

Agriculture

9





Eurostat's coverage of regional agricultural statistics for the European Union (EU) comprises three main fields: information from **agricultural accounts**, data relating to **livestock** and data relating to **crop farming**. Regional agricultural statistics from the latest **agricultural census** (2010) have also been included — note that data collected through the census are available at an even more disaggregated level, namely for **NUTS** level 3 regions.

This chapter starts with an analysis of data from the **economic accounts for agriculture (EAA)** which provide a wide range of statistics and information on agricultural activity and the **income** generated by it. 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, income development from farming activities is one of the most common measures used to track living standards within the farming community. The analysis moves on to look at **livestock** statistics, principally in relation to **dairy farming** and its output. It concludes with a presentation of **crop production**, focusing on **cereals**, **potatoes** and the output of **vineyards**.

Main statistical findings

Economic significance of agriculture

In 2012, agriculture in the **EU-27** generated around EUR 159.4 billion of **value added**, some 1.4% of the added value for the whole economy: the contribution of agriculture fell from 1.8% a decade earlier (2002), to a low of 1.2% in 2009, before increasing each year through to 2012. The regional analysis of agricultural accounts is based on data for 2010, when agricultural value added was EUR 145.3 billion, equivalent to 1.3% of the whole economy.

The economic importance of agriculture, in value added terms, was generally much greater in the east and south of Europe than in the west and north. The relative economic weight of agriculture was highest in the Bulgarian regions of **Severen tsentralen** and **Severozapaden**, where it reached 14.1% and 12.2% respectively of total value added; no other regions in the EU-27 reported double-digit shares — although this was the case in the former Yugoslav Republic of Macedonia (10.8%).

Agriculture's contribution to the whole economy was above 3.5% in 46 out of the 252 regions in the EU shown in Map 9.1. These included eight regions in Greece (in central and northern Greece as well as **Kriti**), all regions in Romania except for the capital city region, seven regions in Spain (most of inland Spain as well as the south), five regions each in France (in central France and **Guyane**) and Poland (mainly in the east), four regions in northern and eastern Bulgaria,

four regions in the east and the south of Hungary, including the **Great Plain**, and two regions in each of Italy (**Provincia Autonoma di Bolzano/Bozen** and **Basilicata**), the Netherlands (**Friesland** and **Flevoland**) and Portugal (**Alentejo** and the island region of the **Região Autónoma dos Açores**). As noted above, agriculture's contribution was also above 3.5% in the former Yugoslav Republic of Macedonia (which is just one region at level 2), while this was also the case for the Croatian region of **Kontinentalna Hrvatska**.

The regions with the lowest contribution from agriculture to total value added included many capital city regions, regions around capital cities and other large urban areas. There were 60 regions in 2010 where agriculture accounted for 0.5% or less of value added in the local, regional economy and these included 13 capital city regions. Among the other regions beyond the capital city regions where agriculture accounted for 0.5% or less of value added were 15 regions in the United Kingdom, including several regions surrounding London, as well as regions around Greater Manchester and Liverpool, in Wales and in the west of Scotland. In Germany there were 14 such regions, including **Bremen**, **Hamburg**, parts of **Bayern** (**Oberbayern** and **Mittelfranken**), parts of **Baden-Württemberg** (including **Stuttgart** and **Karlsruhe**), and **Nordrhein-Westfalen** (including **Düsseldorf** and **Köln**). There were five such regions in each of Spain (all coastal) and Sweden (in the north, west and eastern-central areas), while there were three regions in western Austria and two each in the Czech Republic and Slovakia.

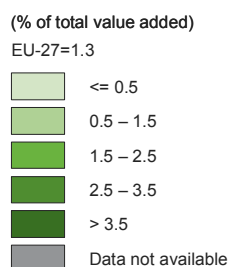
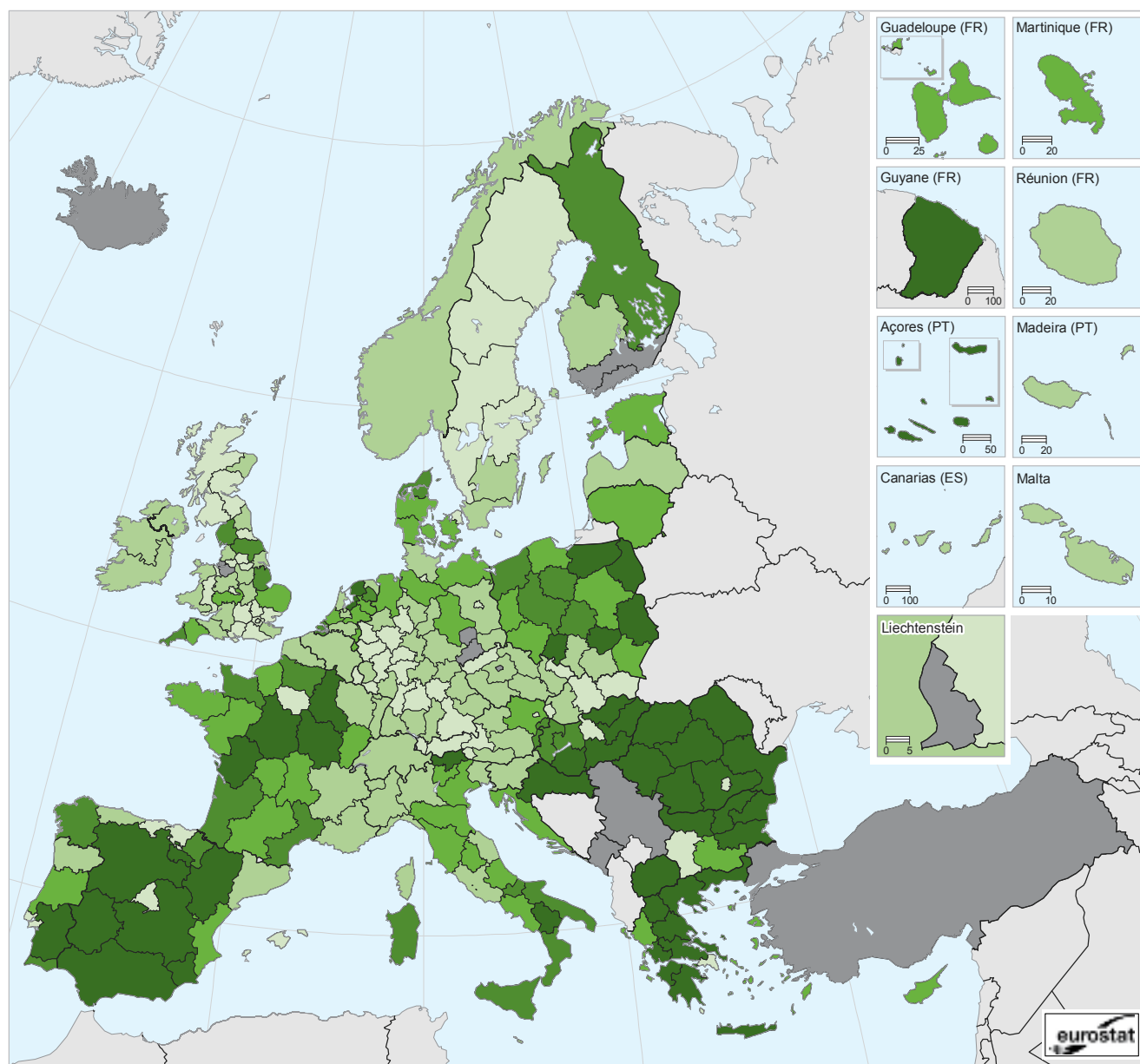
As noted above, the value added generated by agriculture in 2010 was EUR 145.3 billion, and this was 2.3% lower than it had been in 2005 (down from EUR 148.7 billion); during this period, value added was volatile, peaking at EUR 156.5 billion in 2007 and falling as low as EUR 131.3 billion in 2009. Agriculture's contribution to the value added of the whole economy fell from 1.5% in 2005 to 1.2% in 2009 before picking up to 1.3% in 2010.

Figure 9.1 presents this percentage point change for the EU-27 between 2005 and 2010 and compares it with the 10 NUTS level 2 regions with the largest increases and the largest decreases in the contribution of agriculture to the whole economy. The **Sud-Vest Oltenia** region of Romania saw agriculture's share increase from 6.7% in 2007 to 9.2% by 2010, the largest percentage point rise among the 231 regions for which data are available. Three other Romanian regions, **Sud-Est**, **Sud-Muntenia** and **Nord-Est**, also saw relatively large percentage point increases, despite already having shares of 6.5% or higher in 2007. Most of the other regions with relatively high increases grew from much lower shares, no more than 4.0% in 2005. The Finnish region of **Pohjois- ja Itä-Suomi** saw a remarkably large increase, its agricultural share more than doubling from 1.4% in 2005 to 3.0% by 2010.

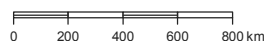
The list of regions where the share of agriculture in the whole economy fell the most (in percentage point terms) was dominated by regions from central and northern Greece and the



Map 9.1: Share of agriculture in the economy, gross value added at basic prices, by NUTS 2 regions, 2010 ⁽¹⁾
(% of total value added)



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⁽¹⁾ Greece and the United Kingdom, 2009; Cyprus, Latvia, Lithuania, Luxembourg, Malta and Poland, 2008; Belgium, Slovenia, Norway, Switzerland and the former Yugoslav Republic of Macedonia, national level.

Source: Eurostat (online data codes: [agr_r_accts](#) and [nama_r_e3vab95r2](#))



Greek island of Kriti, but was headed by the Bulgarian regions of Severozapaden and Yuzhen tsentralen. In most of these regions the share of agriculture had been relatively high in 2005 — exceeding 10.0% in the two Bulgarian regions as well as Thessalia in Greece — and had been at its lowest (6.0%) in Ipeiros in central Greece. The share of agriculture in the whole economy more than halved in three of these 10 regions, falling in Yuzhen tsentralen from 10.7% to 2.4% in 2010, in Ipeiros from 6.0% to 2.1% (in 2009), and in Anatoliki Makedonia, Thraki from 9.4% to 4.5% (also in 2009). A further eight regions (outside the list of the 10 regions with the largest percentage point falls) recorded at least a 50% reduction in the agricultural share of the economy, with the largest falls in relative terms being in Yugozapaden in Bulgaria (from 2.2% to 0.4%) and Východné Slovensko in Slovakia (from 0.5% to 0.1%).

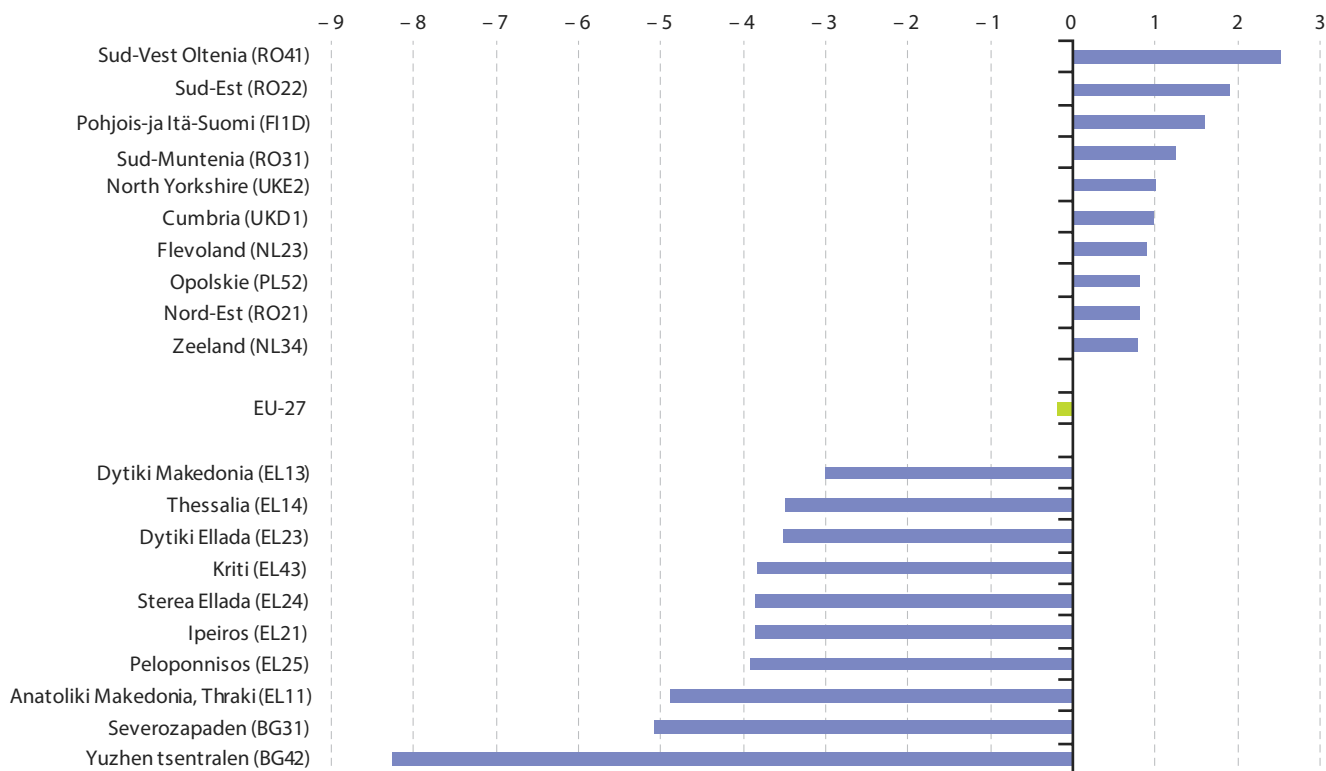
Agricultural labour productivity

Agriculture is a highly labour-intensive activity and so it can be revealing to compile a partial **productivity indicator** from the gross value added for agriculture and the corresponding

agricultural labour input data. To take account of part-time and seasonal work, both of which are widespread in agriculture, labour input can be measured in **annual work units (AWU)**: one such unit corresponds to the input, measured in working time, of one person engaged in agricultural activities in an **agricultural unit** on a full-time basis over an entire year. The structure of production may influence the comparability of productivity figures: for example, the production of fruit and vegetables requires more labour than the production of arable crops, while capital costs are generally lower. Agricultural labour productivity can be influenced by factors such as average farm sizes, the level of mechanisation and the share of production for on-farm consumption. It should be remembered that labour productivity is only a partial productivity indicator, as it does not take account of all factors.

The EU-27 agricultural gross value added per annual work unit was estimated at EUR 15 800 in 2011. Map 9.2 shows a big difference between the western and eastern parts of Europe in terms of this productivity ratio for NUTS level 2 regions. In 54 regions spread across 11 of the EU Member States — France (16 regions), the Netherlands (12 regions), Germany (eight regions), the United Kingdom

Figure 9.1: Change in the share of agriculture in the economy, gross value added at basic prices, by NUTS 2 regions, 2005–10
(percentage points difference between 2010 and 2005, based on % of total value added)



(¹) Germany, Spain and Romania, break in series, 2008; France, the Netherlands, break in series, 2007; Bulgaria, break in series, 2006; Denmark and Romania, 2007–10; Greece and the United Kingdom, 2005–09; Cyprus, Latvia, Lithuania, Luxembourg, Malta and Poland, 2005–08; Praha (CZ01), Chemnitz (DED4), Leipzig (DED5), Helsinki-Uusimaa (FI1B), Etelä-Suomi (FI1C), Cheshire (UKD6) and Merseyside (UKD7), not available.

Source: Eurostat (online data codes: agr_r_accts and nama_r_e3vab95r2)

(six regions), Denmark and Spain (four regions each), Sweden (two regions), and Italy and Finland (one region each) — gross value added per annual work unit was above EUR 30 000 in 2011, which was also the case in Belgium as well as the EFTA countries of Norway and Switzerland (no regional data available for any of these three countries). The highest levels of agricultural labour productivity were recorded in the Dutch regions of Flevoland and Zuid-Holland, both over EUR 80 000 per annual work unit. By contrast, 41 regions within the EU recorded agricultural labour productivity of EUR 5 000 or less. These regions were mainly in Poland (10 regions), Romania (eight regions), Bulgaria (six regions), Hungary (four regions), Greece and Portugal (three regions each) and Slovakia (two regions). In five EU regions, agricultural labour productivity was EUR 1 000 or less: Yuzhnyy and Yuzhen tsentralen in Bulgaria, Podkarpackie in Poland, Východné Slovensko in Slovakia and the capital city region of Bucureşti - Ilfov in Romania.

Structure of agricultural holdings

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 three times between these basic surveys. The EU Member States collect information from individual *agricultural holdings*, covering: land use; livestock numbers; rural development (for example activities other than agriculture); and management and farm labour input (including age, sex and relationship to the holder).

The 2010 surveys aimed to cover at least 98 % of utilised *agricultural area (UAA)* and 98 % of the livestock in each country. A threshold was defined under which a unit was too small to be counted as an agricultural holding — such as 1 hectare of UAA, a minimum of five pigs, 50 m² under glass or 100 m² of vineyards. Each Member State defined its own set of thresholds in order to meet the targeted coverage but to exclude the smallest farms. Most Member States set a threshold to include farms with a UAA over 1 hectare, although Luxembourg raised its threshold to 3 hectares and the Czech Republic, Denmark, Germany, Sweden and the United Kingdom used a threshold of 5 hectares.

The use of different thresholds should be borne in mind when analysing the results presented in Maps 9.3 and 9.4 from the 2010 census. Furthermore, the information presented in Map 9.3 on the number of agricultural holdings is a simple count and is therefore influenced to some extent by the size of each region; in this respect it should be noted that German data are presented for NUTS level 1 regions which are generally larger than NUTS level 2 regions. The seven EU regions with the largest number of agricultural holdings in 2010 were all in Romania, and included all of the Romanian regions except for the capital city region. These regions were among 56 regions where there were more than

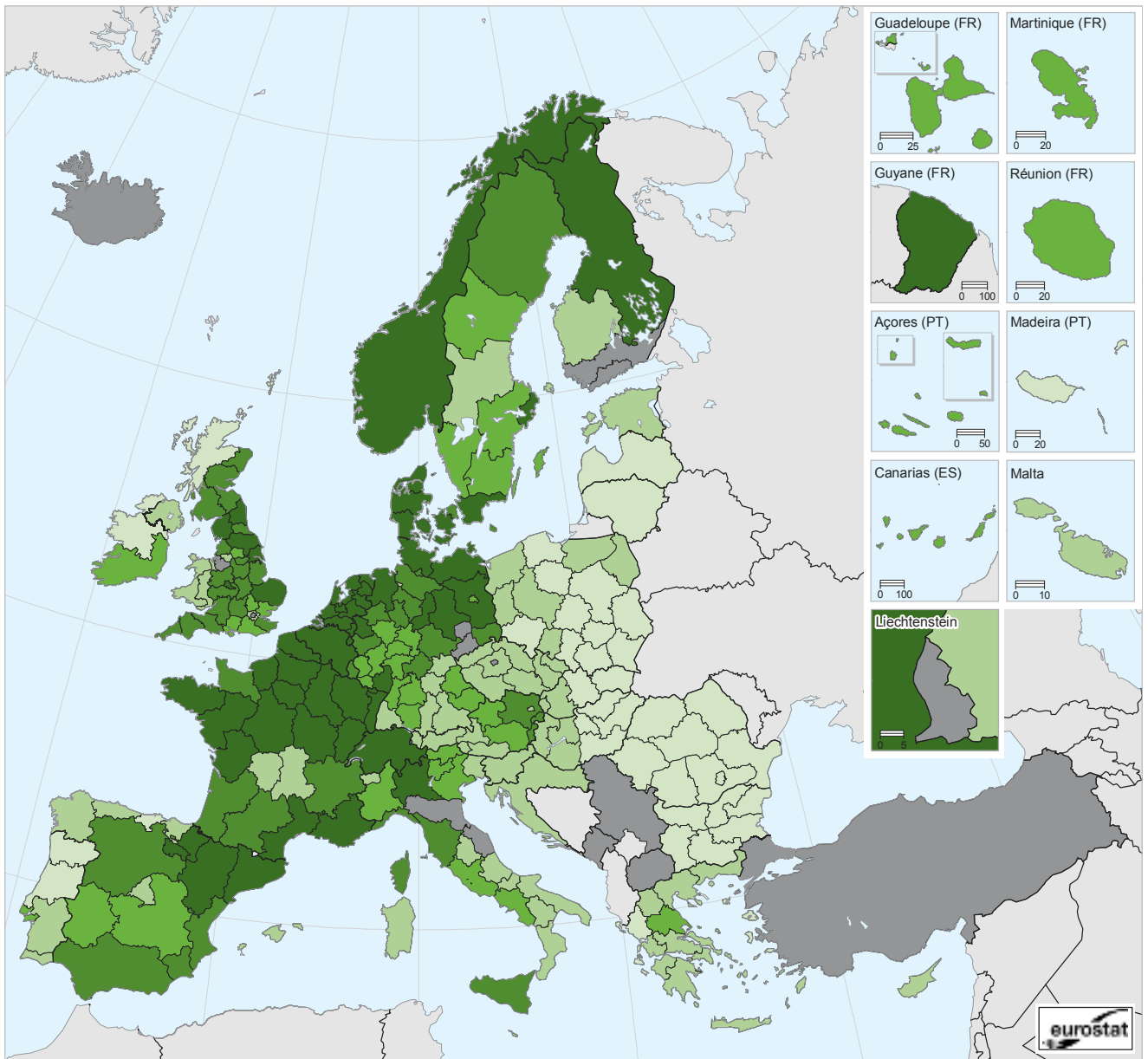
60 000 holdings, which were otherwise concentrated in Italy and Poland (11 regions each), Spain (seven regions), Greece (six regions), Hungary (five regions), Bulgaria, Ireland and Portugal (two regions each), and Germany, Latvia and Lithuania (one region each; the latter two Member States have only one region at NUTS level 2). As such, the regions with large numbers of agricultural holdings were mainly in eastern and southern Europe, as well as in both Irish regions and Bayern in Germany.

The smallest numbers of agricultural holdings, 5 000 or less, were spread across 70 different regions in the EU (as shown by the lightest shade in Map 9.3). They were found mainly in those countries employing a relatively high threshold, namely the United Kingdom (24 regions), Belgium (nine regions), the Czech Republic, Germany and the Netherlands (seven regions each; note that German data are for NUTS level 1 regions), Sweden (three regions) and Denmark (one region). A relatively small number of agricultural holdings were also found in France (three regions), Spain, Austria and Finland (two regions each), and Italy, Luxembourg and Slovakia (one region each); note that Luxembourg has only one region at NUTS level 2, with a total of 2 200 agricultural holdings (with at least 3 hectares of UAA). These 70 regions with the smallest number of agricultural holdings were spread across 14 different EU Member States and included 12 capital city regions; Spain and Italy were the only two Member States in this list where the capital city region had more than 5 000 agricultural holdings.

The average size of the 12.0 million agricultural holdings in the EU-27 in 2010 was 14.3 hectares of UAA, as shown in Map 9.4. The impact of different sized regions is less important for this ratio than for the simple count of holdings, but the varying thresholds nevertheless play a role, as a higher threshold can be expected to exclude a large number of relatively small holdings, so inflating the average size. The four EU regions with the largest average size of agricultural holdings in 2010 were all in Germany and all had an average size in excess of 200 hectares per holding; the highest was in Mecklenburg-Vorpommern on the Baltic coast, with 285.6 hectares per holding. These regions were among 23 regions where the average size of agricultural holdings exceeded 100.0 hectares per holding and among 62 regions where the average size exceeded 60.0 hectares per holding. They were found in just eight of the EU Member States: among those with a higher threshold, 25 regions in the United Kingdom, all eight regions in the Czech Republic, seven (NUTS level 1) regions in Germany, four out of five regions in Denmark and one region in Sweden; amongst those with a lower threshold, 13 regions in France, three (of four) regions in Slovakia and one region in Belgium. As such, the largest agricultural holdings were generally found in western and north-western parts of the EU, as well as in the Czech Republic and Slovakia; the main exception was the one Mediterranean region of Corse (France).

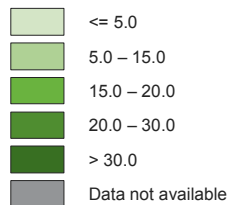


Map 9.2: Gross value added at basic prices in agriculture per annual work unit, by NUTS 2 regions, 2011 ⁽¹⁾
(EUR thousand)



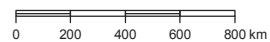
(EUR thousand)

EU-27 = 15.8



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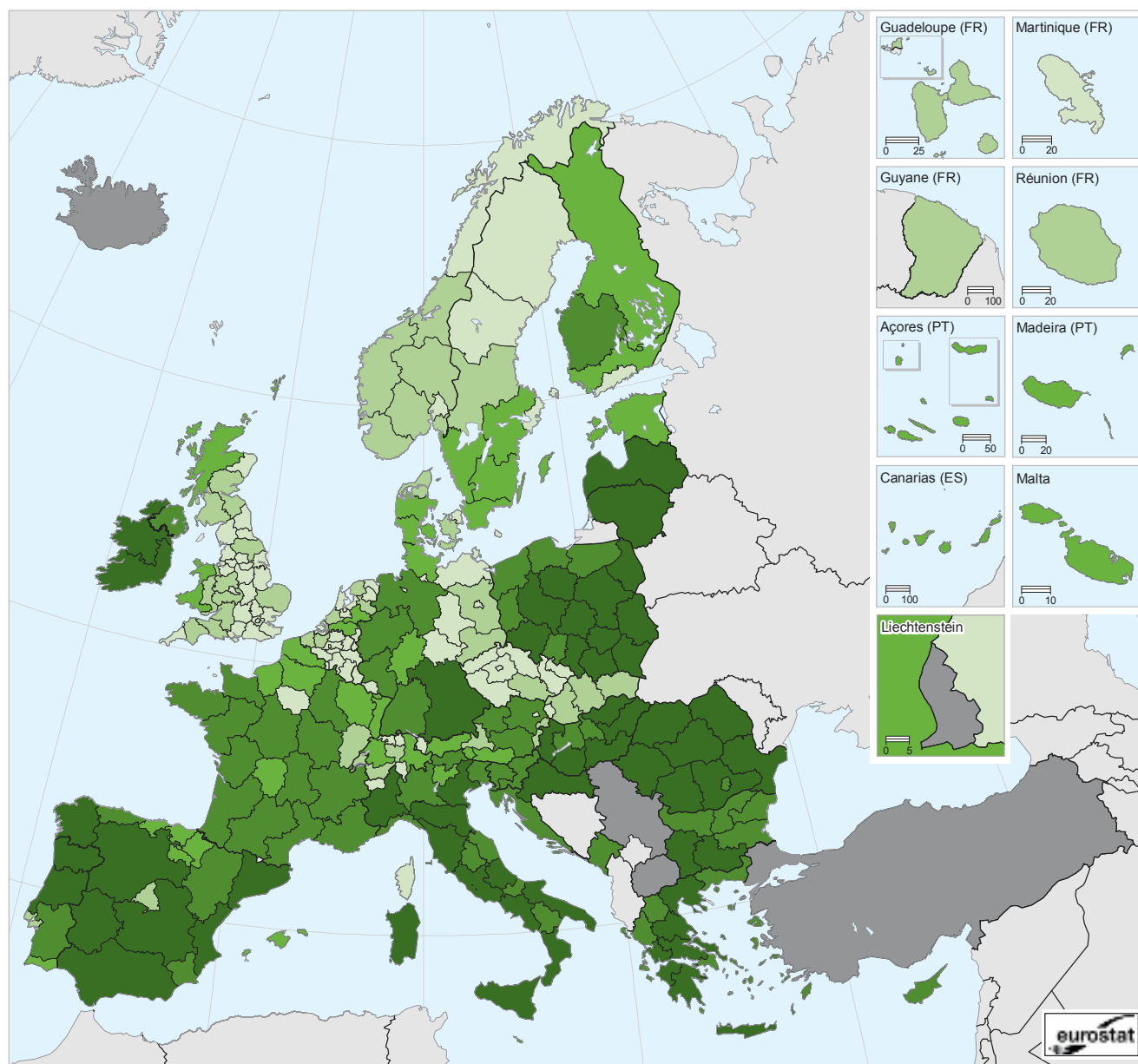


⁽¹⁾ Labour force data for all regions, 2007; labour force data for EU-27 and national level data, 2010; Bulgaria, Czech Republic, Germany, Spain, Hungary, the Netherlands, Romania, Finland and Sweden, 2010; Greece and the United Kingdom, 2009; Cyprus, Latvia, Lithuania, Luxembourg, Malta and Poland, 2008; Estonia, estimates; Belgium, Slovenia, Norway, Switzerland and Croatia, national level.

Source: Eurostat (online data codes: [agr_r_accts](#) and [ef_r_nuts](#))



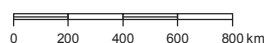
Map 9.3: Number of agricultural holdings, by NUTS 2 regions, 2010 ⁽¹⁾
(thousand holdings)



(thousand holdings)
EU-27 = 12 015

- <= 5.0
- 5.0 – 10.0
- 10.0 – 20.0
- 20.0 – 60.0
- > 60.0
- Data not available

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⁽¹⁾ Germany, by NUTS 1 regions.
Source: Eurostat (online data code: [ef_kvaareg](#))



There were 65 regions where the average size (in terms of UAA) was 10.0 hectares or less, among which 27 regions had an average size of 5.0 hectares or less, and two regions — Malta (0.9 hectares) and the Região Autónoma da Madeira (0.4 hectares) — had an average size of 1.0 hectare or less. The 65 regions with the smallest agricultural holdings were concentrated in the south and east (other than the Czech Republic and Slovakia) of the EU: all 13 regions in Greece and also 13 regions in Italy, all eight regions in Romania, seven regions in Poland, six (of seven) regions in Hungary, five (of seven) regions in Portugal, four regions in France, three regions in Spain, two regions in Bulgaria, both regions in Slovenia, as well as Cyprus and Malta (each one region at NUTS level 2).

Livestock and crops

Cows and cow's milk production

Cow's milk production is often linked to large areas of rich **grassland**, as found, for example, in Northern Ireland, Scotland and the South West of England (all in the United Kingdom), Ireland, the Netherlands, western and some central parts of France, Lithuania and north-eastern Poland. Cow's milk production can also be relatively important in those regions that are characterised by a combination of grassland with fodder crops. On the other hand, in areas where grassland is rarer (for example in northern regions or in Mediterranean areas), cow's milk production tends to be lower. With less favourable climatic conditions and relatively low areas of grassland, cow's milk production in some of these regions is replaced by milk production from ewes and goats; this is especially the case in Mediterranean regions.

Across the whole of the EU-27, milk production in 2011 averaged around 35.2 tonnes per km²; this indicator is shown for all regions at NUTS level 2, in Map 9.5. There were 63 regions in the EU where production exceeded 75.0 tonnes per km² (the darkest shade in the map), among which there were 30 regions where production was greater than 150.0 tonnes per km². These 30 regions were found in just eight Member States, with 11 regions in the Netherlands (all except Zeeland), six regions in the United Kingdom, four each in Belgium and Germany, two in France, and one each in Denmark, Italy and Portugal.

The apparent milk yield in the EU-27 averaged 6.6 tonnes per dairy cow. Apparent yields in the 10 largest milk-producing regions were generally above this average, with the exceptions of Southern and Eastern Ireland and Mazowieckie in Poland. The highest apparent yield among these 10 regions was 9.3 tonnes per dairy cow in Emilia-Romagna, whereas for all EU regions the highest yield was 14.0 tonnes in Lisboa (Portugal).

Bovine animals include animals for fattening or renewal and breeding animals. Some of these animals are used for

dairy production and some for meat production. Therefore, one measure for analysing the potential production of cow's milk is the proportion of **dairy cows** in the total number of cows. Across the EU-27 as a whole, dairy cows accounted for around two thirds (65.3 %) of all cows. Among the 10 regions with the highest milk production, the share of dairy cows exceeded 95.0 % in three regions: Mazowieckie and the two Italian regions, Lombardia and Emilia-Romagna. Shares of dairy cows below the EU-27 average were reported for Galicia in Spain, Southern and Eastern Ireland, as well as the Pays de la Loire in France.

Cereals

Cereals are herbaceous plants cultivated mainly for their grain. Whole cereals are used primarily for animal feed and human consumption; they are also used to produce drinks and industrial products (for example starch). Cereals (including rice) are the largest group of growing crops in the world and are also one of the most important outputs of EU agriculture.

In 2011, the EU-27 produced 290.3 million tonnes of cereals. Cereal production exceeded 4.0 million tonnes in the NUTS level 2 regions of Champagne-Ardenne, Picardie, Centre and Poitou-Charentes (France, 2007 data), Castilla y León and Castilla-la Mancha (Spain), and Sud-Est and Sud - Muntenia (Romania), as well as NUTS level 1 regions of Bayern, Niedersachsen and Nordrhein-Westfalen (in Germany) and the East of England (in the United Kingdom).

Map 9.6 shows the regional level of **harvested production**, standardised by dividing production by the region's area, to take account of the different size of regions (in general) and the availability of data at different levels of NUTS. The highest levels of cereal production relative to a region's area were recorded in Sjælland (Denmark) and Picardie, both over 260.0 tonnes per km². All five Danish regions recorded cereals production in excess of 120.0 tonnes per km², as did five of the seven Hungarian regions. Such an intensity of cereal production relative to land area was also recorded in three or more regions in Belgium, Germany, France, Poland and the United Kingdom.

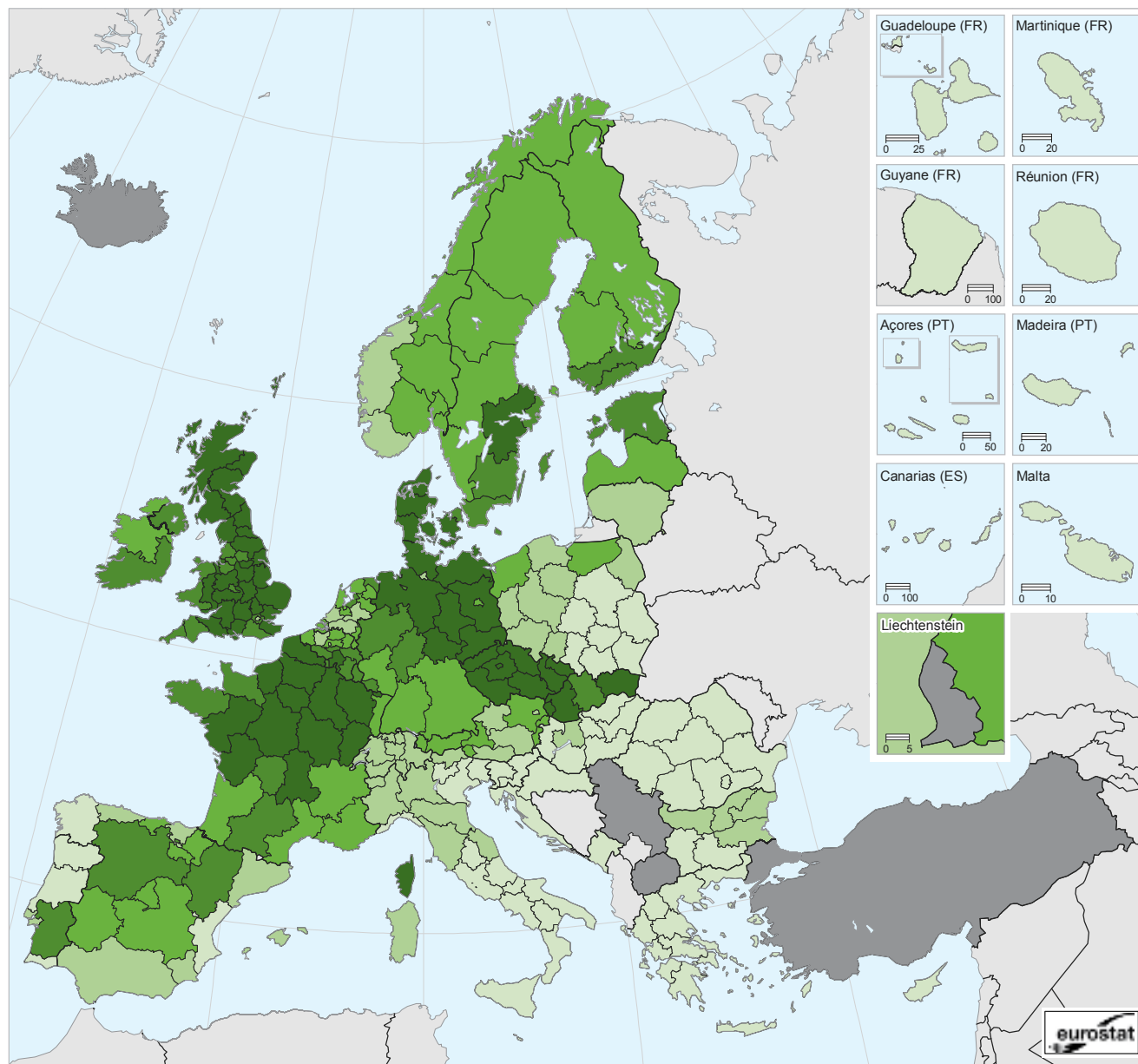
By contrast, the lowest levels of cereal production relative to land area (10.0 tonnes per km² or less) were recorded in 41 regions that were coastal or mountainous area with the exception of Utrecht; note that no data are available for seven regions, including the three city regions in Germany (Berlin, Bremen and Hamburg) and that data for Germany and the United Kingdom are only available for NUTS level 1 regions.

Potatoes

Another major crop within the EU is potatoes, which are grown primarily for human consumption, but are also used to feed cattle and produce alcohol and potato flour (starch). Potato production was around 60 million tonnes between

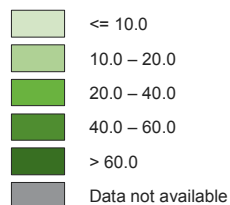


Map 9.4: Average size of farms, by NUTS 2 regions, 2010 ⁽¹⁾
(hectares of utilised agricultural area per agricultural holding)

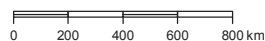


(hectares of utilised agricultural area per agricultural holding)

EU-27 = 14.3



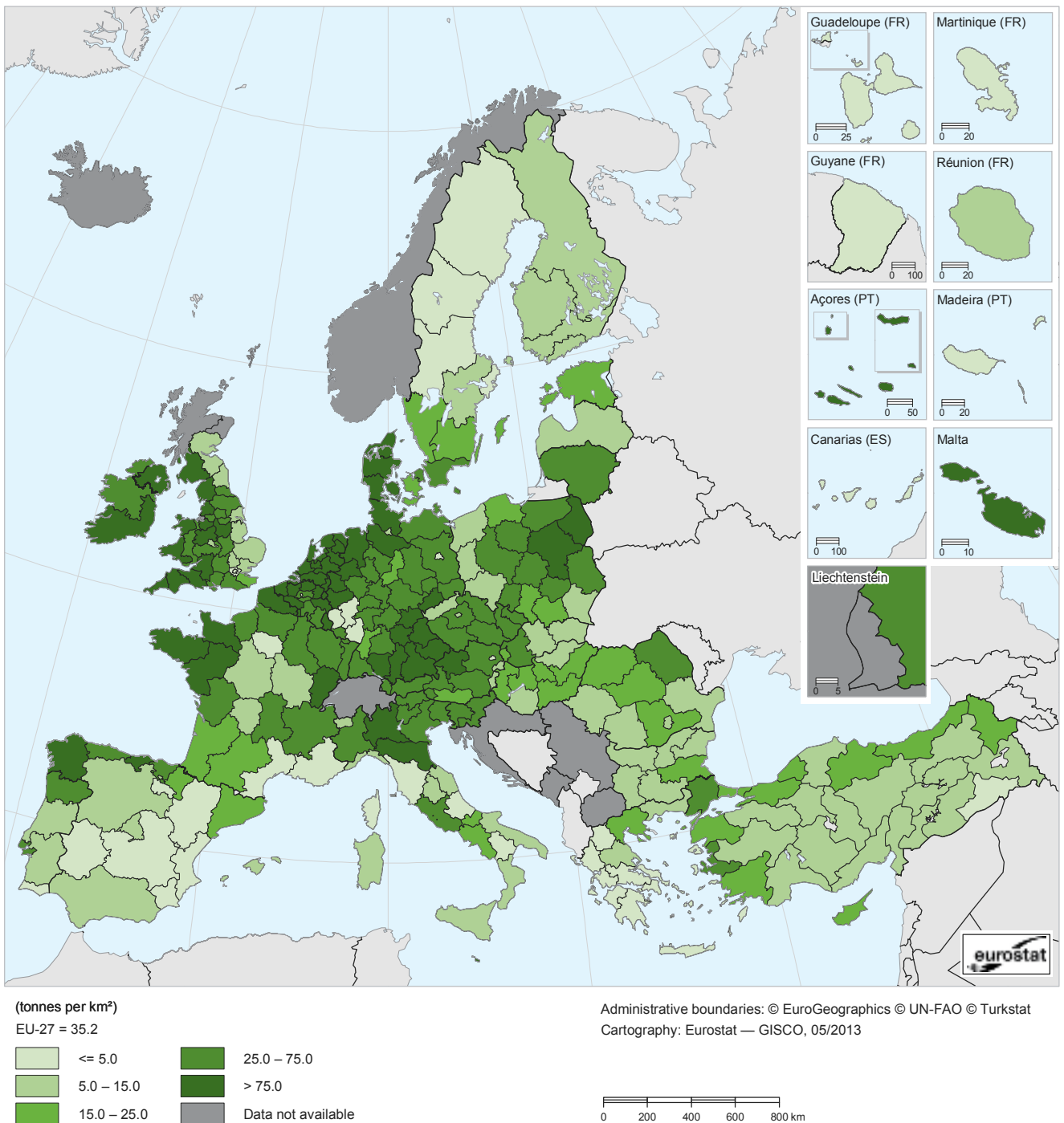
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⁽¹⁾ Germany, by NUTS 1 regions.

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

Map 9.5: Production of cow's milk on farms, by NUTS 2 regions, 2011 ⁽¹⁾
(tonnes per km²)

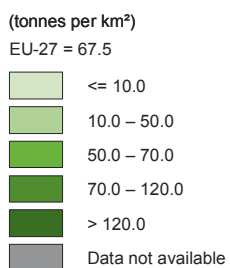
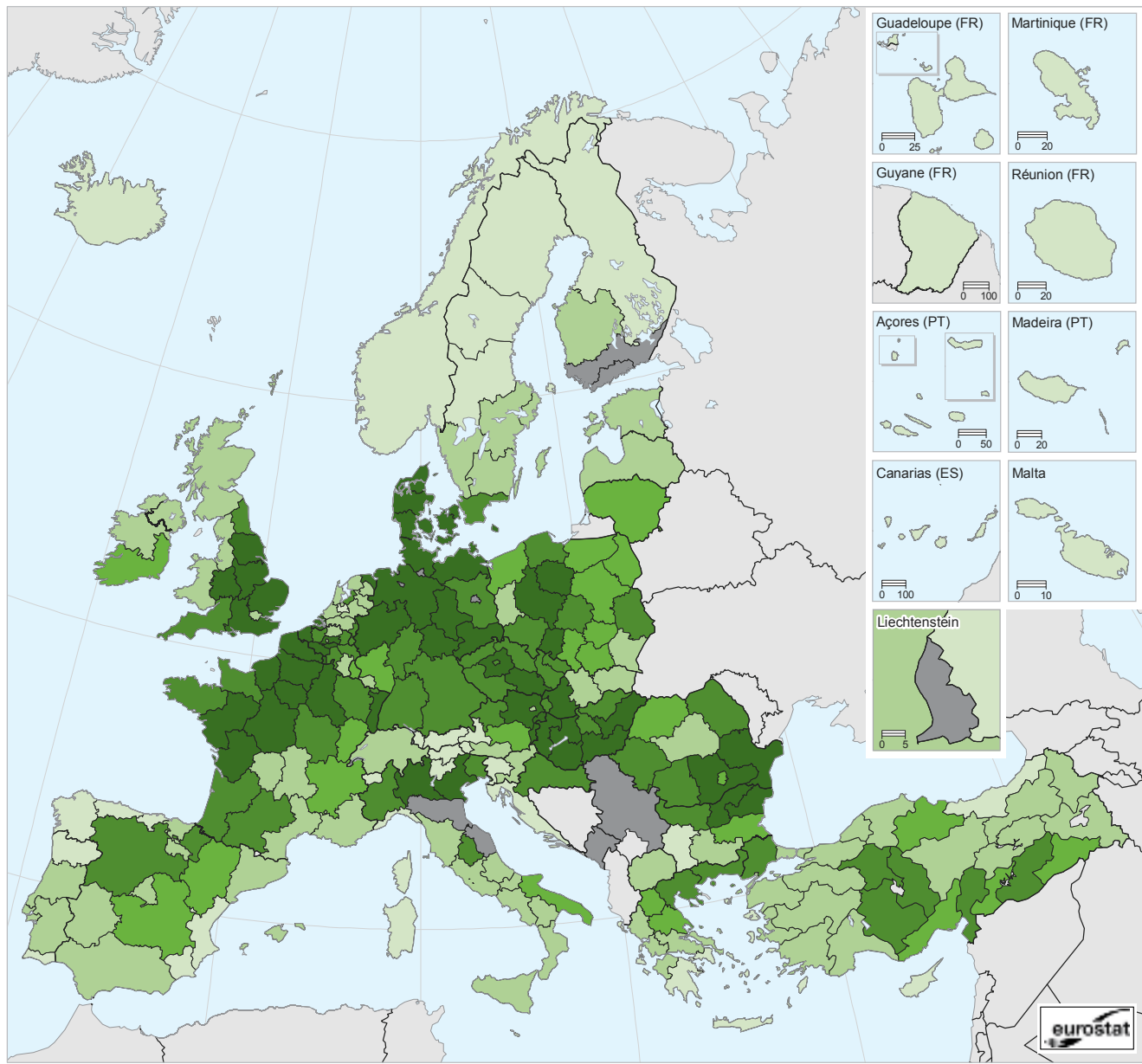


⁽¹⁾ EU-27, excluding Malta; Estonia, Cyprus, Latvia, Lithuania and the United Kingdom (see exceptions), 2010; Luxembourg and Shropshire and Staffordshire (UKG2), 2009; Malta, 2008; Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest (BE10) and Greater Manchester (UKD3), 2006; Tees Valley and Durham (UKC1), Northumberland and Tyne and Wear (UKC2), West Midlands (UKG3), East Anglia (UKH1), Essex (UKH3), Inner London (UKI1) and Outer London (UKI2), 2005; Turkey, 2004; Spain, provisional; based on total area for those Member States for which land area is not available.

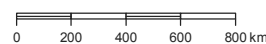
Source: Eurostat (online data codes: [agr_r_milkpr](#) and [demo_r_d3area](#))



Map 9.6: Harvested production of cereals (including rice), by NUTS 2 regions, 2011 ⁽¹⁾
(tonnes per km²)



Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2013



⁽¹⁾ Norway, 2008; France (except Départements d'outre-mer), 2007; Départements d'outre-mer (FR9), 2004; Estonia, Greece and Malta, 2003; Germany and the United Kingdom, by NUTS 1 regions; Norway and Switzerland, national level; based on total area for those Member States for which land area is not available.

Source: Eurostat (online data codes: [agr_r_crops](#), [apro_cpp_crop](#) and [demo_r_d3area](#))



2005 and 2011. In 2010, production fell to 56.1 million tonnes but recovered in 2011 to 62.5 million tonnes. Average production in the EU-27 has been estimated at 14.5 tonnes per km² of land area in 2011.

The highest level of harvested production of potatoes in 2011 among the NUTS level 2 regions in the EU was 2.2 million tonnes in the Picardie and Nord - Pas-de-Calais regions of France (2007 data). Production over 1.0 million tonnes was also recorded in the Spanish region of Castilla y León, the Dutch regions of Drenthe and Groningen, the Polish regions of Mazowieckie and Łódzkie (2009 data) and the Romanian region of Centru (2009 data); production in excess of 1.0 million tonnes was also recorded in the Turkish region of Kirikkale, Aksaray, Nigde, Nevsehir, Kirsehir. For Germany, data are only available for the NUTS level 1 regions, and several of these had large-scale potato farming, notably Niedersachsen where 5.3 million tonnes were harvested and Bayern where 2.1 million tonnes were harvested.

As for cereal production, the data presented for potato production in Map 9.7 have been related to the total land area, which adjusts to some extent for the use of different NUTS levels. The greatest quantities of potatoes harvested relative to land area were in the Dutch regions of Flevoland, Drenthe, Zeeland and Groningen, all over 400.0 tonnes per km². Overall, there were 47 regions in the EU with potato production levels over 24.0 tonnes per km², of which 11 were in each of the Netherlands (all except for Utrecht) and Poland, seven in Belgium, four each in Germany (NUTS level 1 regions) and France, three in Denmark, two in Romania and one each in Malta, Austria, Portugal and Sweden. This level of production relative to area was also achieved in the United Kingdom (no regional data available).

Many mountainous regions in Bulgaria, France, Italy, Austria and Sweden had very low potato production, as did capital city regions in the Czech Republic, Spain and Sweden, the sparsely inhabited north and east of Finland and several regions in Belgium, Bulgaria, Spain and France, as well as the Algarve in Portugal. The lowest levels of potato production relative to land area were recorded in French and Spanish overseas regions and the French island of Corse.

Vineyards

For climatic reasons, the harvested production from vineyards within the EU is largely concentrated in the southern and central (from north to south) regions of the EU. In fact the level of production from vineyards was between 0 and 1 000 tonnes in 10 of the Member States: Belgium, Denmark, Estonia, Ireland, Latvia, Lithuania, the Netherlands, Poland, Finland and Sweden. Production was also relatively low, but increasing, in the United Kingdom.

The total harvested production from vineyards in the EU-27 in 2011 was around 23.2 million tonnes. The largest

production among all NUTS level 2 regions in the EU was 3.3 million tonnes in the Spanish region of Castilla-La Mancha (2006 data). There were four other EU regions with production above 1.0 million tonnes — namely Puglia, Sicilia and Veneto in Italy and Languedoc-Roussillon in France (all 2007 data) — as well as one in Turkey (Manisa, Afyonkarahisar, Kütahya, Usak).

Map 9.8 shows the production from vineyards per km² of land area. There were four regions with more than 50.0 tonnes of output per km², namely Puglia and Veneto in Italy, Languedoc-Roussillon in France and La Rioja in Spain. There were a further 31 regions with more than 10.0 tonnes of output per km², found in just nine Member States. Most of these regions were in southern or Mediterranean Member States — Italy (12 regions), Spain (eight regions), Greece and Portugal (two regions each) and Malta (one region at NUTS level 2); the remaining regions were in more centrally located regions, namely in France (six regions), Austria (two regions), Romania (one region) and Germany (one NUTS level 1 region).

Agri-environmental indicators

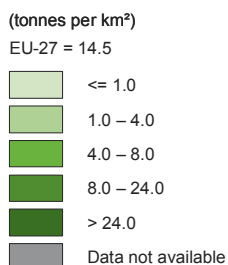
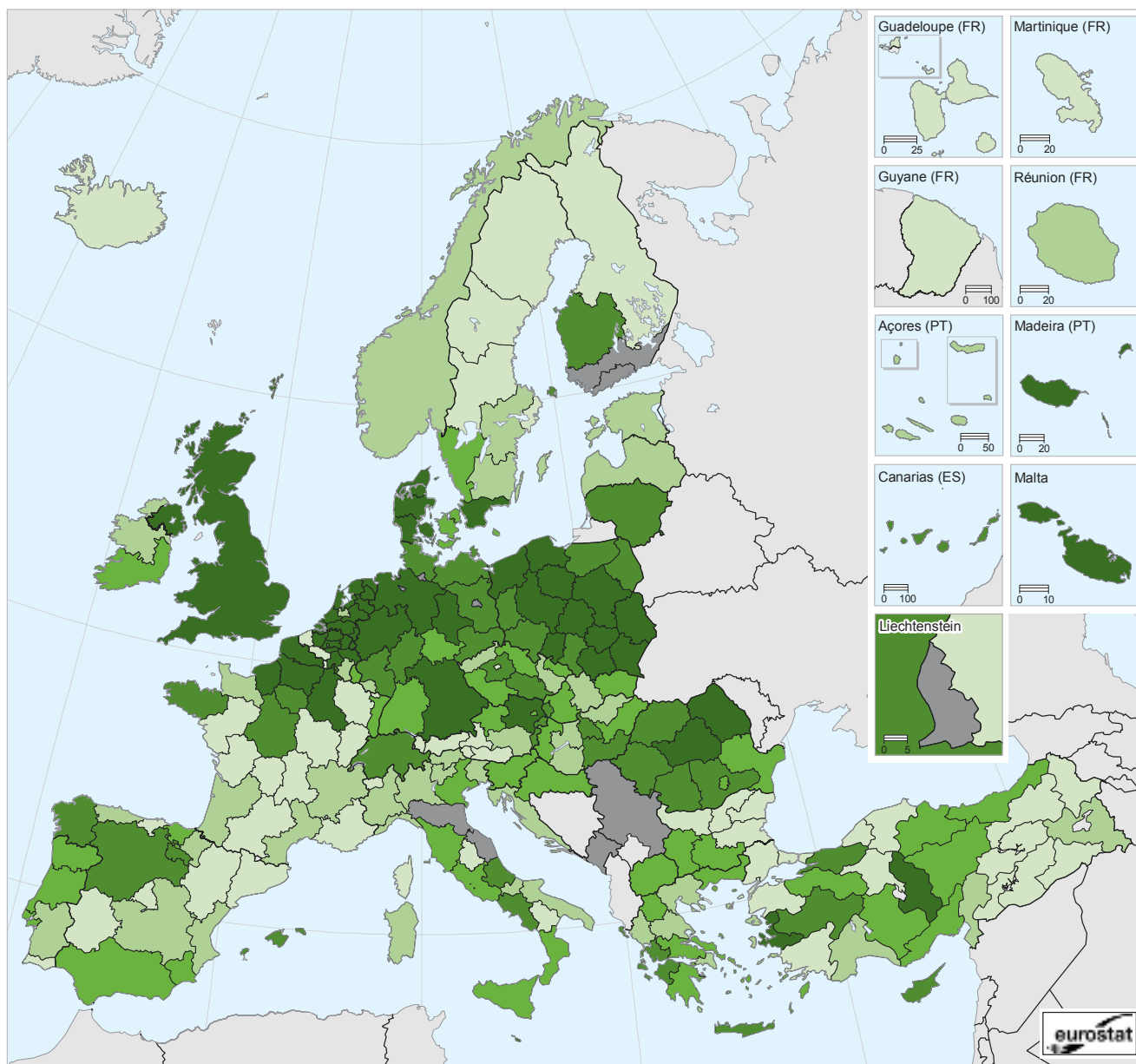
Livestock density

Livestock production depends on the availability of agricultural land to supply animal feed. Livestock is commonly split into herbivores (cattle, sheep, goats and equidae) and granivores (pig and poultry), reflecting their different diets. Granivores are usually fed with specific feedstuffs and do not necessarily need agricultural land. By contrast, herbivores are grazing livestock which can either be raised free-range (whereby they directly graze on pasture) or be kept indoors (and fed with harvested fodder). The ratio of the number of grazing livestock to the fodder area is the grazing livestock density; in order to combine the counts of different types of herbivores these values are first converted to livestock units (LSU) and only then this total is divided by the fodder area.

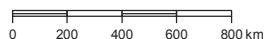
The average grazing livestock density in the EU-27 in 2010 was 1.00 LSU per hectare of fodder area. Regional grazing livestock densities are presented in Map 9.9. The highest densities of grazing livestock across EU regions in 2010 were recorded in the Portuguese island region of the Região Autónoma da Madeira, the Greek regions of Anatoliki Makedonia, Thraki and of Thessalia, and the Spanish region of Murcia, all with an average of more than 4.00 LSU per hectare of fodder area. In total there were 47 regions in the EU where grazing livestock density exceeded 1.70 LSU per hectare of fodder area: 12 of these were in the Netherlands (all Dutch regions), 10 were in Belgium (all regions except the capital city region), eight in Greece, six in France, three in Italy, two in Poland and one each in Germany (at NUTS level 1), Spain, Cyprus (one region at NUTS level 2), Malta (one region at NUTS level 2), Portugal and Romania.



Map 9.7: Harvested production of potatoes, by NUTS 2 regions, 2011 ⁽¹⁾
(tonnes per km²)



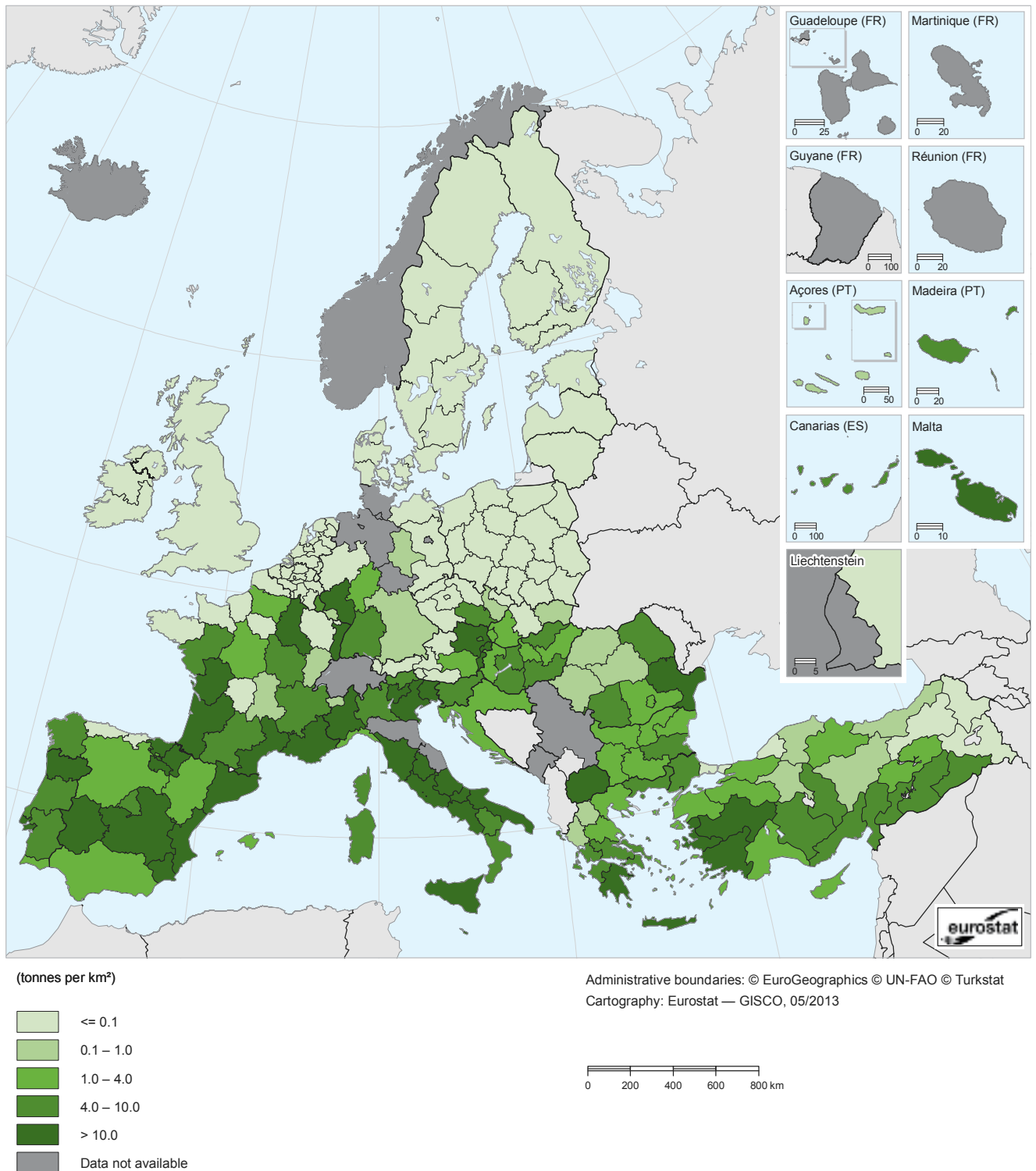
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2013



⁽¹⁾ Romania, 2010; Czech Republic, Denmark, Hungary, Poland, Slovenia and Finland, 2009; Norway, 2008; France (except Départements d'outre-mer) and Luxembourg, 2007; Départements d'outre-mer (FR9), 2006; İstanbul (TR10) and Mardin, Batman, Şırnak, Siirt (TRC3), 2004; Greece, 2003; Germany, by NUTS 1 regions; Slovenia, the United Kingdom, Norway and Switzerland, national level; based on total area for those Member States for which land area is not available.
Source: Eurostat (online data codes: [agr_r_crops](#), [apro_cpp_crop](#) and [demo_r_d3area](#))



Map 9.8: Harvested production in vineyards, by NUTS 2 regions, 2011 ⁽¹⁾
(tonnes per km²)



⁽¹⁾ Latvia, the United Kingdom and the former Yugoslav Republic of Macedonia, 2010; Bulgaria, the Czech Republic, Germany, Hungary, Austria, Poland, Portugal, Romania and Slovakia, 2009; France and Italy, 2007; Belgium and Spain, 2006; Sweden and Turkey, 2004; Greece, 2003; Germany, by NUTS 1 regions; Slovenia, the United Kingdom and Croatia, national level; based on total area for those Member States for which land area is not available.

Source: Eurostat (online data codes: [agr_r_crops](#), [apro_cpp_crop](#) and [demo_r_d3area](#))

At the other end of the scale, some 54 regions had 0.60 LSU or less per hectare of fodder area (the lightest shade in the map). Among these there were 16 regions with a density of 0.40 LSU or less per hectare of fodder area: the capital city regions of Belgium, Bulgaria, the Czech Republic, Austria and the United Kingdom; several mountainous regions in France, Italy, Romania, Slovakia and the United Kingdom; as well as Estonia and Latvia (each one region at NUTS level 2).

Irrigable area

The amount of water used for irrigation depends on factors such as: climate, current weather conditions, crop type, soil characteristics, water quality and cultivation practices. Around 14.6 million hectares of agricultural land are irrigable in the EU, which is about 8.5% of the total utilised agricultural area; for comparison, the share was 8.8% in 2007.

Figure 9.2 compares the extent of irrigable utilised agricultural land in 2010 with that in 2007 for the 20 regions with the largest proportion of irrigable land. Unsurprisingly, for reasons of climate this list is dominated by regions in the south of the EU, although it also includes several regions in the Netherlands, reflecting its crop specialisation. The highest share of agricultural land that is irrigable was recorded in the Região Autónoma da Madeira in Portugal (82.3%), far ahead of any other region. Just over half of the top 20 regions reported that a lower share of agricultural land was irrigable in 2010 than had been in 2007. The most notable increase in the extent of irrigable agricultural land between 2007 and 2010 was the 12.6 percentage point increase in Flevoland (the Netherlands), which was the largest increase among any of the EU regions; the next largest was a 5.1 percentage point increase reported for Noord-Holland. The 10.2 percentage point fall in the Região Autónoma da Madeira was the largest among the top 20 regions, but was less than in Bratislavský kraj (Slovakia, – 13.7 percentage points) and Guyane (France, – 31.9 percentage points).

Data sources and availability

Economic accounts for agriculture (EAA) provide data at a regional level for the value of output, intermediate consumption and income. Eurostat has been collecting, processing and publishing data on the EAA in the form of a regional analysis for more than 15 years. Regional accounts for output items are often used as building blocks for results at the national level, while regional data for intermediate consumption (direct input of goods and services in production) are often broken down from national figures using other information (a top-down approach). Regional EEA may, therefore, be less accurate than data presented at the national level. Agricultural activities correspond to NACE Rev. 2 Division 01: crop and animal production, hunting and related service activities.

The farm structure survey (FSS) is another major source of agricultural statistics. A comprehensive farm structure

survey is carried out by EU Member States every 10 years, with this full scope survey referred to as the agricultural census; intermediate sample surveys are carried out three times between each census. Under the guidance of the Food and Agriculture Organisation (FAO), the ninth round of the world agricultural census (2010) recently took place. Eurostat has followed the FAO's recommendation on the worldwide decennial agricultural census since the 1970 round. A new legal basis was developed for the FSS in relation to the 2010 data collection exercise, namely Regulation (EC) No 1166/2008 of the European Parliament and of the Council on farm structure surveys and the survey on agricultural production methods. The census is a survey collecting information about all agricultural holdings in order to present an updated picture of the structure of agricultural activities from an economic, social and environmental point of view. The information is collected from individual agricultural holdings and covers:

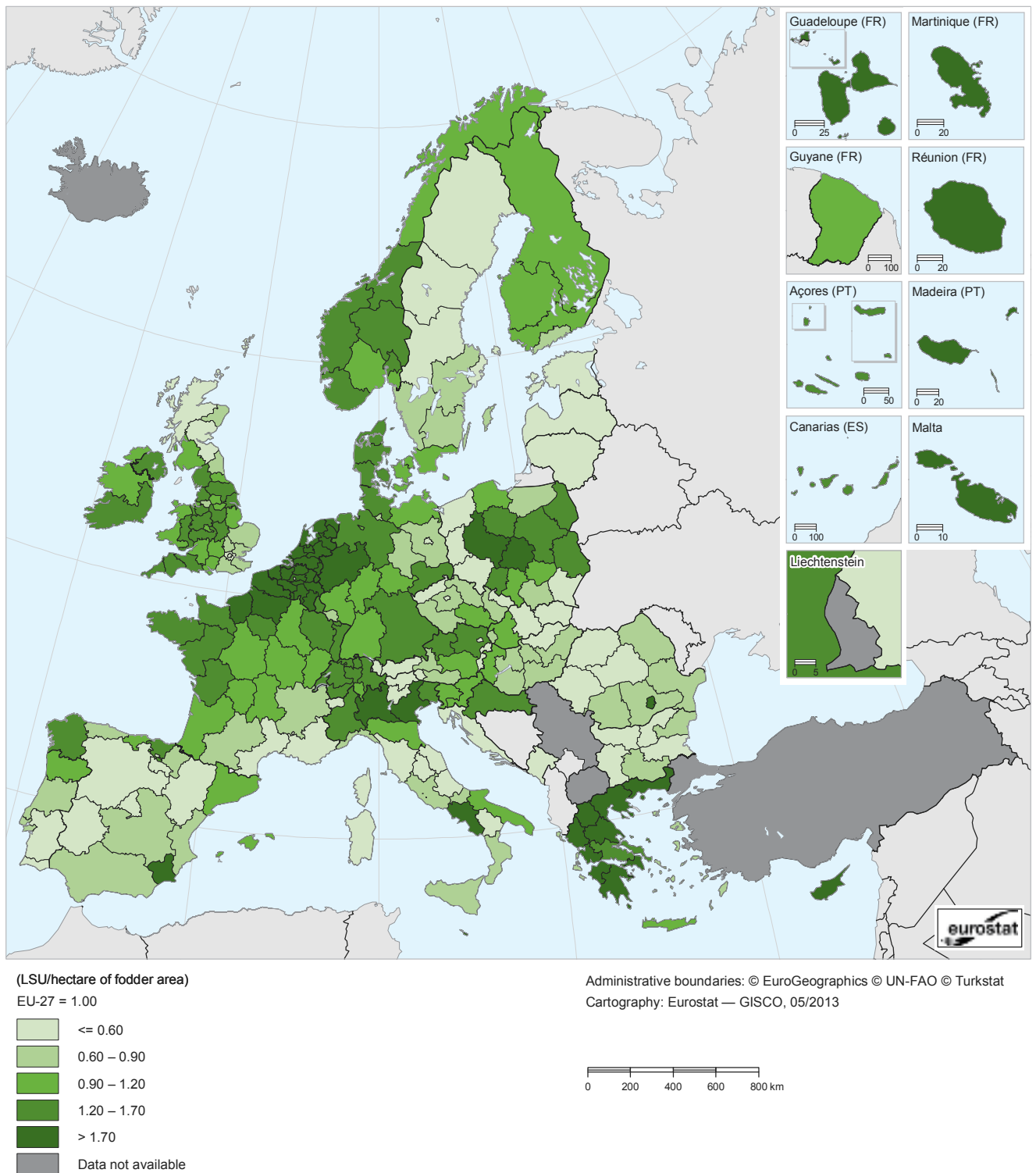
- land use;
- livestock numbers;
- rural development (for example activities other than agriculture);
- irrigable and irrigated areas;
- management and farm labour input (including age, sex and relationship to the holder).

The basic statistical unit underlying the FSS is the agricultural holding. Until 2007, the FSS covered all agricultural holdings with a utilised agricultural area (UAA) of at least 1 hectare and those holdings with a UAA of less than 1 hectare if their market production exceeded certain natural thresholds. Under the new legislation, the minimum threshold for agricultural holdings changed from 1 hectare of UAA to 5 hectares of UAA for the 2010 survey. This threshold of 5 hectares of UAA was adopted in the Czech Republic (from 1 hectare in 2007 to 5 hectares in 2010), Germany (from 2 hectares to 5 hectares), Sweden (from 2 hectares of arable land to 2 hectares of arable land or 5 hectares of UAA) and the United Kingdom (from 'active farms' to 5 hectares), while the threshold in Denmark remained unchanged when compared with 2007 at 5 hectares. Otherwise, the threshold in Luxembourg was changed from 1 hectare to 3 hectares, that in Poland from 0.1 hectares to 1 hectare, and that in Slovakia from 0.5 hectares to 1 hectare.

For livestock numbers, there are specific informal agreements with the EU Member States to provide data. Grazing livestock include cattle, sheep, goats and equidae. In order to combine data for different types of livestock, the number of animals may be converted into a common measurement unit, a livestock unit (LU or LSU), which is a measure related to the feed requirements of each individual animal category; for example, 1 LSU corresponds to one dairy cow or to 10 sheep. Grazing livestock density is calculated relative to the fodder area (consisting of fodder crops grown on arable land as well as permanent grassland).



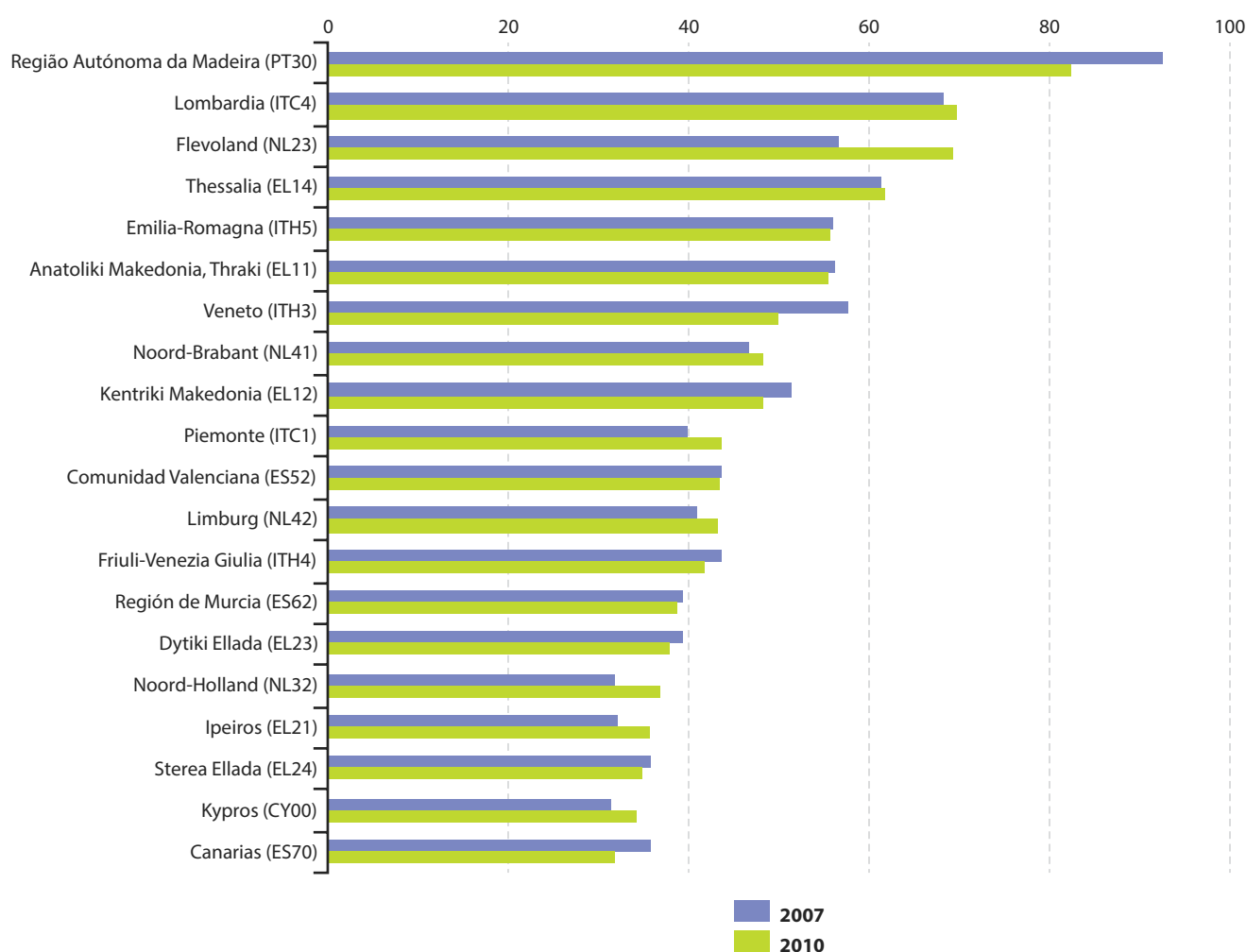
Map 9.9: Grazing livestock density, by NUTS 2 regions, 2010 ⁽¹⁾
(LSU/hectare of fodder area)



⁽¹⁾ Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest (BE10), 2007; Germany, by NUTS 1 regions.

Source: Eurostat (online data codes: [aei_ps_ld](#) and [ef_olsecsreg](#))

Figure 9.2: Top 20 EU-27 regions, irrigable area, by NUTS 2 regions, 2007 and 2010 ⁽¹⁾
(% of utilised agricultural area)



(¹) Ciudad Autónoma de Ceuta (ES63), Ciudad Autónoma de Melilla (ES64) and Luxembourg, not available.
Source: Eurostat (online data codes: [aei_ps_ira](#) and [ef_poirrig](#))

This chapter presents more detailed data on cows and dairy farming. Among other classifications, bovines (cattle) can be distinguished by age and sex: female bovines that have calved are called cows, while those that have not are called heifers (if aged 2 or over), young cattle or calves. Dairy cows are a subgroup of cows that are kept exclusively, or principally, for the production of milk for human consumption and/or dairy produce, including cows for slaughter (fattened or not between last lactation and slaughter).

Statistics on the production of animal products are compiled according to EU legislation, for example for milk, eggs and meat products. Milk production covers farm production of milk from cows, sheep, goats and buffaloes. A distinction is made between milk collected by dairies and milk production on the farm. Milk collection is only a part of the total use of milk production on the farm; the remainder generally includes own consumption, direct sale and cattle feed.

Annual statistics on the production of a range of specific crops are also covered by regulations, with 2010 being the first reference year when there was a legal basis for the collection of statistics relating to fresh fruit and vegetables (previously various informal agreements were used). Agricultural production of crops is synonymous with harvested production and includes marketed quantities, as well as quantities consumed directly on the farm, losses and waste on the holding, as well as losses during transport, storage and packaging. The main cereals harvested within the EU are wheat, barley, grain maize, rye and maslin; in this chapter the production of cereals also includes rice. The data are obtained from sample surveys supplemented by estimates based on expert observations and administrative data.

Irrigation is the use of water in agriculture in order to foster crop growth, especially in dry areas. It is a major input use in agriculture and a basic driving force for water abstraction. The data



presented relate to irrigable areas, which represent the irrigation potential — in other words, the maximum area which could be irrigated during the year using the equipment and the quantity of water normally available on the farm. The irrigable area is generally quite stable over time, whereas the irrigated area — those areas which were actually irrigated at least once during the year — can vary substantially, depending on climatic conditions.

For maps which show additive variables, there is a bias linked to the area of each region: the bigger the region, the more the value of the variable will increase: this is the case for livestock numbers and agricultural production. In order to eliminate this bias, in this chapter some livestock numbers and production data have been normalised, dividing the regional quantities by each region's area. For crop production, the resulting indicators (see Maps 9.6–9.8) should not be confused with [crop yields](#), which are based not on the region's area but on the harvested area used for each crop.

Context

Europe has a great diversity in terms of natural environments, climates and farming practices that feed through into a wide array of agricultural products: food and drink products for human consumption and animal feed, as well as providing inputs for non-food processes. Indeed, agricultural products form a major part of the cultural identity of Europe's people and regions.

Some regions have terrain and land cover that permit almost all their land area to be used for agriculture: in others, a harsh climate, dense forest cover or altitude may mean that only a fraction of the land area can be used in this way. Climate and geography have a major influence on the agricultural use of the land and, as a result, the choice of animal and plant production naturally varies from region to region across Europe.

The links between the richness of the natural environment and farming practices are complex. Many valuable habitats in Europe are maintained by extensive farming, and a wide range of wild species rely on this for their survival. But inappropriate agricultural practices and land use can also have an adverse impact on natural resources, for example soil, water and air pollution, the fragmentation of natural habitats and the loss of wildlife.

Livestock patterns are an indicator of the pressure of livestock farming on the environment. High livestock density, through manure production and the subsequent application of manure to the land and enteric fermentation in ruminants, contributes to climate change ([greenhouse gas emissions](#)). The production of manure and the application of manure also leads to emissions of air pollutants such as ammonia (NH₃), nitric oxide or nitrogen dioxide (NO_x). Excess supply of nutrients to the soil can also cause nutrients to leach into water, leading to water pollution and eutrophication. In general, a high grazing livestock density increases the risk of overgrazing, which can have devastating effects on grasslands (for example soil erosion and

desertification in arid regions). By contrast, a low grazing livestock density indicates potential for scrub and woodland invasion of meadows and a loss of soil fertility due to insufficient supply of nutrients — alternatively, it may increase the need for industrial fertilisers to be used on agricultural land.

Irrigation improves crop productivity and reduces risks associated with dry periods. However, irrigation may lead to the depletion of water supplies, erosion or increased soil salinity. On the other hand, traditional irrigation systems have the potential to create diverse landscapes which support a variety of wildlife and have important cultural and historic value.

Approximately half of the surface area of the EU is used for agricultural purposes and is classified as predominantly rural. Production quality, agricultural intensity, rural development, the environment and food safety issues are among a diverse range of factors that are influenced by the development of the agricultural sector. Alongside the CAP, in particular the [European Agricultural Fund for Rural Development \(EAFRD\)](#), the [European Regional Development Fund \(ERDF\)](#) and the [European Social Fund \(ESF\)](#) also work towards furthering economic diversification in rural areas and improving the quality of rural life — for more information see the section on [rural development policy](#) in the Introduction.

Significant reforms of the CAP have taken place in recent years, most notably in 2003 and 2008, with the aim of making the agricultural sector more market-oriented. The 2003 reform introduced a new system of direct payments, known as the single payment scheme, under which aid is no longer linked to production (decoupling); this single payment scheme aims to guarantee farmers more stable incomes. Farmers can decide what to produce in the knowledge that they will receive the same amount of aid, allowing them to adjust production to suit demand. In 2008, further changes were made to the CAP, building on the reform package from 2003, such that all aid to the agricultural sector should have been decoupled by 2012. The European Commission presented a Communication titled '[The CAP towards 2020: meeting the food, natural resources and territorial challenges of the future](#)' (COM(2010) 672 final) outlining options for the future of the CAP, following consultation with other European institutions and stakeholders. This was followed in October 2011 by [a set of legal proposals](#) (COM(2011) 625 to 631 final) concerning: direct payments; support for rural development; aids and refunds; support to vine-growers; the common organisation of markets in agricultural products; and the financing, management and monitoring of the CAP. These proposals are designed to ensure that the CAP is more effective in delivering a competitive and sustainable agricultural sector, while encouraging vibrant rural areas; this latest set of reforms is due to be in place by the start of 2014. Any future reform is likely to be made in relation to the goals of developing intelligent, sustainable and inclusive growth, in line with the [Europe 2020](#) strategy, while taking account of the wealth and diversity of the agricultural sector.