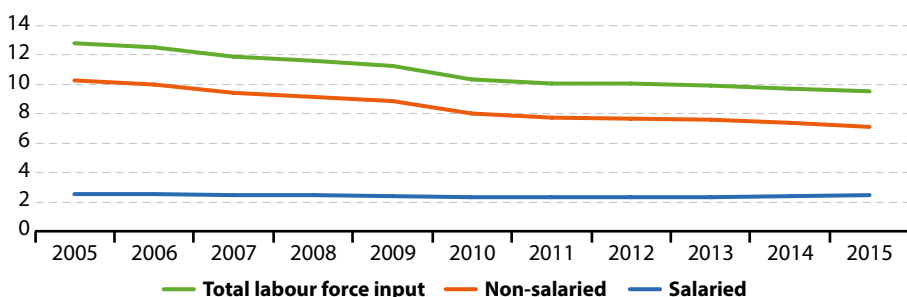
The vast majority of the EU's farms are relatively small, family-run holdings. Often, these **holdings** draw on family members to provide labour (in addition to the farm holder). Agriculture is also characterised by seasonal labour peaks (for example those linked to harvesting), with high numbers of workers hired for relatively short periods of time. Otherwise, some farmers are occupied on a part-time basis (and they may have alternative, sometimes important sources of income) so while there are a large number of people providing labour within agriculture, many of these will have their main employment elsewhere. For this reason, estimates are made of the volume of labour input provided in terms of full-time labour equivalents (measured in **annual work units** (AWU)).

EU-28 agricultural labour input was estimated at 9.5 million AWUs (the equivalent of 9.5 million people working full-time) in 2015. As shown in Table 3.5, among the EU Member States, the highest levels of agricultural labour input were recorded for Poland (1.9 million AWUs), Romania (1.3 million AWUs) and Italy (1.1 million AWUs).

Between 2005 and 2015 there was a reduction of one quarter (– 25.4%) in agricultural labour input in the EU-28; the steepest annual declines were posted in 2007 and 2010. The overall contraction of 3.25 million AWUs was almost exclusively due to a reduction in non-salaried labour input (3.15 million AWUs or 97.2% of the total). Although the volume of agricultural labour input from salaried persons in the EU-28 fell in successive years from 2005 onwards, there was a slight increase in the number of AWUs for salaried persons in 2012, 2014 and in 2015 (see Figure 3.3 and Table 3.5).

Agricultural labour input declined over the period 2010–15 (– 7.9%). Only 7 Member States recorded an increase: Slovenia (+ 5.7%), Lithuania (+ 5.2%), Malta (+ 2.0%), Denmark (+ 1.6%), Poland (+ 1.2%), the United Kingdom (+ 0.8%) and Greece (+ 0.2%). A further 12 Member States registered declines in agricultural labour input, although less marked than for the EU-28. The remaining 9 Member States showed steeper decreases, in particular Bulgaria (– 32.0%), Romania (– 21.1%) and Estonia (– 20.0%).

Figure 3.3: Agricultural labour input, EU-28, 2005–15
(million annual work units)



Note: provisional data for: 2009 (total labour force), 2010 and 2015.

Source: Eurostat (online data code: aact_all01)

**Table 3.5: Agricultural labour input, 2010 and 2013–15**

	Total agricultural labour input (1 000 annual work unit)				Change, 2010–15 (%)
	2010	2013	2014	2015	
EU-28	10 344.8	9 918.2	9 739.3	9 530.4	-7.9
Belgium	61.9	57.9	57.3	56.8	-8.3
Bulgaria	406.5	321.2	297.5	276.4	-32.0
Czech Republic	108.8	105.1	104.9	104.8	-3.7
Denmark	54.2	52.7	54.1	55.1	1.6
Germany	522.0	503.0	504.0	496.0	-5.0
Estonia	25.4	22.3	22.0	20.3	-20.0
Ireland	165.6	163.6	163.6	163.6	-1.2
Greece (¹)	441.5	467.0	454.5	442.4	0.2
Spain	963.8	841.7	824.3	818.7	-15.0
France	809.1	781.0	774.5	768.1	-5.1
Croatia	202.0	196.0	190.0	192.0	-5.0
Italy	1 164.0	1 077.5	1 094.9	1 119.8	-3.8
Cyprus	25.4	25.6	25.0	23.7	-6.7
Latvia	85.9	82.9	77.2	76.6	-10.8
Lithuania	143.4	144.8	149.9	150.8	5.2
Luxembourg	3.7	3.6	3.5	3.5	-5.4
Hungary	444.2	444.4	462.9	441.9	-0.5
Malta	4.9	5.0	5.0	5.0	2.0
Netherlands	150.4	148.2	145.7	145.9	-3.0
Austria	127.5	124.0	121.5	119.9	-5.9
Poland	1 914.8	1 937.1	1 937.1	1 937.1	1.2
Portugal	309.4	281.3	265.2	255.8	-17.3
Romania	1 639.0	1 564.0	1 433.0	1 293.0	-21.1
Slovenia	77.0	82.8	81.8	81.4	5.7
Slovakia	56.1	54.2	53.9	48.9	-12.8
Finland	82.1	75.9	81.2	79.4	-3.3
Sweden	65.3	62.1	61.0	60.0	-8.1
United Kingdom	291.1	293.5	293.7	293.5	0.8
Iceland	4.2	4.0	3.5	3.8	-9.7
Norway	51.4	48.1	47.0	45.9	-10.7
Switzerland	80.7	77.7	77.4	76.1	-5.7

(¹) 2015: Eurostat estimate.

Source: Eurostat (online data code: aact_all01)

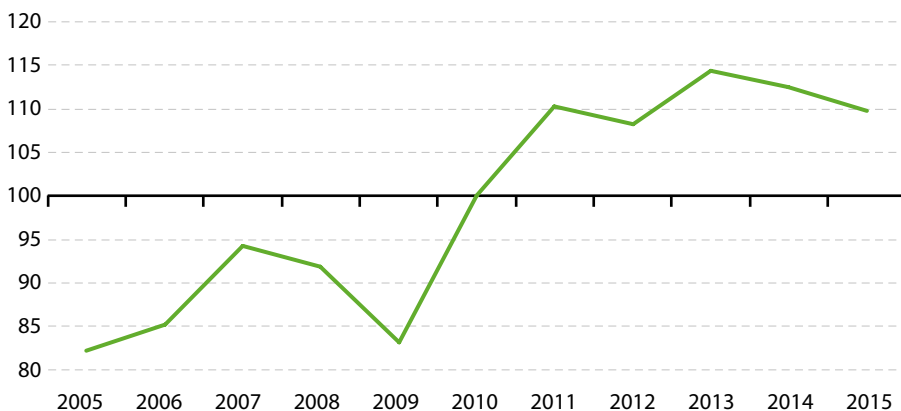
3.3 Agricultural income

Agricultural income (i.e. factor income) is a key measure for determining the viability of the agricultural sector. The factor income of the agricultural industry (the remuneration of all factors of production: land, capital and labour) in the EU-28 was valued at EUR 148.1 billion in basic price terms in 2015.

Within agricultural accounts, real factor income per AWU, expressed as an index, is a measure of relative labour productivity. From 2005, the EU-28 index of agricultural income per AWU (2010 = 100) rose for two consecutive years, before falling back in 2008 and 2009 (at the height of the financial and economic crisis) to almost the same level as in 2005. Thereafter, the index of agricultural income per AWU rebounded, with relatively rapid growth in 2010 and 2011. Agricultural income per AWU in the EU-28 remained relatively high from 2012 to 2015, with values around the 2011 level.

The overall pattern for the development of agricultural income per AWU in the EU-28 during the 2005–15 period can be linked to the development of the two underlying components (income and labour input) that are used in the construction of the index. EU-28 real factor income per AWU for the agricultural industry fluctuated considerably but in broad terms showed little overall change. This higher factor income was shared amongst a smaller workforce, resulting in stronger rises in average income per AWU.

Figure 3.4: Agricultural income per AWU (Indicator A), EU-28, 2005–15
(2010 = 100)



Note: 2009, 2010 and 2015: provisional. 2011: break in time series.

Source: Eurostat (online data code: [aact_eaa06](#))



The variations in real factor income per AWU can be linked to rising commodity prices (in 2007 and again in 2010 and 2011) and the downturn in agricultural activity resulting from the financial and economic crisis (in 2008 and 2009). Some of the biggest changes in EU-28 real factor income per AWU were recorded in 2009 and 2010, (–9.5% followed by +20.3%) and these were apparent in the overall development of the index for agricultural income per AWU (see Figure 3.4). On the other hand, the relatively large declines in agricultural labour input recorded in 2007 and 2010 were also apparent as agricultural income per AWU increased in both years.

A group of nine EU Member States reported that their index of agricultural income per AWU in 2015 was at a lower level than in 2010 (see Table 3.6). This group included Finland (where the biggest contraction in income per AWU was recorded, –41.3%), Denmark, Germany, Austria, Malta, Belgium, Croatia, Greece and also the United Kingdom (where the smallest reduction was registered, at –1.6%). In the case of Malta and the United Kingdom, the reduction in agricultural income per AWU could be attributed to an expansion in the number of AWUs, whereas in the other three EU Member States it could be largely attributed to a reduction in real factor income.

The index of agricultural income per AWU rose in the remaining EU Member States between 2010 and 2015. Increases were relatively small (below +10.0%) in the Netherlands, Luxembourg, Estonia, Cyprus, Poland, France and Sweden. By contrast, the index of agricultural income per AWU (2010 = 100) increased more than 20% between 2010 and 2015 in Bulgaria (159.0), Hungary (153.0), Lithuania (145.2), Slovakia (142.9), Latvia (136.5), the Czech Republic (134.2) and Italy (132.8).

The latest developments from 2014–15 (see Figure 3.5) show that the index of agricultural income per AWU rose by 23.6% in Latvia, while double-digit gains were also recorded in Croatia, Greece, Lithuania and Cyprus. The majority of EU Member States saw their agricultural income per AWU vary by no more than +/- 10% from 2014 to 2015. Estonia, Luxembourg, the United Kingdom and the Czech Republic registered decreases between –10.0% and –20.0% and the larger reductions occurred in Denmark (–35.3%), Germany (–23.2%) and Finland (–21.7%).

Table 3.6: Agricultural income per AWU (Indicator A), 2005–15
(2010 = 100)

	Average 2005–10	Average 2010–15	2013	2014	2015
EU-28 (1)	89.4	109.2	114.3	112.4	109.8
Belgium	87.9	93.1	88.3	83.2	90.1
Bulgaria	93.0	140.2	162.0	172.8	159.0
Czech Republic	91.7	132.1	134.9	155.3	134.2
Denmark	81.7	111.7	106.7	120.0	77.6
Germany (1)	100.2	112.4	148.7	105.2	80.8
Estonia	76.5	122.2	134.3	126.7	102.9
Ireland	113.4	115.3	115.8	120.9	117.7
Greece (2)	93.0	89.3	80.6	85.6	95.0
Spain	100.0	108.8	112.7	116.3	119.9
France	87.4	100.6	89.6	99.7	104.6
Croatia	100.3	88.4	84.8	77.6	91.0
Italy	110.3	127.4	150.2	136.4	132.8
Cyprus	99.7	96.5	102.2	94.7	104.2
Latvia	85.0	110.4	104.3	110.5	136.5
Lithuania	93.3	134.8	144.4	131.8	145.2
Luxembourg	152.6	123.3	116.2	125.1	102.5
Hungary	96.4	141.4	150.0	160.1	153.0
Malta	105.2	85.6	80.8	79.3	84.6
Netherlands	94.2	98.1	105.8	101.6	100.3
Austria	98.8	98.1	94.7	88.7	81.2
Poland	76.5	111.1	121.2	111.7	104.2
Portugal	93.2	100.3	106.9	108.2	111.4
Romania	83.2	112.5	111.5	121.8	119.2
Slovenia	98.8	103.6	93.9	106.5	115.0
Slovakia	76.5	128.2	130.3	143.3	142.9
Finland	87.4	81.9	83.5	75.0	58.7
Sweden	93.9	100.1	91.2	100.5	105.5
United Kingdom	91.0	110.5	119.4	117.7	98.4
Iceland	121.2	124.2	98.3	156.5	160.0
Norway	85.9	105.1	98.8	107.8	124.0
Switzerland	100.1	107.6	110.2	117.3	111.4

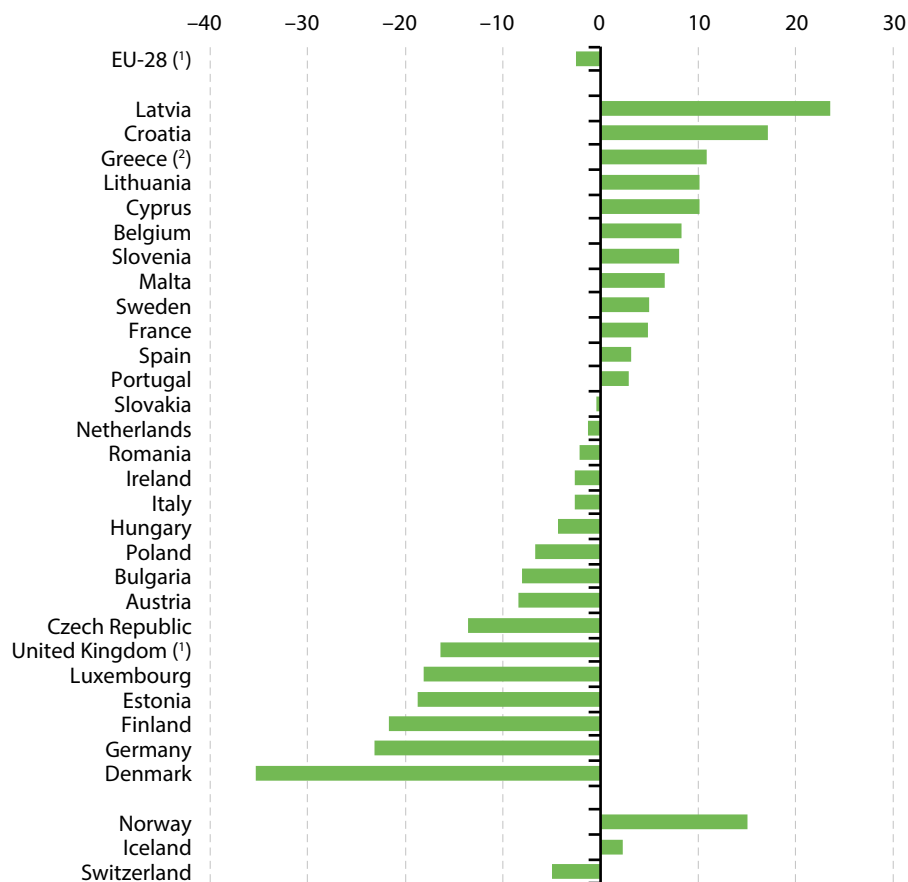
(1) 2011: break in series.

(2) 2015: Eurostat estimate.

Source: Eurostat (online data code: aact_eaa06)



Figure 3.5: Change in agricultural income (Indicator A) per AWU, 2014–15
(%)



(1) Provisional.

(2) Estimate.

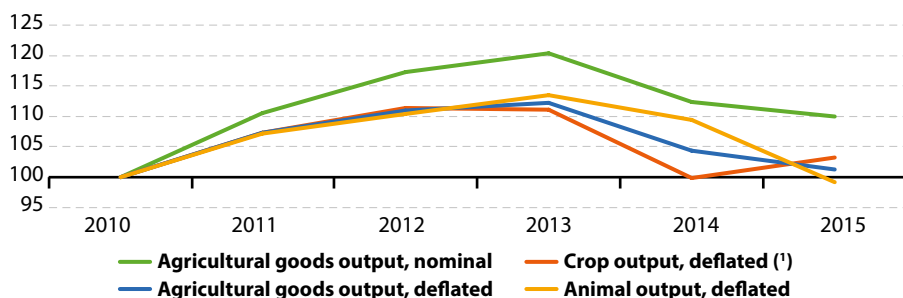
Source: Eurostat (online data code: aact_eaa06)

3.4 Price indices

EU-28 output prices for agricultural goods rose by 10.0% in nominal terms from 2010 to 2015 (see Figure 3.6). Taking into account price inflation (based on the [harmonised index of consumer prices \(HICP\)](#)), the real increase in (deflated) output prices for agricultural goods was 1.3%. After a period of successive increases from 2010 to 2013, in 2014 the output price indexes of agricultural goods showed a general decrease, reaching 112.4 in 2014 and 110.0 in 2015 (2010 = 100) nominal prices.

Figure 3.6 shows that prices for crop output increased by 3.2% over the period (2010–15), while for animal output there was a decrease of 0.8%.

Figure 3.6: Output price indices, EU-28, 2010–15
(2010 = 100)



Note: Eurostat estimates.

(!) Including fruit and vegetables.

Source: Eurostat (online data code: [apri_pi10_outa](#))

Table 3.7 presents information on deflated price indices for crop and animal outputs for the 2011–15 period. For crop output at EU-28 level, the price indexes were lower in 2015 than in 2011 presenting a 3.9% decrease. This was the case for the majority of EU Member States. Lithuania (– 23.2%), the United Kingdom (– 19.9%) and Slovakia (– 19.8%) were the EU Member States with the sharpest decreases of deflated output prices for crops. By contrast, output prices for crops rose at a relatively fast pace in Spain, (+ 18.7%) and Malta (+ 13.6%) during the period 2011–15.

From 2011 to 2015 the output prices for animals decreased by 7.4% in the EU-28. Decreases occurred in all the EU Member States with the exception of Greece, Bulgaria and Sweden (all with a growth under 3.0%). Lithuania (– 19.3%), Latvia (– 18.2%), Belgium (– 13.6%) and Germany (– 12.7%) recorded the highest decreases.



Table 3.7: Deflated price indices, crop and animal output, 2011–15
(2010 = 100)

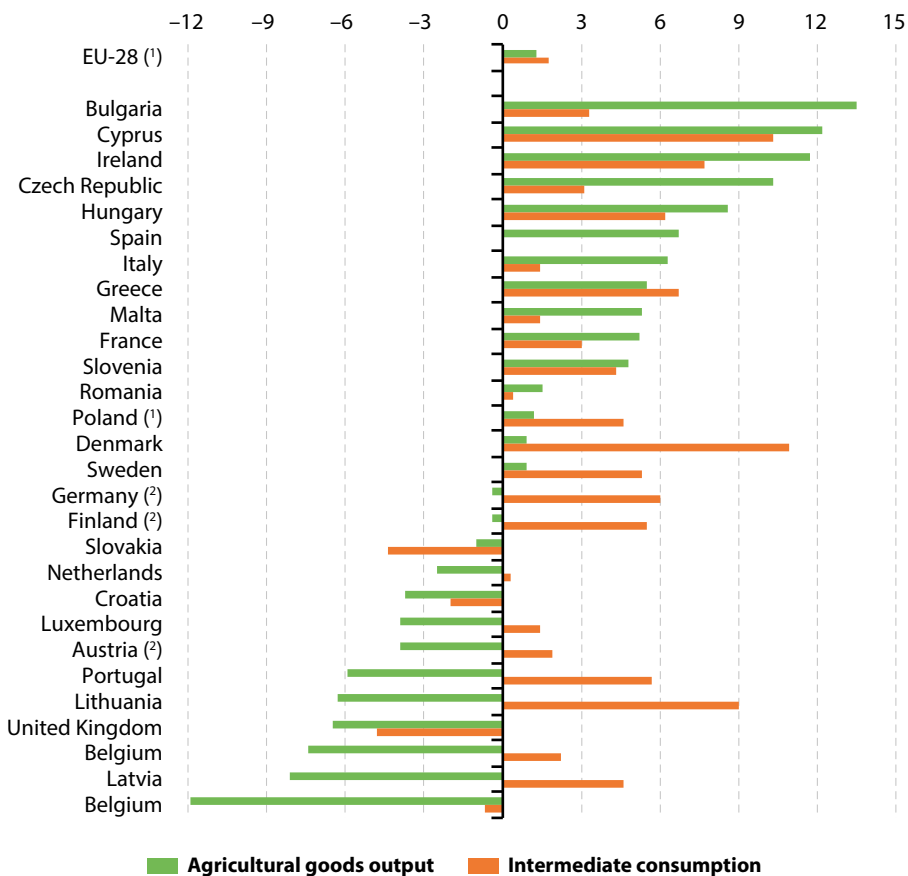
	Crop output (¹)					Animal output				
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
EU-28 (²)	107.4	111.4	111.1	99.8	103.2	107.2	110.4	113.4	109.4	99.2
Belgium	89.7	107.1	109.4	75.5	84.1	105.2	109.2	113.4	104.9	90.9
Bulgaria	125.9	148.5	109.8	105.3	115.8	105.5	105.3	113.1	113.6	108.4
Czech Republic	130.6	129.6	134.7	120.0	117.0	105.9	107.7	110.3	115.3	102.9
Denmark	120.6	124.7	119.7	107.1	108.5	107.8	114.3	122.1	107.5	97.8
Germany	113.0	120.6	112.9	96.7	106.5	109.1	109.7	113.9	108.1	95.2
Estonia	:	:	:	:	:	:	:	:	:	:
Ireland	108.2	125.4	133.2	104.2	105.5	114.7	116.5	126.1	117.7	112.6
Greece	100.5	97.5	100.7	99.3	107.3	98.5	97.4	98.3	100.1	101.3
Spain	92.1	101.3	103.5	91.8	109.3	105.4	112.7	113.4	111.4	102.9
France	112.3	115.5	116.3	108.0	106.5	106.7	110.7	113.3	111.4	103.5
Croatia	106.9	111.5	96.4	87.6	93.5	103.4	108.3	106.7	106.1	99.9
Italy	105.6	107.8	112.1	105.4	108.0	107.4	111.2	111.9	109.3	104.0
Cyprus	119.9	120.4	121.0	115.3	119.3	106.9	104.7	104.7	105.8	104.6
Latvia	120.2	122.3	106.6	94.6	96.6	106.8	107.4	111.4	104.0	87.4
Lithuania	132.1	124.4	119.4	101.2	101.4	108.8	107.2	113.7	102.2	87.8
Luxembourg	105.5	117.2	100.1	92.5	95.6	104.6	104.6	112.5	110.3	96.2
Hungary	118.8	132.6	113.1	103.0	109.4	111.8	116.5	118.5	117.0	107.2
Malta	96.2	106.4	99.9	85.3	109.3	103.5	107.3	111.9	105.2	102.8
Netherlands	97.5	97.2	103.6	92.5	96.4	107.9	110.3	112.2	110.8	99.0
Austria	101.6	102.8	97.9	87.8	90.2	106.2	108.9	111.2	108.3	100.4
Poland	117.8	113.9	105.8	95.3	98.5	112.1	117.2	118.1	113.3	103.6
Portugal	92.9	91.4	96.8	88.2	91.4	100.4	103.8	107.4	106.1	96.9
Romania	111.1	119.7	122.0	103.3	101.0	103.6	107.7	107.1	106.2	103.1
Slovenia	106.0	106.4	119.8	100.7	107.0	108.3	110.0	112.0	112.5	103.7
Slovakia	119.3	121.5	110.1	95.4	95.7	106.0	110.4	108.1	107.4	102.9
Finland	116.5	116.4	122.6	104.0	106.0	107.0	111.2	117.1	102.4	95.9
Sweden	109.6	109.1	105.2	98.4	99.8	100.9	100.2	106.6	105.7	101.8
United Kingdom	113.4	115.5	116.7	96.4	90.8	104.9	106.9	112.0	106.1	95.4

(¹) Including fruit and vegetables.

(²) Eurostat estimates.

Source: Eurostat (online data code: [agri_pi10_outa](#))

Figure 3.7: Change in deflated price indices for the agricultural industry, 2010–15 (%)



Note: Estonia: not available. Ranked on 'Agricultural goods output'.

(¹) Eurostat estimates.

(²) Agricultural goods output: provisional.

Source: Eurostat (online data codes: [apri_pi10_outa](#) and [apri_pi10_ina](#))



Figure 3.7 provides a comparison between deflated price indices for intermediate consumption and the output of agricultural goods. Deflated prices for intermediate consumption in the EU-28's agricultural industry rose by 1.8% between 2010 and 2015, while the output price index for agricultural goods rose by 1.3% (over the same period). There does not appear to be any robust link between the developments of these two indices across the EU Member States. In three EU Member States there was a relatively high price increase (over 5%) for both intermediate consumption and the output of agricultural goods (Ireland, Greece, Cyprus and Hungary). In Germany, Lithuania, Portugal and Finland, the intermediate consumption recorded a price increase of over 5% and there was a negative growth in the prices of agricultural goods output.

DATA SOURCES AND AVAILABILITY

Economic accounts for agriculture (EAA) are a satellite account of the European system of accounts (ESA 2010). They cover the agricultural products and services produced over the accounting period sold by agricultural units, held in stocks on farms, or used for further processing by agricultural producers. The concepts of the EAA are adapted to the particular nature of the agricultural industry: for example, the EAA includes not only the production of grapes and olives but also the production of wine and olive oil by agricultural producers. It includes information on intra unit consumption of crop products used in animal feed, as well as output accounted for by own account production of fixed capital goods and own final consumption of agricultural units.

The EAA comprises a [production account](#), a [generation of income account](#), an [entrepreneurial income account](#) and some elements of a [capital account](#). For the production items, EU Member States transmit to Eurostat values at basic prices, as well as their components (values at producer prices, subsidies on products, and taxes on products).

The output of agricultural activity includes output sold (including trade in agricultural goods and services between agricultural units), changes in stocks, output for own final use (own final consumption and own-account gross fixed capital formation), output produced for further processing by agricultural producers, as well as intra-unit consumption of livestock feed products. The output of the agricultural sector is made up of the sum of the output of agricultural products and of the goods and services produced

in inseparable non-agricultural secondary activities; animal and crop output are the main product categories of agricultural output.

Three indicators are computed in relation to agricultural income:

- an index of real income of factors in agricultural activity per AWU (*indicator A*);
- an index of real net agricultural entrepreneurial income, per unpaid AWU (*indicator B*);
- and the net entrepreneurial income of agriculture (*indicator C*).

The information presented on agricultural income relates to indicator A (the real income of factors in agriculture per AWU). This indicator corresponds to the real (deflated) net value added at factor cost of agriculture per AWU. Net value added at factor cost is calculated by subtracting from the value of agricultural output at basic prices the value of intermediate consumption, the consumption of fixed capital, and adding the value of (other) subsidies less taxes on production.

Agricultural price statistics provide information on the development of producer (output) prices for agricultural products and purchaser prices for the means of agricultural production (the intermediate consumption of goods and services within the production process). Data on prices are available for single commodities and for larger aggregates in the form of absolute prices and price indices.

The index of producer prices for agricultural products is based on sales of agricultural products, while the input index (for intermediate goods and services) is based on purchases of the means of agricultural production. Prices should be recorded at points which are as close as possible to those of the transactions which the farmer actually undertakes. This means that product prices should be recorded at the first marketing stage so as to best indicate the actual producer prices received by farmers. Similarly the prices paid by farmers for their means of production should be recorded at the last marketing stage, that at which the items arrive on the farm, so as to best indicate the purchase prices paid by farmers. It is assumed, by convention, that the fertilisers and feeding stuffs purchased are used in the same production period and that there are no stocks on farm.

As regards spatial comparisons, the structure of the weights with respect to products and means of production reflect the value of the sales and purchases in each country during the base year (currently 2010 = 100); the weights therefore differ from one country to another.

4

Agricultural products



Introduction

There is a diverse range of natural environments, climates and farming practices across the [European Union \(EU\)](#), reflected in the broad array of food and drink products that are made available for human consumption and animal feed, as well as a range of inputs for non-food processes. Indeed, agricultural products form a major part of the cultural identity of the EU's people and its regions.

Statistics on agricultural products may be used to analyse developments within agricultural markets in order to help distinguish between cycles and changing production patterns; they can also be used to study how markets respond to policy actions. Agricultural product data also provide supply-side information, furthering understanding as regards price developments which are of particular interest to agricultural commodity traders and policy analysts.

4.1 Crops

The term 'crop' covers a very broad range of cultivated plants. Within each type of crop there can also be considerable diversity in terms of genetic and phenotypic (physical or biochemical) characteristics. The range and variety of crops grown across the EU reflects their heritable traits as well as the ability of plant breeders to harness those traits to best respond to the myriad of topographic and climatic conditions, pests and diseases.

The statistics on crop production in this chapter are shown at an aggregated level and have been selected from over 100 different crop products for which official statistics are collected.

Cereals

In 2015, the harvest of cereals in the EU decreased by about 4% compared with the previous year, explained by unfavourable climatic conditions.

The harvested production of [cereals](#) (including rice) in the [EU-28](#) was around 317 million tonnes in 2015. This represented about 12.5% of global cereal production (!). EU-28 production of cereals in 2015 was about 15.1 million tonnes lower than in 2014 (see [Figure 4.1](#)).

Common wheat and spelt, barley, grain maize and corn-cob-mix (CCM) accounted for a high share (86% in 2015) of the cereals produced in the EU-28 (see [Figure 4.2](#)). Compared with the 5-year average, EU-28 cereal production increased by 5.7%. An increase was recorded for common wheat and spelt (13.8%), and barley (10.3%), while grain maize and CCM production decreased by about 11.2% (-23.1% compared with 2014). This was mainly due to one of the warmest summers ever recorded in south-eastern Europe. Rye and winter cereal mixtures production stood 7.1% below the 5-year average. The production of oats decreased by 3.8% (see [Figure 4.3](#)).

(!) Based on estimates made by the United Nations' Food and Agriculture Organization. See [food outlook](#).



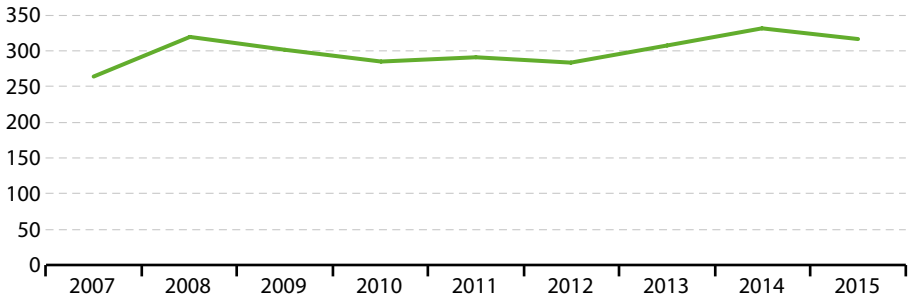
Table 4.1: Production of cereals, 2015
(1 000 tonnes)

	Total cereals	Common wheat and spelt	Rye and maslin	Barley	Grain maize and corn-cob-mix	Oats
EU-28	316952	152089	8194	61972	58973	7607
Belgium	3283	2076	3	434	693	22
Bulgaria	8728	4980	11	715	2697	22
Czech Republic	8184	5274	109	1991	443	155
Denmark	10023	5029	772	3856	53	207
Germany	48918	26462	3488	11630	3973	566
Estonia	1535	813	55	557	0	68
Ireland	2634	697	0	1739	0	198
Greece	3613	374	22	423	1611	95
Spain	20141	5438	332	6705	4564	781
France	72633	40910	123	13028	13738	399
Croatia	2797	753	3	193	1709	72
Italy	17553	2996	13	930	7070	258
Cyprus	88	0	0	52	0	1
Latvia	3022	2250	160	385	0	160
Lithuania	6067	4380	108	812	56	163
Luxembourg	177	91	6	44	1	6
Hungary	14145	5238	104	1409	6633	129
Malta	0	0	0	0	0	0
Netherlands	1706	1288	6	227	171	8
Austria	4844	1637	186	840	1638	96
Poland	28003	10958	2332	2961	3156	1220
Portugal	1241	74	15	44	828	49
Romania	19286	7955	24	1623	8985	344
Slovenia	624	157	5	93	339	5
Slovakia	3806	1969	42	669	929	43
Finland	3683	992	108	1569	0	980
Sweden	6169	3300	149	1672	6	745
United Kingdom	24735	16444	57	7370	22	799
Norway	1266	478	37	466	.	263
Switzerland	891	0	13	198	95	8
Montenegro	7	2	1	1	3	1
FYR of Macedonia	484	201	11	102	137	6
Albania	696	275	3	7	380	31
Serbia	8437	2428	12	362	5455	88
Turkey	38269	18505	301	8000	6400	250
Bosnia and Herzegovina	1138	213	10	63	786	24

Note: 'Total cereals' includes cereals for the production of grain (including seed). 'Rye and maslin' includes mixture of rye with other winter sown cereals.

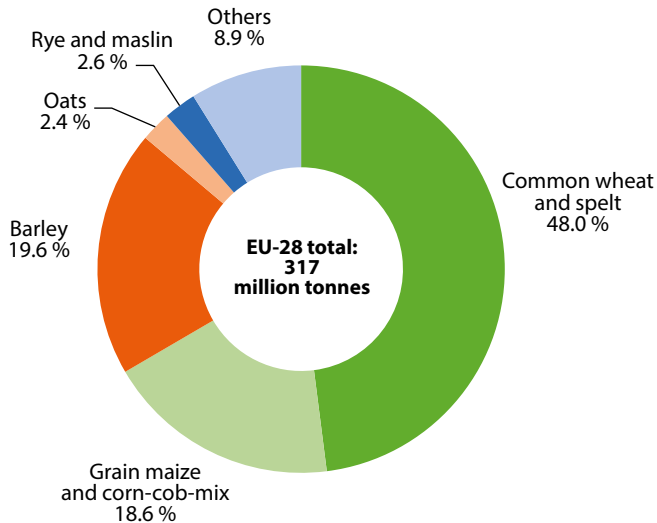
Source: Eurostat (online data code: [apro_acs_a](#))

Figure 4.1: Production of cereals, EU-28, 2007–15
(million tonnes)



Source: Eurostat (online data code: [apro_acs_a](#))

Figure 4.2: Share of main types of cereals, EU-28, 2015
(% of total EU-28 production)

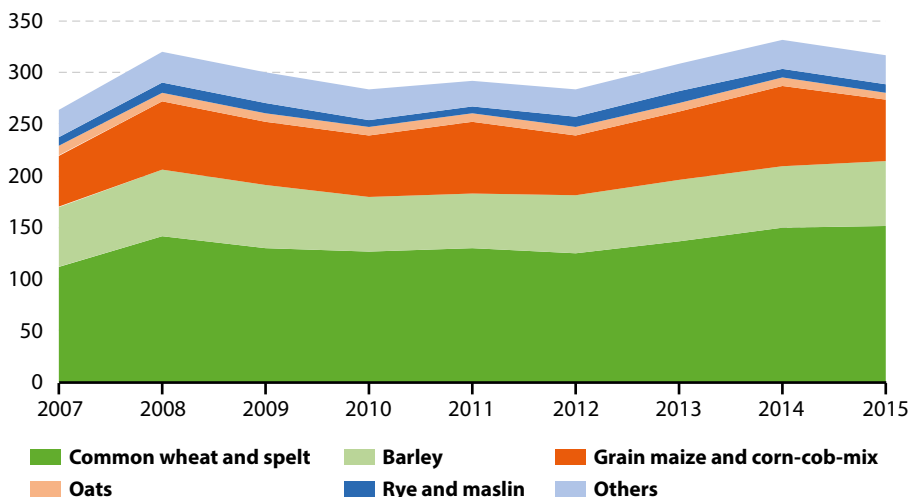


Note: 'Total cereals' includes cereals for the production of grain (including seed). 'Rye and maslin' includes mixture of rye with other winter sown cereals. 'Others' includes rice, triticale and sorghum.

Source: Eurostat (online data code: [apro_acs_a](#))



Figure 4.3: Production of cereals by main types, EU-28, 2007–15
(million tonnes)



Note: 'Rye and maslin' includes mixture of rye with other winter sown cereals. 'Others' includes rice, triticale and sorghum.

Source: Eurostat (online data code: [apro_acs_a](#))

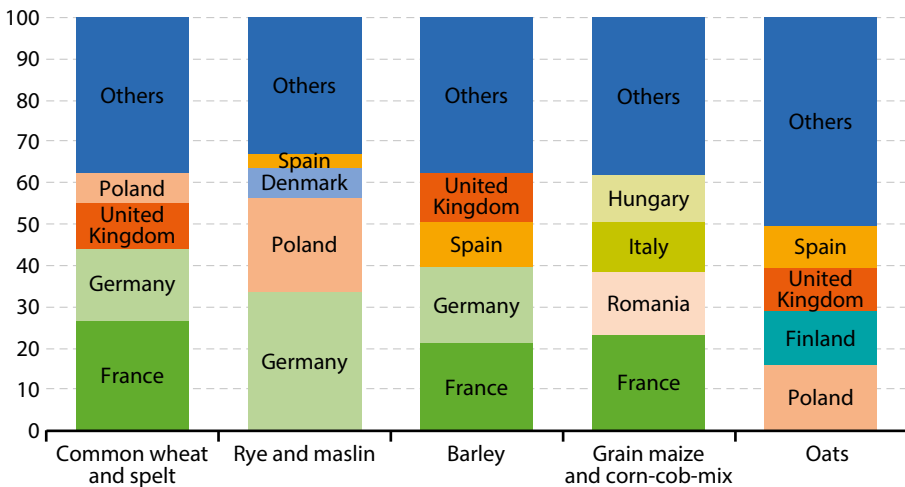
France accounted for more than one fifth (22.9%) of the EU-28 cereal production in 2015. Germany (15.4%) and Poland (8.8%) together contributed to a quarter of the EU total. The United Kingdom was the next largest cereal producer, accounting for 7.8% of the EU-28 total. Among the EU Member States, France was the largest producer of common wheat, barley and grain maize and CCM in 2015 (see Figure 4.4).

In 2015, the relatively good cereal harvest, combined with sufficient stocks and a general negative trend in the common market, led to a decrease in the price of cereals (?). This went down by 3.3% compared with 2014 and by 14.1% compared with the average of the previous 5 years (see Figure 4.9).

The median price of soft wheat was EUR 15.84 per 100 kg (see Table 4.3).

(?) Short-term outlook for EU arable crops, dairy and meat markets — Winter 2016.

Figure 4.4: Production of cereals by main producing EU Member States, 2015
(% of EU-28 total)



Note: 'Rye and maslin' includes mixture of rye with other winter sown cereals.

Source: Eurostat (online data code: [apro_acs_a](#))

Sugar beet

The EU is the world's leading producer of sugar beet, with around 50% of the global production⁽³⁾. The EU sugar market is regulated by production quotas, a minimum beet price and trade mechanisms⁽⁴⁾.

The exceptional harvest in 2014 (13% above the 5-year average) led to almost 3 million tonnes of out-of-quota sugar being carried forward to 2015, to be counted as quota sugar in the following season. This meant that about 22% of the quota sugar for 2015 *de facto* had been produced before the season started. This led to a strong incentive for sugar producers to reduce sugar output significantly in 2015.

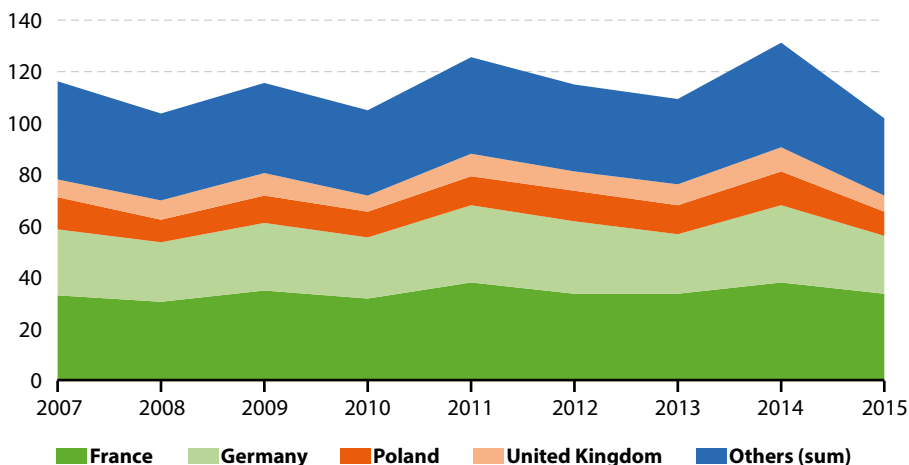
A combination of a reduction in sown area and unfavourable summer conditions led to a 22% reduction in sugar beet production compared with 2014, which was 12% below the 5-year average. In 2015, the EU-28 produced 101.9 million tonnes of sugar beet — 29.2 million tonnes less than in 2015 (see Figure 4.5). More than half of the EU-28 sugar beet production in 2015 came from France (32.9%) and Germany (22.2%) combined, Poland (9.2%) and the United Kingdom (6.1%) being the next largest producers.

⁽³⁾ European Commission's Directorate-General of Agriculture and Rural Development. See also *Agriculture and rural development DG — sugar*.

⁽⁴⁾ *Short-term outlook for EU arable crops, dairy and meat markets in 2015 and 2016*.



Figure 4.5: Production of sugar beet by main producing EU Member States, 2007–15
(million tonnes)



Source: Eurostat (online data code: [apro_acs_a](#))

Oilseeds

The change in policy support ('Voluntary coupled support and ecological focus area' eligibility ⁽⁵⁾), as well as premium prices for non-genetically modified soya kept the overall oilseed production largely stable in the EU in 2015 (3.5 % above the 5-year average) ⁽⁶⁾.

Due to a significant area increase, which was up 54 % compared with 2014, soybean production increased by 27 % compared with 2014 (see Figure 4.6).

By contrast, rape and turnip rape seeds production declined sharply in the EU (– 10.1 % compared with 2014), as did sunflower seed production (– 14.8 %). Especially for sunflower seed, 2015 was a worse-than-average year, with production down 5.5 % compared with the 5-year average, mainly driven by strong drought-related yield decreases in the main producing Member States (Bulgaria, Romania, France and Spain). Hungary, another important producer, witnessed a slightly smaller decrease (– 2.5 %).

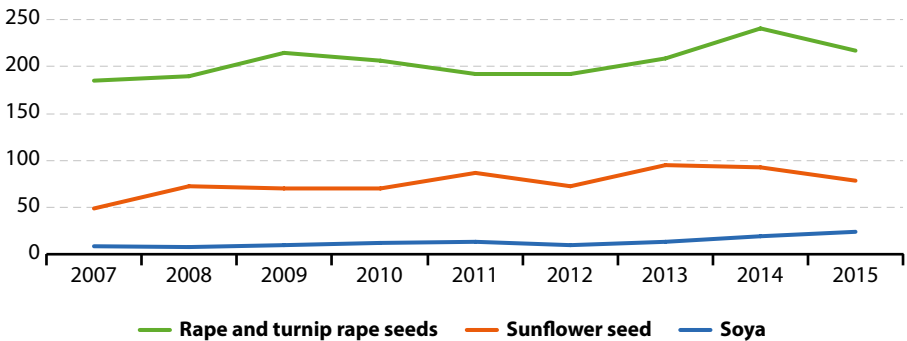
In 2015, France (24.5 %) and Germany (23.1 %) produced almost half of the rape and turnip rape in the EU-28.

Bulgaria and Romania continued to be the leading producers of sunflower in 2015, with shares of 22.6 % and 21.5 %, respectively.

⁽⁵⁾ In 2015 several Member States opted for 'voluntary coupled support' for soybeans, while 15 Member States considered areas planted with soybeans eligible as 'ecological focus areas', as soybeans are nitrogen-fixing crops.

⁽⁶⁾ Short-term outlook for EU arable crops, dairy and meat markets in 2016 and 2017.

Figure 4.6: Production of rape and turnip rape seed, sunflower seeds and soya, EU-28, 2007–15
(million tonnes)



Source: Eurostat (online data code: [apro_acs_a](#))

Vegetables

The EU supports [fruit](#) and [vegetables](#) through the Common Market Organisation for Fruit and Vegetable (CMO). This policy has four main goals:

- a more competitive and market-oriented sector
- less crisis-related instabilities in producers' income
- more consumption of fruit and vegetables in the EU
- increased use of eco-compatible cultivation and production techniques

The vegetable sector (?) is a key sector in EU agriculture weighting 13.6% of EU agricultural output. The Netherlands (17.8%), Spain (16.7%) and Italy (16.5%) were the most important producers, in terms of economic value, accounting for over 50% of vegetable output in 2015.

Tomatoes, carrots and onions were the most produced vegetables in 2015. The EU-28 produced an estimated 17.6 million tonnes of tomatoes in 2015, of which approximately two thirds came from Italy and Spain (11.2 million tonnes). The EU-28 also produced an estimated 5.1 million tonnes of carrots and 6.1 million tonnes of onions in 2015 (see Table 4.2). Carrot production was relatively high in Poland and the United Kingdom — together these two countries accounted for over a quarter (14.4% and 13.3% respectively) of EU-28 output in 2015. The production of carrots in these two EU Member States remained relatively stable during the 2000–15 period, at around 0.7 to 0.8 million tonnes. The Netherlands and Spain were the EU's main onion-producing Member States, together accounting for 45.0% of EU-28 output in 2015.

The price index of fresh vegetables increased by 6.8% compared with 2014, and by 2.1% compared with the average of the previous 5 years (see Figure 4.9). The median price for tomatoes (®) was EUR 60.74 per 100 kg (see Table 4.3).

(?) including plants and flowers

(®) 11 Member States provided data on prices of tomatoes in the open (all varieties).



Table 4.2: Production of fruit and vegetables, 2015
(1 000 tonnes)

	Tomatoes	Carrots	Onions	Apples	Peaches	Oranges
EU-28	17 562.2	5 087.3	6 109.4	12 698.1	2 540.0	5 961.2
Belgium	253.1	245.4	108.3	284.2	0.0	0.0
Bulgaria	121.7	7.9	8.9	58.4	34.4	0.0
Czech Republic	5.6	23.5	27.2	155.4	1.6	0.0
Denmark	10.6	89.2	53.4	35.7	0.0	0.0
Germany	80.9	526.9	553.3	973.5	0.0	0.0
Estonia	0.9	18.1	0.2	1.6	0.0	0.0
Ireland	4.4	40.2	4.6	18.8	0.0	0.0
Greece	995.1	32.5	211.0	278.5	626.6	909.7
Spain	4 832.7	410.9	1 247.6	598.2	720.9	3 098.3
France	787.9	560.0	368.7	1 967.1	114.7	3.7
Croatia	36.3	10.9	29.4	96.2	3.7	0.2
Italy⁽¹⁾	6 410.3	533.0	378.3	2 441.6	921.2	1 668.7
Cyprus	16.1	2.3	7.0	4.9	2.3	32.8
Latvia	6.1	8.8	5.7	7.8	0.0	:
Lithuania	7.7	38.0	22.2	65.0	0.0	0.0
Luxembourg	0.1	1.0	0.1	2.4	0.0	0.0
Hungary	200.4	78.2	60.3	511.5	37.4	0.0
Malta	12.0	1.3	8.1	0.0	0.7	1.2
Netherlands	890.0	563.4	1 504.1	335.9	0.0	0.0
Austria	55.7	66.8	168.1	287.6	2.9	0.0
Poland	789.6	677.7	548.4	3 168.8	9.9	0.0
Portugal	1 407.0	97.5	59.4	325.0	35.6	246.6
Romania	464.8	122.1	218.2	459.1	20.5	0.0
Slovenia	5.7	3.4	7.2	83.9	5.6	0.0
Slovakia	19.5	10.1	16.9	46.3	2.1	:
Finland	36.5	72.0	20.2	6.0	0.0	0.0
Sweden	14.8	115.6	64.6	25.4	0.0	0.0
United Kingdom	97.2	731.0	408.1	459.6	0.0	0.0
Iceland	0.1	0.6	0.0	0.0	0.0	0.0
Switzerland	45.7	71.6	41.2	141.7	0.0	0.0
Montenegro	2.7	0.0	1.0	2.8	0.0	0.0
FYR of Macedonia	173.4	4.3	59.5	136.9	12.0	:
Albania	256.5	6.9	90.5	91.8	:	8.4
Turkey	12 615.0	535.0	2 021.0	2 570.0	561.0	1 817.0
Bosnia and Herzegovina	41.2	17.1	37.7	91.5	9.2	0.0

(¹) Data referred to 2014.

Source: Eurostat (online data code: [apro_acs_a](#))

Fruit

The fruit sector is another key element of EU agriculture, weighting 6.7 % of EU agricultural output. Spain (33.4 %), Italy (18.7 %) and France (11.4 %) were the most important producers in terms of economic value, accounting for over 60 % of EU fruit output in 2015.

The EU fruit sector offers a large number of different products. The most important fruits, in terms of the volume of harvested products, are apples (12.7 million tonnes), oranges (6 million tonnes) and peaches (2.5 million tonnes).

Apples are produced in almost all EU Member States, although Poland (25.0 %), Italy (19.2 %) and France (15.5 %) were by far the largest producers. Orange production in the EU is much more restricted by climatic conditions; the vast majority of oranges (80 %) are produced in Spain (52 %) and Italy (28 %).

In 2015, the price index for fruit increased by 7.1 % compared with 2014 and by 3.8 % compared with the period 2010–14 (see Figure 4.9). The median price of dessert apples ⁽⁹⁾ was about EUR 44.15 per 100 kg (see Table 4.3).

Grapes

The EU is the world's leading producer of wine, with almost half of the global vine-growing area and approximately 65 % of production by volume ⁽¹⁰⁾.

Since the introduction of the CMO, the wine market has developed considerably. As far as the wine sector is concerned, the 2013 CAP reform, in addition to its general goals to harmonise, streamlined and simplified the provisions of the CAP, maintained the fundamentals of the 2008 wine reform but replaced the EU planting rights regime with a scheme of authorisations for vine planting from 1 January 2016, enabling competitive producers to increase production.

In 2015, Italy (29.4 %), France (26.3 %) and Spain (23.6 %) were the EU countries producing most grapes for wine use, making up 79.3 % of total production (see Figure 4.7). They were followed by Germany (5.1 %), Portugal (3.9 %), Romania (3.2 %), Greece (2.3 %), Hungary (2.0 %) and Austria (1.3 %). Bulgaria, Croatia and Slovenia were also significant grape producers.

In 2015, the production of grapes for wine use amounted to 23.4 million tonnes and increased by around 3.5 % compared with 2014. It stood 3.4 % above 5-year average levels.

In 2015, the price of wine decreased by 2.2 % compared with 2014 and increased by 5.9 % compared with the period 2010–14 (see Figure 4.9). The median price of grapes ⁽¹¹⁾ for wine production was EUR 50.15 per 100 kg (see Table 4.3).

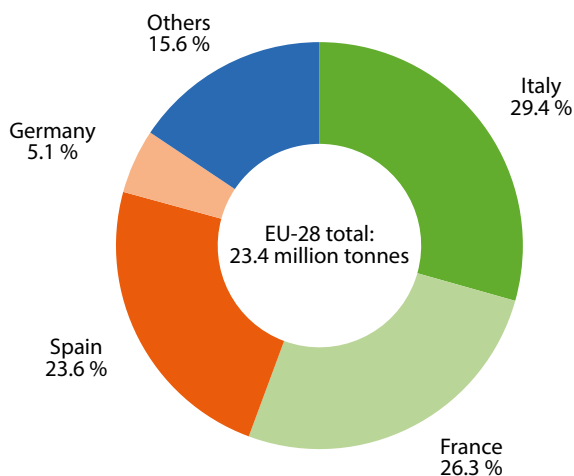
⁽⁹⁾ 22 Member States provided data on prices of dessert apples (all varieties).

⁽¹⁰⁾ See Agriculture and rural development DG — wine.

⁽¹¹⁾ 11 Member States provided data on prices of grapes for wine production.



Figure 4.7: Production of grapes for wine use, 2015
(% of total EU-28 harvested production)



Source: Eurostat (online data code: [apro_acs_a](#))

Olives

The EU is also the largest producer of olive oil in the world, accounting for almost three quarters of global production ⁽¹²⁾. Most of the global production comes from southern Europe, North Africa and the Near East, as 95 % of the olive trees in the world are cultivated in the Mediterranean region.

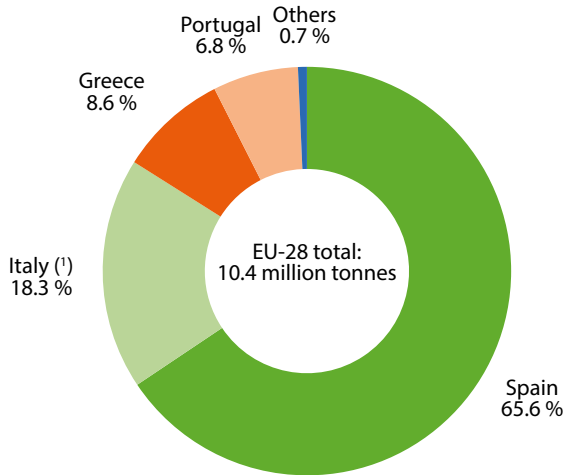
In 2015, the production of olives amounted to 10.4 million tonnes. The main European olive producers are Spain (65.6 %), Italy (18.3 %), Greece (8.6 %) and Portugal (6.8 %) (see Figure 4.8).

The price index of olive oil surged in 2015 (+ 36.1 %). If we consider the rate of change over the period 2010–14 the increase was 45.9 % (see Figure 4.9). The median price of extra virgin olive oil ⁽¹³⁾ was EUR 509.10 per 100 litres (see Table 4.3).

⁽¹²⁾ See Agriculture and rural development DG — olive oil.

⁽¹³⁾ Five Member States provided data on prices of extra virgin olive oil.

Figure 4.8: Production of olives for olive oil, 2015
(% of EU-28 total)

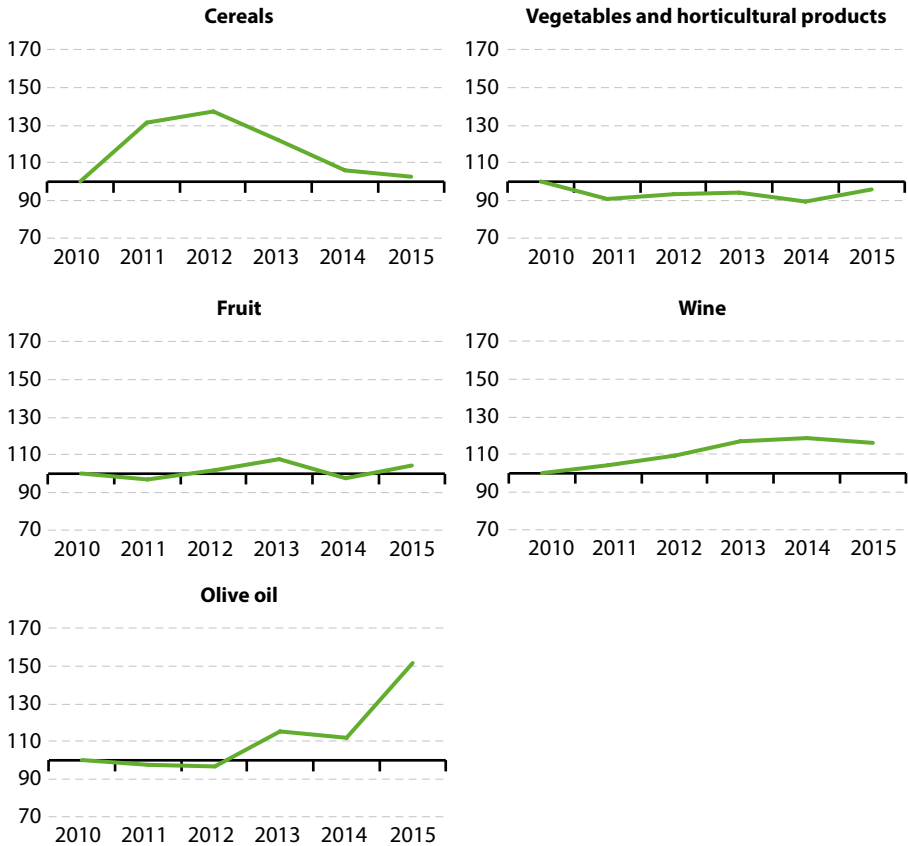


(¹) 2014 data.

Source: Eurostat (online data code: [apro_acs_a](#))



Figure 4.9: Deflated price indices for selected crop outputs, EU-28, 2010–15
(2010 = 100)



Note: Eurostat estimates.

Source: Eurostat (online data codes: [apri_pi10_outa](#) and [apri_pi10_ina](#))

Table 4.3: Selling prices of selected crop products, 2015
(EUR per 100 kg)

	Soft wheat	Tomatoes ⁽¹⁾	Apples ⁽²⁾	Grapes ⁽³⁾	Olive oil ⁽⁴⁾
Belgium	15.44	:	39.42	:	:
Bulgaria	15.59	23.66	23.92	30.78	:
Czech Republic	15.84	87.32	34.61	65.62	:
Denmark	15.50	:	43.71	:	:
Germany	:	:	:	:	:
Estonia	15.97	:	:	:	:
Ireland	:	:	:	:	:
Greece	19.40	48.35	60.33	40.90	334.92
Spain	:	:	:	:	:
France	22.30	:	:	:	:
Croatia	15.23	44.17	29.82	60.71	1 055.38
Italy	19.47	78.39	44.58	:	509.10
Cyprus	:	:	:	:	:
Latvia	14.76	:	33.35	:	:
Lithuania	16.22	:	40.07	:	:
Luxembourg	15.60	:	138.00	122.40	:
Hungary	15.58	24.23	25.80	31.54	:
Malta	:	96.34	44.83	:	:
Netherlands	15.60	:	48.21	:	:
Austria	12.71	:	39.04	54.78	:
Poland	16.00	43.13	18.59	:	:
Portugal	18.38	69.03	59.12	19.79	365.05
Romania	16.65	60.74	60.06	30.37	:
Slovenia	16.83	:	46.11	50.15	1 200.00
Slovakia	14.63	63.91	33.33	51.05	:
Finland	16.89	:	163.70	:	:
Sweden	15.07	:	66.71	:	:
United Kingdom	17.01	:	91.67	:	:

(1) Tomatoes in the open, all qualities.

(2) Dessert apples, all varieties.

(3) Grapes for wine production.

(4) Extra virgin olive oil: prices per 100 litres.

Source: Eurostat (online data code: apri_ap_crpouta)



DATA SOURCES AND AVAILABILITY

Crop statistics

Statistics on crop products are obtained by sample surveys, supplemented by administrative data and estimates based on expert observations. The sources vary from one EU Member State to another because of national conditions and statistical practices. National Statistical Institutes or Ministries of Agriculture are responsible for data collection in accordance with EU Regulations. The finalised data sent to Eurostat are as harmonised as possible. Eurostat is responsible for establishing EU aggregates.

The statistics that are collected on agricultural products relate to more than 100 individual crop products. Information is collected for the area under cultivation (expressed in 1 000 hectares), the quantity harvested (expressed in 1 000 tonnes) and the yield (expressed in 100 kg per hectare). For some products, data at a national level may be supplemented by regional statistics at [NUTS 1](#) or [2](#) level.

Agricultural price statistics

EU agricultural price statistics (APS) are based on voluntary agreements between EUROSTAT and the Member States. The National Statistical Institutes or Ministries of Agriculture are responsible for collecting absolute prices and calculating corresponding average prices for their country, as well as for calculating price indices and periodically updating the weights. Price indices are reported quarterly and annually. Absolute prices are reported annually. The agricultural prices expressed in national currency are converted into euro by EUROSTAT using the fixed exchange rates or financial market exchange rates, in order to allow comparisons between the Member States. Eurostat is responsible for calculating indices for the EU.

4.2 Livestock and meat

Statistics on livestock and meat production (based on the slaughter of animals fit for human consumption) give some indication of supply-side developments and adjustments, which are important to monitor the CAP.

Back in 1959, the initial objective of the EU agriculture policy was to feed the EU population. Today's CAP has evolved substantially since these early efforts and is striving to tackle new challenges in search of a fairer and greener more competitive agriculture. The former policy need for production statistics for market monitoring by the European Commission has evolved, with the Single Common Organisation of the Market, towards market transparency for all actors and EU citizens, contributing to feedback on the market signals, for meat as for the other agricultural products.

In order to limit uncertainty, EU institutions in charge of market support interpret the market signals using livestock numbers for their forecasts. The number of breeders on the one hand (for dairy or meat production) and animal stocks being grown and fattened on the other, contribute to preparing measures that will ensure a more stable — or at least more secure — market, benefiting to both consumers and farmers.

The European Commission has been active in harmonising animal health measures and systems of disease surveillance, diagnosis and control; it has also developed a legal framework for trade in live animals and animal products. Ensuring the high quality of food is one of the various challenges to be met in order to secure the food supply of EU citizens.

Livestock population

In 2015, Spain, Germany, France, the United Kingdom and Italy held the largest populations of livestock in the EU-28. The highest numbers of [pigs](#) were recorded in Spain and Germany (28.4 and 27.7 million head respectively), [bovines](#) in France (19.4 million head), and [sheep](#) in the United Kingdom (23.1 million head) (see Table 4.4).



Table 4.4: Livestock population, 2015
(million head)

	Bovine animals	Pigs	Sheep	Goats
EU-28	89.2	148.7	85.5	12.5
Belgium	2.5	6.4	:	:
Bulgaria	0.6	0.6	1.3	0.3
Czech Republic	1.4	1.6	:	:
Denmark	1.6	12.7	:	:
Germany	12.6	27.7	1.6	0.1
Estonia	0.3	0.3	:	:
Ireland	6.4	1.5	3.3	:
Greece	0.6	0.9	8.9	4.0
Spain	6.2	28.4	16.5	3.0
France	19.4	13.3	7.1	1.2
Croatia	0.5	1.2	0.6	0.1
Italy	6.2	8.7	7.1	1.0
Cyprus	0.1	0.3	0.3	0.2
Latvia	0.4	0.3	0.1	0.0
Lithuania	0.7	0.7	0.1	0.0
Luxembourg	0.2	0.1	:	:
Hungary	0.8	3.1	1.2	0.1
Malta	0.0	0.0	0.0	0.0
Netherlands	4.3	12.5	1.0	0.5
Austria	2.0	2.8	0.4	0.1
Poland	5.8	10.6	:	:
Portugal	1.6	2.2	2.0	0.4
Romania	2.1	4.9	9.8	1.4
Slovenia	0.5	0.3	:	:
Slovakia	0.5	0.6	0.4	0.0
Finland	0.9	1.2	:	:
Sweden	1.4	1.4	0.6	:
United Kingdom	9.8	4.4	23.1	0.1
Iceland	0.1	0.0	:	:
Montenegro	0.1	0.0	0.2	0.0
Serbia	0.9	3.3	1.8	0.2
Turkey	14.1	:	31.5	10.4
FYR of Macedonia	0.3	0.2	0.7	0.1

Note: The EU aggregate for sheep and goats corresponds to the sum of the Member States for which data are available. This includes all Member States with a significant number of animals.

Source: Eurostat (online data codes: apro_mt_lscat1, apro_mt_lspig, apro_mt_lssheep and apro_mt_lsgoat)

Meat production

While 'veal' reflects slaughtering of bovine animals younger than one year (calves and young [cattle](#)), 'beef' reflects slaughtering of older bovine animals. Beef is mainly produced from cattle breeds grown specifically for their meat but it can also come from dairy cattle. Male calves from [dairy mothers](#) are of no use for producing milk. Their growth potential for producing beef meat is insufficient and most of them are used for veal production. Notably, the end of milk quotas on 31 March 2015 led to increased cow slaughter (4%) reflecting the abandonment of dairy production by some of the smallest farms, while a strong expansion of the dairy herd in both 2014 and 2015 was observed for the largest ones. The cow herd also grew as a result of favourable feed prices and demand for high-quality beef meat.

Close to two thirds of the bovine meat produced in the EU-28 derived from either bulls (32%) or cows (30%) in 2015 (see Table 4.5). In many EU Member States that proportion was even higher. In Ireland and the United Kingdom a majority of the beef (69%) produced in 2015 came from [heifers](#) (over one-year old females that did not calve) and [bullocks](#) (over one-year old castrated males).

France (19.1%), Germany (14.8%) and the United Kingdom (11.6%) accounted for almost half (46%) of the total EU-28 beef production in 2015 and, in each of those countries, production was higher in 2015 than it was a year earlier (see Table 4.6). The rate of growth of beef production was highest in Romania (52%), while both in Hungary and Lithuania beef production grew at a rate of 14% between 2014 and 2015, distinctly above the EU-28 growth rate of 4%.



Table 4.5: Production of bovine meat, 2015
(1 000 tonnes of carcass weight)

	Total	Calves and young cattle	Heifers	Cows	Bullocks	Bulls
EU-28 (¹)	7 590.4	987.7	1 126.0	2 297.5	715.5	2 461.7
Belgium	267.9	59.0	2.8	126.7	0.5	79.0
Bulgaria	5.3	0.6	0.7	2.8	:	:
Czech Republic	68.3	0.7	5.3	26.8	0.2	35.4
Denmark	120.6	27.5	14.2	51.4	2.2	25.4
Germany	1 124.0	53.0	150.0	371.0	7.0	541.0
Estonia	9.6	0.4	0.8	5.9	0.1	2.4
Ireland	564.1	0.9	159.0	102.2	228.2	73.9
Greece	41.9	7.8	4.1	7.8	0.8	21.5
Spain	633.8	228.0	87.6	109.1	2.2	206.9
France	1 451.0	211.3	147.4	626.0	71.3	395.0
Croatia	42.3	4.8	6.7	6.2	:	24.6
Italy	788.3	104.0	154.3	168.1	2.8	359.1
Cyprus	5.0	0.6	0.9	2.0	0.0	2.7
Latvia	17.4	1.1	2.5	9.4	0.0	4.4
Lithuania	44.1	0.5	6.0	20.2	:	17.5
Luxembourg	9.1	0.2	1.6	2.4	0.3	4.6
Hungary	26.4	0.6	1.9	17.9	0.0	6.0
Malta	1.0	0.0	0.1	0.4	0.0	0.6
Netherlands	382.5	225.0	2.7	129.3	0.0	25.6
Austria	228.8	6.4	33.9	66.6	10.8	111.0
Poland	471.0	3.5	63.2	141.6	0.0	262.6
Portugal	88.6	20.5	9.5	19.1	0.4	39.1
Romania	44.5	9.5	1.7	23.5	1.4	8.4
Slovenia	33.6	1.6	4.0	5.2	0.2	22.6
Slovakia	8.4	0.1	0.5	3.9	0.0	3.9
Finland	85.8	0.4	11.3	23.8	0.0	50.2
Sweden	144.0	14.3	17.7	43.4	10.7	57.9
United Kingdom	883.2	5.4	235.9	184.8	376.6	80.6
Iceland	3.5	0.0	0.4	1.3	0.0	1.4
Switzerland	141.8	48.6	16.0	48.9	4.3	24.0
Montenegro	4.1	3.1	0.0	0.5	0.0	0.4
Albania	8.7	5.2	1.9	1.5	0.3	0.0
Serbia	40.0	2.1	1.7	6.9	0.1	29.2
Turkey	97.8	0.0	16.6	75.1	0.2	5.2
Bosnia and Herzegovina	22.9	5.1	0.4	1.6	0.0	15.8

(¹) EU-28 totals include confidential data. They are rounded to keep safe the national confidential values.

Source: Eurostat (online data code: [apro_mt_pann](#))

Table 4.6: Production of meat, by species, 2015
(1 000 tonnes of carcass weight)

	Bovine animals	Pigs	Sheep	Goats	Poultry
EU-28 (¹)	7 590.4	22 957.8	725.0	44.8	13 720.0
Belgium	267.9	1 124.3	2.5	0.2	452.9
Bulgaria	5.3	60.7	:	:	101.3
Czech Republic	68.3	227.7	0.2	0.0	151.4
Denmark	120.6	1 598.7	1.8	0.0	134.4
Germany	1 124.0	5 562.0	21.0	0.0	1 511.0
Estonia	9.6	42.4	0.1	:	:
Ireland	564.1	276.4	58.4	0.0	128.0
Greece	41.9	90.0	54.9	21.9	189.6
Spain	633.8	3 895.9	116.5	9.2	1 443.3
France	1 451.0	1 967.6	80.7	6.2	1 718.0
Croatia	42.3	73.0	1.0	:	63.4
Italy	788.3	1 485.8	33.6	1.8	1 295.0
Cyprus	5.0	43.4	3.4	2.0	23.8
Latvia	17.4	29.3	0.3	0.0	29.5
Lithuania	44.1	66.2	0.1	:	95.8
Luxembourg	9.1	12.3	0.0	0.0	0.0
Hungary	26.4	409.3	0.4	0.0	478.7
Malta	1.0	5.6	0.1	0.0	3.9
Netherlands	382.5	1 456.2	13.0	1.5	:
Austria	228.8	527.8	7.0	0.8	:
Poland	471.0	1 906.1	0.6	:	2 011.0
Portugal	88.6	377.5	10.5	0.8	308.7
Romania	44.5	330.5	9.2	0.1	374.8
Slovenia	33.6	20.2	0.1	0.0	58.8
Slovakia	8.4	45.2	0.5	0.0	:
Finland	85.8	191.9	1.2	0.0	117.3
Sweden	144.0	233.5	5.1	0.0	145.8
United Kingdom	883.2	898.3	300.3	0.3	1 688.8
Iceland	3.5	6.8	10.1	0.0	8.4
Switzerland	141.8	240.1	4.4	0.7	85.0
Montenegro	4.1	0.4	0.9	0.0	0.6
Albania	8.7	8.3	2.0	1.3	4.8
Serbia	40.0	167.2	1.3	0.0	58.6
Turkey	97.8	0.0	58.6	3.7	1 962.1
Bosnia and Herzegovina	22.9	8.5	1.4	0.0	48.7

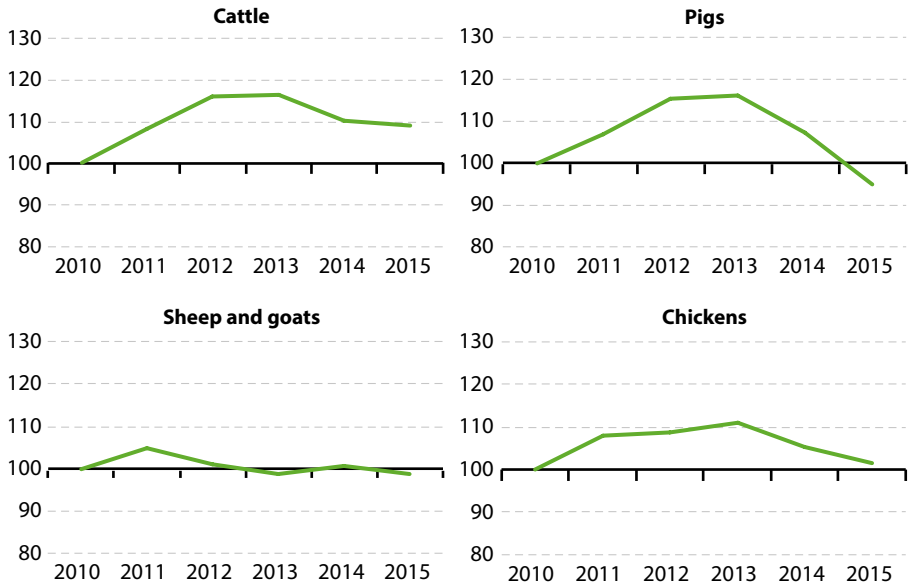
(¹) EU-28 totals include confidential data. They are rounded to keep safe the national confidential values.

Source: Eurostat (online data code: [apro_mt_pann](#))



From 2010 to 2013 the EU cattle price index rose by 16.0%. In 2015, the decline which started in 2014 continued at a slower rate (– 0.9%). However, over the period 2010–15, the index increased by 9.1% (see Figure 4.10).

Figure 4.10: Deflated price indices for selected animal outputs, EU-28, 2010–15
(2010 = 100)

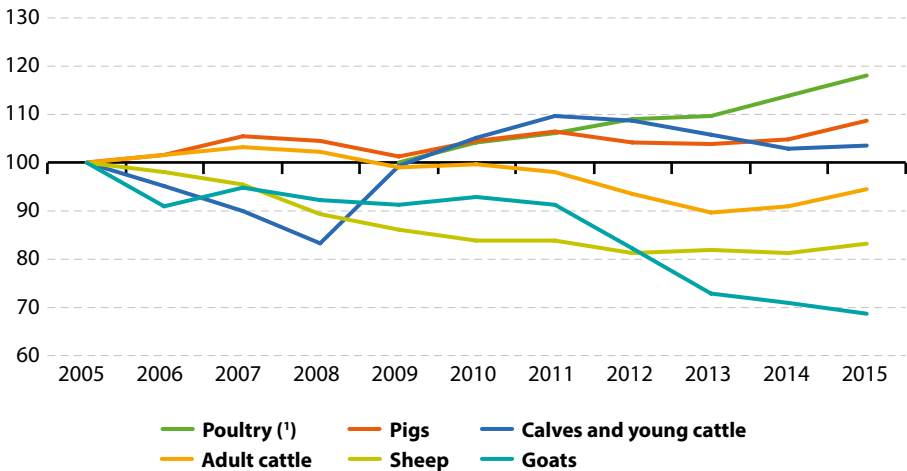


Note: Eurostat estimates.

Source: Eurostat (online data codes: [apri_pi10_outa](#) and [apri_pi10_ina](#))

Pig meat production in the EU-28, driven by the export surge of pig meat to China, low feed prices and a higher number of breeding cows, increased by 3.7% from 2014 to 2015, reaching 22.9 million tonnes (see Figure 4.11 and Table 4.6). Almost all EU Member States, except Denmark, Austria and Belgium, followed an increase in the production or a slowdown in the decline of pig production (e.g. Germany) in 2015. Germany produced around one quarter (24.2% or 5.6 million tonnes) of the EU-28's pig meat in 2015, while Spain produced one sixth (17.0% or 3.9 million tonnes) of the EU-28 total, equal to 23 million tonnes (see Figure 4.12).

Figure 4.11: Production of meat, EU-28, 2005–15
(2005 = 100)



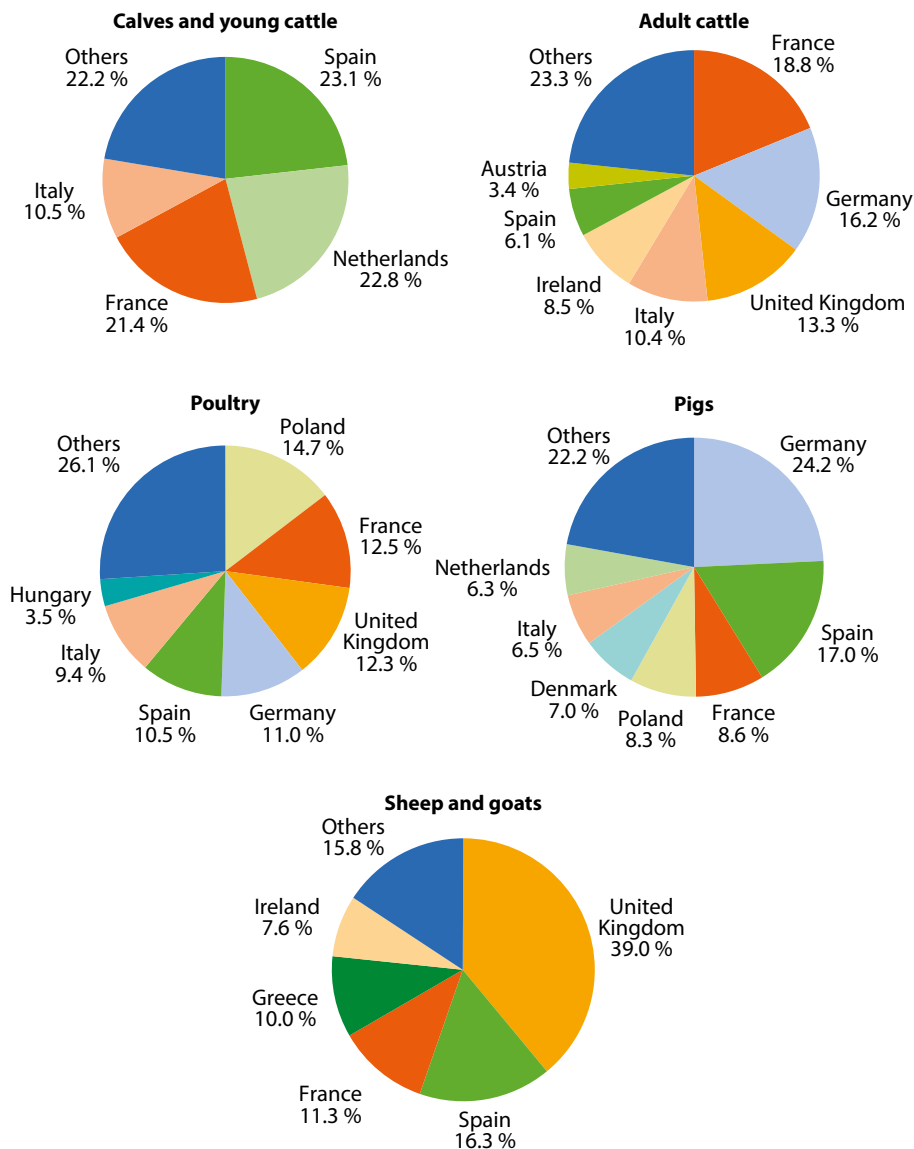
Note: Up to 2009, including 'Other slaughtering'; from 2009 onwards, excluding 'Other slaughtering'.

(¹) 2009 = 100.

Source: Eurostat (online data code: [apro_mt_pann](#))



Figure 4.12: Production of meat, 2015
(% share of EU-28 total)



Source: Eurostat (online data code: [apro_mt_pann](#))

In 2015, despite a private storage aid scheme for pig meat ⁽¹⁴⁾, the price followed a constant decline. In 2015, the pig meat price index decreased by 11.6 % compared with 2014. Over the period 2010–15, the index decreased by 5.1 %. The median price of pigs ⁽¹⁵⁾ was about EUR 110 per 100 kg.

The expansion of sheep herds in the United Kingdom and Spain combined with the Italian market's recovery from Bluetongue disease led to an increase in sheep meat production for the EU-28 of about 2.5 % from 2014 to 2015, when it reached 725 thousand tonnes. Between 2014 and 2015 goat meat production decreased by 2 % (see Figure 4.11 and Table 4.6).

The United Kingdom (39.0 %) and Spain (16.3 %) contributed with 55.4 % of total EU-28 sheep and goat meat production in 2015. The price index of sheep and goat remained at the level of the previous years, decreasing by 1.8 % compared with 2014 and, over the period 2010–15, the index decreased by 1.1 %.

Similar to the pig sector, low feed prices led to a surge in poultry meat production of 3.9 % between 2014 and 2015, continuing the upward trends in the production of this type of meat in recent years (see Figure 4.11). Poland, France, the United Kingdom, Germany and Spain each contributed between 10 and 15 % to the EU-28 production of poultry meat in 2015.

In 2015, the price index for chicken decreased by 3.4 % compared with 2014 and by 8.5 % compared with 2013. This price decrease is considered to be linked to decreased feed costs and to prices having adjusted downwards to increased production ⁽¹⁶⁾. In 2015, the median price of chicken ⁽¹⁷⁾ was EUR 94.11 per 100 kg.

⁽¹⁴⁾ http://ec.europa.eu/agriculture/newsroom/192_en.htm.

⁽¹⁵⁾ 16 Member States provided data on selling prices of pigs (EUR per 100 kg live weight).

⁽¹⁶⁾ Short-term outlook for EU arable crops, dairy and meat markets in 2016 and 2017.

⁽¹⁷⁾ 20 Member States provided data on selling prices of chickens (EUR per 100 kg live weight).



Table 4.7: Selling prices of selected animal products, 2015
(EUR per 100 kg live weight)

	Young cattle	Pigs (light)	Sheep	Goats	Chickens (live 1 st choice)
Belgium	156.80	:	:	:	90.87
Bulgaria	130.97	99.54	147.13	63.91	103.16
Czech Republic	223.62	106.38	73.32	:	86.99
Denmark	180.06	88.76	68.51	:	84.33
Germany	:	:	:	:	:
Estonia	:	:	:	:	:
Ireland	223.33	:	:	:	:
Greece	:	201.20	135.84	171.07	145.16
Spain	:	:	:	:	:
France	337.90	121.50	688.40	:	176.40
Croatia	197.50	120.58	85.68	78.95	96.94
Italy	254.27	202.64	:	:	143.25
Cyprus	:	:	:	:	:
Latvia	98.86	102.32	165.96	163.70	163.20
Lithuania	55.87	92.45	140.96	:	91.27
Luxembourg	224.00	:	:	:	363.80
Hungary	:	111.53	106.48	:	84.92
Malta	:	:	:	:	120.43
Netherlands	:	98.28	170.00	:	87.00
Austria	214.22	116.16	63.20	:	107.66
Poland	143.85	:	178.30	:	83.57
Portugal	:	:	24.72	58.84	48.63
Romania	182.41	120.57	88.41	:	90.21
Slovenia	180.95	185.57	113.91	:	107.65
Slovakia	131.00	110.00	79.00	173.00	87.20
Finland	:	:	:	:	:
Sweden	:	:	:	:	:
United Kingdom	:	141.34	223.81	:	:

Source: Eurostat (online data code: [apri_ap_anouta](#))

DATA SOURCES AND AVAILABILITY

Livestock and meat statistics

Livestock and meat statistics are collected by EU Member States under [Regulation \(EC\) No 1165/2008 of the European Parliament and of the Council of 19 November 2008](#), which covers bovine, pig, sheep and goat livestock; slaughtering statistics on bovine animals, pigs, sheep, goats and poultry; and production forecasts for beef, veal, pig meat, sheep meat and goat meat.

[Livestock surveys](#) cover sufficient agricultural holdings to account for at least 95 % of the national livestock population, as determined by the last survey on the structure of agricultural holdings.

Bovine and pig livestock statistics are produced twice a year, with reference to a given day in May/June and a given day in November/December. Those EU Member States whose bovine animal populations are below 1.5 million head or whose pig populations are below 3.0 million head may produce these statistics only once a year, with reference to a given day in November/December. The November/December results are available for all EU Member States and are used in this chapter.

Sheep livestock statistics are only produced once a year, with reference to a given day in November/December, by those EU Member States whose sheep populations are 500 000 head or above; the same criteria and thresholds apply for statistics on goat populations.

Statistics on the slaughtering of animals in slaughterhouses are produced monthly by each EU Member State, the reference period being the calendar month. Statistics on slaughtering carried out other than in slaughterhouses is produced annually, the reference period being the calendar year.

Agricultural price statistics

EU agricultural price statistics (APS) are based on voluntary agreements between Eurostat and the Member States.

The National Statistical Institutes or Ministries of Agriculture are responsible for collecting absolute prices and calculating corresponding average prices for their country, as well as for calculating price indices and periodically updating the weights. Price indices are reported quarterly and annually. Absolute prices are reported annually. The agricultural prices expressed in national currency are converted into euro by Eurostat using the fixed exchange rates or financial market exchange rates, in order to allow comparisons between the Member States. Eurostat is responsible for calculating indices for the EU.



4.3 Milk

For over 30 years, the EU dairy sector has operated within the framework of milk quotas, which were introduced in 1984 to address the problem of surplus production. The quota system expired in April 2015.

Milk production

After five years of a preparatory increase in their level ('soft landing'), milk quotas disappeared on 1 April 2015 ⁽¹⁸⁾. Extreme changes reported from one year to another are rare in the agricultural sector. However, growth in milk production between 2014 and 2015, the year when milk quotas disappeared, resulted from several combined factors: growth of the most productive dairy herds, contraction of the less productive ones and contrasted national dynamics.

In the EU-28, production of raw cows' milk increased slightly (+ 0.8%), the price of farm milk fell and the number of dairy cows remained stable (+ 0.2%). Nevertheless, at national level, the dairy herd grew strongly in a few countries (+ 9.9% in Ireland and + 6.6% in the Netherlands) while it contracted in 18 Member States. Belgium, Denmark and the United Kingdom showed similar, but less marked, growths.

Cows' milk production followed the national herd trends (+ 14% in Ireland and + 5.3% in the Netherlands). In many countries, the contractions in the herds were compensated by an increase in productivity ⁽¹⁹⁾. Production decreased in only seven Member States. The increase in cow milk productivity was the most spectacular in Greece, where the decrease by 18% in the dairy cow herd did not impact on milk production, although it concerned a small herd.

The apparent milk yield per dairy cow increased by 1.5% in the EU-28 from 2014 to 2015, almost reaching 6 900 kg per dairy cow. In the Czech Republic, Spain, Hungary and Poland, the apparent milk yield grew by 320 to 420 kg per head, reflecting also development of the most productive farms and the ending of milking activity in the less productive ones, with various national balances.

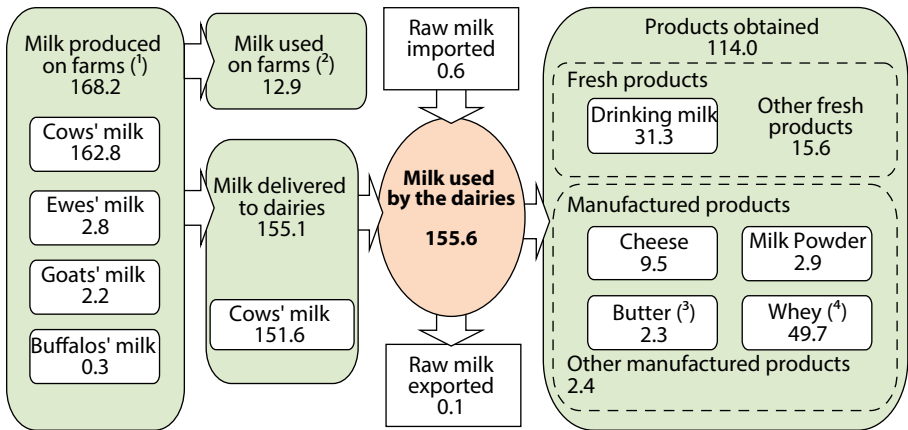
In 2015, 168.2 million tonnes of milk were produced in the EU-28

In 2015 in the EU-28, the farms produced approximately 168.2 million tonnes of milk (see Figure 4.13). Production of cows' milk was 162.8 million tonnes (96.8% of all milks produced) while milk from ewes, goats and buffalos represented 5.3 million tonnes (3.1%). The main part of milk produced was delivered to the dairies (155.1 million tonnes) and the remaining amount (12.9 million tonnes) was used otherwise on the farms, i.e. processed, own-consumed, sold directly to consumers or used as feed.

⁽¹⁸⁾ See Statistics Explained article on 'Milk and milk products — 30 years of quotas'.

⁽¹⁹⁾ Short-term outlook for EU arable crops, dairy and meat markets in 2016 and 2017.

Figure 4.13: Production and use of milk, EU-28, 2015
(million tonnes)



(1) Inconsistency with the sum of milk by species are due especially to inconsistency in data from the Netherlands.

(2) In whole milk equivalent.

(3) Includes other yellow fat dairy products; expressed in butter equivalent.

(4) In liquid whey equivalent.

Source: Eurostat (online data codes: [apro_mk_pobta](#) and [apro_mk_farm](#))

The apparent milking yields per dairy cow varied considerably amongst EU regions

Table 4.8 displays the NUTS level 2 regions with the highest cows' milk production. Diversity in their level of productivity is reflected by the apparent yield per dairy cow (data on dairy cows only available at NUTS level 1 in Germany and the United Kingdom).

There were stark contrasts in the apparent milk yield per dairy cow at regional level in 2015. It was highest, between 9 000 kg and 10 500 kg per head, in several regions of Denmark, Spain and Portugal and in Lombardia (Italy) and Thessalia (Greece), but with a small herd in the last case. Milk yield was lowest, from 1 200 kg to 2 500 kg per head, in five Italian regions.

Amongst the 261 NUTS level 2 regions in the EU, 17 accounted for one third of the milk production: Denmark (1), Germany (4), Ireland (1), Spain (1), Italy (2), France (3), the Netherlands (2), Poland (2) and the United Kingdom (1).



Table 4.8: Production of cows' milk on farms at national and regional level, by level of production, 2015

	Cows' milk production on farms		Number of dairy cows (1 000 head)	Apparent yield (kg/head)	Number of NUTS 2 regions (1)	NUTS 2 region with the highest level of cows' milk production (1)	Regional cows' milk production on farms		Regional number of dairy cows (1 000 head)	Regional apparent yield (kg/head)
	(1 000 tonnes)	(1 000 head)					(1 000 tonnes)	(% of nat. total)		
EU-28	162 768	23 595	6 898	248	—	—	—	—	—	—
Belgium	3826	529	7 236	11	BE25 — Prov. West-Vlaanderen	724	19	95	7 600	
Bulgaria	1 028	283	3 633	6	BG42 — Yuzhen tsentralen	295	29	86	3 411	
Czech Republic	3 026	369	8 199	8	CZ06 — Jihovýchod	718	24	86	8 379	
Denmark	5 336	570	9 361	5	DK03 — Syddanmark	2 096	41	237	8 844	
Germany	32 671	4 285	7 625	16	DE2 — Bayern	8 122	25	1 208	6 723	
Estonia	783	91	8 639	1	No regional breakdown	—	—	—	—	
Ireland	6 634	1 240	5 351	2	IE02 — Southern and Eastern	5 250	80	985	5 328	
Greece	770	111	6 937	22	EL52 — Kentriki Makedonia	359	47	51	7 088	
Spain	7 029	844	8 328	19	ES11 — Galicia	2 722	39	360	7 556	
France	25 851	3 661	7 061	31	FR52 — Bretagne	5 588	22	751	7 441	
Croatia	694	152	4 566	4	HR04 — Kontinentalna Hrvatska	655	94	139	4 705	
Italy	11 426	2 057	5 555	23	ITC4 — Lombardia	4 502	39	483	9 321	
Cyprus	165	26	6 312	1	No regional breakdown	—	—	—	—	
Latvia	975	162	6 006	1	No regional breakdown	—	—	—	—	
Lithuania	1 735	301	5 773	1	No regional breakdown	—	—	—	—	
Luxembourg	346	49	7 048	1	No regional breakdown	—	—	—	—	
Hungary	1 941	251	7 734	7	HU32 — Észak-Alföld	462	24	64	7 215	
Malta	42	6	6 526	1	No regional breakdown	—	—	—	—	
Netherlands	13 331	1 717	7 764	12	NL12 — Friesland	2 402	18	309	7 773	
Austria	3 538	534	6 624	9	AT31 — Oberösterreich	1 118	32	166	6 725	
Poland	13 236	2 134	6 202	16	PL12 — Mazowieckie	2 876	22	470	6 114	
Portugal	2 014	243	8 278	7	PT11 — Norte	784	39	87	9 030	
Romania	3 981	1 191	3 343	8	RO21 — Nord-Est	995	25	285	3 486	
Slovenia	62	113	5 598	4	SI03 — Vzhodna Slovenija	418	66	78	5 354	
Slovakia	931	139	6 685	4	SK02 — Západné Slovensko	497	53	61	8 174	
Finland	2 437	282	8 634	8	FI1D — Pohjois- ja Itä-Suomi	1 342	55	151	8 867	
Sweden	2 933	337	8 709	8	SE21 — Småland med öarna	850	29	97	8 765	
United Kingdom	15 457	1 918	8 059	12	UKK — South West	3 576	23	448	7 982	
Turkey	16 934	5 509	3 074	26	TR52 — Konya, Karaman	1 021	6	

(1) Germany and United Kingdom: NUTS 1.

Source: Eurostat (online data codes: agr_c_milkpr and agr_r_animal)

Dairies in Germany collected over one fifth of all cows' milk collected in the EU

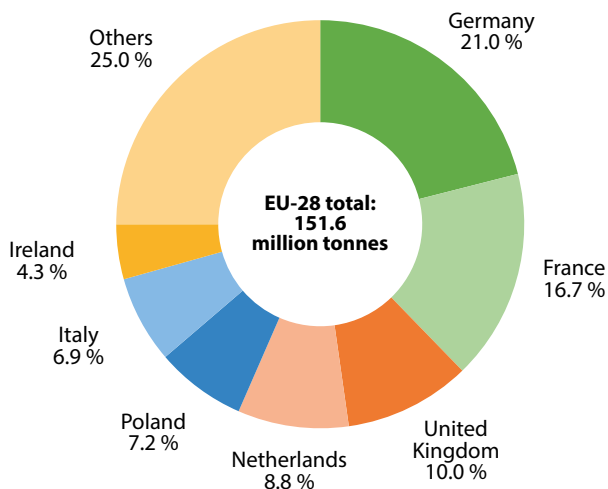
Over one fifth (21.0 %) of all the cows' milk collected by EU-28 dairies in 2015 was collected in Germany, while slightly more than a sixth of the total (16.7 %) was collected by dairies in France (see Figure 4.14).

In 2015, the volume of sheep, goat and buffalo milk collected was 3.5 million tonnes, 2.3 % of the total milk collection by dairies. Spain collected the highest quantity of milk from these species (1 004 thousand tonnes), which represented 14.8 % of the total milk collected in Spain. Greece also produced about 678 thousand tonnes of milk from animals other than cows, representing 52.9 % of the total milk locally collected.

In the EU-28, Spain (28.5 %), France (21.2 %), Greece (19.2 %) and Italy (17.8 %) collected more than 86 % of the milk collected from these other species (see Table 4.9).

Figure 4.14: Collection of cows' milk by dairies, 2015

(% share of EU-28 total)



Source: Eurostat (online data code: [apro_mk_pobta](#))



Table 4.9: Collection of milk by dairies, 2015
(1 000 tonnes)

	Milk collected from cows	Milk collected from other animals
EU-28	151 588	3 526
Belgium	3 988	17
Bulgaria	489	31
Czech Republic	2 482	0
Denmark	5 278	0
Germany	31 879	13
Estonia	720	0
Ireland	6 585	0
Greece	603	678
Spain	6 800	1 004
France	25 323	746
Croatia	513	7
Italy	10 500	626
Cyprus	173	47
Latvia	808	0
Lithuania	1 438	0
Luxembourg	333	0
Hungary	1 536	0
Malta	42	0
Netherlands	13 331	241
Austria	3 103	18
Poland	10 874	2
Portugal	1 935	42
Romania	919	48
Slovenia	554	0
Slovakia	865	7
Finland	2 394	0
Sweden	2 933	0
United Kingdom	15 191	0
Norway	1 570	21
Switzerland	3 457	0
Serbia	862	0
Turkey	8 934	99

Source: Eurostat (online data code: [apro_mk_pobta](#))

Milk products

The milk delivered to dairies is processed into a number of fresh and manufactured products. Dairy products are recorded in terms of weight. It is thus difficult to compare the various products (for example, fresh milk and milk powder). The volume of whole or skimmed milk used in the dairy processes provides more comparable figures ⁽²⁰⁾.

In 2015, 151.1 million tonnes (97.1 %) of the milk available to the dairy sector was processed ⁽²¹⁾ (see Table 4.10). Some 54.1 million tonnes of whole milk (36 % of whole milk) and 14.4 million tonnes of skimmed milk were used to produce 9.5 million tonnes of cheese. Producing 2.3 million tonnes of butter and yellow products required 45.6 million tonnes of whole milk (30 % of whole milk) and generated 42.3 million tonnes of skimmed milk. The skimmed milk generated mainly during the fabrication of butter and cream was used for processing into other dairy products (see Figure 4.15). Some 16.4 million tonnes of whole milk and 14.8 tonnes of skimmed milk became drinking milk with a similar volume (31.3 million tonnes). Finally, 25.8 million tonnes of raw milk were dried into 2.9 million tonnes of milk powder.

In 2015, as shown in Table 4.11, the United Kingdom produced over one fifth (22.0 %) of the 31.3 million tonnes of drinking milk in the EU-28, for only one tenth of the raw milk produced. France, Germany, Italy, the Netherlands and Poland produced 70.0 % of the 9.5 million tonnes of cheese in the EU-28.

Table 4.10: Utilisation of milk and dairy products obtained, EU-28, 2015
(million tonnes)

	Utilisation of milk		Product obtained
	Skimmed	Whole	
Total	0.2	150.9	–
Sub-total of processes generating skimmed milk	–60.4	67.0	–
Butter and yellow products	–42.3	45.6	2.3
Cream	–17.4	19.5	2.7
Other fresh products	–0.6	1.9	2.6
Sub-total of processes consuming skimmed milk	60.5	83.9	–
Drinking milk	14.8	16.4	31.3
Powder products	21.0	4.8	2.9
Concentrated milk	0.8	1.9	1.2
Acidified milk	2.7	6.2	8.1
Buttermilk	0.5	0.1	0.6
Cheese	14.4	54.1	9.5
Milk based drinks	1.0	0.6	1.7
Caseins	5.3	0.0	0.6

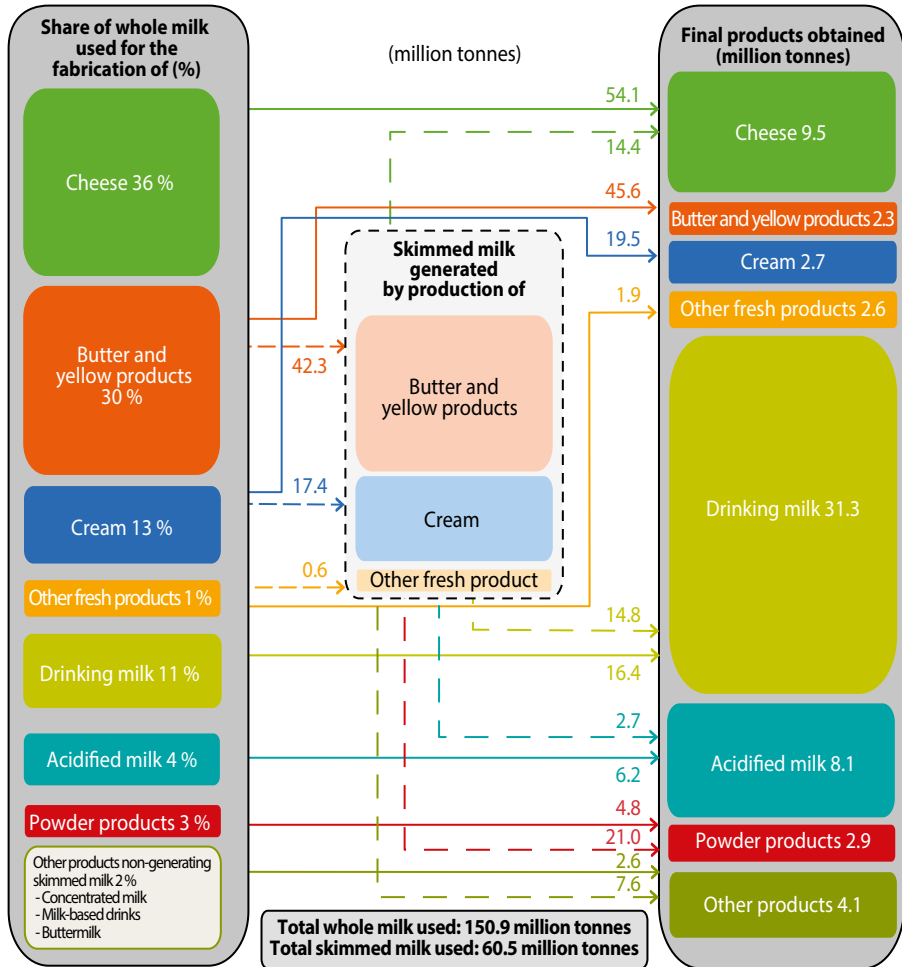
Source: Eurostat (online data codes: [apro_mk_pobta](#) and [apro_mk_farm](#))

⁽²⁰⁾ These three dimensions (quantity of products, quantities of whole and skimmed milk used) reflect the material balance of the valuable milk components, especially content of fat (in whole milk) and protein (in milk used).

⁽²¹⁾ The rest (2.9 %) is non processed milk, which is delivered to the national non-dairy industry (agri-food, feedstuff industries etc.), returned to farms or lost.



Figure 4.15: Utilisation of milk and dairy products obtained, EU-28, 2015



Source: Eurostat (online data codes: apro_mk_pobta and apro_mk_farm)

Strong decrease in the EU price index for milk

In 2015, the increase in milk production related to the disappearance of milk quotas, led to a marked decrease in the price index for milk. The index went down by 17.2 % compared with 2014 and by 12.4 % compared with the average of the previous 5 years (see Figure 4.16).

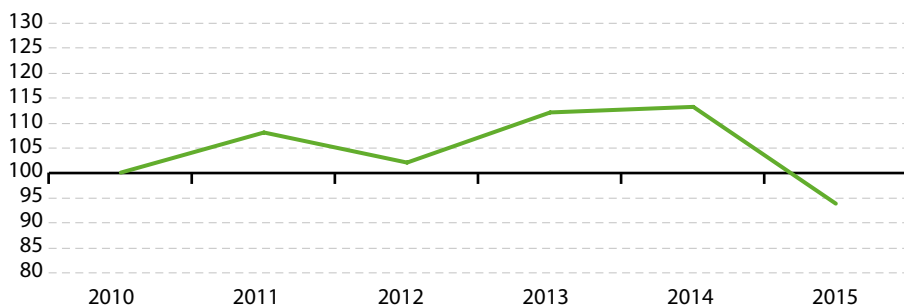
Table 4.11: Dairy products obtained from milk, 2015
(1 000 tonnes)

	Drinking milk	Cream for direct consumption	Milk powder	Butter	Cheese
EU-28	31 348	2 720	2 900	2 300	9 530
Belgium	723	222	206	49	101
Bulgaria	77	2	:	1	77
Czech Republic	647	61	36	29	123
Denmark	519	70	123	127	391
Germany	4 860	566	676	509	1 900
Estonia	96	24	4	5	43
Ireland	523	23	:	:	207
Greece	439	13	0	1	188
Spain	3 687	117	48	42	465
France	3 423	448	532	444	1 950
Croatia	297	27	:	5	34
Italy	2 511	124	:	96	1 207
Cyprus	64	3	0	0	23
Latvia	56	37	:	7	38
Lithuania	94	3	31	15	101
Luxembourg	:	:	0	:	:
Hungary	462	5	:	6	80
Malta	:	:	0	0	:
Netherlands	560	10	337	217	845
Austria	760	73	11	33	185
Poland	1 639	253	178	188	773
Portugal	748	20	28	32	73
Romania	260	67	3	11	82
Slovenia	155	12	:	2	15
Slovakia	284	32	5	9	36
Finland	698	58	:	63	88
Sweden	829	112	89	60	90
United Kingdom	6 883	326	174	150	403
Norway	423	25	12	19	98
Switzerland	455	89	96	48	189
Serbia	239	30	4	5	41
Turkey	1 379	32	112	52	666

Source: Eurostat (online data code: [apro_mk_pobta](#))



Figure 4.16: Deflated prices indices for milk, EU-28, 2010–15
(2010 = 100)



Note: Eurostat estimates.

Source: Eurostat (online data code: [agri_pi10_outa](#))

DATA SOURCES AND AVAILABILITY

Milk and milk product statistics are collected under [Decision 1997/80/EC](#), implementing [Directive 1996/16/EC](#). They cover farm production and the utilisation of milk, as well as the description (structure), collection and production activity of dairies.

Due to the small number of dairy enterprises, national data are often subject to statistical confidentiality. Thus, providing EU totals in this context is a challenge and some of the information presented in the analysis is based on partial data for the Member States (which may exclude several countries); each exception is clearly footnoted under the tables and figures presented. On the one hand, statistics from these few enterprises provide early estimates on trends. On the other, a complete overview of the dairy sector requires detailed information from farms and this means that the final figures on milk production are only available at an EU level about one year after the reference year.

Dairy products are recorded in terms of weight. It is thus difficult to compare the various products (for example, fresh milk and milk powder). The volume of whole or skimmed milk used in the dairy processes provides more comparable figures.

5

Agriculture and environment



5.1 Pollution risks

Agriculture has traditionally been the major land use activity in Europe. Over the years farming had to become more intensive in order to increase food production and land productivity, to meet the needs of society and consumers' expectations of food availability. This profound shift also has environmental impacts, especially through the increased use of nutrients in agricultural production. The nutrient use can be monitored by looking at indicators such as the 'gross nutrient balance'.

Gross nutrient balance

The gross nutrient balance provides an insight into the links between the use of agricultural nutrients, their losses to the environment and the sustainable use of soil nutrients resources.

It consists of the [gross nitrogen balance](#) and the [gross phosphorus balance](#) and is intended to be an indicator of the potential threat of surplus or deficit of two important soil and plant nutrients in agricultural land. It shows the link between agricultural activities and the environmental impact, identifying the factors determining the nutrients surplus or deficit and the trends over time.

Nitrogen (N) and phosphorus (P) are key elements for plants to grow. Their presence or absence in soils can be an indicator of land use intensity and soil quality. Intensive farming is a balancing act: excessive [fertiliser](#) application can cause pollution of the environment, whereas insufficient fertiliser to replace nitrogen and phosphorus lost through intensive cropping can lead to soil degradation and loss of fertility. Furthermore, phosphorus is a limited resource of increasing concern in Europe. As a result, the EU is considering strategic action to use phosphorus more sustainably, for example by improving application and sewage treatment techniques, recycling from organic sources such as manure, [sewage sludge](#) and compost and introducing the concepts of a circular economy.

A persistent surplus of nutrients indicates potential environmental problems, such as [ammonia](#) emissions (contributing to [acidification](#), [eutrophication](#) and atmospheric particulate pollution), nitrous oxide emissions (a potent [greenhouse gas](#)), or nitrogen and phosphorus leaching (resulting in pollution of drinking water and eutrophication of surface waters). On the other hand, a persistent deficit in nutrients indicates the risk of a decline in soil fertility.

The gross nutrient balance can only indicate the total potential risk to the environment (air, water and soil), as the actual risk depends on many factors including climate conditions, soil type and soil characteristics, soil saturation and management practices such as drainage, [tillage](#), irrigation, etc.

The input side of the balance includes all nitrogen and phosphorus supplied to the soil. The output side of the balance presents the nutrient uptake by [harvested](#) (and grazed) crops and fodder and crop residues removed from the field, i.e. the agricultural production from the soil. Sustainability could be defined as preserving and/or improving the level of production without degrading the natural resources. The harvest and grazing of crops and fodder means that nitrogen and phosphorus are removed from the soil. In order to sustain soil fertility, this removal of nutrients in principle should be compensated by supplying the same amount of nitrogen and phosphorus. Fertilisers and manure are therefore necessary to supply the crops with the nutrients they need for growing.



However, there are certain complications. Not all of the nutrients in fertilisers and manure reach the plant; part of the nitrogen is lost due to volatilisation in [animal housing](#), storage and with the application to the land. Organic nitrogen in manure needs to first be mineralised before it is available to the plant, which means that part of the nitrogen does not become available to the plant in the year when it is applied. [Yield](#) and therefore also the uptake of nutrients by crops is determined not only by inputs but also by uncontrollable factors such as climate. Furthermore, the risk of nutrient leaching and run-off depends not only on the excess nutrients but also on the type of soil, precipitation rates, soil saturation, temperature, etc.

Phosphorus, contrary to nitrogen, is a finite resource (in the sense that phosphate ores are becoming depleted). After being used in agriculture, the mineral ultimately becomes unavailable for reuse due to the sewage treatment techniques widely in use, or is be reused only to a very limited extent. The sludge from sewage treatment plants is largely [incinerated](#) or composted but is not used on farm lands due to risk for heavy metals and other chemicals and is thereby removed from the agricultural cycle. Phosphorus builds up in agricultural soils, but is through erosion ending up in the sediments of lakes, coastal seas and the ocean. The natural recycling from ocean sediments takes place during periods of millions of years. The EU is almost entirely dependent on imports of phosphate; very little is mined in the EU. Import takes place in two forms: [mineral fertilisers](#) and animal feed. It is important to note that the EU, contrary to what is usually assumed, is not self-sufficient in food production due to this phosphate dependency. A sustainable use of phosphorus is needed to ensure food supply in the future and to reduce negative impacts of waste of natural resources on the environment. These include amongst others appropriate fertilisation practices, reduction of imbalances in phosphorus inputs and outputs to agricultural soils, recovery of phosphorus from sewage for fertilisation.

Table 5.1 and Table 5.2 show the gross nutrient balance per hectare (ha) of [utilised agricultural area \(UAA\)](#) in EU-28 Member States as well as Norway and Switzerland during the 1995–2014 period. Due to the different methods of calculation used in different countries, the figures are not directly comparable between countries but give an indication of the nutrient balance's relative importance and can be followed for a given country over time.

Table 5.1: Gross nitrogen balance, 1995, 2000, 2005 and 2010–14
(kg N per ha of utilised agricultural area)

	1995	2000	2005	2010	2011	2012	2013	2014
EU-28	:	63	54	51	51	52	51	:
Belgium	254	190	146	142	143	143	138	132
Bulgaria	29	28	25	14	12	24	16	28
Czech Republic	56	65	71	67	79	88	76	63
Denmark	156	132	111	90	88	83	87	80
Germany	109	110	86	83	99	86	87	:
Estonia	:	:	21	31	32	28	23	22
Ireland	72	64	57	34	23	29	44	:
Greece	90	82	72	71	52	50	56	59
Spain	35	50	45	44	35	39	36	49
France	60	64	56	46	57	44	50	50
Croatia	:	122	110	81	94	88	51	58
Italy	68	71	63	59	63	80	70	66
Cyprus	207	186	152	191	199	184	179	194
Latvia	9	11	16	29	28	24	28	28
Lithuania	26	31	35	44	40	29	31	25
Luxembourg	166	157	129	127	138	125	127	129
Hungary	:	41	20	36	30	43	38	28
Malta	222	257	233	169	132	141	147	147
Netherlands	321	247	198	167	159	157	146	140
Austria	41	34	23	35	28	38	41	36
Poland	33	44	45	52	53	48	55	40
Portugal	48	46	45	42	40	42	40	43
Romania	15	13	12	-1	-11	16	4	-1
Slovenia	64	86	44	46	51	58	70	43
Slovakia	43	42	35	46	34	42	49	46
Finland	79	55	48	56	49	46	45	47
Sweden	57	50	41	38	37	27	30	32
United Kingdom	84	77	67	66	64	65	66	64
Norway	104	90	98	84	99	91	104	94
Switzerland	73	62	60	65	61	58	61	:

Note: Eurostat estimates for EU-28, Belgium, Bulgaria, Denmark, Greece, Spain, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Austria, Romania and Slovakia. Estimates for 2012–14 for Sweden.

Source: Eurostat (online data code: [aei_pr_gnb](#))



Table 5.2: Gross phosphorus balance, 1995, 2000, 2005 and 2010–14
(kg P per ha of utilised agricultural area)

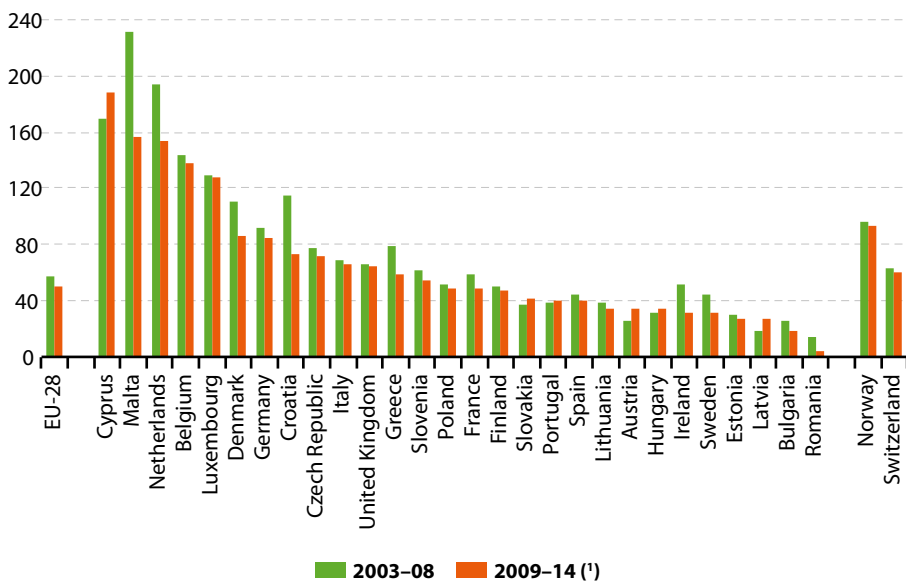
	1995	2000	2005	2010	2011	2012	2013	2014
EU-28	:	6	4	2	2	2	2	:
Belgium	28	20	11	5	5	6	6	5
Bulgaria	-2	-1	-2	-5	-6	-4	-9	-6
Czech Republic	3	2	0	-2	-3	-1	0	-1
Denmark	15	13	11	8	7	7	8	7
Germany	9	5	2	1	3	1	2	:
Estonia	:	:	-7	-6	-5	-6	-8	-7
Ireland	12	9	7	2	1	2	4	:
Greece	7	5	3	2	-1	-1	2	0
Spain	6	6	7	4	3	5	3	5
France	11	9	5	1	2	1	2	1
Croatia	:	19	12	7	6	7	3	8
Italy	7	7	0	-1	-3	-2	-2	-1
Cyprus	28	32	28	31	32	30	29	32
Latvia	1	0	2	2	2	1	3	2
Lithuania	:	6	13	6	5	7	2	1
Luxembourg	:	9	7	4	5	4	4	4
Hungary	:	0	-2	-2	-3	0	-1	-2
Malta	39	52	45	33	26	27	30	30
Netherlands	30	23	16	12	7	3	4	1
Austria	5	4	1	1	0	2	4	2
Poland	2	4	5	5	6	3	4	1
Portugal	12	9	11	6	5	5	4	5
Romania	1	1	1	-1	-3	1	-2	-2
Slovenia	11	15	5	3	3	4	6	1
Slovakia	2	2	0	0	-2	0	0	-2
Finland	18	8	7	5	4	4	4	4
Sweden	4	2	1	-2	-2	-2	-2	-3
United Kingdom	9	6	6	4	4	4	4	3
Norway	14	12	13	9	11	10	11	9
Switzerland	7	3	2	2	2	2	3	:

Note: Eurostat estimates for EU-28, Belgium, Bulgaria, Denmark, Greece, Spain, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Austria, Romania and Slovakia. Estimates for 2012–14 for Sweden.

Source: Eurostat (online data code: [aei_pr_gnb](#))

In most EU Member States, with the exception of Cyprus, Austria, Latvia, Slovakia, Hungary and Portugal, the average gross nitrogen balance (GNB) per ha of UAA between 2009 and 2014 was lower than between 2003 and 2008 (see Figure 5.1). In the 2009–14 period, the average GNB per ha was the highest in Cyprus (187.5 kg N/ha), followed by Malta (156.0 kg N/ha), the Netherlands (154.3 kg N/ha), Belgium (137.8 kg N/ha) and Luxembourg (127.7 kg N/ha). By contrast, the nitrogen surplus was the lowest in Romania (4.2 kg N/ha), Bulgaria (19.0 kg N/ha), Latvia (26.5 kg N/ha) and Estonia (26.8 kg N/ha).

Figure 5.1: Gross nitrogen balance, averages 2003–08 and 2009–14
(kg N per ha of utilised agricultural area)



Note: Eurostat estimates for EU-28, Belgium, Bulgaria, Denmark, Greece, Spain, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Austria, Romania and Slovakia. Estimates for 2012–14 for Sweden.

(1) EU-28, Germany, Ireland and Switzerland: 2009–13.

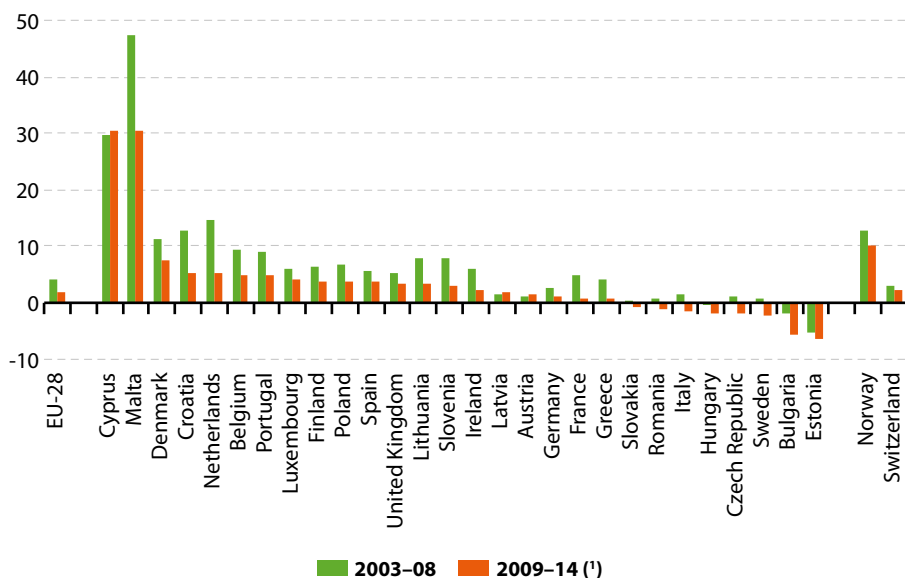
Source: Eurostat (online data code: [aei_pr_gnb](#))



Average gross phosphorus balance (GPB) per ha of UAA between 2009 and 2014 decreased compared to the 2005–08 period in all EU Member States except Cyprus, Latvia and Austria. The highest average GPB in 2009–14 was in Cyprus (30.5 kg P/ha), Malta (30.3 kg P/ha), Norway (10.0 kg P/ha) and Denmark (7.3 kg P/ha). The biggest gross phosphorus deficit was estimated for Estonia (with – 6.3 kg P/ha) and Bulgaria (– 5.7 kg P/ha) (see Figure 5.2).

The gross nitrogen balance for the EU-28 aggregate decreased between 2000 and 2013 from 63 to 51 kg nitrogen per ha of UAA, whereas the gross phosphorus balance in the same period decreased from 6 to 2 kg phosphorus per ha of UAA.

Figure 5.2: Gross phosphorus balance, averages 2003–08 and 2009–14
(kg P per ha of utilised agricultural area)



Note: Eurostat estimates for EU-28, Belgium, Bulgaria, Denmark, Greece, Spain, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Austria, Romania and Slovakia. Estimates for 2012–14 for Sweden.

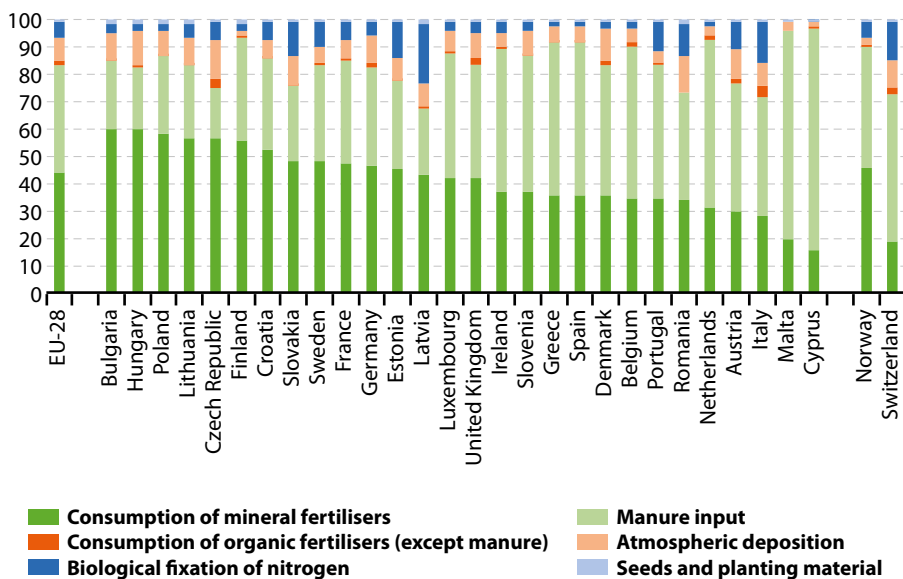
(¹) EU-28, Germany, Ireland and Switzerland: 2009–13.

Source: Eurostat (online data code: aei_pr_gnb)

Nutrient inputs

The input side of the gross nitrogen balance consists of nitrogen supplied in mineral fertilisers and manure, other **organic fertilisers** (excluding manure), seeds and planting material, atmospheric deposition and biological nitrogen fixation (see Figure 5.3). Mineral fertilisers and manure accounted for over 83.2% of the average nitrogen input in the EU-28 between 2009 and 2014. The level of atmospheric deposition is dependent on ammonia (NH₃) (of which agriculture is the main source) and nitrogen oxides (NO and NO₂) emissions (where the contribution of agriculture is not significant) as well as climate conditions (transport through air to other regions). Atmospheric deposition on average accounted for 8.3%, whereas the biological nitrogen fixation was 6.2% of total inputs in the EU-28 between 2009 and 2014. The reuse of nitrogen through the use of compost, sewage sludge, industrial waste etc. was insignificant. The nitrogen input with other organic fertilisers (excluding manure) represented only 1.4% of total inputs in the EU-28 between 2009 and 2014. Seeds and planting material did not have a significant influence on the nitrogen balance either, with a share of less than 0.9% on the total nitrogen inputs.

Figure 5.3: Share of the different nitrogen inputs in total nitrogen input, average 2009–14 (%)



Note: Eurostat estimates for EU-28, Belgium, Bulgaria, Denmark, Greece, Spain, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Austria, Romania and Slovakia. Estimates for 2012–14 for Sweden. Average 2009–13 for EU-28, Germany, Ireland and Switzerland.

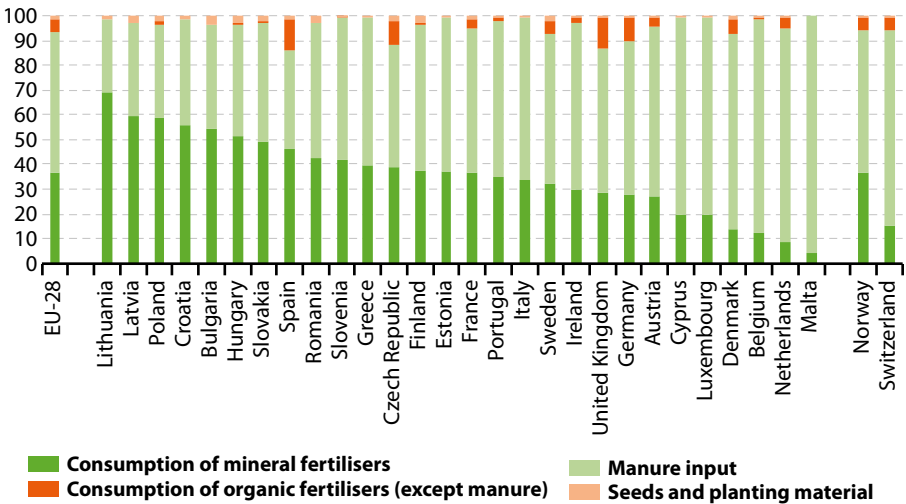
Source: Eurostat (online data code: [aei_pr_gnb](#))

Figure 5.3 also shows the large differences between EU Member States in the use of inputs. The type of fertiliser used (mineral fertilisers, manure, or other organic fertilisers) have different impacts on the environment:

- Nitrogen volatilises from manure in animal housing, storage and with the application to the land. These emissions mainly depend on the type of manure, farm management practices like type of animal housing, manure storage, timing and application techniques.
- Nitrogen emissions from mineral fertilisers during the application to the land depend on type of fertiliser, farm management practices (like application techniques), timing and other factors (such as soil type and weather conditions).
- Other potential fertilisers like urban wastes often contain health hazards (to both crops and humans), but procedures commonly used to reduce these hazards (such as composting) tend to reduce the fertiliser value (e.g. through leaching/volatilisation).
- Mineral fertilisers are produced using high amounts of energy. The production of these fertilisers therefore contributes to greenhouse gas (GHG) emissions and fossil fuel depletion.
- Some environmental pollution due to the production of P mineral fertilisers is related to the contamination of phosphate rock with heavy metals, uranium and other elements. Once released to the environment or transferred to soils, these may pose a risk to ecosystems and humans.

Figure 5.4: Share of the different phosphorus inputs in total phosphorus inputs, average 2009–14

(%)



Note: Eurostat estimates for EU-28, Belgium, Bulgaria, Denmark, Greece, Spain, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Austria, Romania and Slovakia. Estimates for 2012–14 for Sweden. Average 2009–13 for EU-28, Germany, Ireland and Switzerland.

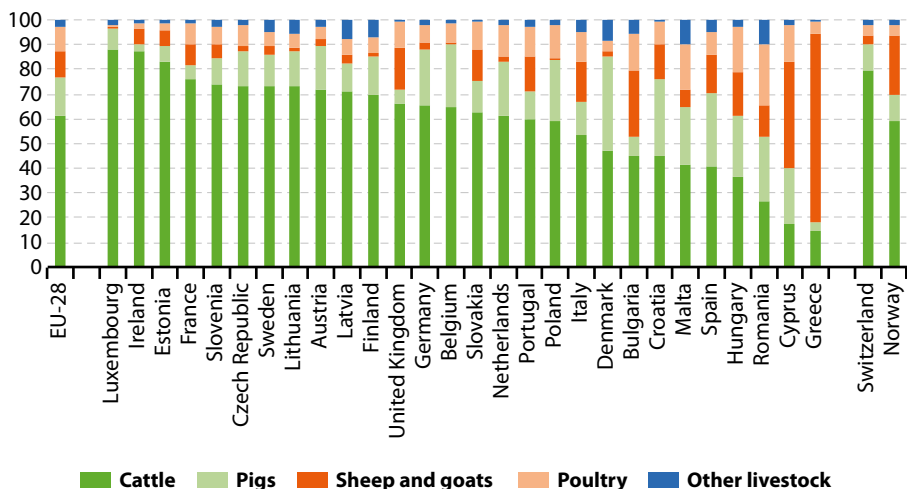
Source: Eurostat (online data code: aei_pr_gnb)

Figure 5.4 shows that the vast majority (93.2 %) of phosphorus input in the EU-28 between 2009 and 2014 comes from manure and mineral fertilisers. The rest was supplied with other organic fertilisers (5.4 %) and seeds and planting material (1.4 %).

Manure production is determined by the amount and type of livestock in a country. Figure 5.5 shows that cattle was the main source of manure nitrogen production with more than 50 % in all countries, except Denmark, Bulgaria, Croatia, Malta, Spain, Hungary and Romania — where different livestock types were important — and in Greece and Cyprus where sheep and goats had the highest share. A similar situation can be identified throughout the EU Member States regarding the phosphorus in manure production (Figure 5.6).

Figure 5.5: Share of different livestock in manure nitrogen production, average 2009–14

(%)

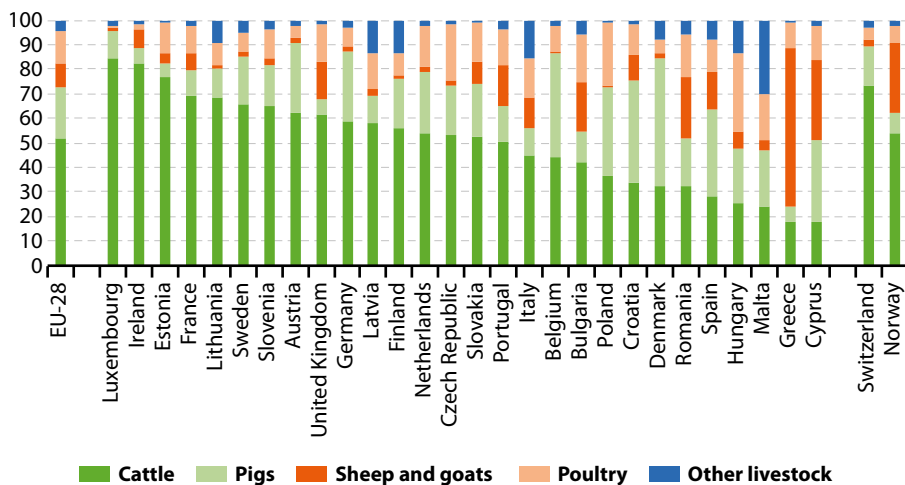


Note: Eurostat estimates for EU-28, Belgium, Bulgaria, Denmark, Greece, Spain, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Austria, Romania and Slovakia. Estimates for 2012–14 for Sweden. Average 2009–13 for EU-28, Germany, Ireland and Switzerland.

Source: Eurostat (online data code: [aei_pr_gnb](#))



Figure 5.6: Share of different livestock in manure phosphorus production, average 2009–14 (%)



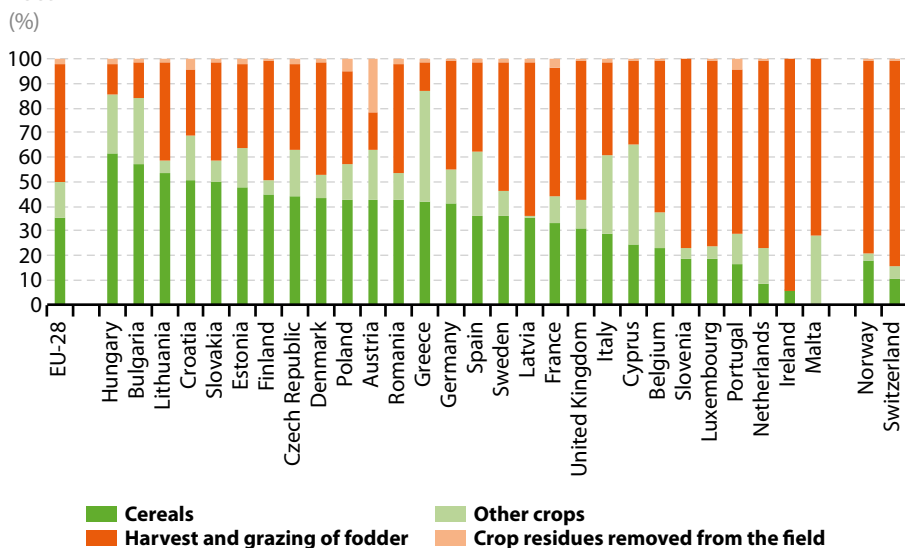
Note: Eurostat estimates for EU-28, Belgium, Bulgaria, Denmark, Greece, Spain, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Austria, Romania and Slovakia. Estimates for 2012–14 for Sweden. Average 2009–13 for EU-28, Germany, Ireland and Switzerland.

Source: Eurostat (online data code: [aei_pr_gnb](#))

Nutrient outputs

The removal of nutrients through harvest and grazing of crops and forage varies between EU Member States as can be seen in Figures 5.7 and 5.8. The dominant share of total nutrient output for nitrogen in the EU-28 in the 2009–14 period was the nutrient uptake with fodder (48 %) followed by cereals (35 %) while in the case of phosphorus the shares from cereals and fodder were similar (38 % and 36 %, respectively). Nutrient output is dependent on cropping patterns, yields, farm management practices (tillage, irrigation, etc.), climate etc. There are significant differences between countries. In some (Ireland, Slovenia, the Netherlands, Luxembourg, Latvia, Malta, Portugal, Belgium, the United Kingdom, France and Sweden as well as Norway and Switzerland) harvest and grazing of fodder dominates the nutrient outputs, whereas in Hungary, Croatia, Bulgaria, Slovakia, the Czech Republic and Lithuania cereals are the dominant crops. [Permanent crops](#) are significant in the Mediterranean countries.

Figure 5.7: Share of the different nitrogen outputs in total nitrogen outputs, average 2009–14 (%)



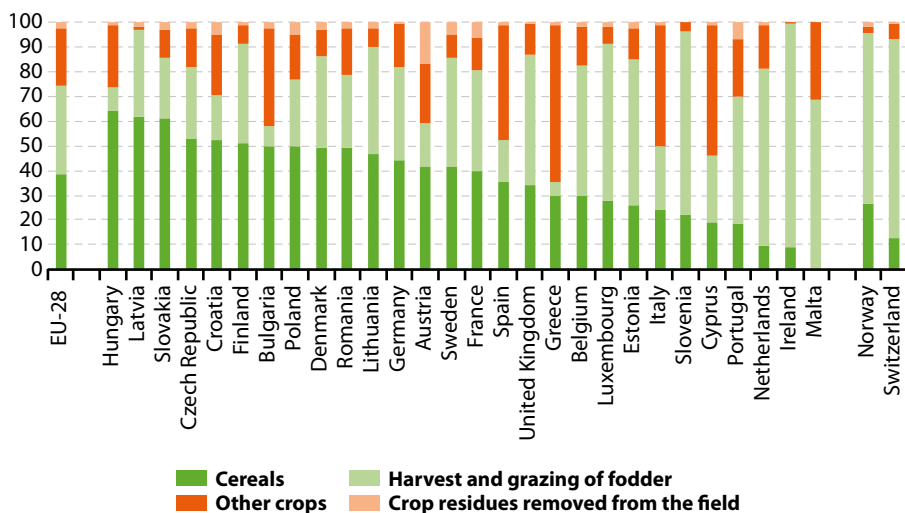
Note: Eurostat estimates for EU-28, Belgium, Bulgaria, Denmark, Greece, Spain, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Austria, Romania and Slovakia. Estimates for 2012–14 for Sweden. Average 2009–13 for EU-28, Germany, Ireland and Switzerland.

Source: Eurostat (online data code: [aei_pr_gnb](#))



Figure 5.8: Share of the different phosphorus outputs in total phosphorus outputs, average 2009–14

(%)



Note: Eurostat estimates for EU-28, Belgium, Bulgaria, Denmark, Greece, Spain, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Austria, Romania and Slovakia. Estimates for 2012–14 for Sweden. Average 2009–13 for EU-28, Germany, Ireland and Switzerland.

Source: Eurostat (online data code: aei_pr_gnb)

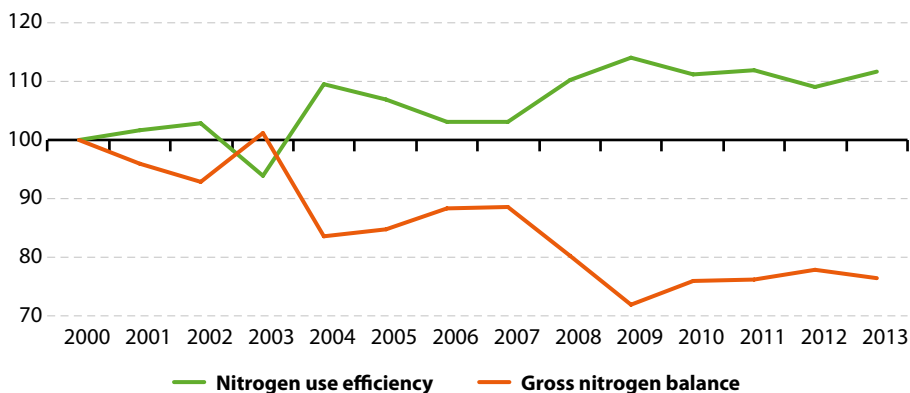
Nutrient use efficiency ratio

Another way of presenting the results of the gross nutrient balance is the nutrient use efficiency ratio, which is defined as total nutrient outputs divided by total nutrient inputs. It gives an indication of the relative utilization of nutrients applied to agricultural production system.

In principle, by decreasing the nutrient surplus over time, the nutrient use efficiency increases. Figures 5.9 and 5.10 show that the overall nitrogen use efficiency in the EU-28 increased by 12 % between 2000 and 2013, whereas the phosphorus use efficiency in the same period increased by 27 %. This can be interpreted as improved utilisation of nutrients applied to the field in a considerable number of Member States.

Figure 5.9: Evolution of gross nitrogen balance and nitrogen use efficiency, EU-28, 2000–13

(2000 = 100)

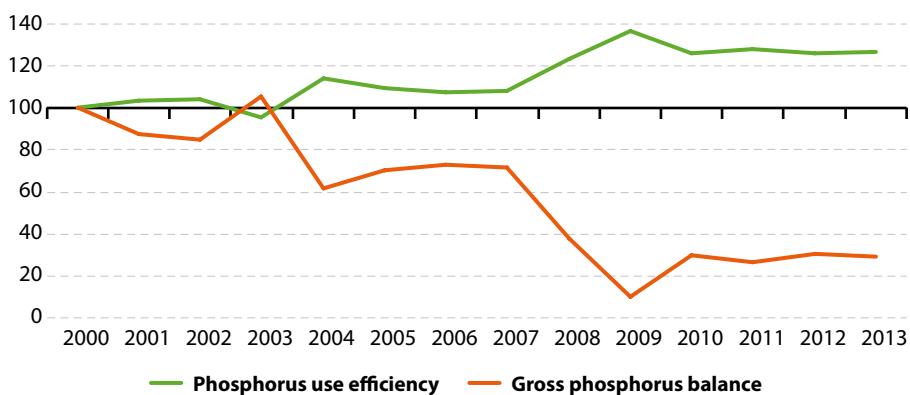


Note: Estimates.

Source: Eurostat (online data code: [aei_pr_gnb](#))

Figure 5.10: Evolution of gross phosphorus balance and phosphorus use efficiency, EU-28, 2000–13

(2000 = 100)



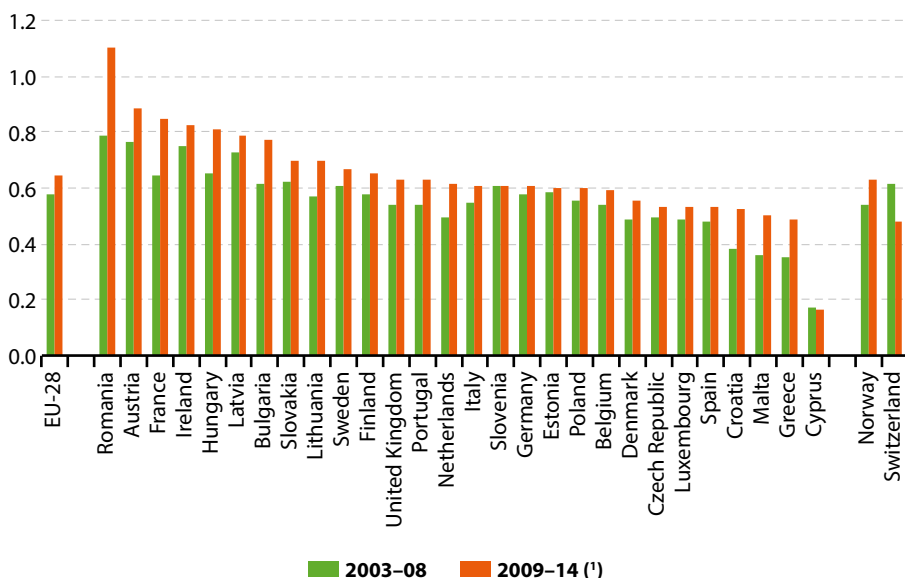
Note: Estimates.

Source: Eurostat (online data code: [aei_pr_gnb](#))



Figures 5.11 and 5.12 show that in most countries the average nutrient use efficiency between 2009 and 2014 increased compared to the 2003–08 period. However, the highest value of nutrient use efficiency does not necessarily mean the best and desirable results. Rates which are close to or above 1.0 indicate a risk of soil depletion, as the nutrient uptake by crops exceeds the amount of nutrients applied to the soil. From a longer-term perspective, this trend cannot be considered sustainable. In some countries with very high average nutrient use efficiency in the period 2003–08 and 2009–14, the gross nutrient balance was, in fact, very low. For nitrogen, Romania is an example of this. For phosphorus in some EU Member States with very high nutrient use efficiency the phosphorus surplus was even negative. This was mostly because in the Central and East European countries the use of fertilizers dropped drastically in the late 1980s and early 1990's as a result of political and economic changes.

Figure 5.11: Nitrogen use efficiency, average 2003–08 vs 2009–14
(total nutrient outputs/total nutrient inputs)



Note: Eurostat estimates for EU-28, Belgium, Bulgaria, Denmark, Greece, Spain, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Austria, Romania and Slovakia. Estimates for 2012–14 for Sweden.

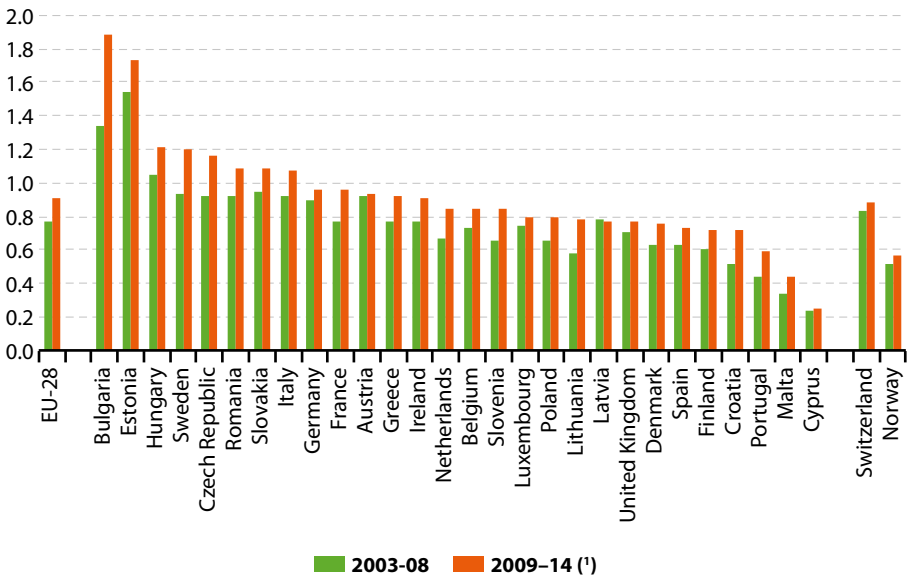
(*) EU-28, Germany, Ireland and Switzerland: 2009–13.

Source: Eurostat (online data code: [aei_pr_gnb](#))

At the opposite end of the scale were countries with the lowest nutrient use efficiency like Cyprus, Greece, Malta and Croatia, in which the gross nutrient surplus was high. This was a result of the fact that the nutrient input in these countries exceeded considerably the total crop demand of agricultural production. This of course indicates a very high risk of nutrient losses with potential pollution of the environment.

Achieving sustainable agricultural production requires balancing nutrient inputs with the outputs of the system. Reducing the nutrient surplus decreases the potential for adverse effect on the environment. Nonetheless, on average, European agricultural soils are still oversupplied with nutrients, mainly nitrogen.

Figure 5.12: Phosphorus use efficiency, average 2003–08 vs 2009–14
(total nutrient outputs/total nutrient inputs)



Note: Eurostat estimates for EU-28, Belgium, Bulgaria, Denmark, Greece, Spain, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Austria, Romania and Slovakia. Estimates for 2012–14 for Sweden.

(*) EU-28, Germany, Ireland and Switzerland: 2009–13.

Source: Eurostat (online data code: [aei_pr_gnb](#))



DATA SOURCES AND AVAILABILITY

The gross nutrients balance and the gross phosphorus balance are 2 of 28 agro-environmental indicators adopted by European Commission Communication [COM\(2006\) 508](#) final in 2006 to monitor the integration of environmental concerns into the common agricultural policy.

The methodology of the nutrient balances is described in the [Eurostat/OECD Gross Nutrient Balance Handbook](#). The gross nutrient balance lists all inputs and outputs and calculates the gross nutrient surplus (or deficit) as the difference between total inputs and total outputs. The gross nutrient balance per ha is derived by dividing the total gross nutrient surplus by utilised agricultural area (UAA).

The inputs of the gross nutrient balance are nutrients supplied in:

- mineral fertilisers;
- manure;
- other organic fertilisers (excluding manure);
- seeds and planting material;
- atmospheric deposition;
- biological nitrogen fixation.

The outputs of the gross nutrient balance are nutrients removed with:

- harvest of crops (cereals, dried pulses, root crops, industrial crops, vegetables, fruit, ornamental plants, other harvested crops);
- harvest and grazing of fodder (fodder from arable land, permanent and temporary pasture consumption);
- crop residues removed from the field.

The nutrient inputs and outputs have been estimated for each item of the balance from basic data by multiplying with coefficients to convert the data into nutrient content. Basic data (fertiliser consumption, livestock numbers, crop production, utilised agricultural area) are mostly derived from agricultural statistics. Coefficients are mainly estimated by research institutes and can be based on models, statistical data, measured data as well as expert judgements. Various other sources, for example [FAOSTAT](#) database, national inventory submissions to [UNFCCC](#) and to [UNECE-CLRTAP](#), or [EMEP](#) modelled data have also been used.

Due to methodological issues or missing data, the estimates of nitrogen and phosphorus balances reported here have been calculated by Eurostat for Belgium, Bulgaria, Denmark, Greece, Spain, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Austria, Romania, Slovakia and Sweden.

5.2 Irrigation

Irrigation fosters crop production by bringing water to plants, which is absolutely essential if plants are to grow in some areas. Irrigation increases productivity and therefore contributes significantly to agricultural output and food supply. However, irrigation is a major driving force behind [water abstraction](#). Agriculture is responsible for an important share of water abstraction and use in the EU and the water use by agriculture has increased in recent decades. Water abstraction can eventually lead to environmental problems. In particular, availability problems occur when the demand for water exceeds the amount available during a certain period. Apart from causing problems with supplying agriculture and other users, overexploitation of water has led to drying-out of natural areas in western and southern Europe and to salt-water intrusion in coastal [aquifers](#). The use of water by agriculture is also under increasing scrutiny as competing demands are made for an increasingly scarce resource (1).

Trends in water abstraction rates depend on various factors: crop variety (examples of water-intensive crops are potatoes in northern Europe and cotton, grain maize, rice and fruit in southern Europe), irrigation area, irrigation technology, water prices, water restrictions, pumping costs and climate conditions. Farmers may select crops that require more water during the growing season, or that have growth periods more sensitive to soil moisture stress. Because of these factors, irrigated areas change from year to year and irrigable areas, defined as the total area equipped for irrigation, are used instead to present irrigation trends. Crops under glass and kitchen gardens, which are assumed to be generally irrigable and irrigated, are not considered here.

Irrigable and irrigated areas

The **irrigable area** is the area which is equipped for irrigation. This area does not show so much variation from year to year as it is costly for the farmer to invest in irrigation equipment. The **irrigated area** measures the actual amount of land irrigated and can vary significantly from year to year due to for instance meteorological conditions or the choice of crop.

In the past, the expansion of the irrigated area has been influenced by policy measures supporting the provision of irrigation infrastructure and providing subsidies to farmers installing irrigation equipment, as well as guaranteeing low water prices for agriculture.

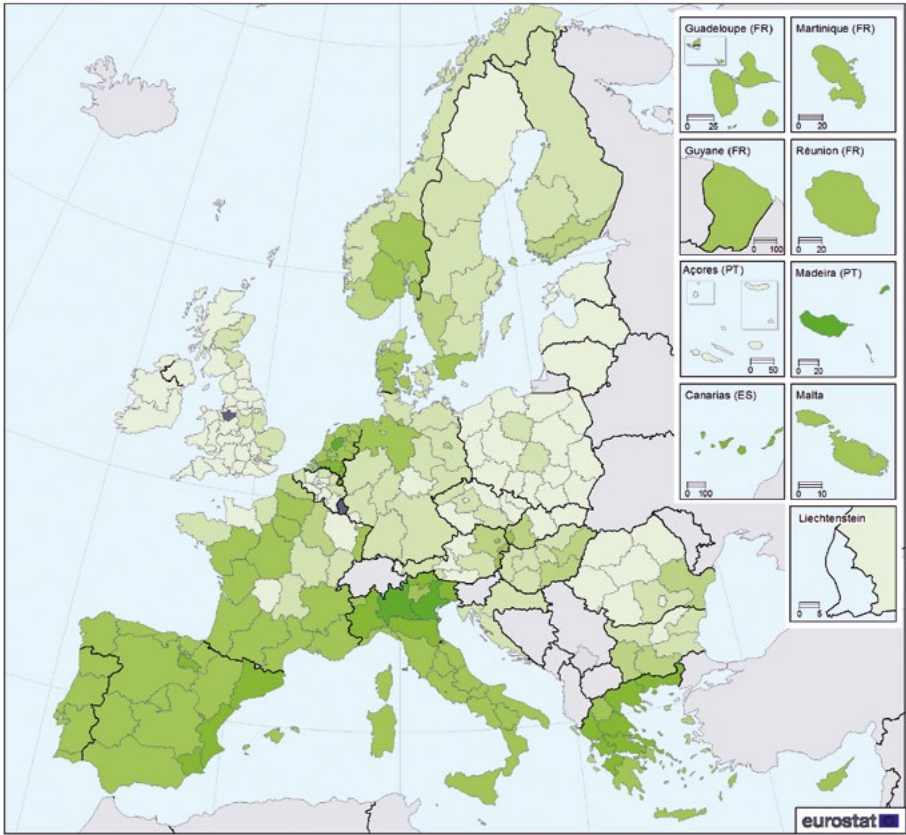
Data on irrigated and irrigable areas are only available from 2003 for the EU-27 and from 2010 for the EU-28, while data for the EU-15 are available from 1995 onwards.

Map 5.1 shows the share of irrigable areas and Map 5.2 the share of irrigated areas in utilised agricultural area (UAA) at [NUTS 2](#) regional level in 2013. High shares of irrigable and irrigated areas are mainly found in regions of the Mediterranean countries such as Italy, also Greece, Cyprus, Malta, Spain and the coast of Portugal. In southern European countries full irrigation is an essential element in many types of agricultural production. In central and northern European countries, supplementary irrigation is generally used to improve production in dry summers, especially when the dry period occurs at a sensitive crop growth stage. In the Netherlands for instance a relative large share of irrigable and irrigated areas was found in regions in the north of Brabant and Limburg (these regions are mostly drought-sensitive sandy soils (2)).

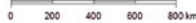
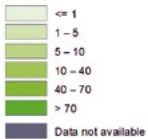
(1) D. Stanners and P. Bourdeau, *Europe's Environment: The Dobris Assessment*, European Environmental Agency, Copenhagen, 1995.

(2) C.R. Stoof en C.J. Ritsema, *Waterwinning voor beregening in de landbouw en op sportvelden: een overzicht van de regelgeving in Nederland*, Alterra, Wageningen, 2006.

Map 5.1: Irrigable UAA by NUTS 2 regions, 2013
 (% of total UAA)

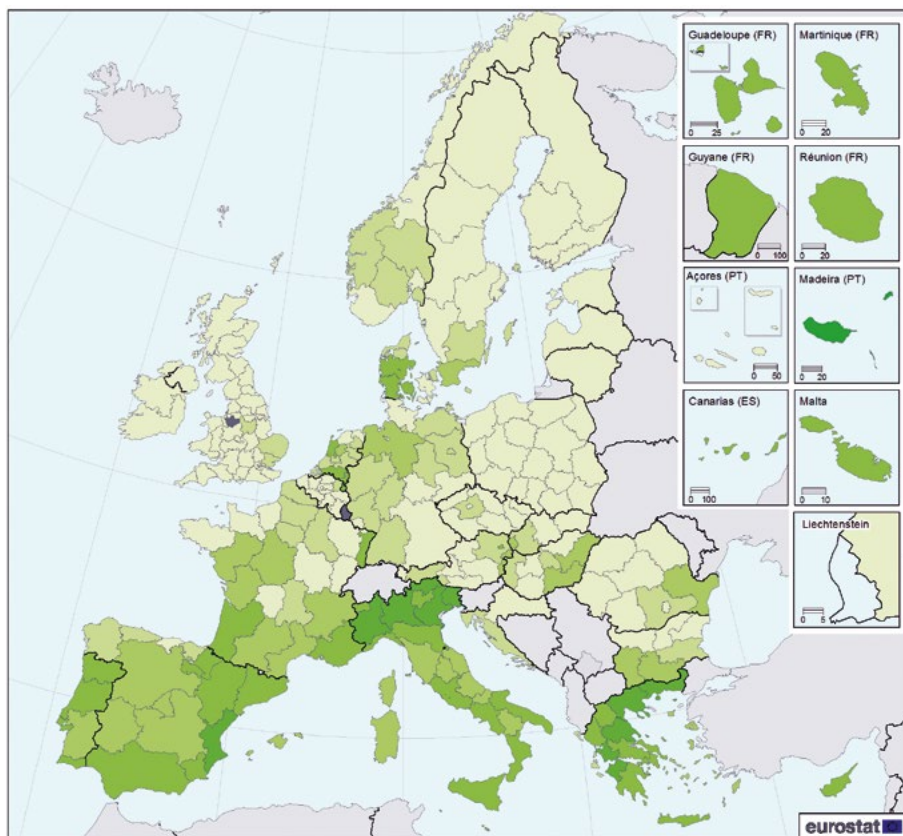


Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
 Cartography: Eurostat — IMAGE, 04/2016

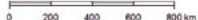
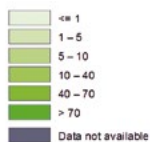


Source: Eurostat (online data code: ef_poirrjg)

Map 5.2: Irrigated UAA by NUTS 2 regions, 2013
(% of total UAA)



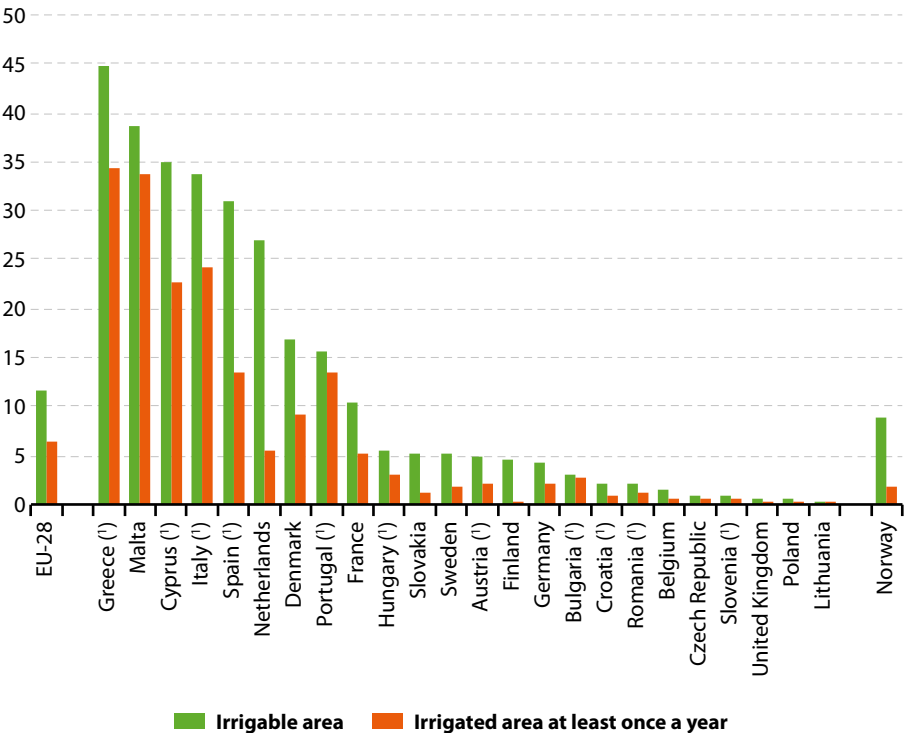
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — IMAGE, 04/2016



Source: Eurostat (online data code: ef_poirr1g)

In 2013 the total irrigable area in the EU-27 was 18.7 million ha, representing an increase by 13.4% compared to 2003. The area actually irrigated in 2013 was 10.2 million ha. The highest shares of irrigable areas at country level are expectedly found in some southern Member States: in Greece and Malta shares of 44.9% and 38.6% were registered respectively. Cyprus, Italy and Spain followed with 34.9%, 33.9% and 31.1% respectively. The corresponding shares in Portugal amounted to around 15%, lower than one might expect. Surprisingly high was the irrigable area in the Netherlands (27.0%) and Denmark (16.8%), countries less linked to the notion of irrigation. And yet, the fact is that potatoes are one of the main irrigated crops in northern Europe. In absolute terms, Spain and Italy have the largest irrigable areas with 6.7 million and 4.0 million ha respectively. Figure 5.13 arranges the information of Table 5.3 in a way that shows the relationship between the potentially irrigable area and the actually irrigated area for 2013, based on a decreasing order of relative importance.

Figure 5.13: Share of irrigable and irrigated areas in UAA, 2013
(%)



Note: Estonia, Ireland and Latvia not significant; Luxembourg: data not available.

(1) UAA calculated without common land.

Source: Eurostat (online data code: ef_poirrig)

Table 5.3: Irrigable and irrigated areas, 2003 and 2013

	UAA		Total irrigable area				Area irrigated at least once a year			
	2003	2013	2003	2013	2003	2013	2003	2013	2003	2013
	(1 000 ha)		(1 000 ha)		(% of UAA)		(1 000 ha)		(% of UAA)	
EU-28	:	165 647.4	:	18 669.9	:	11.3	:	10 235.3	:	6.2
EU-27	165 930.4	164 355.1	16 443.3	18 644.0	9.9	11.3	11 067.9	10 221.9	6.7	6.2
Belgium	1 394.4	1 307.9	21.8	19.2	1.6	1.5	1.9	5.7	0.1	0.4
Bulgaria (¹)	2 904.5	3 794.9	124.5	115.5	4.3	3.0	79.4	98.7	2.7	2.6
Czech Republic	3 631.6	3 491.5	49.1	34.1	1.4	1.0	16.9	17.8	0.5	0.5
Denmark	2 658.2	2 619.3	448.8	439.0	16.9	16.8	201.5	242.0	7.6	9.2
Germany (²)	16 981.8	16 699.6	:	691.3	:	4.1	:	365.6	:	2.2
Estonia (²)	795.6	957.5	:	0.4	:	0.0	:	0.3	:	0.0
Ireland (¹)	4 298.2	4 536.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Greece (¹)	3 967.8	3 381.5	1 521.6	1 516.9	38.3	44.9	1 294.4	1 164.6	32.6	34.4
Spain (³)	22 807.7	21 694.9	3 828.1	6 751.7	16.8	31.1	3 437.4	2 899.0	15.1	13.4
France (¹)	27 795.2	27 064.3	2 723.7	2 811.4	9.8	10.4	1 938.7	1 423.6	7.0	5.3
Croatia (¹)(⁴)	:	1 292.3	:	25.9	:	2.0	:	13.4	:	1.0
Italy (³)	12 460.0	11 813.6	3 977.2	4 004.5	31.9	33.9	2 732.7	2 866.3	21.9	24.3
Cyprus (³)	155.4	109.0	44.9	38.1	28.9	34.9	35.4	24.7	22.8	22.6
Latvia	1 489.4	1 877.7	1.2	0.6	0.1	0.0	0.0	0.4	0.0	0.0
Lithuania	2 491.0	2 861.3	0.7	4.1	0.0	0.1	:	1.6	:	0.1
Luxembourg	128.2	131.0	0.0	:	0.0	:	0.0	:	0.0	:
Hungary (¹)	4 352.4	4 589.3	242.2	259.0	5.6	5.6	148.7	141.2	3.4	3.1
Malta	10.8	10.9	2.3	4.2	21.3	38.6	2.1	3.7	19.7	33.6
Netherlands	2 007.3	1 847.6	350.6	499.4	17.5	27.0	62.2	101.8	3.1	5.5
Austria (¹)	3 257.2	2 524.8	90.4	119.8	2.8	4.7	34.2	51.7	1.1	2.0
Poland	14 426.3	14 409.9	98.4	75.8	0.7	0.5	46.9	45.6	0.3	0.3
Portugal (³)	3 600.7	3 539.4	674.8	551.8	18.7	15.6	248.0	477.2	6.9	13.5
Romania (³)	11 445.8	11 509.3	1 510.8	230.4	13.2	2.0	400.5	152.8	3.5	1.3
Slovenia (³)	463.7	462.8	1.9	4.3	0.4	0.9	1.9	2.5	0.4	0.5
Slovakia	2 137.5	1 901.6	209.1	99.6	9.8	5.2	104.6	24.6	4.9	1.3
Finland	2 244.7	2 282.4	103.8	102.1	4.6	4.5	0.0	9.5	0.0	0.4
Sweden	3 126.9	3 035.9	188.5	155.5	6.0	5.1	53.4	51.9	1.7	1.7
United Kingdom (³)	14 898.4	15 900.9	228.9	115.4	1.5	0.7	227.1	49.1	1.5	0.3
Norway	1 040.4	996.3	122.5	88.9	11.8	8.9	:	19.5	:	2.0

(¹) UAA in 2013 calculated without common land.

(²) In 2003 data have not been collected; irrigable and irrigated areas were considered non-significant.

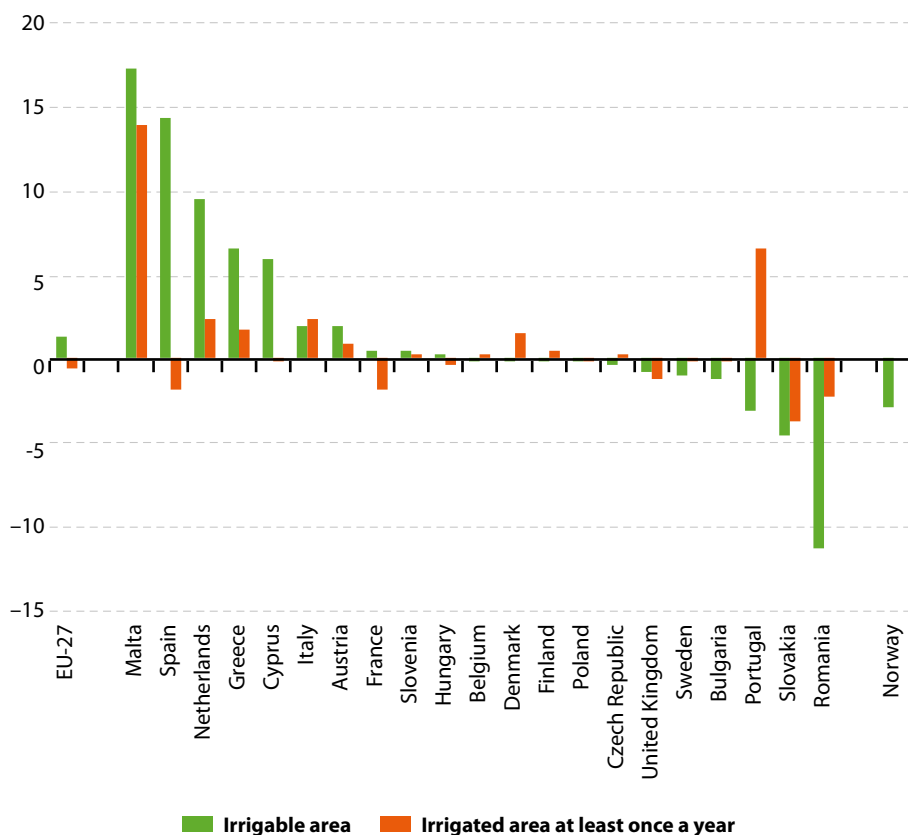
(³) UAA in 2003 and 2013 calculated without common land.

(⁴) In 2003 data not available.

Source: Eurostat (online data codes: [ef_lu_ofirrig](#) and [ef_lu_ovcropaa](#))

Figure 5.14 shows the change in the shares of irrigable and irrigated areas in total UAA in the EU-27 between 2003 and 2013. The difference is presented in percentage points (pp). The share of irrigable area increased the most in Malta and Spain (from 21.3% to 38.6% and from 16.8% to 31.1% respectively), however the share of irrigated area rose only in Malta (from 19.7% to 33.6%), while in Spain it decreased (from 15.1% to 13.4%).

Figure 5.14: Change in share of irrigable and irrigated areas in UAA, 2003–13
(percentage points)

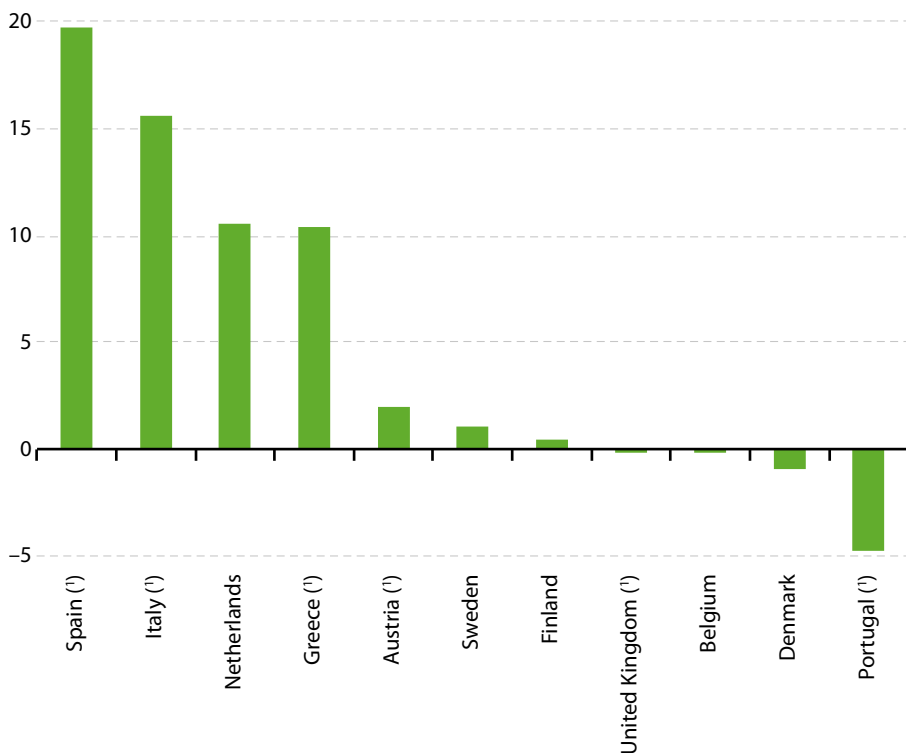


Note: Lithuania: data on irrigated area for 2003 not available; Germany and Estonia: data for 2003 was not collected (irrigable and irrigated areas were considered not significant); Luxembourg: data for 2013 not available; Latvia: change in shares of both irrigated and irrigable areas non-existing or not significant; Ireland: data on irrigable and irrigated areas non-existing or not significant; Norway: data on irrigated area for 2003 not available.

Source: Eurostat (online data codes: [ef_poirrig](#) and [ef_lu_ofirrig](#))

The share of irrigable area also increased significantly in the Netherlands, Greece and Cyprus between 2003 and 2013 (9.6, 6.5 and 6.0 pp respectively). In Romania and Slovakia the shares of irrigable area decreased by 11.2 and 4.5 pp and their shares of irrigated area also decreased by 2.2 and 3.6 pp respectively. In Portugal the share of irrigable area decreased by 3.2 pp, whereas the share of area irrigated actually increased by 6.6 pp. Ireland and Luxembourg did not declare irrigable or irrigated areas, which were considered non-significant. Figure 5.15 shows the development of the irrigable areas in the EU-15 between 1995 and 2013. The share of irrigable areas in total UAA decreased by 4.7 pp in Portugal while it increased by more than 15 pp in Spain and Italy (19.7 pp and 15.5 pp respectively).

Figure 5.15: Change in share of irrigable areas in UAA, 1995–2013
(percentage points)



Note: Bulgaria, Czech Republic, Estonia, France, Croatia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Romania, Slovenia, Slovakia: data were not available for 1995; Germany: data have not been collected in 1995 — irrigable areas were considered non-significant; Ireland: data on irrigable and irrigated areas non-existing or not significant; Luxembourg: data were not available for 2013.

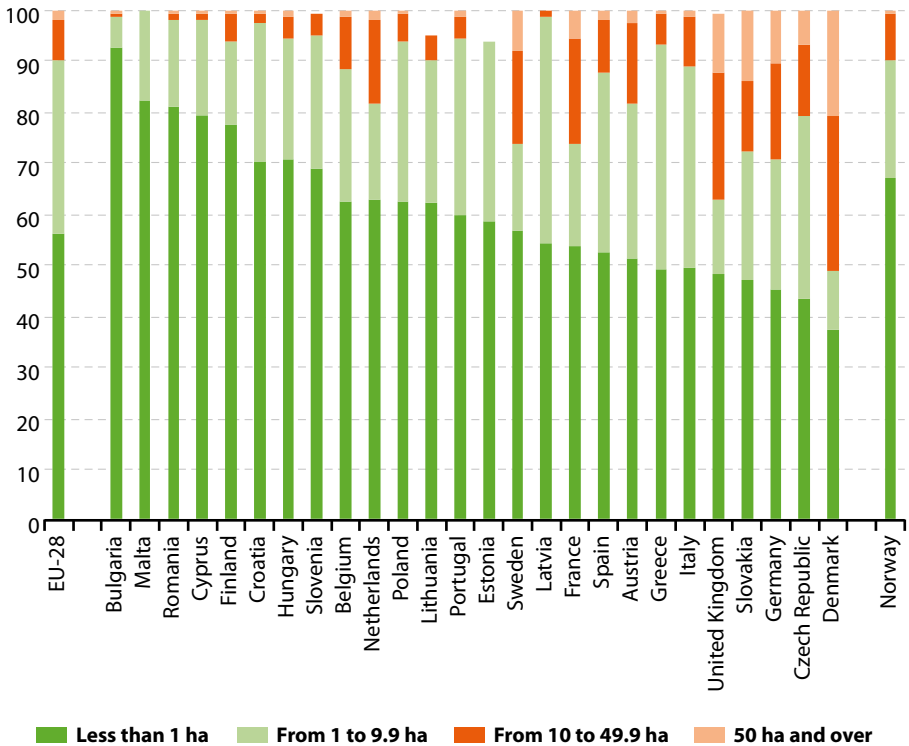
(¹) In 2013 UAA calculated without common land.

Source: Eurostat (online data codes: [ef_lu_ofirrig](#) and [ef_poirrig](#))

Holdings with irrigation potential

Because most irrigation is practised in southern Europe, it is overwhelmingly associated with large numbers of very small farms. Often, irrigation is critical to the viability of these farm businesses. The socio-economic importance of irrigated agriculture within the EU should therefore not be underestimated. Figure 5.16 looks at the agricultural holdings that do have an irrigable area and details these by size categories. In Member States such as Bulgaria, Malta and Romania, the share of holdings with irrigable area which total area does not exceed 1 ha amounts to over 80 %. At the other end, the largest holdings are found in Denmark, where holdings over 10 ha made up 51.6 %.

Figure 5.16: Holdings with irrigable area by size of irrigable area, 2013
(% of holdings with irrigable area)



Note: Ireland: data considered non-existing or non-significant; Luxembourg: data not available.

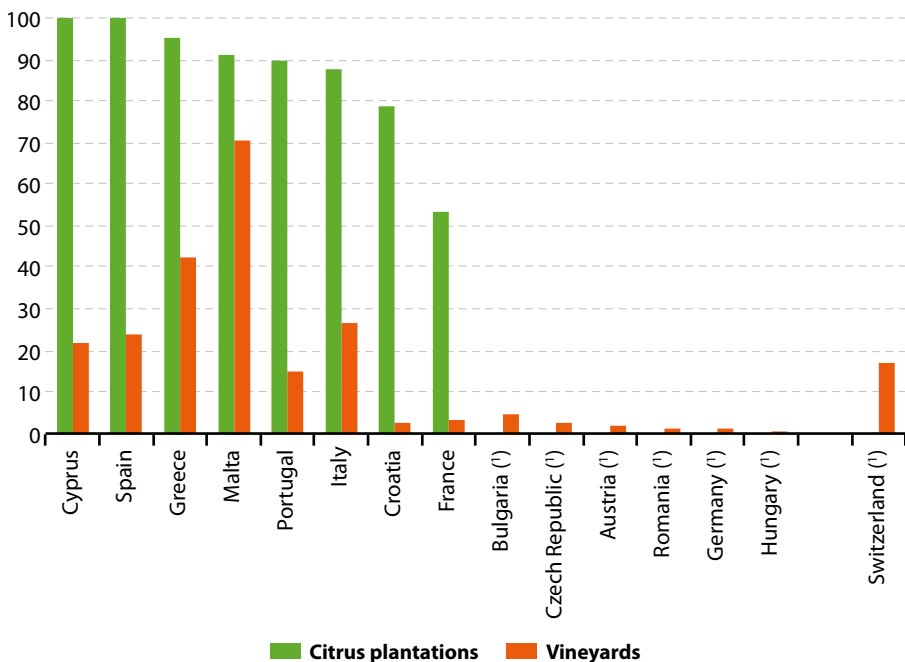
Source: Eurostat (online data codes: ef_lu_ofirrig and ef_poirrig)

Irrigated area by crop type

Different crops are subject to irrigation at varying levels of intensity. Four main categories are distinguished by the Institute for European Environmental Policy ⁽³⁾:

1. **Extensive crops:** these are generally of lower value or permanent crops for which irrigation is used mainly in arid regions to stimulate enhanced growth and productivity, at a fairly low level, for example permanent grassland, permanent crops (including olives, vines and citrus/apple orchards). Figure 5.17 shows the share of irrigated area in total crop area for citrus fruit and vines in 2010 for countries who irrigated these crops significantly.

Figure 5.17: Irrigated crop area of extensive crops (citrus and vineyards), 2010
(% of total area of each crop)



Note: Bulgaria, Czech Republic, Austria, Romania, Germany, Hungary and Switzerland: data for citrus fruit were not available, non-existing or non-significant; Belgium, Denmark, Estonia, Ireland, Latvia, Lithuania, Netherlands, Poland, Slovakia and United Kingdom: data for citrus fruit and vineyards were not available, non-existing or non-significant; Luxembourg: data not available.

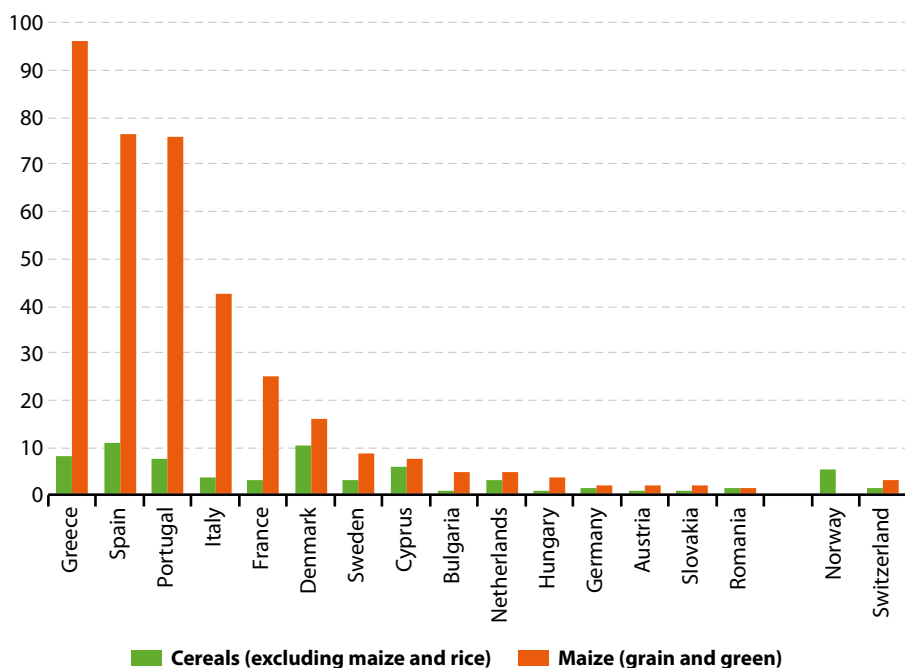
Source: Eurostat (online data codes: [ef_poirrig](#) and [ef_popermaa](#))

⁽³⁾ *The environmental impacts of irrigation in the European Union*, Institute for European Environmental Policy, London, 2000.



2. **Semi-intensive crops:** these are generally lower value crops where irrigation is more widely used to improve growth rates and productivity, either on a seasonal basis at times of peak demand (notably in northern Member States) or for most of the cropping period. Rates of water use are generally higher than for extensive crops, for example sown or temporary grassland or alfalfa (less than 5 years old), cereals, oilseeds, or maize (*). Figure 5.18 shows the share of irrigated area in total crop area of cereals and maize in 2010 for countries who irrigated these crops significantly.

Figure 5.18: Irrigated area of semi-intensive crops (maize and cereals), 2010
(% of total area of each crop)



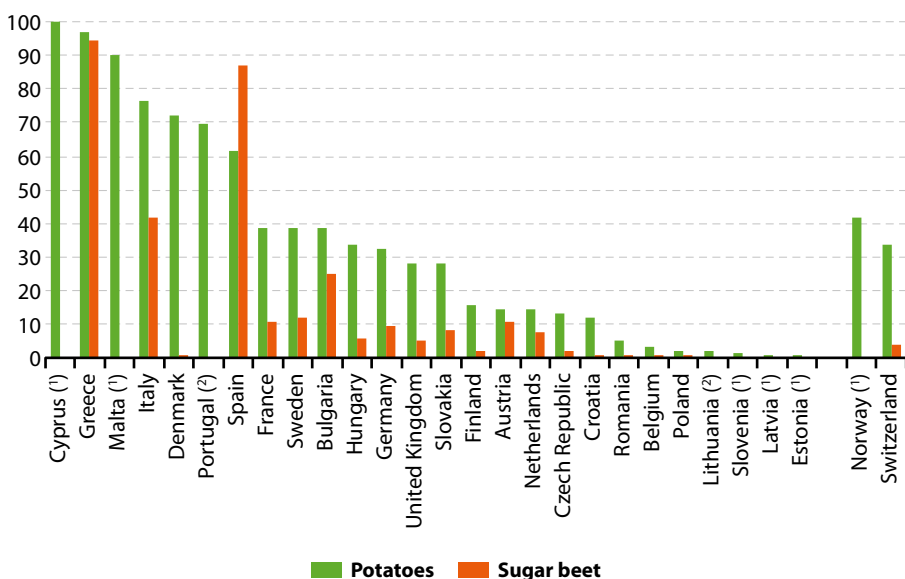
Note: Belgium, Czech Republic, Estonia, Ireland, Croatia, Latvia, Lithuania, Luxembourg, Malta, Poland, Slovenia, Sweden and United Kingdom: data were not available, non-existing or non-significant.

Source: Eurostat (online data codes: [ef_poirrig](#) and [apro_cpp_crop](#))

(* Maize is noted separately because it has different growth characteristics to other cereal crops and is associated with greater environmental risks. Maize could also be considered as intensive with regards to water use.

3. **Intensive crops:** these are generally high value crops where irrigation can be critically important to maintain yields and quality and it is therefore more intensively applied to the crop, for example root crops (potatoes, sugar beet, swedes), industrial crops (cotton and tobacco), open air horticulture (salads, green vegetables grown in the open), glasshouse production (salads, tomatoes, many other vegetables grown intensively under glass in controlled environments). Figure 5.19 shows the share of irrigated area in total crop area for potatoes and sugar beet in 2010.

Figure 5.19: Irrigated area of intensive crops (potatoes and sugar beet), 2010
(% of total area of each crop)



Note: Ireland: data on irrigated areas non-existing or not significant. Luxembourg: data not available.

(1) Data on sugar beet area non-existing or not significant.

(2) Data on sugar beet irrigated area non-existing or not significant.

Source: Eurostat (online data codes: [ef_poirrig](#) and [ef_popermaa](#))

4. **Saturated crops:** where water is used to flood fields in order to facilitate the production of crops which require saturation conditions, for example rice.



Irrigation methods

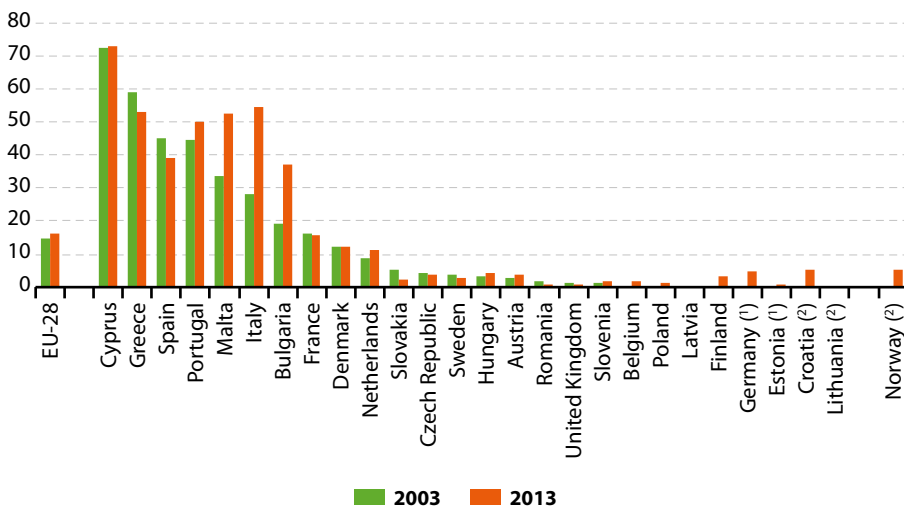
Irrigable and irrigated areas alone give no complete indication of the intensity of water use, which also depends on the type of equipment used:

- surface irrigation (also called 'flood irrigation') i.e. the leading of water along the ground, either by flooding the whole area or leading the water along small furrows between the crop rows, using gravity as a force;
- sprinkler irrigation i.e. irrigating the plants by propelling water under high pressure as rain over the parcels;
- drop irrigation i.e. irrigating the plants by placing water low by the plants drop by drop or with micro-sprinklers or by forming fog-like conditions.

Sprinkler and drop irrigation methods are less water-intensive than surface irrigation, which still predominates in some countries. Equipment for drop irrigation is more expensive than for other irrigation methods and this system therefore tends to be concentrated in areas with high-value crops. Figure 5.20 shows that in the EU 14.6% of total holdings in 2003 and 16.2% of total holdings in 2013 applied one or more irrigation methods, whereas the countries with a high percentage of holdings applying irrigation methods are found in Mediterranean region and in Portugal and Bulgaria.

Figure 5.20: Holdings applying one or more irrigation methods in total number of holdings, 2003 and 2013

(% of total number of holdings)



Note: Ireland: non-existing. Luxembourg: data not significant for 2003 and not available for 2013.

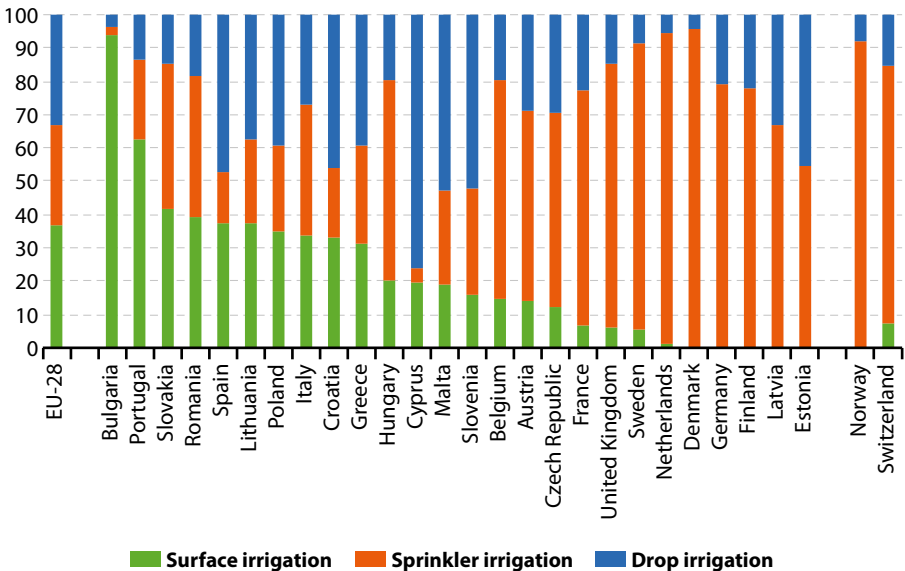
Source: Eurostat (online data codes: ef_lu_ofirrig and ef_poirrig)

(1) Data have not been collected for 2003 (irrigable and irrigated areas were considered non-significant).

(2) Data for 2003 not available.

Figure 5.21 shows the share of the holdings applying different irrigation methods. Traditionally, much of the irrigation practiced in Europe has consisted of gravity-fed systems, where water is transported from surface sources via small channels and used to flood or furrow feed agricultural land (furrow irrigation). In sizeable areas of the southern Member States this remains an important form of irrigation. In Bulgaria 93.7% and in Portugal 62.5% of all holdings with irrigable area used this method in 2010. However, in an increasing number of regions in both North and South, irrigation by sprinklers using pressure, often drawing water from subterranean aquifers, was the most common practice. It is often in these areas where the quantities of water used and thus the impact on the environment can be most severe. Drip systems tend to be more efficient in their use of water but they are often far too costly to be within the means of the majority of small irrigators in the south. Still, in 2010 drop irrigation was the most widespread form of irrigation in Cyprus (applied by 75.9% of all holdings with irrigation area), Malta (52.5%) and Slovenia (52.0%).

Figure 5.21: Irrigation methods, 2010
(% of holdings using each method)



Note: Ireland: data non-existing or non-significant; Luxembourg: data not available.

Source: Eurostat (online data code: [ef_poirrig](#))

The type of irrigation system (and the related cost) and the size of the agricultural holding may often be linked. This is illustrated in Table 5.4. It can be observed that surface irrigation was most practiced by small farms (between 80% and 90% of the holdings applying surface irrigation in Bulgaria, Croatia, Cyprus and Malta are of the smallest category — less than 1 ha) and to lesser extent also by middle-sized farms (around 50% of all holdings between 1 and 10 ha in the Czech Republic, Spain, the Netherlands, Poland, Slovakia and the United Kingdom). For sprinkler and drop irrigation, the picture is more heterogeneous and appears to be linked more to the type/value of the crop grown.

Table 5.4: Holdings per irrigation methods and size of holdings, 2010

	Surface irrigation			Sprinkler irrigation			Drop irrigation		
	< 1 ha	From 1 to 10 ha	> 10 ha	< 1 ha	From 1 to 10 ha	> 10 ha	< 1 ha	From 1 to 10 ha	> 10 ha
EU-28	359 690	246 010	67 120	142 570	274 880	123 760	231 540	309 200	63 160
Belgium	50	120	240	340	990	500	370	110	80
Bulgaria	74 930	8 370	790	1 950	370	90	1 820	1 220	190
Czech Republic	50	60	20	240	220	140	90	110	100
Denmark	0	0	0	90	700	4 520	30	150	70
Germany	0	0	0	1 910	4 500	5 720	1 120	1 350	720
Estonia	0	0	:	80	30	:	60	40	:
Ireland	0	0	0	0	0	0	0	0	0
Greece	88 360	55 310	6 220	37 520	88 060	15 470	85 450	95 220	8 670
Spain	45 550	85 330	31 020	9 690	29 930	24 700	59 000	112 150	32 820
France	1 250	2 780	1 770	7 180	20 490	32 690	6 040	9 160	4 370
Croatia	4 210	640	10	2 450	510	80	4 460	2 280	60
Italy	61 470	57 790	24 730	48 630	93 070	25 800	40 830	61 810	11 160
Cyprus	5 180	1 060	30	460	860	80	15 720	8 300	250
Latvia	0	0	0	160	60	10	60	60	10
Lithuania	30	0	20	10	10	10	20	10	0
Luxembourg	:	:	:	:	:	:	:	:	:
Hungary	2 980	760	160	6 490	4 000	960	2 120	1 340	250
Malta	740	120	:	900	430	:	1 700	720	:
Netherlands	10	60	50	940	4 190	4 600	80	290	220
Austria	180	220	100	370	930	630	450	440	100
Poland	1 620	1 790	220	830	1 470	360	1 700	2 050	340
Portugal	67 340	29 120	1 460	17 900	16 850	2 750	7 640	10 330	3 260
Romania	5 580	2 200	70	3 790	4 150	490	2 340	1 260	60
Slovenia	80	40	:	140	100	:	250	130	:
Slovakia	30	80	60	20	50	110	0	20	30
Finland	0	0	0	440	1 200	430	160	330	100
Sweden	50	80	90	40	1 010	2 180	30	100	180
United Kingdom	0	80	60	0	700	1 440	0	220	120
Norway	0	0	0	190	2 070	1 470	60	240	40
Switzerland	210	440	120	3 140	3 900	970	630	810	160

Source: Eurostat (online data code: ef_poirrig)

Volume of water used for irrigation

The amount of water used for irrigation depends on factors such as: climate, current weather conditions, crop type, soil characteristics, water quality, cultivation practices and irrigation techniques. At the level of the EU-28, it is estimated that in 2010, a total volume of around 40 billion m³ of water have been used to irrigate approximately 10 million ha of land.

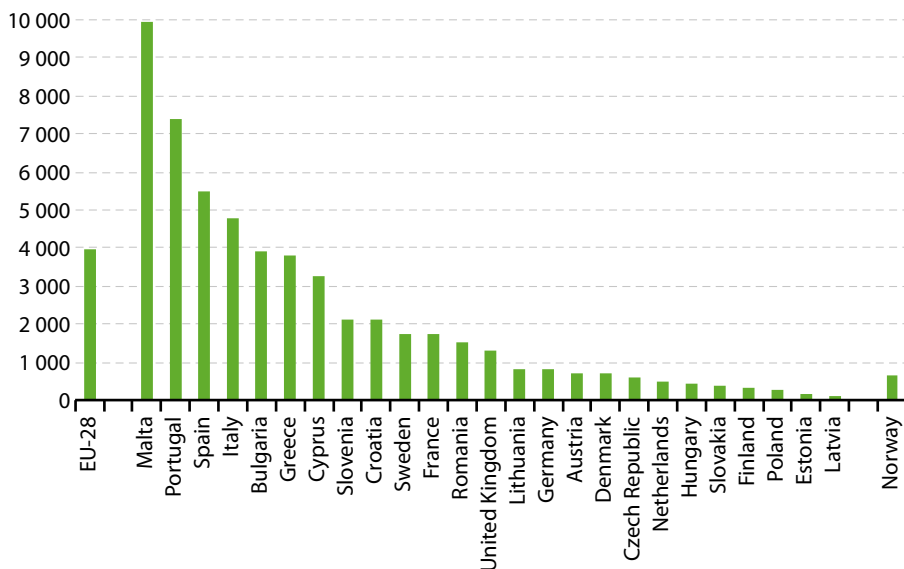
Table 5.5: Volume of water used for irrigation, 2010

	Total area irrigated at least once a year (1 000 ha)	Volume of water used for irrigation per year (1 000 m ³)	Average volume of water used for irrigation (m ³ per ha)
EU-28	9 984.3	39 863 943	3 993
Belgium	4.3	:	:
Bulgaria	90.4	355 610	3 934
Czech Republic	19.2	11 147	581
Denmark	320.2	219 246	685
Germany	372.8	293 374	787
Estonia	0.3	60	182
Ireland	0.0	0	0
Greece	1 025.2	3 896 683	3 801
Spain	3 044.7	16 658 538	5 471
France	1 583.6	2 711 481	1 712
Croatia	14.5	30 281	2 091
Italy	2 408.4	11 570 290	4 804
Cyprus	28.3	91 510	3 235
Latvia	0.7	73	103
Lithuania	1.5	1 215	794
Luxembourg	:	:	:
Hungary	114.6	48 907	427
Malta	2.8	28 176	9 956
Netherlands	137.3	64 857	472
Austria	26.5	18 316	692
Poland	45.5	12 855	282
Portugal	466.3	3 437 366	7 371
Romania	133.5	203 667	1 526
Slovenia	1.3	2 644	2 098
Slovakia	14.8	5 579	376
Finland	12.6	4 369	346
Sweden	63.3	111 053	1 756
United Kingdom	66.4	86 647	1 306
Norway	40.4	25 262	626

Source: Eurostat (online data code: ef_poirrig)

The highest volume of water used for irrigation in absolute terms was in Spain, where 16.7 billion m³ were used, followed by Italy with 11.6 billion m³ (Table 5.5). As such, this comes as no surprise, as these countries have the largest irrigated areas. More interesting and meaningful is the average volume of water used to irrigate one ha of land: Malta used by far the highest volume of irrigation water with 9 956 m³ per ha (Figure 5.22). In absolute terms, Malta used over 28 million m³ of irrigation water for 2 830 ha in 2010, about as much water as Austria and the Czech Republic combined (for 45 680 ha). The already scarce groundwater in Malta has been exploited heavily by farmers (boreholes) to extract good-quality water. This excessive groundwater extraction is leading to the salinization and farmers sometimes invest in reverse osmosis plants to desalinate the extracted water. Furthermore, nitrates use in agriculture has resulted in the pollution of Malta's aquifers. Malta's 'per hectare consumption' lies far ahead of Portugal (7 371 m³) and Spain (5 471 m³). Bulgaria, Greece and Cyprus follow with values between 3 900 m³ and 3 200 m³. The lowest value, apart from Ireland where there was practically no irrigation, was in Latvia, with an average 103 m³ per ha.

Figure 5.22: Volume of water used for irrigation, 2010
(m³ per ha of irrigated area)



Note: Ireland: data non-existing or non-significant; Belgium and Luxembourg: data not available.

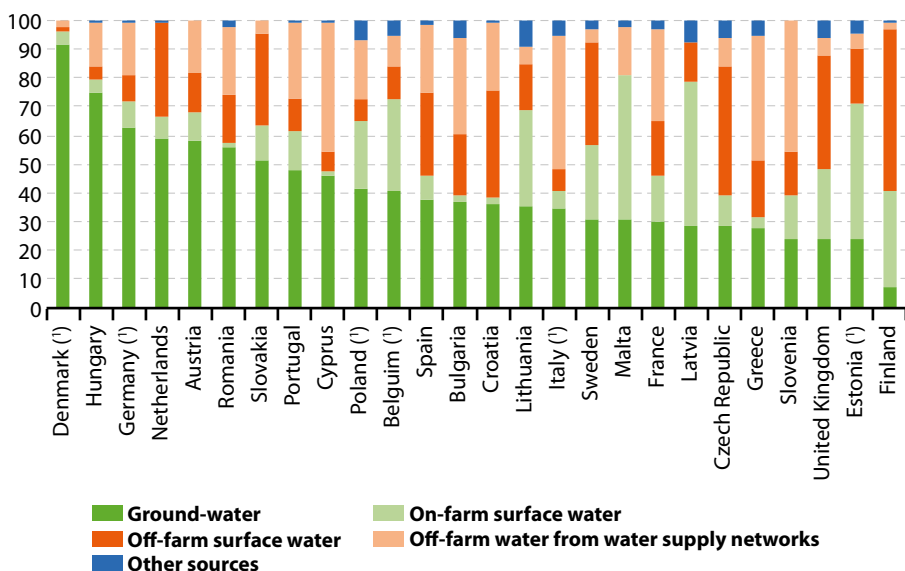
Source: Eurostat (online data code: ef_poirrig)

Source of irrigation water

Figure 5.23 shows the sources of water used for irrigation by agricultural holdings. Ground water was an important source of water used for irrigation in almost all Member States. Over 50% of holdings in Denmark, Hungary, Germany, The Netherlands, Austria, Romania and Slovakia used this source of water for irrigation in 2010. 50.6% of holdings in Malta, 50.0% in Latvia and 47.6% in Estonia used the on-farm surface water for irrigation. Over 40% of holdings in Italy, Greece, Slovenia and Cyprus reported that they used the off-farm water from water supply networks to irrigate their crops in 2010.

In the [Survey on agricultural production methods \(SAPM\) 2010](#), questions were asked on the source of irrigation. These questions were however differently interpreted by different countries. Some Member States asked the question 'What is the main source of irrigation used on your holding?' where others asked the question 'Which sources of irrigation the farmer used on the holding?' Farmers could only report one water source when the first question was asked, whereas they could report one or more water sources if the second question was asked.

Figure 5.23: Water source used for irrigation, 2010
(% of holdings using each method)



Note: Ireland: data non-existing or non-significant; Luxembourg: data not available.

(!) Only main water source for irrigation used on farms was reported.

Source: Eurostat (online data code: ef_poirrig)



DATA SOURCES AND AVAILABILITY

Data on irrigable areas and irrigated areas are collected in the [Farm structure survey \(FSS\)](#). Data for the EU-27 are only available from 2003 and for the EU-28 from 2010, while data for the EU-15 are available from 1995 onwards. Data on irrigation methods, area irrigated by crop type, as well as the volume and source of irrigation water were collected in the Survey of agricultural production methods (SAPM), which was a one-off survey carried out together with the FSS 2010. Crops under glass and [kitchen gardens](#), which are assumed to be generally irrigable and irrigated, are not considered within the scope of this section.

The legal basis for the SAPM and the FSS from 2010 onwards is Regulation (EC) No 1166/2008 of 19 November 2008 on farm structure surveys and the survey on agricultural production methods, which repealed Council Regulation (EEC) No 571/1988. The FSS are conducted consistently throughout the EU with a common methodology at a regular base and provide therefore comparable and representative statistics across countries and time, at regional levels (down to NUTS 3 level). Every 3 or 4 years the FSS is carried out as a sample survey and once in the ten years as a census. The basic unit underlying the FSS is the agricultural holding. The FSS covers all agricultural holdings with UAA of at least one hectare (ha) and also those holdings with UAA of less than 1 ha where their market production exceeds certain natural thresholds. Although the thresholds for defining an agricultural holding can be different between countries (as high as five ha of UAA in some cases), it has been ensured that the survey covers 98 % of the UAA and the livestock of each country. Bulgaria, the Czech Republic, Romania, Estonia, France, Italy, Lithuania, Luxembourg, Malta, the Netherlands, Austria, Portugal and Slovakia carried the SAPM out as a census, while Belgium, Denmark, Germany, Ireland, Greece, Spain, Cyprus, Latvia, Hungary, Poland, Slovenia, Finland, Sweden, the United Kingdom, Norway, Switzerland and Croatia carried it out as a sample survey. Although sample sizes varied, from about 3 % to a third of agricultural holdings, the level of precision is guaranteed for certain survey characteristics by the precision requirements in Annex IV to Regulation (EC) No 1166/2008.

5.3 Pesticide sales

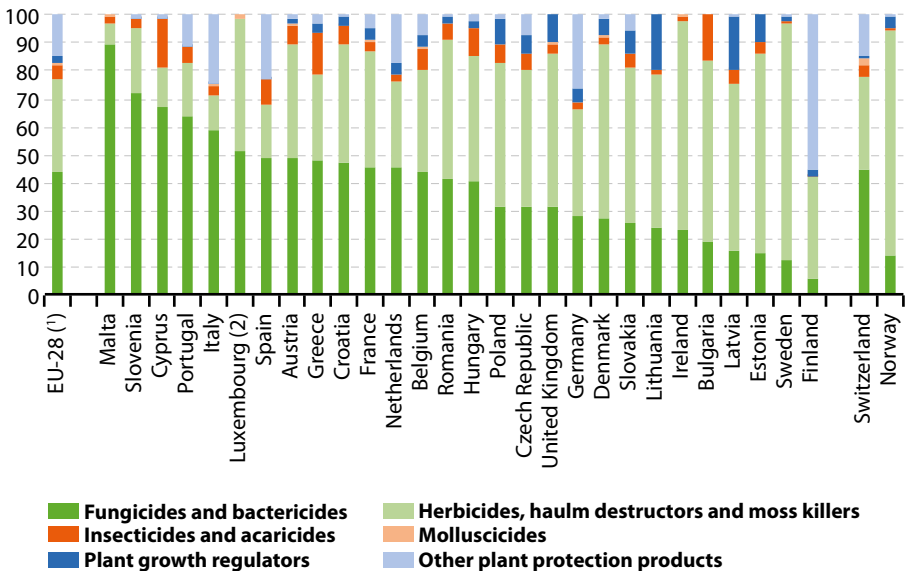
The use of pesticides in agriculture has helped to improve yields and to prevent crop losses. Pesticides include active ingredients that in spite of the beneficial actions on agricultural production could have other less positive impacts on the environment and habitats where they are used. Data on the sale of pesticides are used in the agri-environmental indicator on consumption of pesticides.

Regulation (EC) No 1185/2009 is the legal basis for the data on pesticide sales and it outlines the definitions and list of active substances. The data collected is the active substance contained in the pesticides and is categorised into six major groups according to the action of the pesticide. It focuses on data covering the sale of pesticides from national industries in EU Member States and aims to give an overview of the latest available information in the European Union (EU).

In 2014, the total quantity of pesticide sales in the EU-28 amounted to close to 400 000 tonnes. Spain (19.9%), France (19.0%), Italy (16.2%), Germany (11.6%) and Poland (5.9%) were the Member States in which the highest quantities of pesticides were sold, and together they made up 72.7% of the EU-28's pesticide sales (see Table 5.6 and Figure 5.24).

Figure 5.24: Share of pesticide sales by major groups, 2014

(%)



(1) Confidential data have been removed from the sums of pesticides sales.

(2) 'Fungicides and bactericides': 2012 data, other data: 2013.

Source: Eurostat (online data code: aei_fm_salpest09)

**Table 5.6:** Pesticide sales by major groups, 2014

	Total pesticides sales	Fungicides and bactericides	Herbicides, haulm destructors and moss killers	Insecticides and acaricides	Molluscicides	Plant growth regulators	Other plant protection products	Share in the total EU-28 pesticide sales
	(Tonnes)							(%)
EU-28 (1)	395 944.4	173 250.8	131 263.5	20 706.3	1 684.4	12 843.7	56 195.7	100.0
Belgium	7 001.1	3 095.0	2 519.7	555.8	47.7	261.2	521.6	1.8
Bulgaria	1 002.0	186.1	652.4	163.4	:	:	:	0.3
Czech Republic	5 663.4	1 788.3	2 755.3	337.7	15.5	350.3	416.2	1.4
Denmark	1 974.6	530.2	1 242.5	38.3	15.4	114.2	33.9	0.5
Germany	46 078.5	12 739.9	17 876.7	977.2	255.5	2 171.3	12 058.0	11.6
Estonia	596.0	88.2	425.8	25.3	:	56.6	:	0.2
Ireland	2 736.0	635.5	2 039.2	51.4	9.9	:	0.0	0.7
Greece	3 907.1	1 866.4	1 194.6	588.8	1.2	148.5	107.7	1.0
Spain	78 818.3	38 379.7	14 908.0	7 515.1	66.2	156.4	17 793.0	19.9
France	75 287.5	34 430.6	30 965.5	2 610.9	870.2	2 802.9	3 607.5	19.0
Croatia	2 119.1	1 004.8	889.1	143.1	5.4	72.2	4.5	0.5
Italy	64 071.1	37 907.1	7 864.4	2 251.9	75.0	3 674	15 605.2	16.2
Cyprus	1 046.7	698.1	153.4	180.6	1.0	1.2	12.5	0.3
Latvia	1 417.4	224.7	847.5	64.0	0.0	274.5	6.6	0.4
Lithuania	2 545.6	604.8	1 394.2	43.6	0.0	502.9	:	0.6
Luxembourg (2)	176.1	91.0	82.8	:	2.3	:	:	0.0
Hungary	8 959.5	3 634.1	4 011.1	916.5	3.5	203.3	190.9	2.3
Malta	108.4	97.4	7.6	2.9	0.5	0.0	:	0.0
Netherlands	10 665.6	4 869.1	3 266.4	252.0	45.1	452.0	1 780.8	2.7
Austria	3 373.2	1 641.1	1 375.8	240.2	16.2	53.5	46.4	0.9
Poland	23 550.6	7 442.5	12 073.4	1 479.2	35.3	2 128.0	392.3	5.9
Portugal	12 889.2	8 244.4	2 410.8	732.9	35.7	1.4	1 464.0	3.3
Romania	10 021.2	4 131.9	5 025.4	569.0	1.2	270.6	23.1	2.5
Slovenia	1 009.0	723.7	238.5	33.5	2.2	0.6	10.5	0.3
Slovakia	2 198.0	567.2	1 215.1	106.5	:	179.8	129.4	0.6
Finland	3 579.9	198.5	1 305.4	12.8	:	88.6	1 974.5	0.9
Sweden	2 486.7	302.3	2 103.8	34.2	:	29.3	17.1	0.6
United Kingdom	22 662.7	7 128.1	12 418.9	779.4	179.4	2 156.8	:	5.7
Norway	859.8	121.8	692.0	4.8	1.3	39.1	0.7	:
Switzerland	2 240.9	1 002.2	745.4	83.1	55.9	30.7	323.6	:

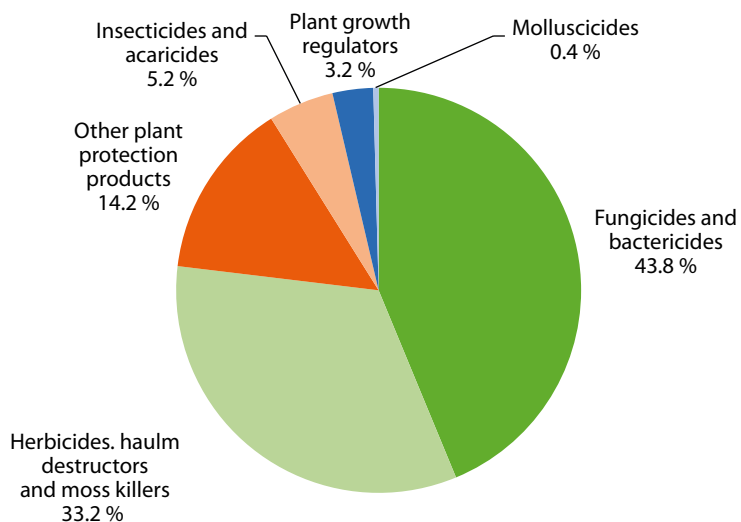
(1) Confidential data have been removed from the sums of pesticides sales. They represent 0.003 % of total pesticides sales in the EU.

(2) Fungicides and bactericides: 2012 data, other data: 2013.

Source: Eurostat (online data code: [aei_fm_salpest09](#))

'Fungicides and bactericides' were the most sold group of pesticides with a 44 % share, followed by 'herbicides, haulm destructors and moss killers' with 33 % of the total. Together with the group 'other plant protection products' (14 %), the three groups added up to 91 % of the pesticides sold in the EU-28 in 2014. Of the other three groups of pesticides, 'insecticides and acaricides' had a 5 % share of the total, plant growth regulators 3 % and 'molluscicides' held the smallest share of pesticides sales with less than 1 % (see Figure 5.25).

Figure 5.25: Pesticide sales by major groups, EU-28, 2014



Note: Confidential data have been removed from the sums. Luxembourg: 2013 data and 2012 data for 'Fungicides and bactericides'.

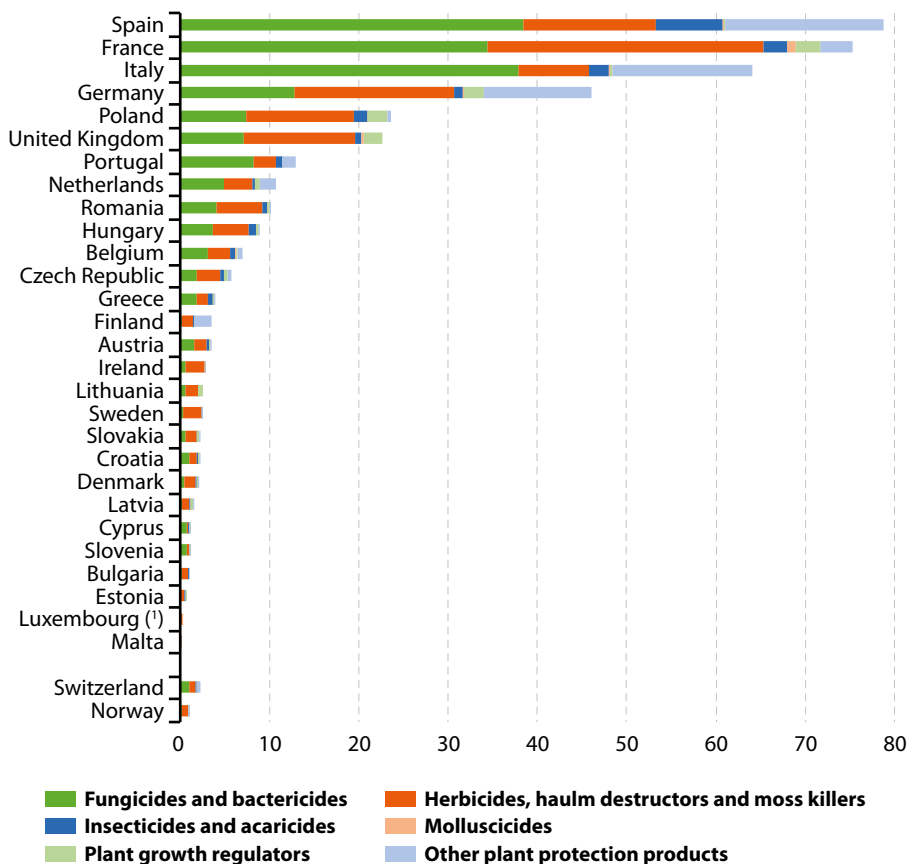
Source: Eurostat (online data code: [aei_fm_salpest09](#))



Looking at individual EU Member States, Spain, France, Italy and Germany are top ranked in the amount of sales of each group of pesticides, just like in the total amount of sold pesticides (see Figure 5.26).

Figure 5.26: Pesticide sales by major groups, 2014

(million tonnes)



Note: Confidential data have been removed from the sums of pesticides sales.

(*) 'Fungicides and bactericides': 2012 data, other data: 2013.

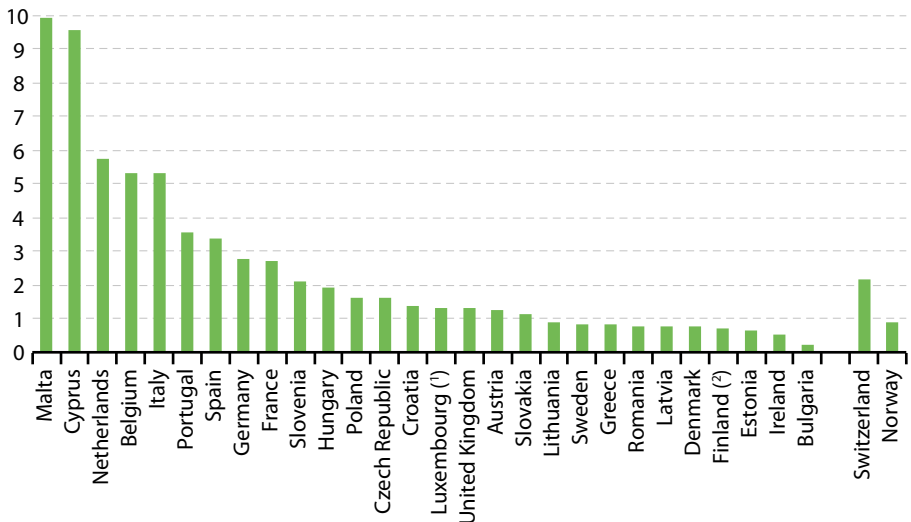
Source: Eurostat (online data code: [aei_fm_salpest09](#))

The largest quantities of 'fungicides and bactericides' (38.4 thousand tonnes), 'insecticides and acaricides' (7.5 thousand tonnes) and 'other plant protection products' (17.8 thousand tonnes) were placed on the market in Spain. France ranked top in 'herbicides, haulm destructors and moss killers' with 31.0 thousand tonnes and in 'molluscicides' with 0.9 thousand tonnes of sales. With 2.8 thousand tonnes in 2014, France also had the highest share of sold 'plant growth regulators'.

There were exceptions to the pattern of the top four countries. In the United Kingdom for instance, 12.4 thousand tonnes of 'herbicides, haulm destructors and moss killers', 0.2 thousand tonnes of 'molluscicides' and 2.2 thousand tonnes of 'plant growth regulators' were sold. Poland also ranked in the top four for sales of 'insecticides and acaricides' (1.5 thousand tonnes) and 'plant growth regulators' (2.1 thousand tonnes).

The quantities of pesticides that are put on the market yearly can be associated with other statistics directly related to the use of the pesticides. In Figure 5.27, the quantities of sold pesticides are compared to each country's UAA, and the Member States are ranked by the amount of pesticides (kilograms) per hectare (ha) of UAA. Bulgaria had the smallest proportion of pesticide sales per ha with 0.22 kg/ha. Ireland, Estonia, Finland, Denmark, Latvia, Romania, Greece, Sweden and Lithuania all had quantities of sold pesticides under 1 kg/ha of UAA.

Figure 5.27: Pesticide sales by UAA, 2014
(kilogram per hectare)



Notes: Confidential data have been removed from the sums of pesticides sales. Data on total UAA from 2013.

(1) 'Fungicides and bactericides': 2012 data, other data: 2013.

(2) Urea is used only in forestry and is excluded from the total pesticides sales.

Source: Eurostat (online data codes: [ef_kvaareg](#) and [aei_fm_salpest09](#))



None of the top four countries having the highest pesticides sales, ranked in the top four of pesticide sales per ha of UAA. With a value of 9.97 kg/ha, Malta recorded the highest quantity of pesticides per hectare. The most active substance sold and used in Malta is Sulphur, which covers around 65 % of total sales and also around 90 % of total active substances used. Cyprus had the second highest value of pesticide sales per ha of UAA, with 9.57 kg/ha.

The Netherlands, Belgium, Italy, Portugal, Spain, Germany, France and Slovenia all had amounts of pesticides sold per hectare above 2 kg/ha.

DATA SOURCES AND AVAILABILITY

The data on sales of pesticides from national industries is available in two different series:

- Data series 1997–2008: This collection presents data on sales of plant protection products communicated by EU Member States and Norway on the basis of a ‘gentlemen’s agreement’.
- Data series from reference year 2011 onward: This collection is based on [Regulation \(EC\) No 1185/2009](#) concerning statistics on pesticides which establishes a common framework for the systematic production of Community statistics on the placing on the market and use of those pesticides which are plant protection products. The current section focuses on this data series.

6

Forestry



6.1 Forests and other wooded land

The EU-28 had close to 182 million hectares (ha) of forests and other wooded land, corresponding to 43% of its land area (excluding lakes and large rivers; see Table 6.1). Wooded land covers a slightly greater proportion of the land than is used for agriculture (some 41%). In seven EU Member States, more than half of the land area was wooded in 2015. Just over three quarters of the land area was wooded in Finland and Sweden, while Slovenia reported 63%; the remaining four EU Member States, each with shares in the range of 54–56%, were Estonia, Latvia, Spain and Portugal, and in Greece the share of wooded area was 50%.

Sweden reported the largest wooded area in 2015 (30.5 million ha), followed by Spain (27.6 million ha), Finland (23.0 million ha), France (17.6 million ha), Germany (11.4 million ha) and Italy (11.1 million ha). Of the total area of the EU-28 covered by wooded land in 2015, Sweden accounted for 16.8%. Spain (15.2%) and Finland (12.7%) were the only other EU Member States to record double-digit shares.

Not all data are available for both forests and other wooded land; ownership is one example. Just 60.3% of the EU-28's forests were privately owned in 2010. There were 11 EU Member States where the share of privately owned forests was above the EU-28 average, peaking at 97.0% in Portugal. By contrast, the share of privately owned forests was below 20% in Poland and Bulgaria (where the lowest proportion was recorded, at 12.1%).

The growing stock of timber in forests and other wooded land in the EU-28 totalled some 26.3 billion m³ (over bark) in 2015: Germany had the highest share (13.9%), followed by Sweden (11.4%) and France (10.9%). Germany also had the largest growing stock in forests available for wood supply in 2015, some 3.5 billion m³, while Finland, Poland, France and Sweden each reported between 2.0 and 2.7 billion m³. The net annual increment — i.e. the average growth in volume of the stock of living trees available at the start of the year minus the average natural mortality of this stock — in forests available for wood supply was also highest in Germany, amounting to 119 million m³ in 2015 (16.5% of the total increase for the EU-28), while Sweden, France and Finland each accounted for between 11% and 13% of the net annual increment in the EU.

**Table 6.1:** Forest area and ownership, 2010 and 2015

	Land area 2010 without inland water (¹)	Forest and other wooded land 2015	Forest 2015	Forest available for wood supply 2015	Forest ownership 2010	
					Public	Private (²)
	(1 000 hectares)				(%)	
EU-28	424 978	181 918	160 931	134 486	39.7	60.3
Belgium	3 038	719	683	670	46.5	53.5
Bulgaria	10 899	3 845	3 823	2 213	87.9	12.1
Czech Republic	7 724	2 667	2 667	2 301	76.6	23.4
Denmark	4 243	658	612	572	23.7	76.3
Germany	34 877	11 419	11 419	10 888	52.0	48.0
Estonia	4 343	2 456	2 232	1 994	41.3	58.7
Ireland	6 839	801	754	632	53.2	46.8
Greece	13 082	6 539	3 903	3 595	77.5	22.5
Spain	50 176	27 627	18 418	14 711	29.2	70.8
France	55 010	17 579	16 989	16 018	24.7	75.3
Croatia	5 659	2 491	1 922	1 740	71.7	28.3
Italy	29 511	11 110	9 297	8 216	33.6	66.4
Cyprus	921	386	173	41	68.8	31.2
Latvia	6 220	3 468	3 356	3 151	52.3	47.7
Lithuania	6 268	2 284	2 180	1 924	61.4	38.6
Luxembourg	259	88	87	86	47.1	52.9
Hungary	8 961	2 190	2 069	1 779	57.6	42.4
Malta	32	0	0	:	:	:
Netherlands	3 376	376	376	301	48.5	51.5
Austria	8 242	4 022	3 869	3 339	25.8	74.2
Poland	30 633	9 435	9 435	8 234	81.9	18.1
Portugal	9 068	4 907	3 182	2 088	3.0	97.0
Romania	23 006	6 951	6 861	4 627	67.0	33.0
Slovenia	2 014	1 271	1 248	1 139	25.3	74.7
Slovakia	4 904	1 940	1 940	1 785	50.2	49.8
Finland	30 391	23 019	22 218	19 465	30.4	69.6
Sweden	41 034	30 505	28 073	19 832	24.3	75.7
United Kingdom	24 251	3 164	3 144	3 144	28.4	71.6
Iceland	10 024	193	49	26	33.3	66.7
Liechtenstein	16	7	6	4	85.7	14.3
Norway	30 547	14 124	12 112	8 259	12.3	87.7
Switzerland	4 000	1 324	1 254	1 208	86.1	13.9
Montenegro	1 345	964	827	675	52.4	47.6
FYR of Macedonia	24 913	1 131	988	804	91.6	8.4
Serbia	8 746	3 228	2 720	:	50.9	49.1
Turkey	76 960	21 862	11 943	8 183	99.9	0.1

(¹) Latest available year; France: only covers the mainland.

(²) Includes any other form of ownership.

Source: Eurostat (online data codes: [demo_r_d3area](#) and [for_area](#)); Food and Agriculture Organization of the United Nations

— Global Forest Resources Assessment, 2015

— Forest Europe 2015, as published on UNECE database (http://w3.unece.org/PXWeb2015/pxweb/en/STAT/STAT__26-TM5TAT1/)

Table 6.2: Timber resources

	Forest and other wooded land		Forest available for wood supply		Roundwood production		
	Growing stock		Net annual increment		Total	Fuelwood	Industrial roundwood
	2015		2010		2014		
	(1 000 m ³ over bark)			(1 000 m ³ under bark)			
EU-28	26 298 812	23 148 685	7 199 950	425 351	98 208	327 143	
Belgium ⁽¹⁾	168 121	170 060	4 610	:	:	:	
Bulgaria	699 000	492 000	14 361	5 570	2 534	3 036	
Czech Republic	791 244	670 898	20 463	15 476	2 111	13 365	
Denmark	125 697	115 701	6 263	3 180	1 950	1 230	
Germany	3 663 000	3 492 665	118 590	54 356	11 114	43 243	
Estonia	483 500	425 500	11 514	8 460	2 691	5 769	
Ireland ⁽¹⁾	74 698	104 000	6 678	2 831	206	2 625	
Greece ⁽²⁾	205 771	170 385	4 511	:	:	:	
Spain	1 214 079	943 981	35 479	15 911	3 435	12 476	
France ⁽¹⁾	2 860 000	2 697 000	82 871	51 671	27 220	24 451	
Croatia	420 790	388 770	8 144	5 003	1 925	3 078	
Italy ⁽¹⁾	1 448 300	1 285 958	32 543	:	:	:	
Cyprus ⁽¹⁾	10 514	3 556	47	9	5	4	
Latvia	666 900	616 100	19 680	12 597	1 299	11 298	
Lithuania	518 100	418 000	11 030	7 351	2 316	5 035	
Luxembourg ⁽¹⁾	25 961	25 756	650	:	:	:	
Hungary ⁽¹⁾	355 709	330 680	9 775	5 671	2 576	3 095	
Malta ⁽²⁾	80	0	0	0	0	0	
Netherlands	80 900	64 700	2 738	1 337	357	980	
Austria	1 155 000	1 121 000	25 136	17 089	5 059	12 030	
Poland	2 540 000	2 190 000	62 300	40 565	5 140	35 425	
Portugal ⁽²⁾	187 800	154 000	19 087	:	:	:	
Romania	1 935 300	1 293 368	29 260	15 068	4 584	10 484	
Slovenia	433 000	393 900	9 165	5 099	1 589	3 511	
Slovakia	532 100	439 600	13 465	:	:	:	
Finland	2 327 748	2 099 415	93 379	57 033	7 832	49 202	
Sweden	2 995 500	2 389 692	79 347	70 100	5 900	64 200	
United Kingdom ⁽¹⁾	380 000	652 000	23 113	11 184	1 823	9 361	
Iceland	535	329	24	:	:	:	
Liechtenstein ⁽¹⁾	1 754	1 399	25	19	19	0	
Norway	1 164 980	1 033 000	25 750	12 386	2 579	9 807	
Switzerland	442 690	426 000	9 001	4 709	1 643	3 066	
Montenegro	964 000	105 000	2 192	915	707	208	
FYR of Macedonia	1 131 000	76 000	4 566	691	577	114	
Serbia	3 228 000	353 000	:	–	–	–	
Turkey	21 862 000	1 032 000	41 536	22 835	4 300	18 535	

⁽¹⁾ Growing stock in forests and on other wooded land: 2010 data.

⁽²⁾ Growing stock: 2010 data.

Source: Eurostat (online data codes: for_remov and for_vol); Food and Agriculture Organization of the United Nations

— Global Forest Resources Assessment, 2015

— Forest Europe 2015, as published on UNECE database (http://w3.unece.org/PXWeb2015/pxweb/en/STAT/STAT__26-TMSTAT1/)

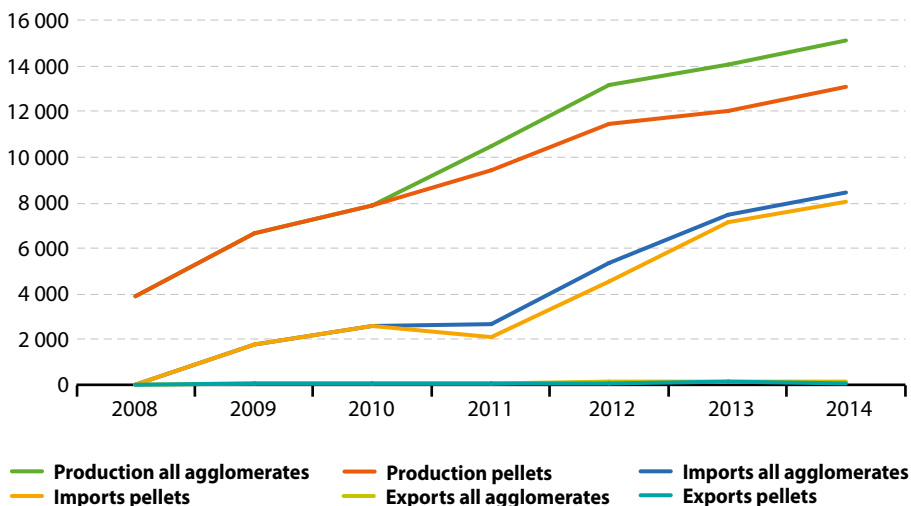


6.2 Primary wood products

Among the EU Member States, Sweden produced the most roundwood (70 million m³) in 2014, followed by Finland, Germany and France (each producing between 52 and 57 million m³) (see Table 6.3). Slightly more than one fifth of the EU-28's **roundwood production** in 2014 was used as fuelwood, while the remainder was industrial roundwood used either for **sawnwood** and veneers, or for pulp and paper production.

In 2014, two EU Member States (Sweden and Ireland) reported that over 90 % of their total roundwood production was industrial roundwood. Denmark, France and Cyprus were the only EU Member States where over half of the roundwood produced in 2014 was fuelwood, while Bulgaria, Hungary, Croatia, Estonia and Lithuania reported proportions between 32 and 45 %. In many EU Member States, however, no estimates of actual fuelwood consumption by households are included in the numbers reported. Separate studies would be needed to produce such estimates, because this wood may be acquired informally, including from forests owned by households. The numbers reported here are probably under-reported in several EU Member States, given the recent increases in the EU's production of wood pellets and other agglomerates used for energy (see Figure 6.1) and the share of wood in gross inland energy consumption (see Figures 6.2 and 6.3).

Figure 6.1: Production and trade in wood pellets and other agglomerates, EU-28, 2008–14
(1 000 tonnes)



Note: EU-27: 2008–11. Data estimated for 2011 (except 'Production'), 2012 and 2013.

Source: Eurostat (online data code: for_basic)

Table 6.3: Roundwood production, 2000–14
(1 000 m³)

	2000	2005	2010	2011	2012	2013	2014
EU-28	411 764	447 502	427 611	433 657p	433 173	434 326	425 351
EA (1)	236 540	232 925	234 993	237 590p	237 347	237 044	225 127
Belgium	4 510	4 950	4 827	5 128	6 663	:	:
Bulgaria	4 784	5 862	5 668	6 205	6 092	6 155	5 570
Czech Republic	14 441	15 510	16 736	15 381	15 061	15 331	15 476
Denmark	2 952	2 962	2 669	2 583	:	3 180	3 180
Germany	53 710	56 946	54 418	56 142	52 338	53 207	54 356
Estonia	8 910	5 500	7 200	7 110	7 290	7 655	8 460
Ireland	2 673	2 648	2 618	2 635	2 580	2 760	2 831
Greece	2 245	1 523	1 048	1 196	:	:	:
Spain	14 321	15 531	16 089	15 428	14 657	15 758	15 911
France	65 865	52 499	55 808	55 041p	51 495	51 671	51 671
Croatia	3 669	4 018	4 477	5 258	5 714	5 436	5 003
Italy	9 329	8 691	7 844	7 744	7 744	:	:
Cyprus	21	10	9	8	11	9	9
Latvia	14 304	12 843	12 534	12 833	12 530	12 708	12 597
Lithuania	5 500	6 045	7 097	7 004	6 921	7 053	7 351
Luxembourg	260	249	275	261	:	:	:
Hungary	5 902	5 940	5 740	6 232	5 946	6 027	5 671
Malta	0	0	0	0	0	0	0
Netherlands	1 039	1 110	1 081	982	8 063	1 108	1 337
Austria	13 276	16 471	17 831	18 696	18 021	17 390	17 089
Poland	26 025	31 945	35 467	37 180	38 015	38 939	40 565
Portugal	10 831	10 746	9 648	10 961	10 711	10 642	:
Romania	13 148	14 501	13 112	14 359	16 088	15 195	15 068
Slovenia	2 253	2 733	2 945	3 388	3 341	3 415	5 099
Slovakia	6 163	9 302	9 599	9 213	8 063	9 168	:
Finland	54 542	52 250	50 952	50 767	49 967	56 992	57 033
Sweden	63 300	98 200	72 200	71 900	69 499	69 600	70 100
United Kingdom	7 791	8 519	9 718	10 020	10 120	10 821	11 184
Iceland	0	0	:	:	4	:	:
Liechtenstein	:	:	25	26	23	19	19
Norway	8 156	9 667	10 443	10 291	10 572	11 598	12 386
Switzerland	9 238	5 285	4 938	4 861	4 466	4 577	4 709
Montenegro	:	:	915	915	915	915	915
FYR of Macedonia	1 052	822	631	597	779	691	691
Turkey	15 939	16 185	20 597	21 039	21 959	20 858	22 835
Brazil	235 402	231 570	235 432	253 144	266 769	264 443	264 443
Canada	201 845	203 121	142 013	148 178	148 183	152 076	154 259
China	323 646	302 037	350 633	346 359	341 662	347 512	347 512
Indonesia	137 830	123 791	113 849	117 994	117 523	115 232	115 232
India	318 553	350 451	358 066	358 293	357 761	357 226	357 226
Russia	158 101	182 000	175 499	191 225	192 055	194 461	203 000
United States	466 549	467 347	376 572	395 141	387 512	396 818	398 693

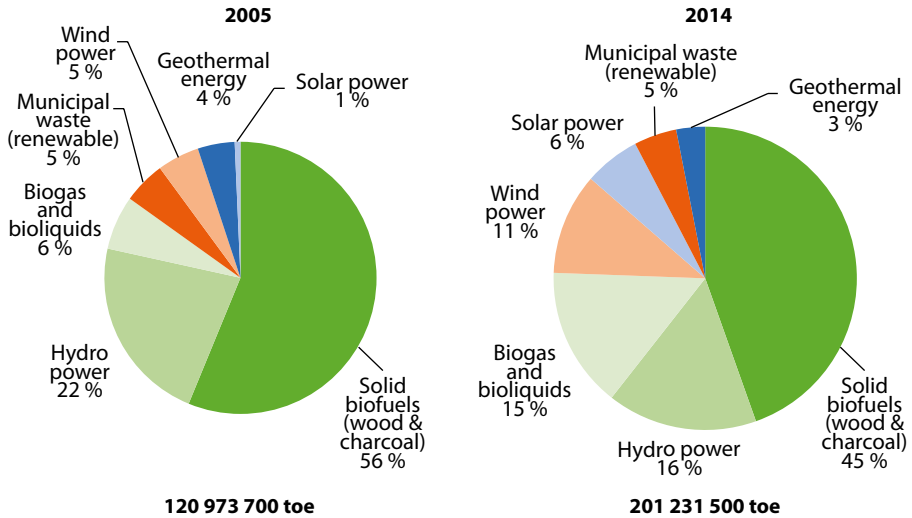
Note: The data that were not available were nevertheless estimated by Eurostat and are included in the EU aggregates.

(1) EA-11 for 2000, EA-12 for 2005, EA-16 for 2010, EA-17 for 2011–13, EA-18 for 2014

Source: Eurostat (online data code: [for_remov](#))



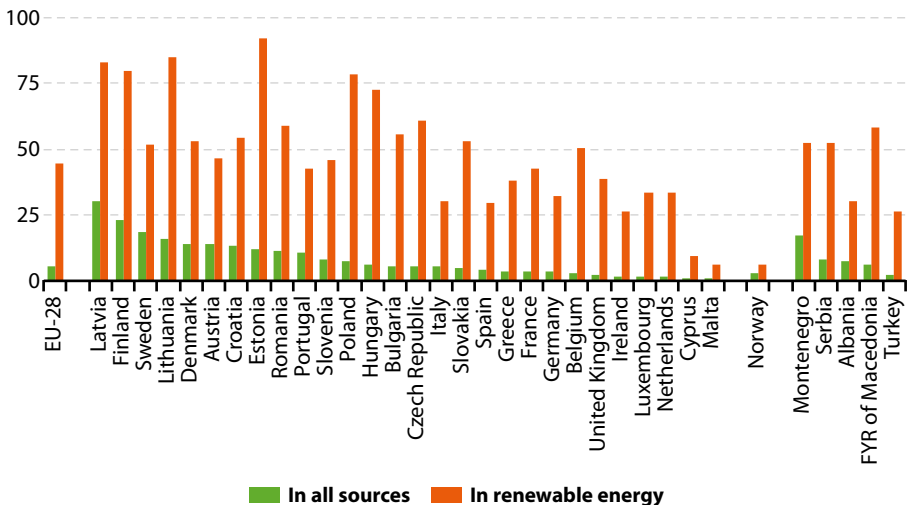
Figure 6.2: Gross inland consumption of renewable energy, EU-28, 2005 and 2014



Source: Eurostat (online data code: [nrg_107a](#))

Figure 6.3: Wood as a source of energy, 2014

(% share of wood and wood products in gross inland energy consumption, in toe)

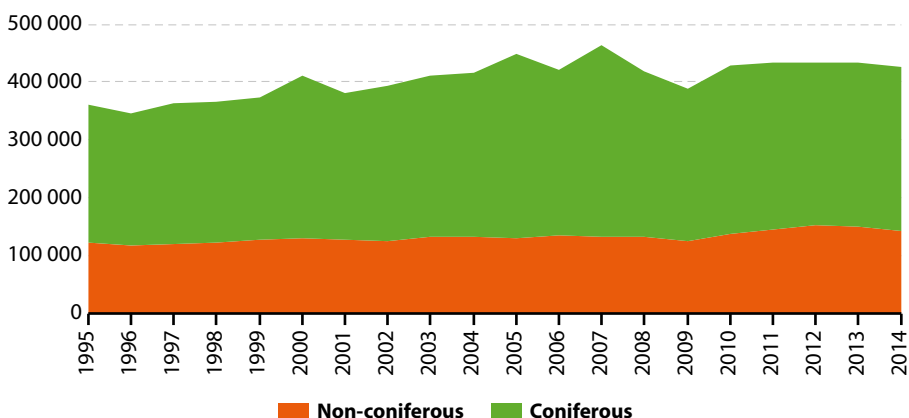


Source: Eurostat (online data codes: [nrg_100a](#) and [nrg_107a](#))

The overall level of EU-28 roundwood production reached an estimated 425 million m³ in 2014, some 37 million m³ (8%) less than the peak output level recorded in 2007. Note that some of the peaks (most recently 2000, 2005 and 2007) in roundwood production were due to forestry and logging having to cope with unplanned numbers of trees that were felled by severe storms.

From 1996 to 2007, there was a steady increase in the level of roundwood production in the EU-28. While the output of non-coniferous (broadleaved or hardwood) species remained relatively stable, there were greater year-on-year differences for coniferous (softwood) species (see Figure 6.4). The effects of the financial and economic crisis led to a drop of the level of EU-28 coniferous production in 2008, a pattern confirmed by a further reduction in 2009. The output has since returned to pre-crisis levels of approximately 280 million m³ per annum. Non-coniferous production increased relative to coniferous production ever since the crisis years. In 2010, EU-28 total roundwood production rebounded strongly by 10% and continued to rise in 2011, levelled out in 2012 and 2013, and decreased by – 2% in 2014.

Figure 6.4: Annual production of roundwood, EU-28, 1995–2014
(1 000 m³)



Note: All data are estimated, 2011 provisional.

Source: Eurostat (online data code: [for_remove](#))

The total output of sawnwood across the EU-28 was approximately 100 million m³ per year from 2010 to 2014, some 14% lower than in 2007, the first year of the global financial and economic crisis, which was also the year of the all-time maximum in production at 116 million m³. The situation has now returned to the average production level of the years preceding the crisis. Germany and Sweden were the EU's leading sawnwood producers, regularly accounting for approximately 21% and 17% of the EU-28 total output over the past few years (see Table 6.4).



Table 6.4: Sawnwood production, 2000–14
(1 000 m³)

	2000	2005	2010	2011	2012	2013	2014
EU-28	100 706	108 706	100 815	101 994	100 058	99 695	101 854
EA (1)	61 337	66 777	59 673	60 627	57 947	57 644	57 048
Belgium	1 150	1 285	1 383	1 388	1 342	:	:
Bulgaria	312	569	554	728	698	803	:
Czech Republic	4 106	4 003	4 744	4 454	4 259	4 037	3 861
Denmark	364	196	448	372	:	358	358
Germany	16 340	21 931	22 059	22 628	21 081	21 459	21 772
Estonia	1 436	2 063	1 771	1 503	1 491	1 558	1 600
Ireland	888	1 015	772	761	782	825	907
Greece	123	191	118	106	:	109	108
Spain	3 760	3 660	2 038	2 162	1 971	2 047	2 245
France	10 536	9 715	8 316	8 675p	8 067	7 901	7 697
Croatia	642	624	677	754	851	1 192	1 294
Italy	1 630	1 590	1 200	1 250	1 370	1 360	1 430
Cyprus	9	4	4	3	3	2	2
Latvia	3 900	4 227	3 150	3 432	3 316	3 367	3 657
Lithuania	1 300	1 445	1 272	1 260	1 150	1 120	1 345
Luxembourg	133	133	94	78	:	:	:
Hungary	291	215	133	:	302	109	121
Malta	0	0	0	0	0	0	0
Netherlands	389	279	231	238	1 430	216	228
Austria	10 390	11 074	9 603	9 636	8 952	8 534	8 351p
Poland	4 262	3 360	4 220	4 422	4 249	4 321	4 719
Portugal	1 427	1 010	1 045	1 044	1 097	854	919
Romania	3 396	4 321	4 323	4 442	5 500	5 532	5 762
Slovenia	439	527	760	703	660	660	700
Slovakia	1 265	2 621	2 576	2 204	1 430	1 430	1 750
Finland	13 420	12 269	9 473	9 750	9 440	10 440	10 940
Sweden	16 176	17 600	16 750	16 500	16 492	16 074	17 500
United Kingdom	2 622	2 780	3 101	3 279	3 409	3 581	3 764
Iceland	0	0	:	:	0	:	:
Liechtenstein	:	:	4	8	:	0	0
Norway	2 280	2 326	2 118	2 271	2 289	2 206	2 407
Switzerland	1 625	1 591	1 457	1 313	1 135	1 044	1 140
Montenegro	:	:	52	58	53	53	53
FYR of Macedonia	36	18	5	3	8	4	4
Turkey	5 528	6 445	6 243	6 461	6 682	6 405	6 635
Brazil	21 300	23 557	17 452	16 201	15 167	15 397	15 397
Canada	50 465	60 187	38 667	38 880	40 564	42 813	43 351
China	6 675	17 960	37 231	44 638	55 740	63 040	68 440
Indonesia	7 900	14 789	6 889	6 889	6 889	6 889	6 889
India	6 500	4 330	4 169	4 169	4 169	4 169	4 169
Russia	20 000	23 913	28 870	31 215	32 230	33 500	33 900
United States	91 076	97 020	60 013	63 174	67 474	71 115	74 803

Note: data that were not available were nevertheless estimated by Eurostat and are included in the EU-aggregates.

(1) EA-11 for 2000, EA-12 for 2005, EA-16 for 2010, EA-17 for 2011–13, EA-18 for 2014.

Source: Eurostat (online data code: [for_swpan](#))

6.3 Wood as a source of energy

Energy supply has always been one of the main uses for wood. Policy interest in energy security and renewable sources of energy, combined with relatively high oil and gas prices, has led in recent years to a reassessment of the possible use of wood as a source of energy. The use of **renewables** is enshrined in legally binding targets that have been set for each EU Member State concerning the role to be played by renewable energy sources through to 2020. The 2016 edition of the indicator report on the Europe 2020 strategy ‘*Smarter, greener, more inclusive?*’ provides information on the progress being made towards the target of achieving a 20% share of renewable energy in final energy consumption by 2020. This goal is designed to help reduce emissions, improve the security of energy supply and reduce dependence on energy imports.

Between 2005 and 2014, the consumption of renewable energy within the EU-28 increased by 66%. Some renewable energy sources grew exponentially. The consumption of solar energy for example, grew by 1 349% between 2005 and 2014. However, the consumption of more established renewable energy sources, such as **biomass** other than wood (including municipal waste) also increased substantially (+ 184%) during the same period. Among renewable energy sources, total biomass (wood and other biomass including **municipal waste**) plays an important role, accounting for just over two thirds (64%) of the **gross inland energy consumption** of renewables in the EU-28 in 2014. As part of this biomass total, wood and agglomerated wood products such as pellets and briquettes provided the highest share of energy from organic, non-fossil materials of biological origin, accounting for almost half (45%) of the EU-28’s gross inland energy consumption of renewables in 2014.

In many EU Member States, wood was the most important single source of energy from renewables. Wood and wood products accounted for 5.6% of the total energy consumed within the EU-28 in 2014. The share of wood and wood products in gross inland energy consumption ranged from over 20% in Latvia and Finland down to less than 1% in Cyprus and Malta.

Wood was the source for more than three quarters of the renewable energy consumed in Estonia, Lithuania, Latvia, Finland and Poland. By contrast, the share of wood in the mix of renewables was relatively low in Cyprus and Malta (where the lowest share was reported, 6.2%); this was also the case in oil- and gas-rich Norway (6.4%).

Wood pellets and other agglomerated wood products are made from dried sawdust, shavings or wood powder, with the raw material being subjected to high pressure to increase the density of the final product. Pellets and agglomerates are currently the most economical way of converting biomass into fuel and are a fast-growing source of energy in Europe. They can be used for power production or directly for combustion in residential and commercial heating.

The EU-28 was the largest global producer of wood pellets, its output reaching an estimated 13.1 million tonnes in 2014; production in the EU-28 rose by 97% overall between 2009 and 2014. The EU-28 is also a net importer of wood pellets: the level of imports from non-EU Member States rose to 8 million tonnes in 2014, an overall increase of 364% compared with 2009. The main suppliers of EU imports were the United States and Canada; much less is supplied by Russia and other countries (i.e. Belarus and Ukraine).



Germany produced an estimated 2.1 million tonnes of wood pellets in 2014, or 16%, of the EU-28's output. Sweden was the second largest producer with around 1.6 million tonnes, followed by Latvia (1.3 million tonnes), France (1.2 million tonnes), Austria and Portugal (945 and 944 thousand tonnes) (see Table 6.5).

Table 6.5: Production and trade in wood pellets, 2010 and 2014
(1 000 tonnes)

	Production		Imports (¹)		Exports (¹)	
	2010	2014	2010	2014	2010	2014
EU-28	7 898	13 123	2 576	8 070	70	98
Belgium	0	:	315	657	38	96
Bulgaria	7	:	1	20	8	155
Czech Republic	85	671	15	299	99	701
Denmark	0	92	1 443	2 106	35	174
Germany	1 744	2 078	270	370	740	627
Estonia	423	720	50	62	421	641
Ireland	28	32	12	0	0	0
Greece	0	0	0	21	0	1
Spain	184	250	13	37	5	40
France	449	1 200	144	138	231	124
Croatia	:	124	:	4	:	161
Italy	539	450	816	1 936	2	11
Cyprus	0	0	0	1	0	0
Latvia	615	1 280	9	88	589	1 277
Lithuania	205	250	44	72	213	300
Luxembourg	8	:	4	:	11	:
Hungary	0	3	43	8	12	13
Malta	0	0	0	0	0	0
Netherlands	120	279	1 024	383	135	233
Austria	686	945	231	342	397	481
Poland	429	620p	34	52	69	274
Portugal	486	944	64	38	550	750
Romania	175	810	3	3	165	413
Slovenia	65	100	45	159	42	111
Slovakia	87	:	4	19	38	98
Finland	177	324	11	46	109	56
Sweden	1 386	1 577	697	522	117	253
United Kingdom	0	335	551	7 220	60	50
Norway	45	57	14	75	1	17
Switzerland	0	160	:	59	:	3

(¹) Extra-EU trade for the EU-28 aggregate.

Source: Eurostat (online data code: [for_basic](#))

Although potential biomass supplies within most EU Member States are substantial, some countries import significant volumes of fuel pellets and other forms of biomass as they seek to meet their renewable energy targets, raising concerns about the impact of importing wood as a source of energy and the consequences this may have on the global sustainability of forests and resulting levels of carbon emissions.

The United Kingdom was the biggest importer of wood pellets in 2014 among the EU-28 Member States, with some 7.2 million tonnes (note that this figure relates to total imports, from non-EU countries as well as from Member States). Denmark and Italy each imported around 2 million tonnes of wood pellets in 2014. By contrast, Latvia was the only EU Member State to export more than 1 million tonnes of wood pellets in 2014, followed by Portugal with 750 thousand tonnes and the Czech Republic with 701 thousand tonnes. The Czech Republic also exported 591 thousand tonnes of other agglomerates, such as wood briquettes ⁽¹⁾.

6.4 Forestry and logging: economic indicators and employment

A range of economic indicators are presented for forestry and logging activities across EU Member States in Table 6.6. The data come from EU forest accounts, which complement the other data collections. These data confirm the information presented at the start of this chapter, insofar as the largest forestry and logging activities on the basis of gross value added generated in 2013 were found in Sweden, Germany and Finland.

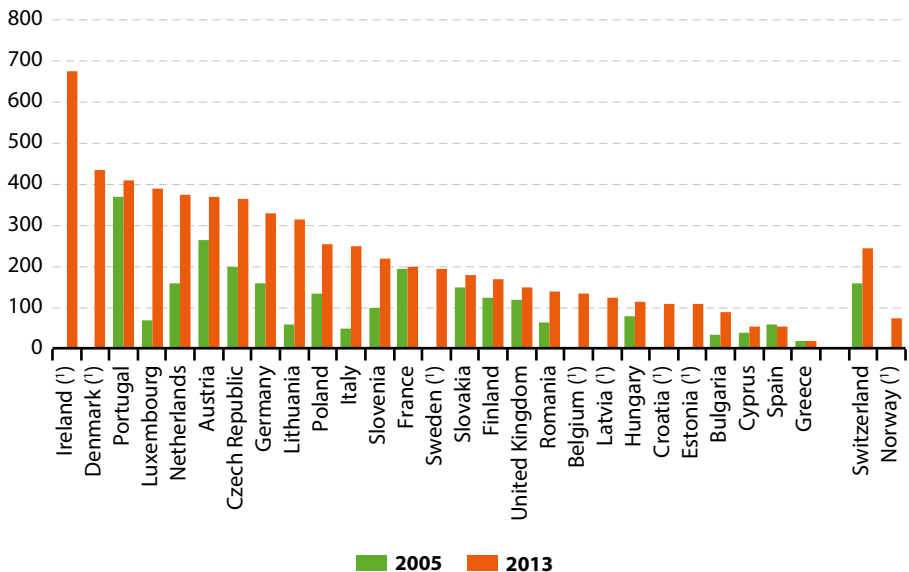
Gross fixed capital formation is an indicator of the level of investment in an industry and as such may show how competitive the industry is, in relation to its total gross value added. On the basis of the information that is available for 21 EU Member States, EUR 2.9 billion was invested in forestry and logging in 2013, amounting to 12.2% of gross value added. Almost half of the investment that took place in 2013 could be attributed to Sweden, Finland and Germany. The highest proportions of gross fixed capital formation compared with value added were recorded in Lithuania (30.4%), Cyprus (28.8%) and Greece (26.3%), although in the case of Cyprus and Greece these figures tended to reflect low levels of added value rather than high levels of investment. They were followed by Sweden (17.8%), while Finland and Austria each recorded proportions of gross fixed capital formation compared with gross value of 13.5%.

⁽¹⁾ See table 'Roundwood, fuelwood and other basic products' ([for_basic](#)).



The ratio of value added generated within the forestry and logging sector compared with the forest area available for wood supply is an indicator that can be used to analyse the productivity of forestry activities across the EU (see Table 6.6 and Figure 6.5). The indicator shows that in 2013, the highest amounts of value added per forest area in the EU were in Ireland, Denmark, Portugal, Luxembourg, the Netherlands and Austria.

Figure 6.5: Forestry and logging value added per forest area available for wood supply, 2005 and 2013
(EUR/hectare)



Note: ranked on 2013. Malta: not applicable. Forest area: 2015 data used for the calculation.

(¹) 2005: not available.

Source: Eurostat (online data codes: [for_eco_cp](#) and [for_area](#))

Table 6.6: Economic indicators for forestry and logging, 2005 and 2013

	Gross output		Gross value added at basic prices		Gross fixed capital formation		Gross value added/forest area available for wood supply		
	(million EUR)								(EUR/hectare)
	2005	2013	2005	2013	2005	2013	2005	2013 (¹)	
EU-28	:	52 715	:	26 155	:	:	:	194	
Belgium	:	436	:	91	:	:	:	135	
Bulgaria	266	579	84	197	11	18	33	89	
Czech Republic	1 424	2 308	496	833	63	107	197	362	
Denmark	:	556	:	249	:	:	:	435	
Germany	4 141	8 780	1 738	3 581	168	272	160	329	
Estonia	:	500	:	216	:	:	:	108	
Ireland	:	998	:	426	:	:	:	674	
Greece	71	79	54	60	4	16	16	17	
Spain	1 582	944	787	762	:	:	57	52	
France	5 531	6 129	2 968	3 136	472	261	195	196	
Croatia	:	299	:	189	:	19	:	109	
Italy	456	2 698	365	2 061	83	222	47	251	
Cyprus	2	5	2	2	2	1	38	55	
Latvia	:	1 020	:	392	:	:	:	124	
Lithuania	172	1 344	102	602	10	183	55	313	
Luxembourg	9	94	6	33	1	3	69	387	
Hungary	339	451	132	200	24	:	79	113	
Malta	:	0	:	0	:	0	:	0	
Netherlands	133	267	46	113	10	7	157	375	
Austria	1 786	2 533	873	1 232	155	167	261	369	
Poland	1 991	4 663	1 110	2 097	137	268	132	255	
Portugal	1 066	1 175	810	856	93	82	367	410	
Romania	531	1 523	314	634	:	47	62	137	
Slovenia	195	385	115	250	8	14	99	220	
Slovakia	624	720	259	322	33	24	148	180	
Finland	3 235	4 655	2 422	3 278	388	442	121	168	
Sweden	:	8 425	:	3 878	:	692	:	196	
United Kingdom	791	1 149	357	464	20	54	118	148	
Norway	:	1 163	:	597	:	66	:	72	
Switzerland	525	778	186	294	83	112	158	244	

(¹) 2015 forest area used for the calculation.

Source: Eurostat (online data codes: [for_eco_cp](#) and [for_area](#))



Table 6.7 provides information in relation to employment within the EU's forestry and logging sector based mostly on the EU Labour Force Survey, completed with some data from EU forest accounts. The largest workforce in the EU's forestry and logging sector was recorded in Poland, with 72 500 persons employed in 2013. There were also relatively large workforces in Romania (53 900), Italy (47 000), Germany (35 300) and France (32 000).

Table 6.7: Employment in forestry and logging, 2005 and 2013

	Persons employed		Persons employed/ forest area available for wood supply		Apparent labour productivity			
	2008 ⁽¹⁾	2013 ⁽²⁾	2005 ⁽³⁾	2013 ⁽⁴⁾	2005 ⁽⁵⁾	2013 ⁽⁵⁾	2005 ⁽⁵⁾	2013
	(1 000)		(persons employed/ 1 000 ha)		(1 000 m ³ removals/ person employed)		(1 000 EUR gross value added/person employed)	
Belgium	3.1	2.3	4.7	3.4	1.6	2.9	:	39.5
Bulgaria	25.0	22.0	9.8	9.9	0.2	0.3	3.4	9.0
Czech Republic	30.9	29.1	12.3	12.6	0.5	0.5	16.0	28.6
Denmark	2.7	3.0	5.1	5.2	1.1	1.1	:	83.0
Germany	44.2	35.3	4.1	3.2	1.3	1.5	39.3	101.5
Estonia	7.1	7.0	3.4	3.5	0.8	1.1	:	30.8
Ireland	1.9	3.2	3.3	5.1	1.4	0.9	:	133.2
Greece	7.1	3.8	2.1	1.1	0.2	:	7.6	15.8
Spain	32.0	23.3	2.3	1.6	0.5	0.7	24.6	32.7
France	48.5	32.0	3.2	2.0	1.1	1.6	61.2	98.0
Croatia	13.0	10.5	7.4	6.0	0.3	0.5	:	18.0
Italy	41.7	47.0	5.4	5.7	0.2	0.2	8.8	43.8
Cyprus	0.9	0.6	21.7	14.6	0.0	0.0	1.8	3.8
Latvia	15.1	19.2	4.9	6.1	0.9	0.7	:	20.4
Lithuania	14.2	12.2	7.7	6.3	0.4	0.6	7.2	49.4
Luxembourg	:	:	:	:	:	:	:	:
Hungary	12.6	21.6	7.5	12.1	0.5	0.3	10.5	9.3
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Netherlands	2.2	2.0	7.5	6.6	0.5	0.6	21.0	56.5
Austria	11.7	9.2	3.5	2.8	1.4	1.9	74.6	133.9
Poland	60.5	72.5	7.2	8.8	0.5	0.5	18.3	28.9
Portugal	16.0	13.1	7.3	6.3	0.7	0.8	50.6	65.3
Romania	49.1	53.9	9.7	11.6	0.3	0.3	6.4	11.8
Slovenia	4.5	3.6	3.9	3.2	0.6	0.9	25.6	69.5
Slovakia	25.4	23.6	14.5	13.2	0.4	0.4	10.2	13.6
Finland	22.7	21.5	1.1	1.1	2.3	2.7	106.7	152.5
Sweden	24.9	24.8	1.2	1.3	3.9	2.8	:	156.4
United Kingdom	21.1	21.4	7.0	6.8	0.4	0.5	16.9	21.7
Norway	4.3	3.2	0.5	0.4	2.2	3.6	:	186.6
Switzerland	7.2	12.4	6.1	10.3	0.7	0.4	25.9	23.7

(1) Belgium, Denmark, Ireland, Cyprus, Lithuania and the Netherlands: unreliable data.

(2) Belgium, Denmark, Cyprus, the Netherlands and Slovenia: unreliable data.

(3) 2008 LFS employment data used for the calculation.

(4) 2015 forest area used for the calculation.

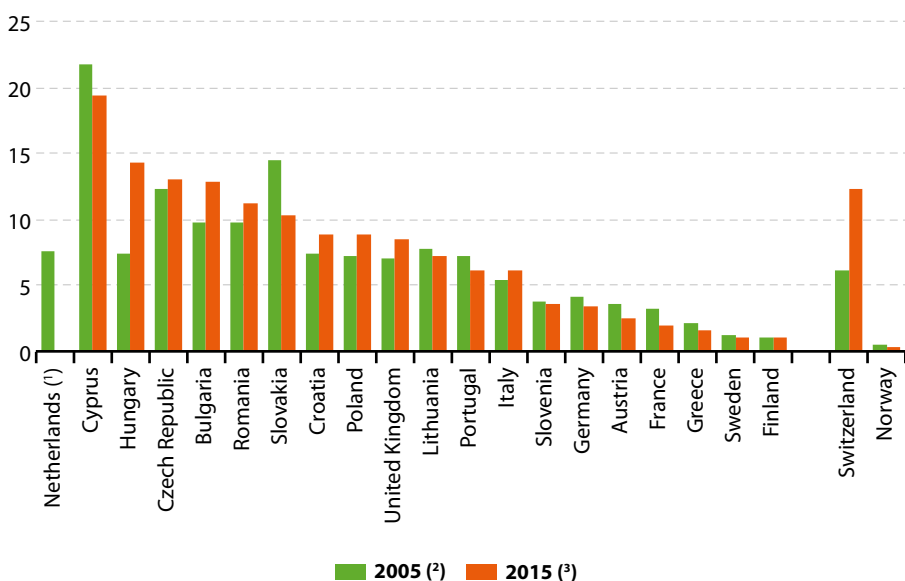
(5) Belgium and Italy: 2012 data.

Source: Eurostat (online data codes: [for_emp_lfs](#), [for_area](#), [for_remov](#) and [for_eco_cp](#))

The ratio of labour input per area of exploited forest provides some information on the labour intensity of the forestry sector across the EU Member States. This indicator varies considerably between countries, ranging from a high of around 14.6 employed persons per 1 000 ha in Cyprus to less than 2 employed persons per 1 000 ha in Spain, Sweden, Greece and Finland. Some of the differences across EU Member States may, at least in part, be explained by factors such as the density of the growing stock, the tree species and the local terrain in areas where forestry and logging takes place.

The labour productivity of the forestry and logging sector (calculated as gross value added per person employed) also varied substantially across the EU Member States in 2013. The highest levels of labour productivity using this measure were recorded in Sweden (EUR 156 400 per person employed) and Finland (EUR 152 500 per person employed), while at the other end of the range, Bulgaria, Cyprus and Hungary recorded productivity levels that were below EUR 10 000 per person employed.

Figure 6.6: Employment per area of forest available for wood supply, 2005 and 2015 (persons employed/1 000 ha)



Note: ranked on 2015. EU Member States that are not shown are not available or not applicable.

(1) 2015 data not available.

(2) 2008 LFS employment data used for the calculation; Cyprus, Lithuania and the Netherlands: LFS data unreliable.

(3) Cyprus, the Netherlands and Slovenia: LFS data unreliable.

Source: Eurostat (online data codes: for_emp_lfs and for_area)



6.5 Wood-based industries

The EU's wood-based industries cover a range of downstream activities, including woodworking industries, large parts of the furniture industry, pulp and paper manufacturing and converting industries, and the printing industry. Together, some 432 000 enterprises were active in wood-based industries across the EU-28; they represented more than one in five (20.8%) manufacturing enterprises across the EU-28, highlighting that - with the exception of pulp and paper manufacturing that is characterised by economies of scale - many wood-based industries had a relatively high number of small or medium-sized enterprises.

The economic weight of the wood-based industries in the EU-28 as measured by gross value added was equivalent to EUR 129 billion or 7.9% of the manufacturing total in 2013. The distribution of value added across each of the four wood-based activities in 2013 is presented in Table 6.8. Within the EU-28's wood-based industries, the highest share was recorded for pulp, paper and paper products manufacturing (32% or EUR 41 billion), while the other three sectors had nearly equal shares — printing and service activities related to printing and the manufacturing of wood and wood products each amounted to 23% of the gross value added of wood based industries while the manufacture of furniture made up 22%.

Table 6.8: Main indicators for wood-based industries, EU-28, 2005 ⁽¹⁾ and 2013

Activity (NACE Rev. 2)	Number of enterprises (1 000)		Gross value added at factor cost (billion EUR)		Number of persons employed (1 000)	
	2005	2013	2005	2013	2005	2013
Manufacturing (C)	2 183	2 080 d	1 668	1 630 d	34 185	29 700 d
Wood-based industries (16+17+31)	472	432	159	129	4 310	3 305
Manufacture of wood and wood products (16)	188	172	36	30	1 292	967
Manufacture of pulp, paper and paper products (17)	21	20 d	46	41	757 d	640
Printing and service activities related to printing (18.1) ⁽²⁾	133	120 du	41	29	978	727
Manufacture of furniture (31)	130 du	120	36	28	1 284	972

(1) 2005: EU-27.

(2) Data based on NACE rev. 1.1.

'd' : definition differs, see metadata.

'u' : low reliability.

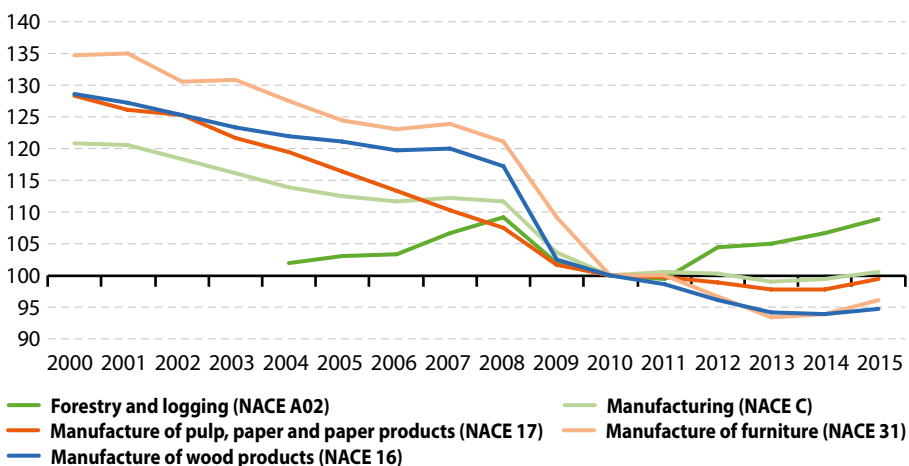
Source: Eurostat (online data codes: sbs_na_ind_r2 and sbs_na_2a_dade)

Between 2005 and 2013 the overall added value generated within the EU-28's manufacturing industries fell by 2.3%. The wood-based industries in the EU-28 experienced a decrease in activity as gross value added fell by 19.1%. Reductions in activity were recorded by all four wood-based industries, with the largest decline in output recorded for printing and service activities related to printing (– 28.0%). The added value generated by the EU-28's wood and wood products manufacturing enterprises fell by 18.2% between 2005 and 2013, and manufacturing of pulp, paper and paper products decreased 9.5%.

Wood-based industries employed 3.3 million persons across the EU-28 in 2013, or 11.1% of the manufacturing total. There were just around 1 million persons employed within both the manufacture of wood and wood products and the manufacture of furniture, 727 000 persons in printing, while the lowest level of labour input (640 000 persons) was recorded for the relatively capital-intensive and highly automated activity of pulp, paper and paper products manufacturing.

A longer time series and fresher data are available concerning the development of employment within three of the wood-based industries. Across the EU-28, manufacturing employment fell by 16.7% during the 2000–15 period, while the largest losses among the three wood-based industries shown in Figure 6.7 were recorded for furniture manufacturing (28.7% fewer persons employed). Pulp, paper and paper products was the least affected manufacturing industry, noting a 22.4% reduction in employment during the 2000–15 period, while employment in manufacturing of wood products dropped by 26.3%. The forestry and logging industry had an employment increase of 6.9% from 2004 to 2015.

Figure 6.7: Employment in wood-based industries compared with total manufacturing, EU-28, 2000–15
(2010 = 100)



Source: Eurostat (online data codes: sts_inlb_a_for_emp_lfs1 and for_emp_lfs)



Each of these wood-based industries, in keeping with most manufacturing sectors, experienced a reduction in the number of persons employed during the 2000–15 period. The development of EU-28 employment for wood and wood products and furniture manufacturing closely followed the overall pattern for total manufacturing during the period 2000–08. Thereafter, with the onset of the global financial and economic crisis, job losses for these two wood-based industries accelerated at a faster pace than the manufacturing average. In contrast, employment in the upstream supply of timber to the wood-based industries presented a peak in 2008 (following the 2007 storms) and an increase from 2011 onward.

6.6 Tropical wood imports to the EU

The EU has agreed a voluntary scheme titled the [Forest Law Enforcement, Governance and Trade \(FLEGT\) action plan](#) to fight illegal logging and associated trade. One key element of the plan is to ensure that only legally harvested timber is imported to the EU. The EU's legal framework for the scheme is [Regulation \(EC\) No 2173/2005](#) adopted in December 2005 'on the establishment of a FLEGT licensing scheme for imports of timber into the European Community' and a 2008 [Regulation \(EC\) No 1024/2008](#) laying down detailed measures for the introduction of the scheme.

Bilateral FLEGT agreements between the EU and various tropical wood producing nations are designed to halt trade in illegal timber, notably with a license scheme to verify the legality of timber exported to the EU. Agreements have been concluded or are being negotiated with fifteen tropical countries that have signed or are in the process of signing voluntary partnership agreements (VPAs) with the EU: Cameroon, the Central African Republic, Ghana, Indonesia, Liberia, Democratic Republic of the Congo, Cote d'Ivoire, the Democratic Republic of the Congo, Gabon, Guyana, Honduras, Laos, Malaysia, Thailand and Vietnam.

Table 6.9 (and Figure 6.8) shows the value of all wood imports to the EU-28 from the 15 FLEGT-VPA countries, while Table 6.10 (and Figure 6.9) shows the value of imports of wood specified as tropical. Both tables also show the respective total imports to the EU-28 from all countries of the world.

Table 6.9 shows the potential value of all legal timber that could enter the EU from its partners with bilateral FLEGT agreements. The value of these [imports reached](#) a peak of EUR 2.7 billion in 2007, before falling by 10% in 2008 and by another 33% in 2009 (see Figure 6.8). This shows how hard the global financial and economic crisis hit these high-value imports. There was a modest recovery in 2010, but a further decline in the period 2011–14, at the end of which the EU-28's imports from these countries totalled only EUR 1 372 billion.

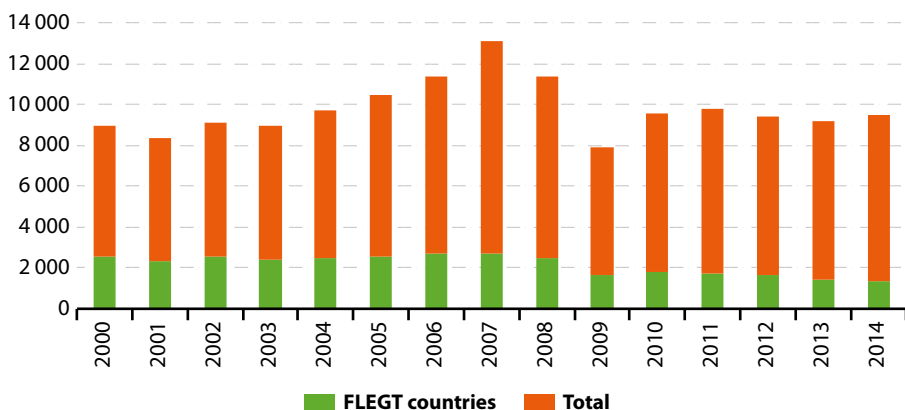
Table 6.9: Total wood imports to the EU and the share of FLEGT countries, EU-28, 2000–14
(million EUR)

	2000	2005	2010	2011	2012	2013	2014
All countries of the world	8926.0	10427.4	9532.6	9767.1	9421.3	9209.0	9463.6
FLEGT-VPA countries⁽¹⁾	2583.3	2564.6	1827.3	1758.8	1618.9	1414.3	1371.9
Cameroon	467.3	427.1	269.1	298.5	277.6	231.6	229.4
Central African Republic	30.4	24.7	10.1	10.7	9.7	6.8	5.6
Congo	83.3	101.1	79.9	60.8	53.9	65.3	64.8
Côte d'Ivoire	24.8	69.5	57.9	56.5	42.2	42.7	32.0
Democratic Republic of the Congo	204.2	269.9	168.5	161.8	140.8	147.1	143.8
Gabon	261.9	244.4	120.7	102.1	100.2	86.1	94.5
Ghana	126.4	121.9	50.3	50.3	42.0	35.4	34.8
Guyana	70.3	:	2.3	16.2	11.0	4.7	2.3
Honduras	12.7	4.7	2.3	2.4	3.5	3.0	4.1
Indonesia	2.7	5.5	7.6	4.7	4.3	2.3	2.0
Laos	588.0	703.2	494.0	470.4	428.6	363.8	362.8
Liberia	1.3	0.2	0.2	0.2	:	0.2	0.3
Malaysia	557.6	439.0	441.4	408.1	376.4	316.5	310.9
Thailand	128.2	120.1	63.0	57.5	60.6	44.5	48.6
Vietnam	24.1	33.5	60.0	58.5	68.1	64.4	36.0

(¹) Forest Law Enforcement, Governance and Trade – Voluntary Partnership Agreement (FLEGT-VPA) countries are producers of tropical wood that have signed or are about to sign a VPA with the EU. The agreement requires licensing arrangements to ensure that timber placed on the EU market is from legal sources.

Source: Eurostat (online data code: [for_trop](#))

Figure 6.8: FLEGT countries' share in total wood imports to the EU-28, 2000–14
(million EUR)



Source: Eurostat (online data code: [for_trop](#))



Table 6.10 and Figure 6.9 show that approximately 80 % of the EU-28's tropical wood imports (in value terms) came from the 15 FLEGT-VPA countries during the 2000–14 period. The main exporters in 2014 were Cameroon (20.3 % of the total), followed by Malaysia (19.2 %) and Indonesia (10.7 %).

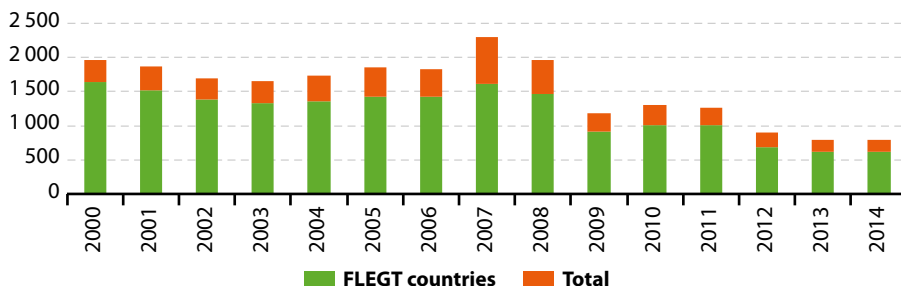
Table 6.10: Tropical wood imports, EU-28, 2000–14
(million EUR)

	2000	2005	2010	2011	2012	2013	2014
All countries of the world	1 966.1	1 856.3	1 303.6	1 268.3	897.1	786.5	786.7
FLEGT-VPA countries⁽¹⁾	1 633.3	1 429.0	1 011.9	1 001.1	690.6	612.1	618.0
Cameroon	421.8	384.1	253.0	277.9	204.6	162.6	160.0
Central African Republic	29.5	22.3	9.8	10.3	9.2	5.9	4.8
Congo	68.2	89.0	55.7	54.2	35.9	44.0	48.8
Côte d'Ivoire	201.8	195.3	103.8	87.8	69.4	57.3	65.3
Democratic Republic of the Congo	18.6	60.2	47.6	51.1	36.8	35.8	27.0
Gabon	195.9	226.0	161.6	158.2	54.6	57.9	53.4
Ghana	102.0	85.4	35.1	33.2	15.8	14.1	14.4
Guyana	0.3	1.6	2.5	1.2	1.7	1.3	1.8
Honduras	0.1	0.1	0.3	0.2	0.5	0.7	1.8
Indonesia	122.8	88.8	107.3	102.7	85.9	80.1	83.9
Laos	0.1	0.0	0.1	0.0	0.0	0.0	0.3
Liberia	61.2	:	1.2	5.6	5.6	2.5	2.2
Malaysia	390.9	258.3	228.7	213.9	165.0	147.4	151.4
Thailand	19.9	17.4	4.8	4.1	5.2	1.4	1.8
Vietnam	0.2	0.4	0.3	0.7	0.5	0.9	1.3

(¹) Forest Law Enforcement, Governance and Trade – Voluntary Partnership Agreement (FLEGT-VPA) countries are producers of tropical wood that have signed or are about to sign a VPA with the EU. The agreement requires licensing arrangements to ensure that timber placed on the EU market is from legal sources.

Source: Eurostat (online data code: for_trop)

Figure 6.9: FLEGT countries' share in tropical wood imports to the EU-28, 2000–14
(million EUR)



Source: Eurostat (online data code: for_trop)

DATA SOURCES AND AVAILABILITY

Eurostat, the [Timber Committee](#) of the [United Nations Economic Commission for Europe \(UNECE\)](#), [Forestry Section](#) of the [United Nations Food and Agriculture Organisation \(FAO\)](#) and the [International Tropical Timber Organisation \(ITTO\)](#) collect and collate statistics on the production and trade of wood through their [Joint forest sector questionnaire](#). Each partner collects data from a different part of the world; Eurostat is responsible for the data collection exercise pertaining to the EU Member States and [EFTA countries](#).

Eurostat produces annual data on forestry using two questionnaires:

- [Joint Forest Sector Questionnaire \(JFSQ\)](#) on production and trade in wood and wood products;
- [European Forest Accounts \(EFA\) Questionnaire](#); countries are currently providing data on economic accounts for forestry and logging, forming part of an environmental satellite accounts initiative that started in the late 1990s.

The JFSQ provides data on primary wood products. The data have also been used for modelling whether supply will match demand in the future due to competing uses for material and energy, and for estimating carbon in harvested wood products for post-Kyoto negotiations.

The collection of data for EFA restarted in 2008 after a break of several years. This data provides, among others, information relating to the economic viability of forestry, employment in forestry and logging and the multi-functionality of forests. Note that the monetary values concern current basic prices (in other words, the analysis of time series is not adjusted for inflation).

7

Fisheries





Introduction

Fish are a natural, biological, mobile (sometimes over long distances) and renewable resource. Aside from fish farming, fish are generally not owned until they have been caught. As such, fish stocks continue to be regarded as a common resource which needs to be managed collectively. This has led to a range of policies that regulate the amount of fishing at the European level, as well as the types of fishing techniques and gear that can be used in fish capture.

A renewed [common fisheries policy \(CFP\)](#) ⁽¹⁾ entered into force on 1 January 2014 aiming at an environmentally, economically and socially sustainable use of the common resource including aquaculture production. Based on EU legislation, Eurostat produces data on [catches](#) and landings of fishery products, aquaculture and the EU fishing fleet.

⁽¹⁾ http://ec.europa.eu/fisheries/cfp/index_en.htm



7.1 Fishing fleet

Under the Common fisheries policy (CFP), reducing fleet capacity is an essential tool for achieving a sustainable exploitation of fisheries resources. The EU fleet is very diverse, with the vast majority of boats being no more than 12 metres long, and a small number of vessels exceeding 40 metres in length.

The EU's fishing fleet capacity has declined fairly steadily since the early 1990s, in terms of both tonnage (an indicator of fish-holding capacity) and engine power (an indicator of the power available for fishing gear). The size of the EU-28 fishing fleet has dropped to about 84 400 vessels in 2015 compared to 95 200 vessels for the EU-15 in 2000, although it increased by 8.0 % between 2012 and 2013, following Croatia's EU accession (see Table 7.1). The EU's fishing fleet in 2015 had a combined capacity of 1.6 million gross tonnes and a total engine power of 6.4 million kilowatts ⁽²⁾.

Almost one fifth (18.2 %) of the EU-28's fishing fleet is registered in Greece. On average, however, these Greek vessels are small, with an average size of 4.7 gross tonnes (much less than the EU-28 average of 18.9 gross tonnes) and an average engine power of 28.2 kilowatts in 2015 (compared with an EU-28 average of 75.8 kilowatts). In terms of capacity Spain, France, Italy and the United Kingdom had the largest fishing fleets, accounting for 53.9 % of gross tonnage and 55.6 % of engine power in 2015.

The capacities of all national fishing fleets declined or were stable between 2005 and 2015, with the exception of Poland registering a slight increase of its fleet gross tonnage. However increases in tonnage were registered from 2014 to 2015 in Latvia (26 %), Romania (11 %) and Germany (7 %), and to a lesser extent in Estonia and Poland (both 1 %). Considering the whole period 2005 to 2015, the capacity downsizing in Denmark, Ireland, Greece, France, the Netherlands and Italy was in line with the EU-28 average, but was smaller in Germany, Portugal, Finland and the United Kingdom.

This reduced capacity in the EU-28 stands in stark contrast with the upkeep of fishing fleet capacities in Iceland and Norway. The capacity of the Norwegian fishing fleet (about 328 000 gross tonnes in 2015) was similar to Spain's in terms of overall tonnage, although Norway's 55.7 gross tonnes average per vessel was considerably higher than Spain's (see Table 7.2). The Norwegian fishing fleet was also considerably more powerful than that of any EU Member State (see Table 7.3). In the case of Iceland, despite having a much smaller fleet than France and Italy in terms of numbers of vessels, the overall holding capacity (gross tonnage) was very similar.

⁽²⁾ Based on the fishing fleet of the EU Member States active at 31 December of each year.

Table 7.1: Fishing fleet, 2000–15
(number of vessels)

	2000	2005	2010	2015
EU (1)	95 240	88 852	83 374	84 356
Belgium	129	120	89	76
Bulgaria	:	:	2 340	1 981
Czech Republic (2)	–	–	–	–
Denmark	4 138	3 264	2 820	2 369
Germany	2 315	2 116	1 673	1 443
Estonia	:	1 044	934	1 538
Ireland	1 621	1 861	2 144	2 155
Greece	19 556	17 881	16 913	15 393
Spain	16 685	13 706	10 855	9 408
France	8 229	8 239	7 216	6 911
Croatia	:	:	:	7 727
Italy	17 367	14 396	13 431	12 325
Cyprus	:	882	1 003	832
Latvia	:	928	786	686
Lithuania	:	267	171	145
Luxembourg (2)	–	–	–	–
Hungary (2)	–	–	–	–
Malta	:	1 418	1 091	1 005
Netherlands	1 101	825	846	830
Austria (2)	–	–	–	–
Poland	:	974	793	875
Portugal	10 677	9 105	8 425	8 054
Romania	:	:	476	151
Slovenia	:	175	182	169
Slovakia (2)	–	–	–	–
Finland	3 664	3 268	3 366	2 723
Sweden	2 019	1 599	1 360	1 335
United Kingdom	7 739	6 784	6 460	6 225
Iceland (3)	1 993	1 752	1 625	1 685
Norway	13 017	7 722	6 310	5 887

(1) EU-15: 2000; EU-25: 2005; EU-27: 2010; EU-28: 2015.

(2) Landlocked countries without a marine fishing fleet.

(3) 2014 data.

Source: Eurostat (online data code: [fish_fleet_alt](#))



Table 7.2: Tonnage of the fishing fleet, 2000–15
(total gross tonnage, 1 000 tonnes)

	2000	2005	2010	2015
EU (1)	2 030	2 022	1 749	1 594
Belgium	24	23	16	14
Bulgaria	:	:	8	7
Czech Republic (2)	–	–	–	–
Denmark	108	91	66	66
Germany	71	64	68	64
Estonia	:	24	15	13
Ireland	72	88	69	64
Greece	107	93	87	72
Spain	521	489	415	343
France	226	220	173	172
Croatia	:	:	:	52
Italy	234	214	185	158
Cyprus	:	9	4	3
Latvia	:	39	41	25
Lithuania	:	65	46	45
Luxembourg (2)	–	–	–	–
Hungary (2)	–	–	–	–
Malta	:	15	12	7
Netherlands	212	171	147	127
Austria (2)	–	–	–	–
Poland	:	30	37	34
Portugal	117	107	101	95
Romania	:	:	1	1
Slovenia	:	1	1	1
Slovakia (2)	–	–	–	–
Finland	21	17	17	15
Sweden	52	44	33	30
United Kingdom	265	218	207	188
Iceland (3)	180	182	152	147
Norway	392	369	366	328

(1) EU-15: 2000; EU-25: 2005; EU-27: 2010; EU-28: 2015.

(2) Landlocked countries without a marine fishing fleet.

(3) 2014 data.

Source: Eurostat (online data code: [fish_fleet_alt](#))

Table 7.3: Total engine power of the fishing fleet, 2000–15
(1 000 kW)

	2000	2005	2010	2015
EU (¹)	7 650	7 281	6 530	6 397
Belgium	65	65	51	45
Bulgaria	:	:	63	58
Czech Republic (²)	–	–	–	–
Denmark	393	325	241	220
Germany	168	159	159	141
Estonia	:	62	40	44
Ireland	212	227	198	194
Greece	617	531	500	435
Spain	1 340	1 133	940	800
France	1 114	1 104	991	1 000
Croatia	:	:	:	419
Italy	1 395	1 223	1 106	985
Cyprus	:	47	43	38
Latvia	:	65	61	43
Lithuania	:	71	54	50
Luxembourg (²)	–	–	–	–
Hungary (²)	–	–	–	–
Malta	:	99	86	73
Netherlands	522	400	343	304
Austria (²)	–	–	–	–
Poland	:	105	87	82
Portugal	399	382	371	358
Romania	:	:	7	6
Slovenia	:	11	11	9
Slovakia (²)	–	–	–	–
Finland	198	172	173	157
Sweden	246	219	178	164
United Kingdom	980	880	827	773
Iceland (³)	523	520	467	467
Norway	1 351	1 273	1 238	1 258

(¹) EU-15: 2000; EU-25: 2005; EU-27: 2010; EU-28: 2015.

(²) Landlocked countries without a marine fishing fleet.

(³) 2014 data.

Source: Eurostat (online data code: [fish_fleet_alt](#))



7.2 Total production

Total fishery production covers total [catches](#) in the seven regions covered by EU Statistical Regulations ⁽³⁾ as well as [aquaculture](#) production for human consumption. The monitoring of catches and aquaculture production is an essential tool for securing fish stocks and sustaining the common resources available in Europe's large and rich [fishing area](#). The total production of fishery products in the EU was an estimated 6.7 million tonnes of [live weight](#) equivalent (in other words, the mass or weight when removed from water) in 2014. The EU figure for 2014 suggests there was a rise in fishery production (+ 6.1 % compared with 2010), contradicting the steady decline noted over the ten previous years (– 20.5 % from 2000 to 2010). This rise in total production was only due to increased catches given the stability of aquaculture production.

Within the EU, the four largest fishery producers in terms of volume in 2014 were Spain (1.4 million live weight tonnes), the United Kingdom (1.0 million live weight tonnes) Denmark (0.8 million live weight tonnes), and France (0.7 million live weight tonnes) (see Table 7.4). The share of aquaculture production among these countries ranged from 20 to 27 %, with the exception of Denmark, where aquaculture made up 4 % of the total.

Total fisheries production in Spain was estimated to be 48.6 % higher in 2014 than in 2005. Production in the United Kingdom was stable in the first half of the period before increasing in the last years and recording a 15.3 % rise over the whole period. A 31.7 % decline of total fishery production was observed in Estonia since 2005. Sharp production declines were also registered between 2005 and 2014 in Italy (– 31.4 %), Sweden (– 29.2 %), the Netherlands (– 29.1 %) and Germany (– 21.6 %).

It is also worth noting that total fisheries production in Norway (3.5 million tonnes of live weight) was larger than that of any of the EU Member States in 2014. Iceland (1.1 million tonnes of live weight) ranked third among all EU and [EFTA](#) countries. Both countries showed a different trend over the last decade, with total production expanding by 13.6 % in Norway while declining by 34.8 % in Iceland. Total production volume of both countries as a whole in 2014 was however equivalent to more than two thirds of the total EU-28 production.

⁽³⁾ Food and Agriculture Organization of the United Nations (FAO) major areas 21, 27, 34, 37, 41, 47, 51 (see Map 7.1).

Table 7.4: Total production of all fishery products, 2000–14
(1 000 tonnes live weight)

	2000	2005	2010	2014
EU-28 (1)	7 888	6 774	6 271	6 653
Belgium	31	24	22	27
Bulgaria	10	6	18	15
Czech Republic	19	20	20	20
Denmark	1 578	950	860	779
Germany	249	309	256	242
Estonia	110	98	93	67
Ireland	328	327	365	306
Greece	191	196	191	165
Spain	1 296	938	995	1 394
France	959	831	643	744
Croatia	28	46	68	93
Italy	515	475	384	326
Cyprus	4	4	6	6
Latvia	136	151	165	120
Lithuania	79	140	141	152
Luxembourg	0	0	0	0
Hungary	13	14	14	15
Malta	3	6	9	11
Netherlands	569	618	443	439
Austria	3	2	2	3
Poland	182	169	167	206
Portugal	197	226	231	188
Romania	12	9	9	13
Slovenia	3	2	2	2
Slovakia	1	1	1	1
Finland	137	109	139	167
Sweden	342	261	221	185
United Kingdom	895	838	807	967
Iceland	2 004	1 669	1 068	1 089
Norway	3 190	3 053	3 582	3 467

Note: Total production includes catches and aquaculture. Total catches are calculated as the sum of the seven regions: 21 — Atlantic, Northwest; 27 — Atlantic, Northeast; 34 — Atlantic, Eastern Central; 37 — Mediterranean and Black Sea; 41 — Atlantic, Southwest; 47 — Atlantic, Southeast and 51 — Indian Ocean, Western. Aquaculture excludes production from hatcheries and nurseries, fish eggs for human consumption, ornamental and aquarium species.

(1) Differences in the sum of all EU countries and the EU-28 totals are owed to rounding.

Source: Eurostat (online data codes: fish_ca_main, fish_aq_q and fish_aq2a)



7.3 Aquaculture

The cultivation of fish is an alternative to catches of wild fish. Data on aquaculture is used by the CFP for monitoring this activity which made up close to one fifth of the EU-28's total fishery production in 2014. Production was approximately 1.3 million tonnes of live weight in 2014. Compared to the peak production 15 years earlier, this is more than a 10% decline, however it is within the usual range of fluctuation of the last 20 years.

The three largest aquaculture producers among EU Member States were Spain, the United Kingdom and France, which together accounted for more than half (55%) of total EU-28 aquaculture production in 2014 (see Table 7.5). There was a clear downward trend in aquaculture production in France between 2000 and 2010, fluctuating lightly around the 200 thousand tonnes mark since. By contrast, there was an overall growth in the United Kingdom from 2000 to 2010 which stabilised at the same level than France in recent years. Production volumes in Spain have fluctuated, making this country the main EU producer in volume terms since 2010 and reaching a 285 thousand live weight tonnes in 2014.

Within the EU-28 about 130 different species were farmed in aquaculture in 2014. Mussels, mostly Mediterranean and blue mussel, accounted for more than a third (roughly 470 thousand tonnes) of the total aquaculture production in terms of weight (including shells), while trouts and Atlantic salmon account for roughly another third. These species are followed by Common carp, Japanese carpet shell, Gilthead seabream and European seabass as top species in terms of weight. Despite the large total number of species produced in the EU, countries tend to focus their aquaculture production on a few species. As such, Mediterranean mussels accounted for 77% of the live weight from aquaculture in Spain in 2014, Gilthead seabream, European seabass and Rainbow trout accounted for another 17% while the remaining production included 42 different species. In the United Kingdom Atlantic salmon accounted for 84% of the total national production followed by sea mussels and rainbow trout. In France (2013 data), the largest volumes were produced by Pacific cupped oyster (38%), blue mussel (30%), rainbow trout (15%) and Mediterranean mussel (7%).

From the estimated total economic value of EU-28 aquaculture production of EUR 3.93 billion, Atlantic salmon produced by far the highest economic value (almost EUR 0.9 billion) although the species is cultivated in only a few EU countries and mostly in the United Kingdom. Second most important species in terms of economic value was rainbow trout, followed by Pacific cupped oyster in third Gilthead seabream in fourth and European seabass in fifth.

Table 7.5: Aquaculture production by weight, 2000–14
(1 000 tonnes live weight)

	2000	2005	2010	2014
EU-28	1 405	1 278	1 272	1 270
Belgium	2	0	1	0
Bulgaria	4	3	8	7
Czech Republic	19	20	20	20
Denmark	44	39	32	34
Germany	66	45	41	26
Estonia	0	1	1	1
Ireland	51	60	46	29
Greece	95	106	121	104
Spain	309	221	254	285
France (!)	267	245	203	200
Croatia	7	11	16	14
Italy	217	181	154	149
Cyprus	2	2	4	5
Latvia	0	1	1	1
Lithuania	2	2	3	3
Luxembourg	0	0	0	0
Hungary	13	14	14	15
Malta	2	5	7	9
Netherlands	75	71	67	63
Austria	3	2	2	3
Poland	36	38	37	36
Portugal	8	7	8	11
Romania	10	7	9	11
Slovenia	1	1	1	1
Slovakia	1	1	1	1
Finland	15	14	12	13
Sweden	5	6	11	13
United Kingdom	152	173	201	215
Iceland	4	8	5	8
Norway	491	661	1 020	1 332

Note: excluding production from hatcheries and nurseries, fish eggs for human consumption, ornamental and aquarium species. Differences in the sum of all EU countries and the EU-28 totals are owed to rounding.

(!) 2013 instead of 2014.

Source: Eurostat (online data codes: [fish_aq_2a](#) and [fish_aq_q](#))



Table 7.6: Aquaculture production by value, 2000–14
(million EUR)

	2000	2005	2010	2014
EU-28	3 028	3 034	3 320	3 923
Belgium	7	1	4	1
Bulgaria	8	8	20	13
Czech Republic	53	35	37	42
Denmark	159	99	91	98
Germany	137	127	95	109
Estonia	1	2	2	3
Ireland	107	106	113	106
Greece (1)	315	346	398	445
Spain	356	381	412	472
France (2)	460	544	667	693
Croatia	30	31	73	78
Italy	494	478	352	366
Cyprus	11	15	20	28
Latvia	0	1	1	2
Lithuania	3	4	6	7
Luxembourg	0	0	0	0
Hungary	24	26	27	30
Malta	5	32	82	97
Netherlands	116	100	106	98
Austria	13	9	20	19
Poland (1)	72	73	76	89
Portugal	55	35	47	50
Romania	17	13	6	19
Slovenia	4	3	2	4
Slovakia	2	2	2	3
Finland	63	49	41	49
Sweden	16	17	29	48
United Kingdom	499	498	591	953
Iceland	17	28	22	36
Norway	1 499	1 717	3 844	5 275

Note: excluding production from hatcheries and nurseries, fish eggs for human consumption, ornamental and aquarium species. Differences in the sum of all EU countries and the EU-28 totals are owed to rounding.

(1) 2009 instead of 2010.

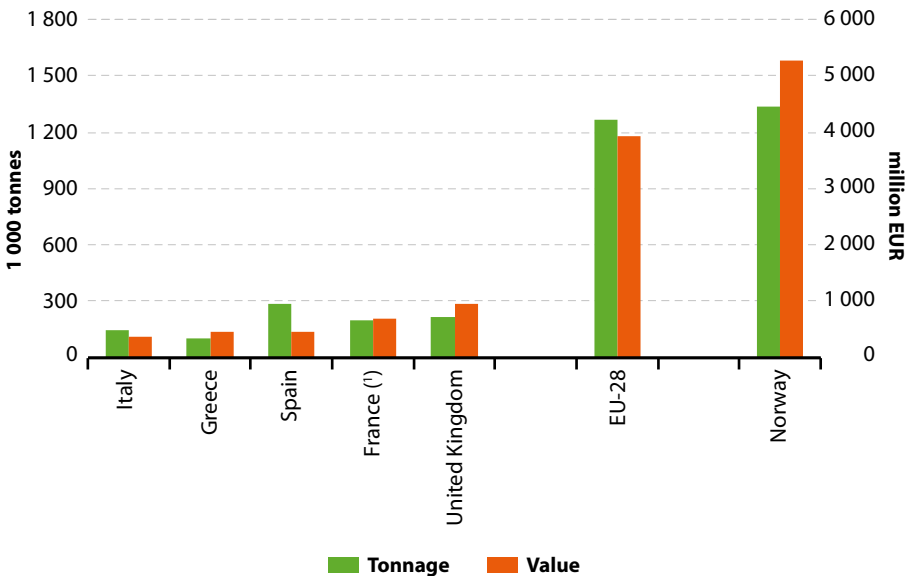
(2) 2013 instead of 2014.

Source: Eurostat (online data codes: [fish_aq_v](#) and [fish_aq_2a](#))



In 2014, Norway's aquaculture production (1.33 million tonnes of live weight) was larger than the estimated value for the entire EU-28 (1.27 million tonnes of live weight) (see Figure 7.1). Unlike the EU's, Norway's aquaculture production expanded steadily from 2000 to 2014. In 2014, Norway produced 1.3 million tonnes of Atlantic salmon with a value of EUR 4.98 billion. Its 69 thousand tonnes of rainbow trout were sold for EUR 0.28 billion.

Figure 7.1: Main aquaculture producers, EU-28 and Norway, 2014
(1 000 tonnes live weight, million EUR)



Note: excluding production from hatcheries and nurseries, fish eggs for human consumption, ornamental and aquarium species.

(*) 2013 data.

Source: Eurostat (online data codes: [fish_aq_q](#) and [fish_aq_2a](#))



7.4 Catches

About 80% of the EU-28's total fishery production relates to catches. The live weight of catches for the EU-28 was 5.1 million tonnes in 2015, 5.0% less than in 2014. However Table 7.7 illustrates an overall decline of about 21% or 1.4 million tonnes of live weight since 2000.

Table 7.7: Total catches, 2000–15
(1 000 tonnes live weight)

	2000	2005	2010	2015
EU-28	6 483	5 496	4 999	5 113
Belgium	29	24	22	24
Bulgaria	6	3	10	9
Czech Republic (!)	–	–	–	–
Denmark	1 534	911	828	869
Germany	183	264	215	251
Estonia	110	97	92	71
Ireland	277	267	319	235
Greece	96	90	70	64
Spain	987	717	742	902
France	692	586	440	497
Croatia	21	35	52	72
Italy	298	294	230	191
Cyprus	2	2	1	1
Latvia	136	150	164	81
Lithuania	77	138	138	41
Luxembourg (!)	–	–	–	–
Hungary (!)	–	–	–	–
Malta	1	1	2	2
Netherlands	494	547	376	365
Austria (!)	–	–	–	–
Poland	146	131	130	187
Portugal	189	219	223	185
Romania	2	2	0	5
Slovenia	2	1	1	0
Slovakia (!)	–	–	–	–
Finland	122	95	127	153
Sweden	337	255	211	203
United Kingdom	743	665	605	702
Iceland	2 000	1 661	1 063	1 317
Norway	2 699	2 392	2 562	2 146
Turkey	461	380	891	398

Note: Total catches are calculated as the sum of the seven regions covered by legal acts, namely: 21 — Atlantic, Northwest, 27 — Atlantic, Northeast, 34 — Atlantic, Eastern Central, 37 — Mediterranean and Black Sea, 41 — Atlantic, Southwest, 47 — Atlantic, Southeast and 51 — Indian Ocean, Western. Consequently, 'Total catches' in all fishing areas now exclude catches in inland waters.

(!) Landlocked countries without a marine fishing fleet.

Source: Eurostat (online data code: fish_ca_main)

Table 7.8: Catches by fishing area, 2015
(1 000 tonnes live weight)

	North West Atlantic	North East Atlantic	Eastern Central Atlantic	Mediterranean and Black Sea	South West Atlantic	South East Atlantic	Western Indian Ocean	Total
EU-28	48	3 959	247	432	135	98	194	5 113
Belgium	:	24	:	:	:	:	:	24
Bulgaria	:	:	:	9	:	:	:	9
Denmark	2	867	:	:	:	:	:	869
Germany	2	231	18	:	:	:	:	251
Estonia	4	67	:	:	:	:	:	71
Ireland	:	235	:	:	:	:	:	235
Greece	:	:	1	64	:	:	0	64
Spain	24	362	126	76	128	54	131	902
France	:	383	42	13	0	0	59	497
Croatia	:	:	:	72	:	:	:	72
Italy	:	:	:	189	:	:	2	191
Cyprus	:	:	:	1	:	:	:	1
Latvia	:	67	14	:	:	:	:	81
Lithuania	:	29	13	:	:	:	:	41
Malta	:	:	:	2	:	:	:	2
Netherlands	:	345	20	:	:	0	:	365
Poland	:	141	4	:	:	41	:	187
Portugal	17	154	8	0	2	2	2	185
Romania	:	:	:	5	:	:	:	5
Slovenia	:	:	:	0	:	:	:	0
Finland	:	153	:	:	:	:	:	153
Sweden	:	203	:	:	:	:	:	203
United Kingdom	:	697	0	:	4	:	0	702
Iceland	:	1 317	:	:	:	:	:	1 317
Norway	3	2 143	:	:	:	:	:	2 146
Turkey	:	:	:	398	:	:	:	398

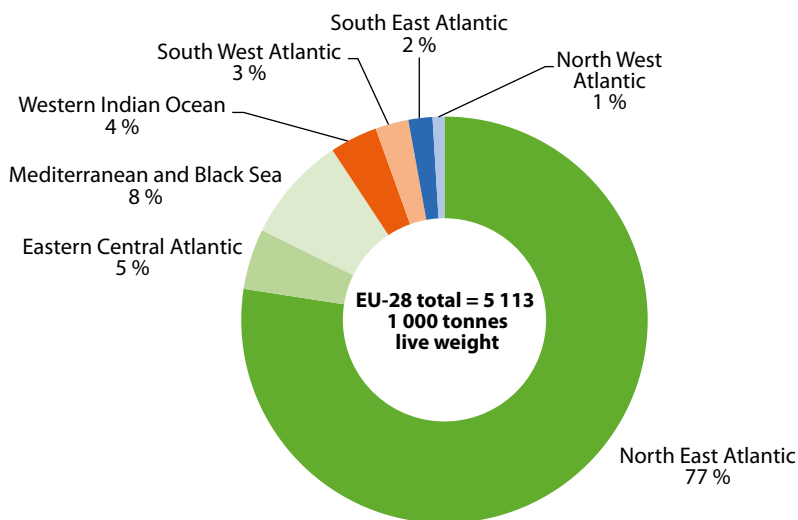
Note: landlocked countries without a marine fishing fleet are not showed in this table
(Czech Republic, Luxembourg, Hungary, Austria and Slovakia).

Source: Eurostat (online data code: [fish_ca_main](#))



Although the European fishing fleet operates worldwide, EU catches are taken primarily from the Eastern Atlantic and the Mediterranean (see Table 7.8). Indeed, around 77 % of EU-28 catches were made in the North East Atlantic in 2015, with another 8 % from the Mediterranean and Black Sea and 5 % coming from the Eastern Central Atlantic (see Figures 7.2 and 7.3 and Map 7.1).

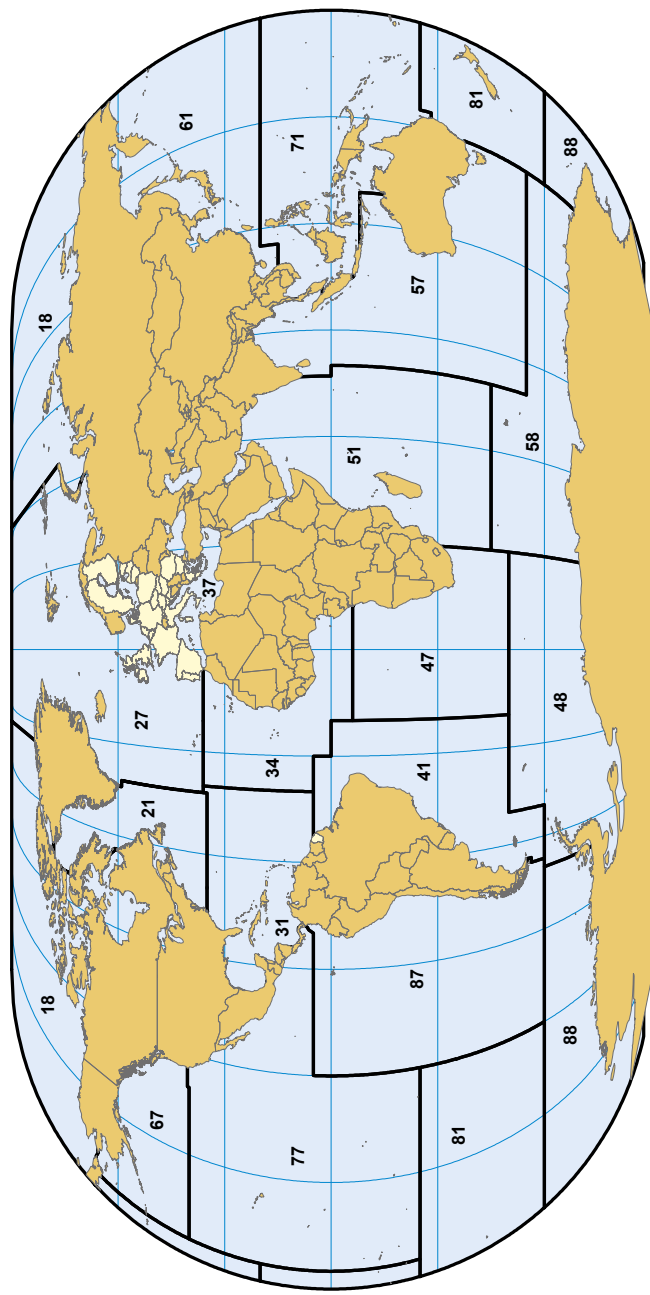
Figure 7.2: Catches by fishing area, EU-28, 2015
(% of total catches)



Source: Eurostat (online data code: fish_ca_atl27)



Map 7.1 Fishing areas of the world

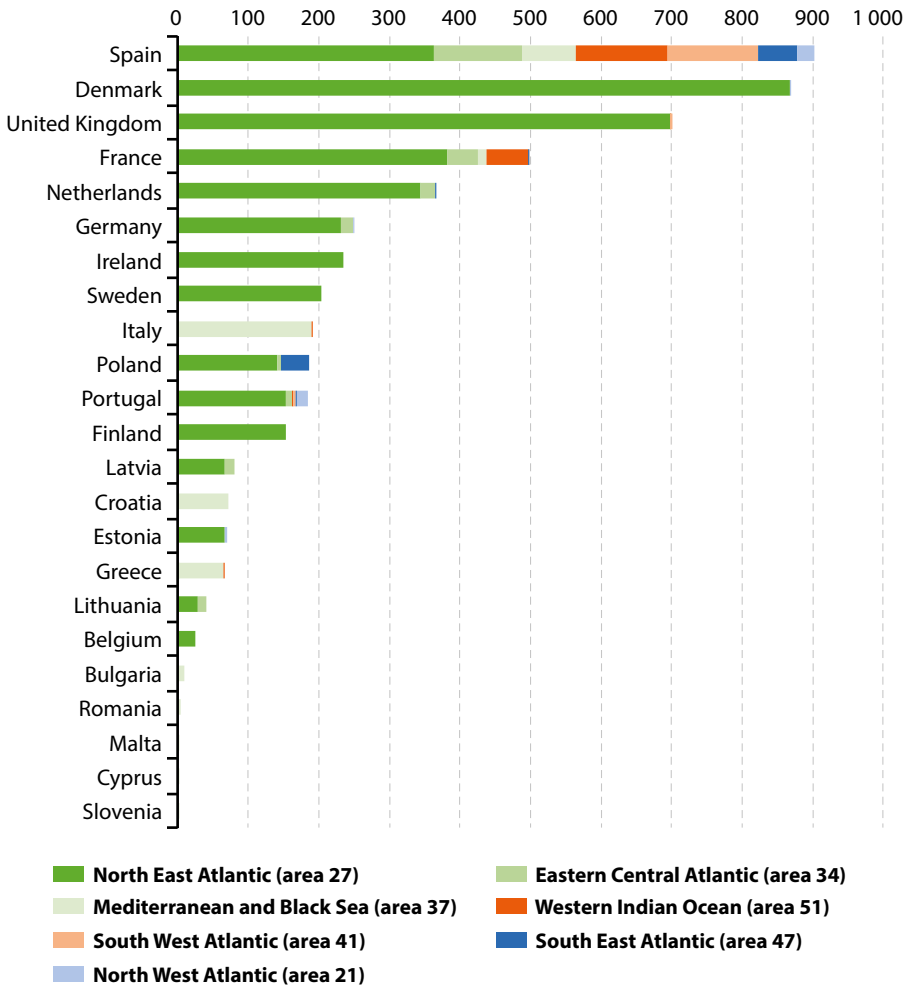


Source: UNFAO, VILIZ, DG MARE, 2014



Figure 7.3: Catches by fishing area, 2015

(1 000 tonnes live weight)

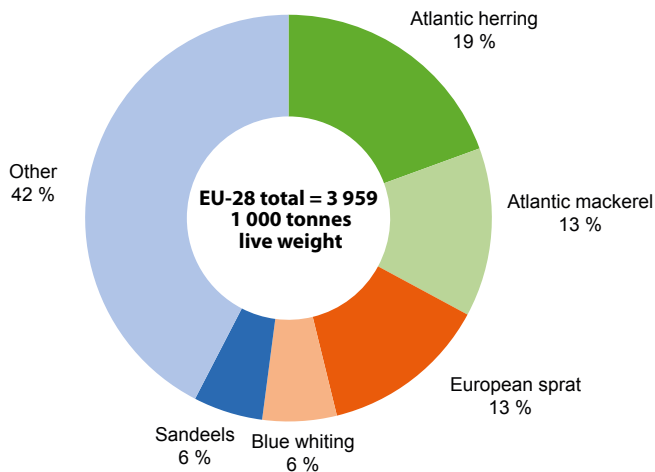


Source: Eurostat (online data code: fish_ca_main)



Figure 7.4 shows the five most popular species that were caught by EU Member States in 2015 in the North East Atlantic which is their most important fishing area. Atlantic herring was by far the most caught species representing close to one fifth of the total EU-28 catch. It was followed by Atlantic mackerel and European sprat (13% both), then blue whiting and sandeels (6% both). These top five species made up 58% of the EU North East Atlantic catch in 2015.

Figure 7.4: Top 5 species caught in the North East Atlantic, EU-28, 2015
(% of total catches)



Source: Eurostat (online data code: fish_ca_main)



7.5 Landings

Landings data relate to fishery products (product weight and value) landed in a country regardless of the nationality of the vessel making the landings, but also to fishery products landed by the country's vessels in non-EU ports and then imported into the EU (see Table 7.9). Over one fifth (24.4% or 1.16 million tonnes of live weight) of the landings to EU-28 ports in 2015 were made in Denmark, the highest share among EU Member States. Only landings to Spanish ports (0.84 million tonnes of product weight) came close to the Danish levels. By contrast, landings to ports in Iceland (1.4 million tonnes) and Norway (1.9 million tonnes) were much higher.

Table 7.9: Landings by weight, 2000–15
(1 000 tonnes product weight)

	2000	2005	2010	2015
EU-28	:	4640	4371	4744
Belgium	18	20	16	19
Bulgaria	:	3	10	9
Czech Republic (*)	–	–	–	–
Denmark	1 144	1 091	1 067	1 159
Germany	89	140	80	107
Estonia	:	69	85	63
Ireland	203	199	248	244
Greece	90	90	70	64
Spain	984	703	755	839
France	371	295	255	291
Croatia	:	:	:	73
Italy	295	282	229	191
Cyprus	:	1	1	1
Latvia	:	91	67	66
Lithuania	:	7	6	2
Luxembourg (*)	–	–	–	–
Hungary (*)	–	–	–	–
Malta	:	1	2	2
Netherlands	509	621	444	605
Austria (*)	–	–	–	–
Poland	:	82	84	114
Portugal (?)	164	106	183	198
Romania	:	:	0	5
Slovenia	:	:	1	0
Slovakia (*)	–	–	–	–
Finland	96	84	83	98
Sweden	314	269	221	164
United Kingdom	420	486	464	431
Iceland	1 947	1 680	1 018	1 415
Norway	2 792	2 078	2 422	1 911

(*) Landlocked countries without a marine fishing fleet.

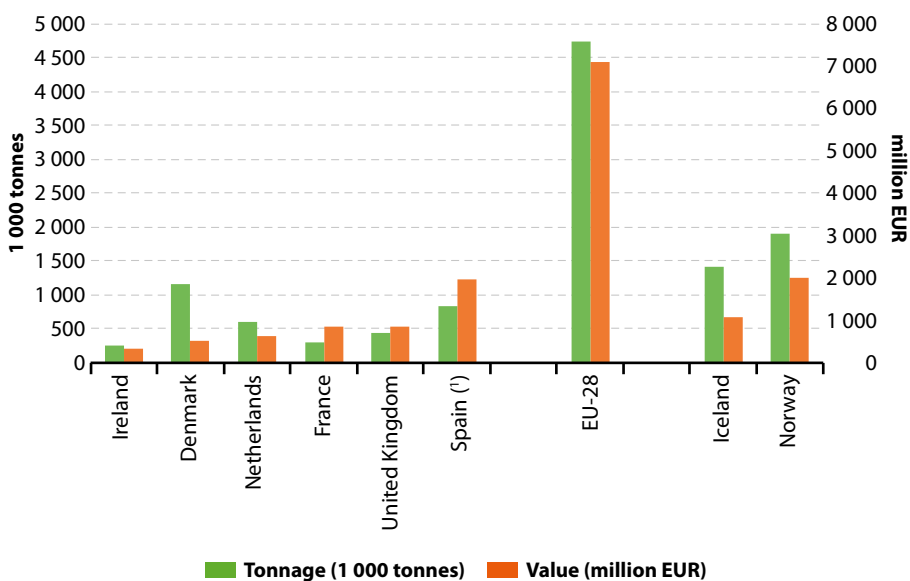
(?) 2013 instead of 2015.

Source: Eurostat (online data code: fish_ld_main)



More than one fourth of the value of landings for the EU-28 in 2015 also came into Spanish ports (28% or EUR 2.0 billion), reflecting the high value attached to its landings of species like tuna, hake, swordfish, squid and pilchards (see Table 7.10). Landings in Italy had the next highest value (EUR 0.9 billion), followed by the United Kingdom (EUR 0.8 billion) and France (EUR 0.8 billion). Denmark only accounted for a relatively small share (7% in 2015) of EU-28 landings in terms of value (EUR 0.5 billion). The values of landings to ports in Iceland (EUR 1.0 billion) and Norway (EUR 2.0 billion) were closer to the values of France and Spain respectively, reflecting the lower average price of the species landed in each of these countries.

Figure 7.5: Main landing countries, EU-28, Iceland and Norway, 2015



(*) Provisional data.

Source: Eurostat (online data code: fish_ld_main)



Table 7.10: Landings by value, 2000–15
(million EUR)

	2000	2005	2010	2015
EU-28	:	5 972	6 599	7 049
Belgium	64	80	66	70
Bulgaria	:	2	2	5
Czech Republic (¹)	–	–	–	–
Denmark	423	442	464	529
Germany	95	122	96	125
Estonia	:	10	13	15
Ireland	184	149	288	309
Greece	236	308	308	225
Spain	1 751	1 513	1 869	1 954
France	845	775	527	841
Croatia	:	:	:	61
Italy	823	1 413	1 147	895
Cyprus	:	6	10	8
Latvia	:	16	13	20
Lithuania	:	5	5	0
Luxembourg (¹)	–	–	–	–
Hungary (¹)	–	–	–	–
Malta	:	6	9	12
Netherlands	357	310	573	623
Austria (¹)	–	–	–	–
Poland	:	32	42	45
Portugal (²)	272	127	296	330
Romania	:	:	0	4
Slovenia	:	:	2	1
Slovakia (¹)	–	–	–	–
Finland	20	15	19	26
Sweden	112	106	107	102
United Kingdom	693	537	742	848
Iceland	829	940	896	1 076
Norway	1 540	1 607	1 797	2 001

(¹) Landlocked countries without a marine fishing fleet.

(²) 2013 instead of 2015.

Source: Eurostat (online data code: fish_ld_main)

DATA SOURCES AND AVAILABILITY

Fishery statistics are collected by Eurostat from official national sources for the members of the [European Economic Area \(EEA\)](#). The data are collected using internationally agreed concepts and definitions developed by the [Coordinating Working Party \(CWP\)](#), comprising Eurostat and several other international organisations with responsibilities in fishery statistics.

The European fisheries production statistics include production from catches and aquaculture. **Catches** refer to fishery products taken for all purposes (commercial, industrial, recreational and subsistence) by all types and classes of fishing units (including fishermen, vessels, gear, etc.). The flag of the fishing vessel is used as the primary indication of the nationality of the catch. In addition to catches, Eurostat also collects data on **landings** which relate to all fishery products (expressed as product weight) landed in the reporting country, regardless of the nationality of the vessel making the landings. Landings by vessels of the reporting country in non-EU ports and imported into the EU are to be included as well. **Aquaculture** production refers to the farming of aquatic (freshwater or saltwater) organisms for human use or consumption, under controlled conditions. Aquaculture implies some form of intervention in the natural rearing process such as regular stocking, feeding and protection from predators. Farming also implies individual or corporate ownership of the stock being cultivated.

Catch statistics are submitted to Eurostat by EEA member countries in compliance with the following EU legislation:

- [Regulation \(EC\) No 218/2009 of the European Parliament and of the Council of 11 March 2009 on the submission of nominal catch statistics by Member States fishing in the North East Atlantic \(OJ L87 of 31.03.2009\);](#)
- [Regulation \(EC\) No 217/2009 of the European Parliament and of the Council of 11 March 2009 on the submission of catch and activity statistics by Member States fishing in the North-West Atlantic \(OJ L87 of 31.03.2009\);](#)
- [Regulation \(EC\) No 216/2009 of the European Parliament and of the Council of 11 March 2009 on the submission of nominal catch statistics by Member States fishing in certain areas other than those of the North Atlantic \(OJ L87 of 31.03.2009, p.1\).](#)



The data are reported as the live weight equivalent of the landings (in other words, the landed weight of a product to which an appropriate conversion factor has been applied). The data therefore exclude quantities of fishery products which are caught but not landed. For example, fish caught but rejected at sea or fish consumed on board of the vessel. The amount of fish caught but not landed is bound to shrink in the near future due to the landing obligation in the new common fisheries policy (CFP). For the **landings statistics**, each EEA member country reports annual data on the quantities and values of fishery products landed in its ports under the terms of [Regulation \(EC\) No 1921/2006](#) of 18 December 2006 on the submission of statistical data on landings of fishery products in EU Member States and repealing Council Regulation (EEC) No 1382/91 (OJ L403 of 30 December 2006). For **aquaculture statistics**, the national authorities of EEA countries submit aquaculture production data to Eurostat under the terms of [Regulation \(EC\) No 762/2008](#) of 9 July 2008 on the submission by Member States of statistics on aquaculture and repealing [Council Regulation \(EC\) No 788/96](#) (OJ L218 of 13.08.2008).

Concerning the **fishing fleet**, data for the EU Member States are derived from the Community Fishing Fleet Register maintained by the European Commission's Directorate-General for Maritime Affairs and Fisheries. Data for Iceland and Norway are compiled from fleet files submitted by the national authorities. Gross tonnage (GT) under the London convention (1969) was adopted as the unit of tonnage measurement in the 1990s. This was a change from the previously used gross registered tonnage (GRT) under the Oslo convention (1946). Implementation of the change involved re-measurement of vessels over time. This was carried out at different rates in different countries and was largely complete by 2003. However care should be taken when comparing data between countries and over time since the GT of a vessel is generally significantly greater than the GRT.



Data coverage

Eurostat online databases contain a large amount of metadata that provides information on the status of particular values or data series. In order to improve readability of this statistical book, only the most significant meta-information has been included under the tables and figures. The following symbols are used, where necessary:

- Italic* data value is forecasted, provisional or estimated and is likely to change;
- :
- not applicable.

Breaks in series are indicated in the footnotes provided under each table and figure.

This publication generally presents information for the EU-28 (the 28 Member States of the EU), as well as the individual EU Member States. The order of the Member States in tables and figures generally follows their order of protocol; in other words, the alphabetical order of the countries' names in their respective original languages; in some of the figures the data are ranked according to the values of a particular indicator.

The EU-28 aggregate is provided when information for all of the countries is available, or if an estimate has been made for missing information. Any incomplete totals that are created are systematically footnoted.

When available, information is also presented for EFTA countries, candidate and potential candidate countries. In the event that data for any of these non-member countries are not available, they have been excluded from the tables and figures presented.

If data are not available for a particular country, then efforts have been made to fill tables and figures with data for previous reference periods (these exceptions are footnoted); generally, an effort has been made to go back at least two years, for example showing data for 2013 or 2014 if data for 2015 are not yet available.



Glossary

Agricultural holding

This is a single unit, in both technical and economic terms, operating under a single management, which undertakes agricultural activities within the economic territory of the European Union (EU), either as its primary or secondary activity. Other supplementary (non-agricultural) products and services may also be provided by the holding.

Agricultural income

The main indicator for agricultural income is 'factor income per labour input', where labour input is expressed in annual work units (AWUs).

Agri-environmental indicators

A set of 28 agri-environmental indicators has been proposed for monitoring the integration of environmental concerns into the Common Agricultural Policy (CAP). In the context of the 'Renewed EU Sustainable Development Strategy', these indicators serve to:

- provide information on the farmed environment;
- track the impact of agriculture on the environment;
- assess the impact of agricultural and environmental policies on environmental management of farms;
- inform agricultural and environmental policy decisions;
- illustrate agri-environmental relationships to the broader public.

Animal output

Animal output comprises the sales, changes in stock levels, and the products used for processing and own final use by producers.

Annual work unit (AWU)

One annual work unit corresponds to the work performed by one person who is occupied on an agricultural holding on a fulltime basis. Full-time means the minimum hours required by the relevant national provisions governing contracts of employment. If the national provisions do not indicate the number of hours, then 1 800 hours are taken to be the minimum annual working hours: equivalent to 225 working days of eight hours each.



Aquaculture

Aquaculture, also known as aquafarming, refers to the farming of aquatic (freshwater or saltwater) organisms, such as fish, molluscs, crustaceans and plants for human use or consumption, under controlled conditions. Aquaculture implies some form of intervention in the natural rearing process to enhance production, including regular stocking, feeding and protection from predators. Farming also implies individual or corporate ownership of, or contractual rights to, the stock being cultivated.

Arable land

Arable land is land worked (ploughed or tilled) regularly, generally under a system of crop rotation.

Basic price

The basic price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any tax payable, and plus any subsidy receivable, by the producer as a consequence of its production or sale.

Biodiversity

Biodiversity, a contraction of biological diversity, refers to the number, variety and variability of living organisms, including mankind, within a given area.

Biomass

Biomass is organic, non-fossil material of biological origin that can be used for heat production or electricity generation. It includes:

- wood and wood waste;
- biogas;
- municipal solid waste;
- biofuels.

Bovine

A bovine refers to a domestic animal of the species *Bos taurus* (cattle) or *Bubalus bubalis* (water buffalo), and also includes hybrids like *Beefalo*.

A distinction can be made by the age of the animal (less than one year old, aged between one and two years, and two years and over), with a further division between male and female bovines.



Carcass weight

The definition of carcass weight depends on the animal species under consideration:

- for pigs, it is the weight of the slaughtered pig's cold body, either whole or divided in half along the mid-line, after being bled and eviscerated and after removal of the tongue, bristles, hooves, genitalia, flare fat, kidneys and diaphragm;
- for cattle, it is the weight of the slaughtered animal's cold body after being skinned, bled and eviscerated, and after removal of the external genitalia, the limbs, the head, the tail, the kidneys and kidney fats, and the udder;
- for sheep and goats, it is the weight of the slaughtered animal's cold body after having been bled, skinned and eviscerated, and after removal of the head, feet, tail and genital organs. Kidneys and kidney fats are included in the carcass weight;
- for poultry, it is the weight of the cold body of the slaughtered farmyard poultry after being bled, plucked and eviscerated; the weight includes poultry offal, with the exception of foie gras.

For other species, 'carcass weight' is considered to be the weight of the slaughtered animal's cold body.

Cattle

Cattle refer to domestic animals of the species *Bos taurus* (cattle) and *Bubalus bubalis* (water buffalo); together are called bovines.

Cereals

Cereals include wheat (common wheat and spelt and durum wheat), rye, maslin, barley, oats, mixed grain other than maslin, grain maize and corn cob mix, sorghum, triticale, rice and other cereal crops such as buckwheat, millet and canary seed.

Climate change

Climate change refers to man-made (anthropogenic) climate change that is thought to be causing an increase in global temperatures driven by emissions of gases such as carbon dioxide and methane, known as greenhouse gases.

Common agricultural policy

The Common agricultural policy (CAP) is the EU's agricultural policy. CAP is an area in which competence is shared between the EU and its Member States. Under Article 33 of the Treaty establishing the European Community, its aims are to 'ensure reasonable prices for Europe's consumers and fair incomes for farmers, in particular through the common organisation of agricultural markets and by enforcing compliance with the principles adopted at the Stresa Conference in 1958, namely single prices, financial solidarity and Community preference'.



The CAP is one of the most important EU policies from a budget point of view: agricultural spending accounts for some 45 % of the EU budget. Qualified majority voting in the Council and consultation with the European Parliament decide policy. The CAP has fulfilled its main goal of food self-sufficiency in the EU. Major policy changes, however, proved necessary in order to correct imbalances and overproduction resulting from the CAP. Therefore, its aims have changed in the course of time, and the instruments used have also evolved as a result of successive reforms.

Common fisheries policy

The Common fisheries policy (CFP) is the EU's policy for managing fisheries in the waters of the EU Member States. Its objectives are to:

- increase productivity;
- stabilise markets;
- ensure security of supply and reasonable prices to the consumer.

Although a CFP was already provided for in the Treaty of Rome in 1957, it did not become a common policy in the full sense of the term until 1983. The CFP has the same legal basis (Articles 32 to 38 of the EC Treaty) as the Common agricultural policy and shares the same aims mentioned above. Like the CAP, the CFP is a shared responsibility of the EU and its Member States. Successive reforms of the CFP have added new aims to its initial goals, namely:

- sustainable exploitation of resources;
- protection of the environment;
- safeguards for a high level of human health protection;
- contributing to economic and social cohesion.

Protection of fish stocks and the marine environment are key issues for the CFP given the threat posed by resource depletion.

Common land

Common land is the land that does not directly belong to any agricultural holding but on which common rights apply. It can consist of pasture, horticultural or other land.

Cow

A cow is a female bovine that has calved (including any aged less than 2 years). A dairy cow is a cow kept exclusively or principally for the production of milk for human consumption and/or other dairy produce.

Crop output

Crop output comprises sales, changes in stock levels, and crop products used as animal feedstuffs, or for processing and own final use by the producers.



Eutrophication

Eutrophication is a process by which a body of water acquires a high concentration of nutrients, especially phosphates and nitrates. It may occur naturally but can also be the result of human activity (fertiliser run-off, sewage discharge). These nutrients typically promote excessive growth of algae. As the algae die and decompose, high levels of organic matter and the decomposing organisms deplete the water of available oxygen, causing the death of other organisms, such as fish.

Family labour force

The family labour force of the agricultural holding in the context of the farm structure survey (FSS) refers to persons who carry out farm work on the holding and are classified either as a holder or the members of the sole holder's family. The term family workers is also used with the same meaning.

Farm labour force

The farm labour force of the holding includes all persons having completed their compulsory education (having reached school-leaving age) who carried out farm work on the holding during the 12 months ending on the reference day of the survey. All persons of retirement age who continue to work on the holding are included in the farm labour force.

Farm manager

A farm manager or manager of the agricultural holding is the natural person responsible for the normal daily financial and production routines of running the holding concerned. There can be only one manager on the holding.

Farm structure survey

The Farm structure survey (FSS), also known as Survey on the structure of agricultural holdings, is carried out by all EU Member States. The FSS are conducted consistently throughout the EU with a common methodology at a regular base and provides therefore comparable and representative statistics across countries and time, at regional levels (down to NUTS 3 level). Every 3 or 4 years the FSS is carried out as a sample survey, and once in ten years as a census.

Feed

Feed (or feeding stuff) is any substance or product, including additives, whether processed, partially processed or unprocessed, intended to be used for oral feeding to animals.



Fertiliser

A fertiliser is a substance used in agriculture to provide crops with vital nutrients to grow (such as nitrogen (N), phosphorus (P) and potassium (K)). Fertilisers can be divided into inorganic fertilisers (also called mineral, synthetic or manufactured) and organic fertilisers. Organic fertilisers include manure, compost, sewage sludge and industrial waste.

Fishing area

Geographical fishing areas in the EU's Common Fisheries Policy are defined for a number of specific areas of water, including:

- the *North East Atlantic*, which is roughly the area to the east of 42°W longitude and north of 36°N latitude, including the waters of the Baltic Sea;
- the *North West Atlantic*, which is the region that is roughly the area to the west of 42°W longitude and north of 35°N latitude;
- the *Eastern Central Atlantic*, which is the region to the east of 40°W longitude between latitudes 36°N and 6°S;
- the *Mediterranean*, which is also known as the Food and Agriculture Organization Major Fishing Area 37, comprises the Mediterranean Sea and the adjacent Black Sea.

Fish catch

Fish catch (or simply catch) refers to catches of fishery products including fish, molluscs, crustaceans and other aquatic animals, residues and aquatic plants that are:

- taken for all purposes (commercial, industrial, recreational and subsistence);
- taken by all types and classes of fishing units (including fishermen, vessels, gear, and so on);
- operated in fresh and brackish water areas, and in inshore, offshore and high-seas fishing areas.

The catch is normally expressed in live weight and derived by the application of conversion factors to the actual landed or product weight. Up to 2014, catch statistics exclude quantities of fishery products which are caught but which, for a variety of reasons, are not landed. As a result of the landing obligation foreseen in the renewed CFP and to be gradually introduced as from 2015, all catches should be kept on board, landed and counted. Production from aquaculture is excluded from catch statistics.

Fishing fleet

The data on the number of fishing vessels, the fishing fleet, in general refer to the fleet size as recorded on 31 December of the specified reference year. The data are derived from the national registers of fishing vessels which are maintained according to [Commission Regulation \(EC\) No 26/2004](#) which specifies the information on vessel characteristics to be recorded in the registers.



Forest

Forest is defined as land with tree crown cover (meaning all parts of the tree above ground level including its leaves, branches and so on), or equivalent stocking level, of more than 10 % and with an area of more than 0.5 hectares (ha). The trees should be able to reach a minimum height of five metres at maturity *in situ*.

Fossil fuel

Fossil fuel is a generic term for non-renewable natural energy sources such as coal, natural gas and oil that were formed from plants and animals (biomass) that existed in the geological past (for example, hundreds of millions of years ago). Fossil fuels are carbon-based and currently supply most human energy requirements.

Goats

A goat is a domestic animal of the subspecies *Capra aegagrus hircus*.

Grazed area

The grazed area is the total area of pastures owned, rented or otherwise allocated to the agricultural holding on which animals are kept for grazing during the reference year. The grazed area can also be harvested by mowing or other means. It includes all grasslands that are grazed, independent of whether they are temporary or permanent in nature. Permanent grasslands no longer used for production purposes are however excluded, as well as common lands not allotted to individual holdings.

Greenhouse gas

Greenhouse gases constitute a group of gases contributing to global warming and climate change. The Kyoto Protocol, an environmental agreement adopted by many of the parties to the United Nations Framework Convention on Climate Change (UNFCCC) in 1997 to curb global warming, covers six greenhouse gases:

- *the non-fluorinated gases:*
 - carbon dioxide (CO₂);
 - methane (CH₄);
 - nitrous oxide (N₂O).
- *the fluorinated gases:*
 - hydrofluorocarbons (HFCs);
 - perfluorocarbons (PFCs);
 - sulphur hexafluoride (SF₆).



Gross value added (GVA)

Gross value added (GVA) is output at market prices minus intermediate consumption at purchaser prices; it is a balancing item of the national accounts' production account:

- GVA at producer prices is output at producer prices minus intermediate consumption at purchaser prices — the producer price is the amount receivable by the producer from the purchaser for a unit of a product minus value added tax (VAT), or similar deductible tax, invoiced to the purchaser.
- GVA at basic prices is output at basic prices minus intermediate consumption at purchaser prices — the basic price is the amount receivable by the producer from the purchaser for a unit of a product minus any tax on the product plus any subsidy on the product.
- GVA at factor cost is not a concept explicitly used in national accounts. It can be derived by subtracting other taxes on production from GVA at basic prices and adding other subsidies on production.

Irrigable area

The maximum area which could be irrigated in the reference year using the equipment and the quantity of water normally available on the holding.

Irrigated area

Area of crops which have actually been irrigated at least once during the 12 months prior to the survey date.

Joint forest sector questionnaire

The joint forest sector questionnaire (JFSQ) is an initiative of the International Tropical Timber Organisation (ITTO), the United Nations Economic Commission for Europe (UNECE), the Food and Agriculture Organisation of the United Nations (FAO) and Eurostat to collect statistics on the world timber situation. Each agency collects data from the countries for which it is responsible, with Eurostat compiling information from the EU Member States and EFTA countries.

Kitchen gardens

Kitchen gardens are areas of an agricultural holding devoted to the cultivation of agricultural products not intended for selling but for consumption by the farm holder and his household.

Land use

Land use refers to the socioeconomic purpose of the land. Areas of land can be used for residential, industrial, agricultural, forestry, recreational, transport purposes and so on.



Live weight of fishery products

Live weight of fishery products is derived from the landed or product weight by the application of certain factors and is designed to represent the actual weight of the fishery product as it was taken from the water and before being subjected to any processing or other operations.

Livestock survey

The livestock survey provides information about the livestock population in the EU, as well as information at a national and regional level — it is more detailed than the farm structure survey (FSS), proving more animal categories in its classification of livestock. It is conducted once a year, in December, in all of the EU Member States and in May/June for bovine animals and pigs in the Member States with the largest herds.

Livestock unit (LSU)

The livestock unit is a reference unit which facilitates the aggregation of livestock from various species and age as per convention, via the use of specific coefficients established initially on the basis of the nutritional or feed requirement of each type of animal. The reference unit used for the calculation of livestock units (= 1 LSU) is the grazing equivalent of one adult dairy cow producing 3 000 kg of milk annually, without additional concentrated foodstuffs.

Meat production

Meat production refers to the slaughter, in agreed slaughterhouses, of animals whose carcass weight is declared fit for human consumption; the definition applies to bovine animals, pigs, sheep, goats and poultry.

Milk

Milk is produced by the secretion of the mammary glands of one or more cows, ewes, goats or buffaloes. Farms produce milk for two distinct purposes: to distribute to dairies as well as for domestic consumption, direct sale and cattle feed.

Non-family labour

The non-family labour force of the agricultural holding in the context of the farm structure survey (FSS) refers to persons directly employed by the holding. They can be classified as:

- non-family labour regularly employed — all persons other than the holder and members of his family doing farm work and receiving any kind of remuneration (salary, wages, profits or other payments including payment in kind) from the agricultural holding;
- non-family labour employed on a non-regular basis — all persons other than the holder and members of his family doing farm work and receiving any kind of remuneration from the agricultural holding who did not work each week on the agricultural holding in the 12 months ending on the reference day of the survey; this category usually covers seasonal workers.



Permanent crops

Permanent crops are tree/shrub crops not grown in rotation, but occupying the soil and yielding harvests for several (usually more than five) consecutive years. Permanent crops mainly consist of fruit and berry trees, bushes, vines and olive trees.

Permanent grassland and meadow

Permanent grassland and meadow is land used permanently (for several — usually more than five — consecutive years) to grow herbaceous forage crops, through cultivation (sown) or naturally (self-seeded); it is not, therefore, included in the crop rotation scheme on the agricultural holding. Permanent grassland and meadow can be either used for grazing by livestock, or mowed for hay or silage (stocking in a silo).

Pig

A pig is a domesticated animal of the species *Sus*. A distinction is made between pigs, piglets, fattening pigs and breeding pigs.

Poultry

Poultry refers to domestic birds of the following species: *Gallus gallus* (hens and chickens); *Meleagris spp.* (turkeys); *Anas spp.* and *Cairina moschata* (ducks); *Anser anser dom.* (geese); *Coturnix spp.* (quail); *Phasianus spp.* (pheasants); *Numida meleagris dom.* (guineafowl); *Columbinae spp.* (pigeons); *Struthio camelus* (ostriches). It excludes, however, birds raised in confinement for hunting purposes and not for meat production.

Regular agricultural labour force

A regularly employed labour force of the agricultural holding in the context of the farm structure survey (FSS) refers to the directly employed persons who carried out farm work every week on the holding during the 12 months ending on the reference day of the survey, irrespective of length of the working week. Regularly employed labour force may be classified either as a family labour or the non-family labour regularly employed.

Roundwood production

Roundwood production (the term is also used as a synonym for removals in the context of forestry) comprises all quantities of wood removed from the forest and other wooded land, or other tree felling site during a defined period of time.

Sawnwood

Sawnwood is wood that has been produced either by sawing lengthways or by a profile-chipping process and, with a few exceptions, is greater than 6 millimetres (mm) in thickness.



Sheep

Sheep are domesticated animals of the species *Ovis aries* kept in flocks mainly for their wool or meat.

Slaughterhouse

A slaughterhouse is an officially registered and approved establishment used for slaughtering and dressing animals whose meat is intended for human consumption.

Slaughtering and meat production

Data on slaughtering and meat production are collected on a monthly basis. They refer to the activity of slaughterhouses, while the share of domestic slaughtering (in other words, outside officially recognised slaughterhouses) is explicitly left out of the statistics in order to improve comparability of the results across EU Member States.

Standard output (SO)

The standard output of an agricultural product (crop or livestock) is the average monetary value of the agricultural output at farm-gate price, in euro per hectare or per head of livestock. A regional coefficient for each product is applied, as an average value over a reference period (five years). The sum of all the standard outputs per hectare of crop and per head of livestock for a farm is a measure of its overall economic size, expressed in euro.

Utilised agricultural area (UAA)

The utilised agricultural area (UAA) describes the area used for farming. It includes the land categories: arable land; permanent grassland; permanent crops, and; other agricultural land such as kitchen gardens (even if they only represent small share of the total UAA). The term does not include unused agricultural land, woodland and land occupied by buildings, farmyards, tracks, ponds, and so on.

Waste

Waste means any substance or object which the holder disposes of or is required to dispose of pursuant to the provisions of national law in force. Disposal of waste means:

- the collection, sorting, transport and treatment of waste as well as its storage and tipping above or underground;
- the transformation operations necessary for its re-use, recovery or recycling.



Abbreviations

Geographical aggregates and country codes

EU-28	The 28 Member States of the European Union from 1 July 2013 (EU-27 and Croatia)
EU-27	The 27 Member States of the European Union from 1 January 2007 to 30 June 2013 (EU-15, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Bulgaria and Romania)
EU-15	The 15 Member States of the European Union from 1 January 1995 to 30 April 2004 (Belgium, France, Italy, Luxembourg, the Netherlands, the Federal Republic of Germany [West Germany], Denmark, Ireland, the United Kingdom, Greece, Spain, Portugal, Austria, Finland and Sweden)
EU	European Union
BE	Belgium
BG	Bulgaria
CZ	Czech Republic
DK	Denmark
DE	Germany
EE	Estonia
IE	Ireland
EL	Greece
ES	Spain
FR	France
HR	Croatia
IT	Italy
CY	Cyprus
LV	Latvia
LT	Lithuania
LU	Luxembourg
HU	Hungary
MT	Malta
NL	Netherlands
AT	Austria
PL	Poland
PT	Portugal
RO	Romania
SI	Slovenia
SK	Slovakia



FI	Finland
SE	Sweden
UK	United Kingdom
EFTA	European Free Trade Association
IS	Iceland
LI	Liechtenstein
NO	Norway
CH	Switzerland

EU candidate countries

AL	Albania
ME	Montenegro
MK (1)	The former Yugoslav Republic of Macedonia
RS	Serbia
TR	Turkey

EU potential candidates

BA	Bosnia and Herzegovina
XK	Kosovo (2)

Units of measurement

%	per cent
AWU	annual work unit
EUR	euro
ha	hectare
kg	kilogram
km ²	square kilometre
kW	kilowatt
LSU	livestock unit
m ³	cubic metre
toe	tonne of oil equivalent
tonne	1 000 kg

(1) Provisional ISO code which does not prejudice in any way the definitive nomenclature for this country, which is to be agreed following the conclusion of negotiations currently taking place on this subject at the United Nations.

(2) This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.



Other abbreviations

AEI	agri-environmental indicators
CAP	Common agricultural policy
CFP	Common fisheries policy
CH ₄	methane
CLRTAP	Convention on Long-range transboundary air pollutants
COM	Communication
CO ₂	carbon dioxide
CMO	Common Market Organisation
EAA	economic accounts for agriculture
EC	1. European Community 2. European Commission
EEA	European Environment Agency
EEC	European Economic Community
EMEP	European Monitoring and Evaluation Programme
Eurostat	statistical office of the European Union
FLEGT	forest law enforcement, governance and trade
FSS	farm structure survey
HICP	harmonised index of consumer prices
LULUCF	land-use, land change and forestry
NH ₃	ammonia
NH ₄	ammonium
NO ₃	nitrate
N ₂	nitrogen
N ₂ O	nitrous oxide
NUTS	classification of territorial units for statistics (NUTS levels 1, 2 and 3)
P	phosphorus
SAPM	survey on agricultural production methods
UAA	utilised agricultural area
UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention on Climate Change

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 - from the delegations in non-EU countries (http://eeas.europa.eu/delegations/index_en.htm);
 - by contacting the Europe Direct service (http://europa.eu/europedirect/index_en.htm) or
 - calling 00 800 6 7 8 9 10 11
(freephone number from anywhere in the EU) (*).

(*) The information given is free, as are most calls (though some operators, phone boxes or hotels may charge you).

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Agriculture, forestry and fishery statistics

This publication presents a selection of topical data. Most data cover the European Union and its Member States, while some indicators are provided for other countries, such as members of EFTA, candidate and potential candidate countries to the European Union.

This publication may be viewed as an introduction to European statistics and provides a starting point for those who wish to explore the wide range of data that is freely available on Eurostat's website at <http://ec.europa.eu/eurostat/>

