

Agriculture

12





Introduction

Although the economic significance of agriculture within the [European Union \(EU\)](#) economy has been in almost perpetual decline over the last 50 years, it remains a vital sector. Agricultural products form a major part of Europe's regional and cultural identity. This is, at least in part, due to a diverse range of natural environments, climates and farming practices that feed through into a wide array of agricultural products: food and drink for human consumption; animal feed; and inputs used in a variety of non-food manufacturing processes. 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. By contrast, 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. The [sustainable development](#) of rural areas is one of the key objectives of the EU's [common agricultural policy \(CAP\)](#).

Common agricultural policy (CAP)

Launched in 1962, the CAP sets conditions for farmers to fulfil multiple functions, including their principal aim of producing high-quality, safe food. Significant reforms of the CAP have taken place in recent years, most notably in 2003, 2008 and 2013. These have sought to make the EU's agricultural sector more market-oriented, ensure that safe and affordable food continues to be produced, while respecting environmental and sustainability concerns.

In December 2013, the latest reform of the CAP was formally adopted by the European Parliament and the Council. It is based on four new legislative instruments that aim to simplify the rules of the CAP and which cover:

- [support for rural development](#), Regulation No 1305/2013;
- [financing, management and monitoring of the CAP](#), Regulation No 1306/2013;
- [direct payments](#), Regulation No 1307/2013;
- [measures linked to agricultural products](#), Regulation No 1308/2013.

The main elements of the CAP post-2013 concern: a fairer distribution of direct payments (with targeted support and convergence goals); strengthening the position of farmers within the food production chain (such as through: the promotion of professional and inter-professional organisations; changes to the organisation of the sugar and wine sectors; revisions to public intervention and private storage aid; and new crisis management tools); and continued support for rural development, safeguarding the environment and biodiversity.

The CAP is financed by two funds: on the one hand, the [European Agricultural Guarantee Fund \(EAGF\)](#) finances direct payments to farmers, as well as measures to respond to market disturbances; on the other, the [European Agricultural Fund for Rural Development \(EAFRD\)](#) finances the rural development programme (see below for more details).

Almost one third (30 %) of direct payments in the post-2013 CAP are linked to sustainable and environmentally-friendly practices, such as crop diversification, the maintenance of permanent grassland, or the protection of ecological areas on farms; there is also specific aid for organic farming. Furthermore, the CAP helps farmers by aiming to stimulate employment, entrepreneurship and the diversification of farms beyond food production. Specific schemes are in place, for example, providing support to young farmers during their first five years in the sector.

Europe 2020

All of the above changes are designed to ensure that the CAP is more effective in delivering a competitive and sustainable agriculture sector, responding to the challenges of food safety, climate change, growth and jobs in rural areas. These reforms are made in relation to the goals of the [Europe 2020](#) strategy, while taking account of the wealth and diversity of the agricultural sector across EU regions.

The Europe 2020 strategy has introduced seven flagship initiatives to boost growth and jobs. One of these initiatives is the [innovation union](#), which includes a set of European innovation partnerships (EIPs). The agricultural EIP (EIP-AGRI) was launched in February 2012 by a European Commission communication titled [European innovation partnership on agricultural sustainability and productivity](#) (COM(2012) 79 final). The main aim of the agricultural EIP is 'to foster competitive and sustainable farming and forestry that achieves more and better from less' ensuring a steady supply of food, feed and biomaterials, as well as sustainable management of essential natural resources on which farming and forestry depend. It aims to do so by speeding-up the transfer of R & D from the laboratory and by focusing on partnerships which link farmers, researchers, advisors, businesses, non-governmental organisations and other interested groups.

Rural development

As noted above, Regulation No 1305/2013 provides for the reform of rural development policy post-2013; it is the latest in a series of policy developments aimed at developing Europe's rural areas. Three long-term strategic objectives



have been identified in relation to EU rural development policy during the period 2014–20, in line with Europe 2020 and CAP objectives: improving the competitiveness of agriculture; safeguarding the sustainable management of natural resources and climate action; and ensuring that the territorial development of rural areas is balanced. The European Agricultural Fund for Rural Development (EAFRD) is designed to help: foster the competitiveness of agriculture and ensure the sustainable management of natural resources; support action related to the climate; and achieve a balanced territorial development of rural economies and communities, including the creation and maintenance of employment. The policy will be implemented through national and / or regional rural development programmes (RDPs), which should be constructed so as to: strengthen

the content of rural development measures; simplify rules and / or reduce related administrative burdens; and link rural development policy more closely to other funds.

Aside from the EAFRD, several other EU funds provide support for rural areas, namely: the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund. All of these [European structural and investments funds \(ESIF\)](#) are coordinated with a set of common provisions that include the requirement to establish clear links to the Europe 2020 strategy, concentrating support on achieving the Europe 2020 headline targets. ESIF funding for rural development amounts to almost EUR 96 billion for the programming period of 2014–20.

Main statistical findings

Soil is the top layer of the earth's crust, formed by mineral particles, organic matter, water, air and living organisms. It performs a variety of functions: healthy soil is the basis for high-quality food production; soil supports biodiversity; soil can help to combat climate change as it plays a key role in the carbon cycle; soil can store and filter water. Soil formation is a very slow process, soil can be considered essentially as a non-renewable resource.

Soil degradation is a reduction in the capacity of soil: it manifests itself in a variety of forms, including: erosion, loss of organic matter, compaction, salinisation or contamination and has a negative impact on human health, natural ecosystems and climate, as well as the economy.

Survey on agricultural production methods

Given that 2015 has been declared international year of soils, this chapter begins by detailing regional developments based on the survey on agricultural production methods (SAPM), a one-off survey used to collect farm level data on, among others, tillage, crop rotation and manure management practices. All of these are closely linked to agri-environmental issues, such as pesticide and nutrient run-off, soil erosion, or greenhouse gas and ammonia emissions.



INTERNATIONAL YEAR OF SOILS — 2015

The 68th [United Nations \(UN\)](#) general assembly declared 2015 the [international year of soils](#). The [Food and Agriculture Organisation \(FAO\)](#) was nominated to implement the international year, with the goal of increasing awareness and understanding of the importance of soil, through:

- raising awareness among civil society and decision makers about the importance of soil for human life;
- educating the public about the role soil plays in food security, climate change adaptation and mitigation, essential ecosystem services, poverty alleviation and sustainable development;
- supporting effective policies and actions for the sustainable management and protection of soil resources;
- promoting investment in sustainable soil management activities to develop and maintain healthy soils for different land users and population groups;
- strengthening initiatives in connection with the [sustainable development goals](#) process and the [post-2015 agenda](#);
- advocating the collection of more information to monitor soils at all levels (global, regional and national).



Conservation tillage

Tillage practices refer to mechanically preparing soils so that they are ready for planting crops; these operations are principally carried out between the harvest and the following sowing / cultivation operation. Using less intrusive tillage and maintaining a soil cover during winter are two important practices that help reduce soil degradation and prevent nutrient and pesticide runoff.

Information about tillage practices helps assess soil cover, risks of nitrate leaching, and the organic matter of soils. Any disturbance of soils may enhance turnover of nutrients and thereby increase the potential risk of loss of nitrogenous compounds and phosphorus. This is especially the case when tillage practices are employed in the autumn and if the land is then subsequently left during the winter months.

Different tillage practices were distinguished in the SAPM: conventional tillage, conservation tillage, and zero tillage (in other words, no tillage). Conventional tillage concerns arable land where the soil has been inverted, normally using a mouldboard or a disc plough as the primary tillage operation, followed by secondary tillage with a disc harrow. By contrast, conservation tillage refers to arable land being treated by a tillage practice that leaves at least 30 % of plant residue on the soil's surface for erosion control and moisture conservation, normally by not inverting the soil.

In 2010, conservation tillage was applied to 18.5 % of the arable land in the EU-28; almost two thirds of the EU regions shown in **Map 12.1** reported a share that was below this average. The highest use of conservation tillage (as denoted by the darkest shade in **Map 12.1**) was reported in a band of regions running from north-east France, through Germany, into the Czech Republic and eastern Austria; the use of conservation tillage was also high across every region in Bulgaria and many regions of England, as well as in Cyprus (a single region at this level of analysis), two Greek regions, and a single region from each of Spain and Belgium.

Conservation tillage was applied to more than half of the arable land in every region of Bulgaria, and this pattern was repeated in the German regions of Sachsen, Sachsen-Anhalt, Mecklenburg-Vorpommern and Thüringen (note these are NUTS level 1 regions), as well as in Hampshire and the Isle of Wight (the United Kingdom). The highest proportion (66 %) of conservational tillage was applied on the arable land of Cyprus.

Crop rotation on arable land

Arable land is land worked (ploughed or tilled) regularly, generally under a system of crop rotation. Crop rotation is the practice of alternating annual crops grown on a specific field in a planned pattern or sequence in successive crop years so that crops of the same species are not grown without interruption on the same field. Crop rotation may be used to produce higher yields by replenishing soil nutrients, increasing organic matter and nutrient retention, and breaking disease and pest cycles. Arable land in the SAPM was considered to be out of crop rotation when it was cultivated with the same crop for three or more consecutive years and when it was not part of a planned crop rotation exercise.

Map 12.2 shows, for NUTS level 2 regions, the proportion of arable land that was remained under crop rotation for all three years prior to the SAPM; the EU-28 average was 69.8 % in 2010. Just under two thirds of the EU regions shown had a higher proportion of their arable land under continuous crop rotation, while approximately 10 % of them reported that at least 90 % of their arable land was continuously under crop rotation (as shown by the darkest shade in **Map 12.2**). Note that some of the highest proportions of arable land under crop rotation were often recorded in highly urbanised regions, especially capital regions, where the total area devoted to arable land was often extremely low.

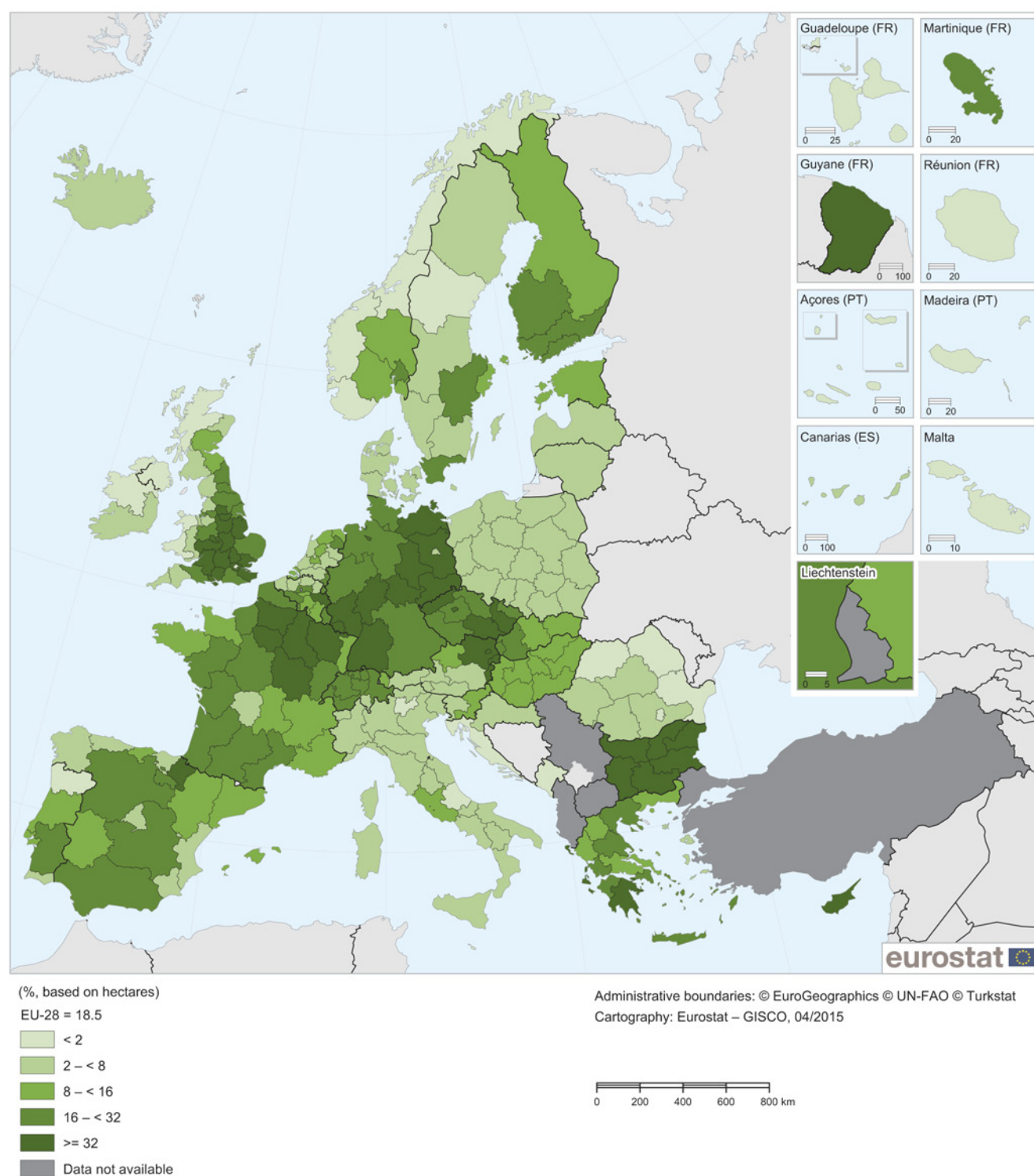
By contrast, all five of the NUTS level 2 regions in Denmark reported that all of their arable land was at some stage in the three years prior to the survey out of crop rotation. The other regions where a relatively high proportion (more than 80 %) of arable land was out of crop rotation (during some stage in the previous three years) included all of the regions in Sweden, the Belgian regions of Provincie Antwerpen and Provincie Oost-Vlaanderen, the two Welsh regions in the United Kingdom, the Croatian region of Kontinentalna Hrvatska and the Austrian region of Vorarlberg.

Solid manure application with immediate incorporation

The **utilised agricultural area (UAA)** describes the area used for farming. It includes the following land categories: arable land; permanent grassland; permanent crops; other agricultural land such as kitchen gardens. The UAA does not include unused agricultural land, woodland and land occupied by buildings, farmyards, tracks or ponds.



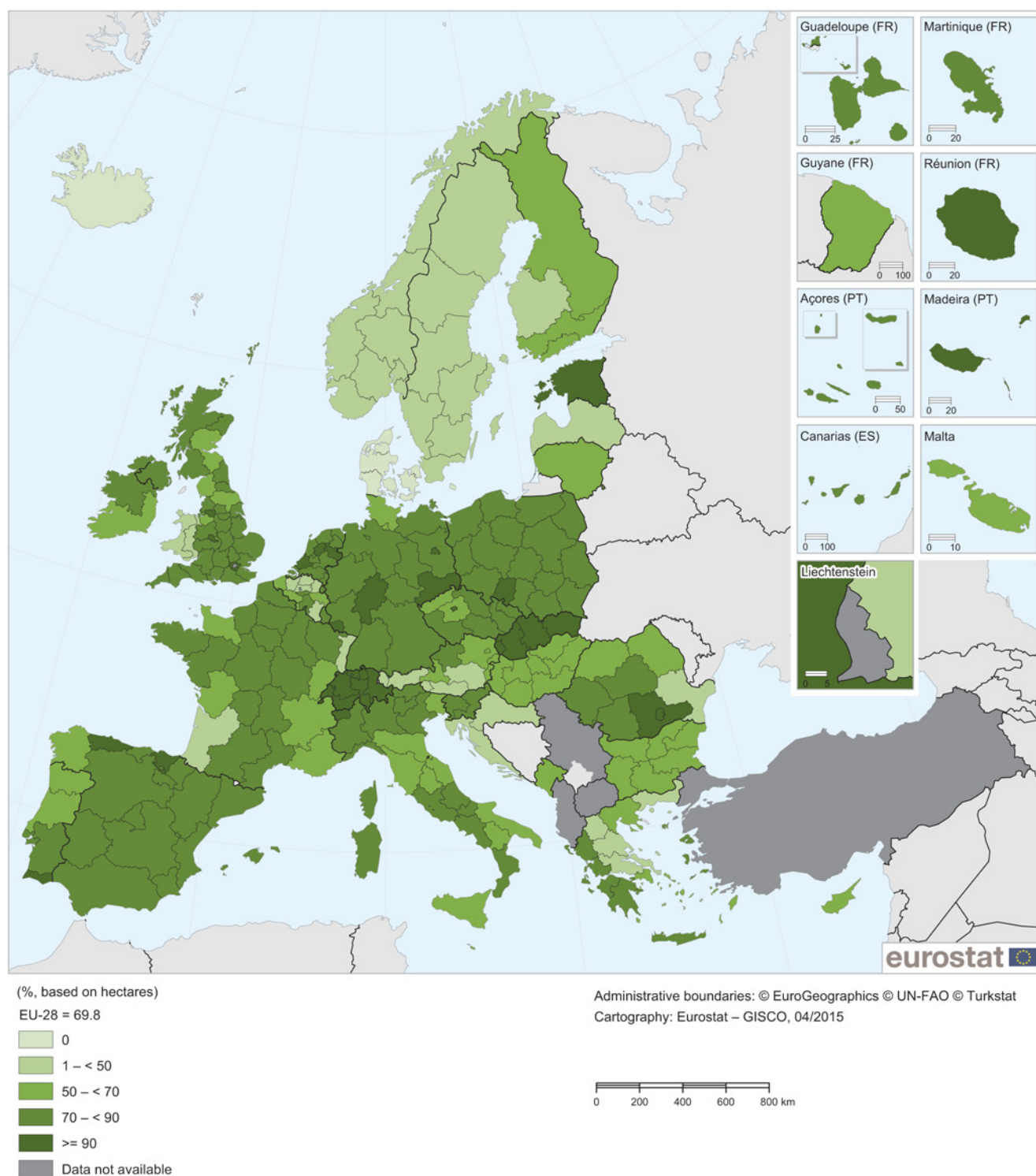
Map 12.1: Arable land on which conservation tillage is applied, by NUTS level 2 region, 2010 ⁽¹⁾
(%, based on hectares)



⁽¹⁾ Germany: only available for NUTS level 1 regions.
Source: Eurostat (online data code: [ef_pmtlaa](#))



Map 12.2: Arable land never out of crop rotation, by NUTS level 2 region, 2010
(%, based on hectares)



(¹) Germany: only available for NUTS level 1 regions.
Source: Eurostat (online data code: [ef_pmsoilaa](#))



Immediate incorporation is when manure (solid dung or slurry) is directly incorporated by a manure-spreading machine or by a machine immediately following the spreading machine (chisel or disk ploughing); a four-hour threshold is set as a time limit for incorporation. Statistics on the application of solid manure can be used to analyse the environmental impact of manure application on soils; for example, the immediate incorporation of manure is an effective means of reducing ammonia emissions.

The SAPM collected data for the share of utilised agricultural area concerned by solid manure application with immediate incorporation; the areas on which solid manure was applied were counted only once, even if subject to several applications over the course of the year. Across the whole of the EU-28 in 2010 the following results were collected for the application of solid manure:

- on 75.3 % of the UAA there was either no solid manure application with immediate incorporation or no solid manure application at all;
- on 15.1% of the UAA, there was 0 % – < 25 % solid manure application with immediate incorporation;
- on 4.4 % of the UAA there was 25 % – < 50 % solid manure application with immediate incorporation;
- on 1.3 % of the UAA there was 50 % – < 75 % solid manure application with immediate incorporation;
- on 1.8 % of the UAA there was ≥ 75 % solid manure application with immediate incorporation.

Map 12.3 shows national results for 2010 with the size of each pie scaled to reflect the total utilised agricultural area. Each pie is then divided to show the relative shares of the different levels of solid manure application with immediate incorporation, with darker shades signifying increasing rates.

Among the EU Member States, the utilised agricultural area was highest in France (27.7 million hectares), Spain (23.8 million hectares), the United Kingdom (16.9 million hectares) and Germany (16.7 million hectares); Poland, Romania and Italy also recorded in excess of 10 million hectares.

The most striking aspect of **Map 12.3** is the high proportion of the utilised agricultural area which was not concerned by solid manure application with immediate incorporation. This was particularly true in Romania, where none of the agricultural area was concerned, while shares of less than 10 % were recorded in Ireland, Bulgaria, Italy, the United Kingdom and Finland; this was also the case in Iceland and Norway.

By contrast, 16.6% of the utilised agricultural area in Hungary was concerned by at least 75 % solid manure application with immediate incorporation. In Malta and

Poland, some 12 % of the utilised agricultural area was concerned by at least 50 % solid manure application with immediate incorporation.

Loose places for animal housing of cattle

Statistics on animal housing distinguish different types of housing for cattle, pigs and laying hens. Loose housing systems cover those where animals are allowed to move freely and have free access over the whole area of the building or pen; such systems allow animals to enjoy more space and to exercise.

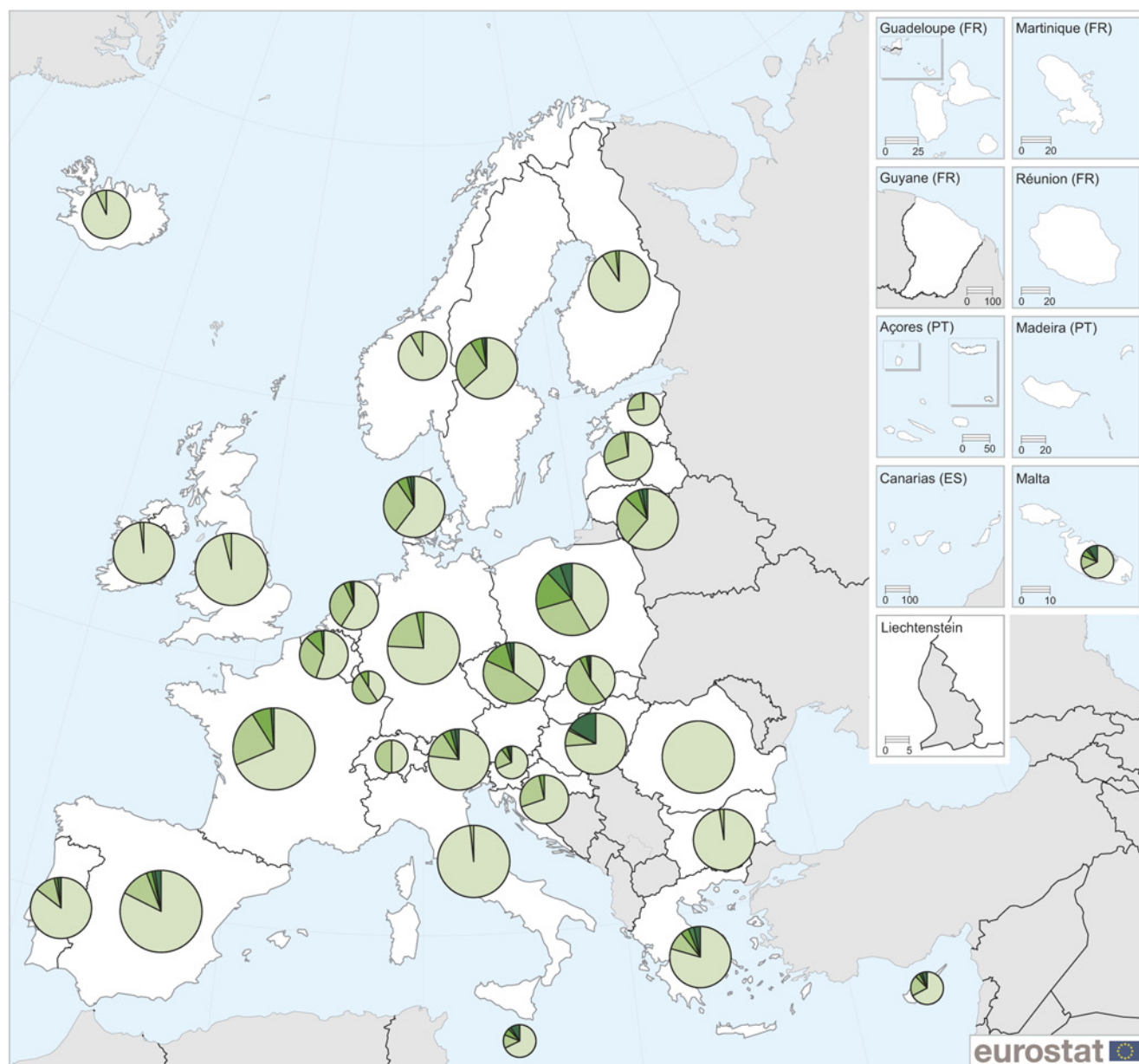
These statistics may be used to analyse the impact of animal housing systems on greenhouse gas emissions and, in particular, ammonia emissions, but also nitrous oxide and methane, which differ depending on the type of housing system and manure (solid dung, liquid manure or slurry). All three types of manure may be collected from both **stanchion housing** and **loose animal housing**; note that there is no difference in environmental impact between stanchion or loose animal housing, but the latter is considered more animal friendly.

Map 12.4 presents information on the proportion of loose places available for the housing of cattle across the NUTS level 2 regions. In 2010, loose places for housing cattle accounted for just over three fifths (62.2 %) of the total number of places in the EU-28. The darkest shade in **Map 12.4** shows those regions where the share of loose housing for cattle reached at least 90 %. Many of these regions were located in northern France, where a high number of regions are specialised in raising cattle and dairy farming. The other regions with at least 90 % shares included six regions from the United Kingdom (Bedfordshire and Hertfordshire; Lincolnshire; West Midlands; South Western Scotland; Eastern Scotland; and North Eastern Scotland), as well as Thüringen (Germany), Syddanmark (Denmark), Lombardia (Italy) and Malta (a single region at this level of analysis).

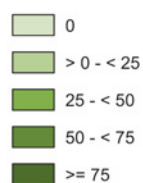
By contrast, loose places accounted for less than a quarter of the total places available for the housing of cattle (as denoted by the lightest shade in **Map 12.4**) in a band of regions running down the eastern edge of the EU, including: Latvia and Lithuania (both single regions at this level of analysis); all but one region in Poland (the exception being Lubuskie, which borders onto Germany); and all but the capital regions of Romania and Bulgaria. Southern regions of Spain were also characterised as having a low proportion of loose places available for the housing of cattle and this was also the case in the northern Spanish region of the Principado de Asturias.



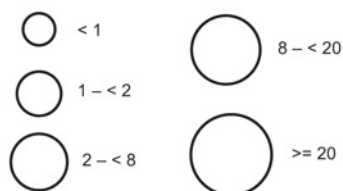
Map 12.3: Utilised agricultural area (UAA) concerned by manure application with immediate incorporation, 2010
(% of utilised agricultural area with immediate incorporation)



% of utilised agricultural area
with immediate incorporation



Utilised agricultural area (million ha.)



Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat

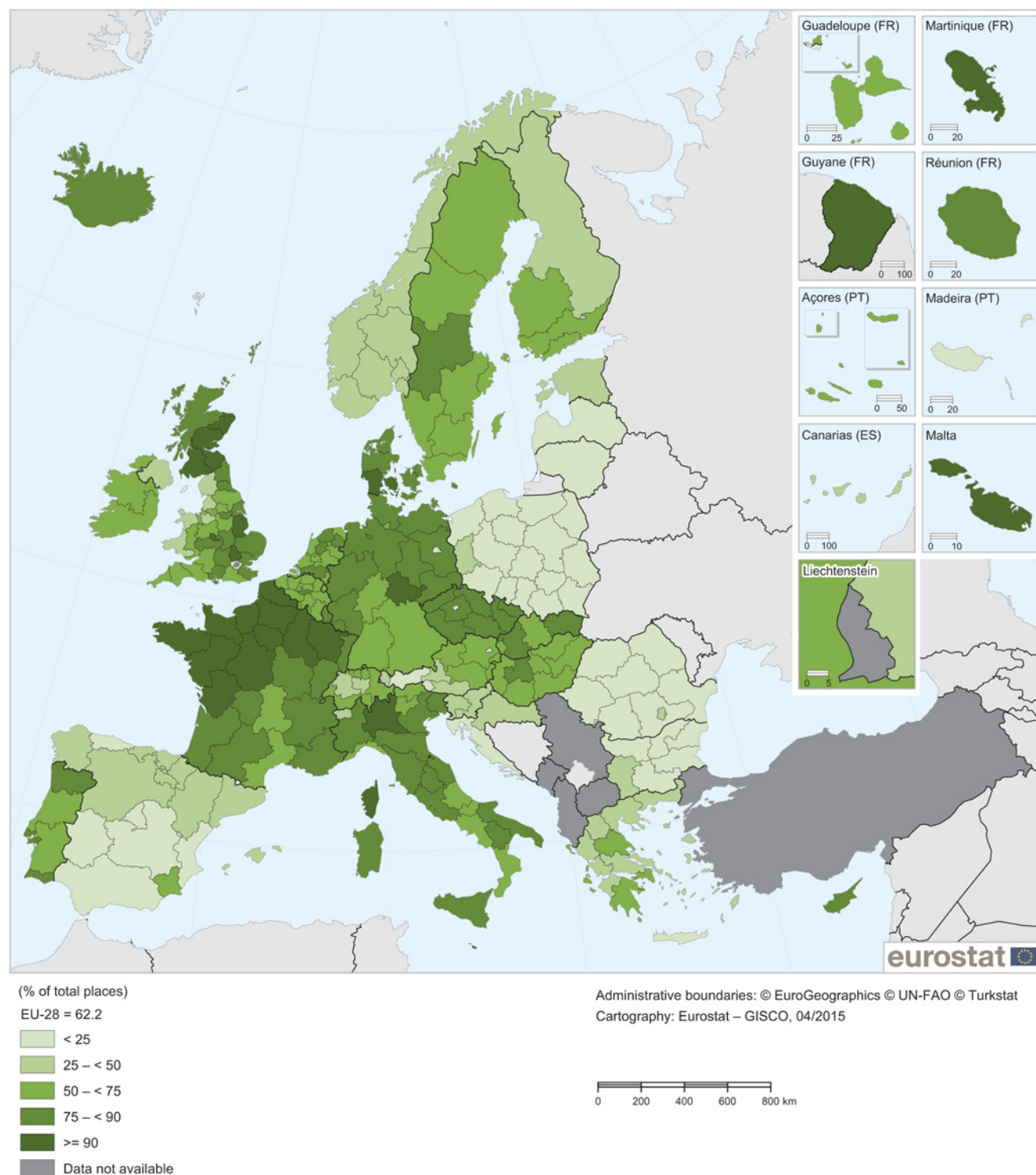
Cartography: Eurostat — GISCO, 05/2015



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



Map 12.4: Loose places for animal housing of cattle, by NUTS level 2 region, 2010
(% of total places)



(¹) Germany: only available for NUTS level 1 regions.

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



Livestock

Dairy specialisation

The vast majority of the milk produced within the EU (more than 95 %) comes from cows. There are, however, significant quantities of milk produced from sheep, goats and buffaloes in some of the more southern EU Member States.

In December 2014, the EU-28 had an estimated 88.4 million bovine animals, just over one quarter of these were dairy cows (23.6 million). There were an estimated 409 thousand buffaloes, with approximately 90 % of these in Italy. Data on sheep and goats are incomplete: for sheep the highest number of heads was recorded in Spain (11.7 million ewes and ewe-lambs put to the ram), Romania (7.9 million; data are for 2013), Greece (6.8 million; data are for 2012) and Italy (6.2 million), while for goats the largest herds were located in Greece (4.2 million; data are for 2012), Spain (2.7 million) and Romania (1.4 million).

The information presented in Map 12.5 refers to the most popular form of dairy farming (in terms of the type of animals) with the specialisation of each NUTS level 2 region identified by the colour of its circle; the size of the circle provides information in relation to the size of the herd for the most popular dairy orientation. Dairy cow farming (shown in green) was most often found in those regions characterised as having large areas of [grassland](#) and temperate weather, with a relatively high degree of rainfall. This was particularly the case in the Benelux Member States, Denmark, Germany, Ireland, most of France, central Poland, many Alpine regions and the west of England. The highest number of dairy cows was recorded in Bayern (note that the data for Germany refer to NUTS level 1 regions), followed by Southern and Eastern (Ireland), Niedersachsen (also Germany) and Bretagne (France).

In those regions where grassland is rarer (for example, around the Mediterranean or in south-eastern EU regions) dairy farming tends to be relatively uncommon. Dairy cow farming is often substituted by sheep farming (shown in brown) when [livestock](#) farmers are confronted with relatively arid landscapes and less favourable climatic conditions; this is also true to some degree in upland regions. Ewes' milk is principally used for making cheese due to its higher fat and protein content. The highest number of ewes was recorded in Romania, which accounted for five of the top six regions, the exception being the Midi-Pyrénées region of France. The top 10 regions were completed by Sicilia and Sardegna (both Italy), Castilla y León (Spain) and Yuzhen tsentralen (Bulgaria).

In a similar vein, those regions specialising in the production of goats' milk were often located in the more southerly regions of the EU, although there were several regions across France that were also specialised (shown by the teal circles in the map). The highest numbers of goats mated and having already kidded were recorded in the French regions

of Rhône-Alpes and Poitou-Charentes, the Italian region of Piemonte and the Romanian region of Sud-Vest Oltenia.

There were eight regions in the EU that were specialised in buffalo dairy farming, five of which were located in Italy. Buffalo milk has a high calcium content which also facilitates cheese making, and is principally used for the production of mozzarella. The largest number of buffalo was located in the three Italian regions of Puglia, Lazio and Campania; the latter is famous for its production of Mozzarella di Bufala Campana, which has a [protected designation of origin \(PDO\)](#) status.

Pigs

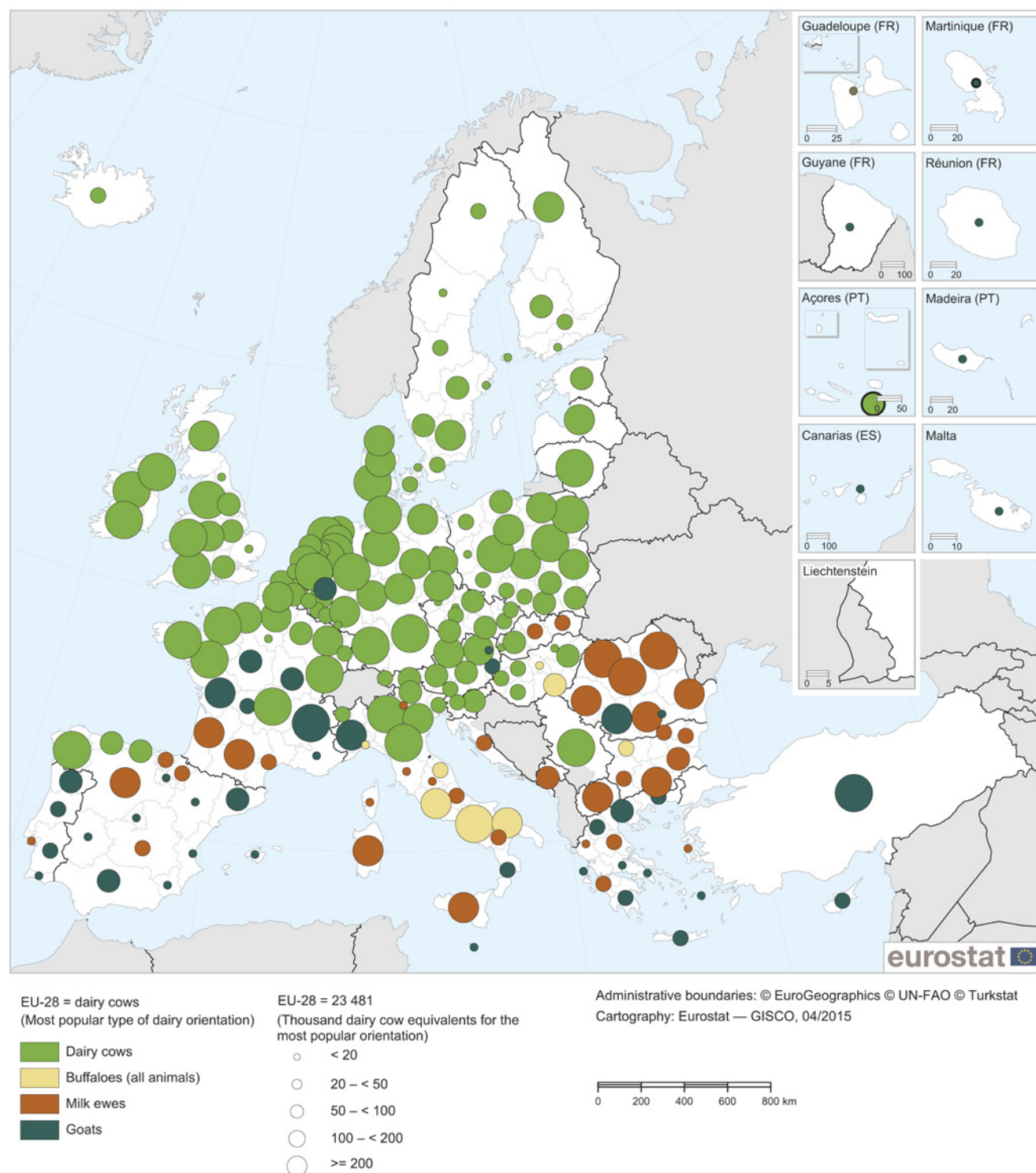
There were 146.2 million pigs in the EU-28 in December 2013, of which 12.5 million were breeding sows. The location of pig farming is, to some degree, reliant upon easy access to animal feed and, in particular, cereals. Some areas with a high concentration of pig farming are close to sea ports, which may be used to import feed. Otherwise, the distribution of pig farms across the EU can be linked to consumer preferences for different types of meat and to the complementary nature of different types of pig farming (such as breeders or fatteners).

Regional data on livestock numbers for breeding sows provides information as to where the most concentrated regions for pig breeding are located across the EU. The most important zone extended from Denmark — one of the world's leading producers (and exporters) of pig meat — through northern Germany and into the Netherlands and Belgium. There were also other regional pockets where the density of breeding sows was relatively high: these included Cataluña, Aragón and Castilla y León in Spain, Bretagne in north-west France, Lombardia in northern Italy, and Wielkopolskie in central Poland.

Map 12.6 shows recent changes in the number of breeding sows for the period 2010–13. The most rapid growth in numbers of breeding sows (as indicated by the dark yellow shade in the map) was principally recorded in regions characterised by low numbers of sows. This was the case in the southern Italian regions of Abruzzo, Basilicata, Calabria and Puglia (none of which had more than 10 thousand heads), the Greek regions of Ionia Nisia, Notio Aigaio, Sterea Ellada and Voreio Aigaio (none of which had more than 30 thousand heads), the Bulgarian and Czech capital regions of Yugozapaden and Praha (where the number of breeding sows was not higher than 3 thousand heads), as well as the Dutch region of Zeeland (which had 4 thousand breeding sows, compared with 512 thousand breeding sows in the Dutch region of Noord-Brabant). These were the only regions in the EU where the number of breeding sows rose by more than 10 % during the period 2010–13.

The Dutch region of Noord-Brabant was one of the NUTS level 2 regions with the highest number of breeding sows in December 2013, along with Cataluña (575 thousand)

Map 12.5: Dairy livestock specialisation, by NUTS level 2 region, 2013 ⁽¹⁾
(thousand dairy cow equivalents for the most popular type of dairy orientation)

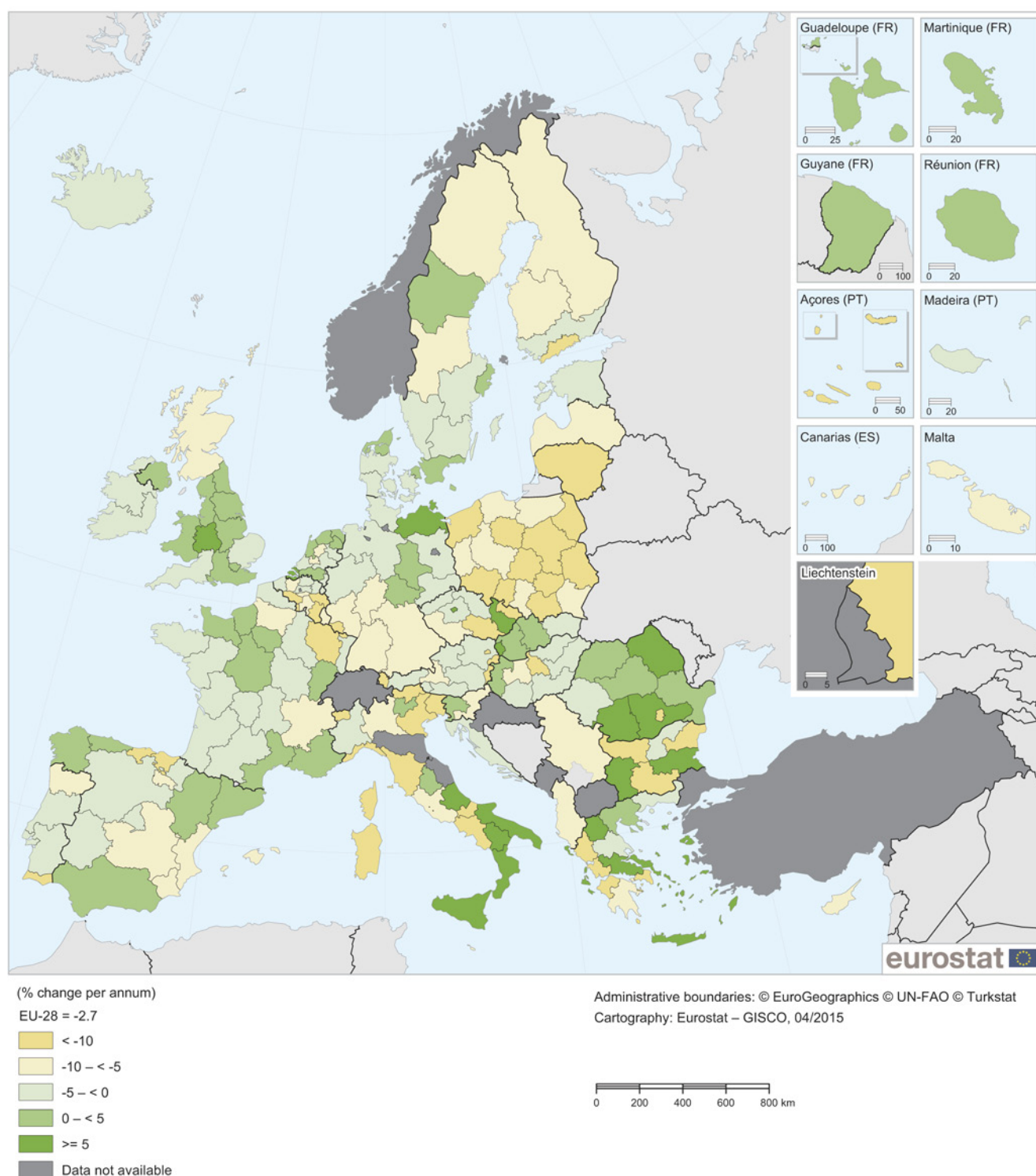


⁽¹⁾ The conversion factors used for dairy cow equivalents are as follows: dairy cows = 1.000; buffaloes = 0.089; milk ewes = 0.016; and goats = 0.034. Germany and the United Kingdom: only available for NUTS level 1 regions. Turkey: only available at national level. EU-28: Eurostat estimates for ewes' milk and for goats' milk. NUTS level 2 regions in Voreia Ellada (EL1) and Kentriki Ellada (EL2): 2012.

Source: Eurostat (online data codes: [agr_r_milkpr](#), [apro_mk_farm](#), [agr_r_animal](#), [apro_mt_lscatl](#), [apro_mt_lssheep](#) and [apro_mt_lsgoat](#))



Map 12.6: Average change in the number of breeding sows, by NUTS level 2 region, 2010–13 ⁽¹⁾
(% change per annum)



(1) Germany and the United Kingdom: only available for NUTS level 1 regions. Croatia and Iceland: 2011–13. Estonia, Greece, Latvia and Lithuania: provisional.

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



and Bretagne (560 thousand). Each of these regions had a relatively modest change in their number of breeding sows over the period 2010–13, with changes of 1.8 %, 1.0 % and -2.2 % respectively. The two regions with the highest numbers of breeding sows in Germany also recorded modest changes, namely -2.9 % in Niedersachsen and -5.8 % in Bayern (note that the data for Germany refer to NUTS level 1 regions), a pattern that was repeated in the two Danish regions with the highest number of breeding sows, namely, Midtjylland (-1.4 %) and Syddanmark (-1.7%). The largest reductions in numbers of breeding sows (as shown by the dark green shade in **Map 12.6**) among those regions with relatively high numbers of sows were principally recorded across Polish regions.

Agricultural products

Cereals

Cereals are used primarily for human consumption and animal feed; they are also used to produce drinks and for industrial products (for example, starch). Cereals are the largest group of crops in the world and are also one of the most important outputs of the EU's agricultural sector. The information presented here includes the harvested production of rice.

In 2013, the area of agricultural land that was used for the production of cereals in the EU-28 was 57.6 million hectares. The EU-28's **harvested production** of cereals was 305.7 million tonnes. The EU harvest in 2013 was relatively high, reaching its uppermost level since 2008, while increasing by 7.1 % compared with a year before.

Cereals production in Europe thrives in lowland regions that are characterised by large plains, with a temperate climate and relatively modest levels of rainfall. France was the largest producer of cereals in the EU, accounting for 22.0 % of the EU-28 total in 2013, while Germany (15.6 %) was the only other EU Member State to record a double-digit share of the EU total. The fastest growth in harvested production between 2012 and 2013 was recorded in Romania (38.5 %), while there were also considerable increases in cereals output in Spain (35.4 %), Bulgaria (28.8 %) and Hungary (23.7 %). At a regional level, harvested production of cereals peaked at over 8 million tonnes in 2013 in three regions, they were: Bayern in Germany (note this is a NUTS level 1 region), Castilla y León in Spain, and Centre in France.

Map 12.7 shows harvested cereals production across the NUTS level 2 regions of the EU in 2013. Note that the statistics presented have been normalised by dividing production by the region's total area, to take account of the different size of regions and the availability of data at different levels of NUTS. It should be noted that this information is not equivalent to that for cereal yields, which are based on the weight of production divided by the cultivated area for a particular crop.



SPOTLIGHT ON THE REGIONS: DÉL-DUNÁNTÚL, HUNGARY



In 2013, an average of 68.5 tonnes of cereals (including rice) were harvested in the EU-28 for each square kilometre. The most specialised EU regions for cereals production included the northern half of France, eastern England, Belgium, northern Germany, Denmark, western Poland, northern Bulgaria and Hungary. The south-western Hungarian region of Dél-Dunántúl is largely composed of expansive plains and produced 195.2 tonnes of cereals per square kilometre — almost three times as high as the EU-28 average.

Photo: [David Gulyas](#) / Shutterstock.com

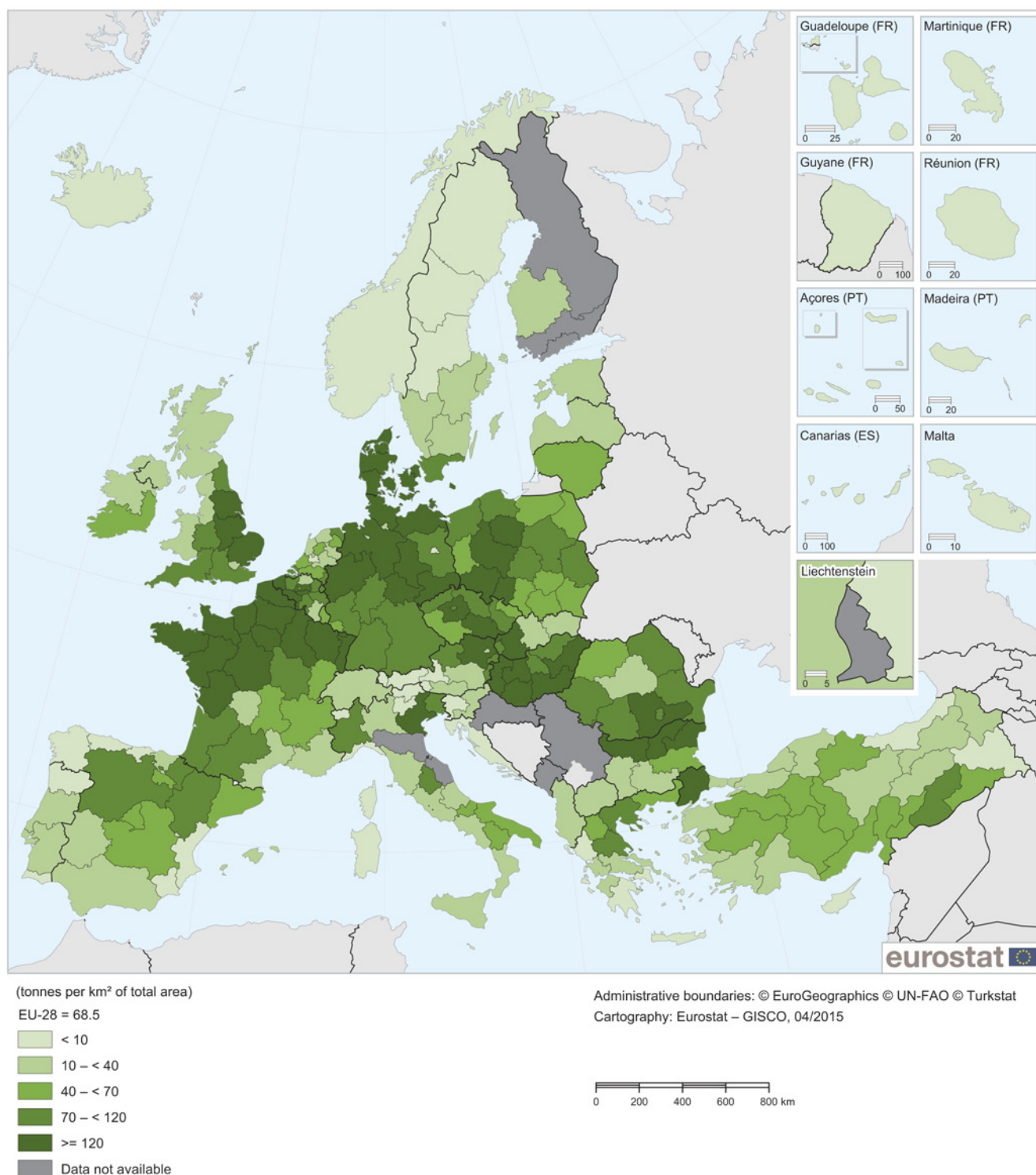
In 2013, an average of 68.5 tonnes of cereals was harvested per square kilometre (km²) in the EU-28. The most specialised areas of cereals production were in the northern half of France, eastern England, Belgium, northern Germany, Denmark, western Poland, Hungary and northern Bulgaria — as shown by the darkest shade in **Map 12.7**.

Cereals production (relative to a region's area) peaked in the northern French region of Picardie, with an average of 322.1 tonnes per km², 4.7 times as high as the EU-28 average. Sjælland (Denmark) recorded the second highest level of production relative to its area, at 291.5 tonnes per km², while two further French regions — Île de France and Nord - Pas-de-Calais — were the only other regions in the EU to report that their level of cereals production was above 250 tonnes per km².

By contrast, the lightest shade in **Map 12.7** shows those regions where the harvested production of cereals fell below 10 tonnes per km²; this was the case for almost one fifth of the 219 NUTS regions for which data are available. Some of the lowest levels of output were recorded in coastal regions (including several overseas regions and autonomous cities and islands), mountainous Alpine regions (for example, in northern Italy or western Austria), or the more northerly regions of Sweden; this was also the case in Norway and Iceland.



Map 12.7: Harvested production of cereals (including rice), by NUTS level 2 region, 2013 ⁽¹⁾
(tonnes per km² of total area)



⁽¹⁾ Germany and the United Kingdom: only available for NUTS level 1 regions. Norway, Switzerland and Albania: only available at national level. Croatia: ratio calculated using land area and not total area. Ireland, Italy, Norway, Switzerland, Albania and Turkey: 2012.

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



Potatoes

Map 12.8 provides a similar analysis to that for cereals, but instead the information presented is for the harvested production of potatoes (the data presented also includes seed potatoes). As for cereals production, the data are presented in relation to the total area of each region, which adjusts to some extent for the use of different NUTS levels.

In 2013, EU-28 harvested production of potatoes was 54.0 million tonnes. This marked a marginal increase compared with a year before, as output rose by 0.4 %. Germany, Poland, France, the Netherlands and the United Kingdom were the principal producers of potatoes in the EU: Germany accounted for 17.9 % of the EU-28's harvested production in 2013, while the shares for the other four Member States ranged from 13.2 % down to 10.5 %.

In absolute terms, harvested production peaked at 4.4 million tonnes in the north-western German region of Niedersachsen (note all of the German data are presented by NUTS level 1 region), while a considerable volume of potatoes was also harvested in Nordrhein-Westfalen (1.5 million tonnes) and Bayern (1.4 million tonnes). In France, the two highest levels of potato production were recorded in the regions of Nord - Pas-de-Calais (2.3 million tonnes) and Picardie (1.9 million tonnes). Harvested production levels in the Netherlands and Belgium were lower, in part because the average area of the NUTS regions was considerably smaller. The largest harvest of potatoes in the Netherlands was recorded in Drenthe (1.1 million tonnes), while the Provincie West-Vlaanderen recorded the largest harvest in Belgium (1.0 million tonnes).

The principal zones for potato production in the EU are shown on **Map 12.8**. Potatoes thrive in temperate climates with a relatively high amount of rainfall, as soil moisture needs to be maintained to allow the tubers to bulk up; as shown by a higher propensity to grow potatoes in the northern half of France or the north-west corner of Spain. **Map 12.8** also shows that more than one third of the 174 regions for which data are available had a production level of less than 2 tonnes of potatoes per km² (denoted by the lightest shade in the map).

There were particularly high specialisations in potato production relative to area in northern France, Belgium and the Netherlands. The highest ratio was in Drenthe (417 tonnes per km² of area). Three other Dutch regions (Groningen, Flevoland and Zeeland), together with three Belgian regions (Provincie West-Vlaanderen, Province



SPOTLIGHT ON THE REGIONS: DRENTHÉ, THE NETHERLANDS



In 2013, an average of 12.1 tonnes of potatoes were harvested in the EU-28 for each square kilometre. There was a particularly high degree of specialisation in northern France, Belgium and the Netherlands. The highest ratio among NUTS level 2 regions was recorded in Drenthe in the north-east of the Netherlands, where 417 tonnes of potatoes were harvested per square kilometre. A high degree of specialisation in potato harvesting was also recorded in three other Dutch regions, namely: Groningen, Flevoland and Zeeland.

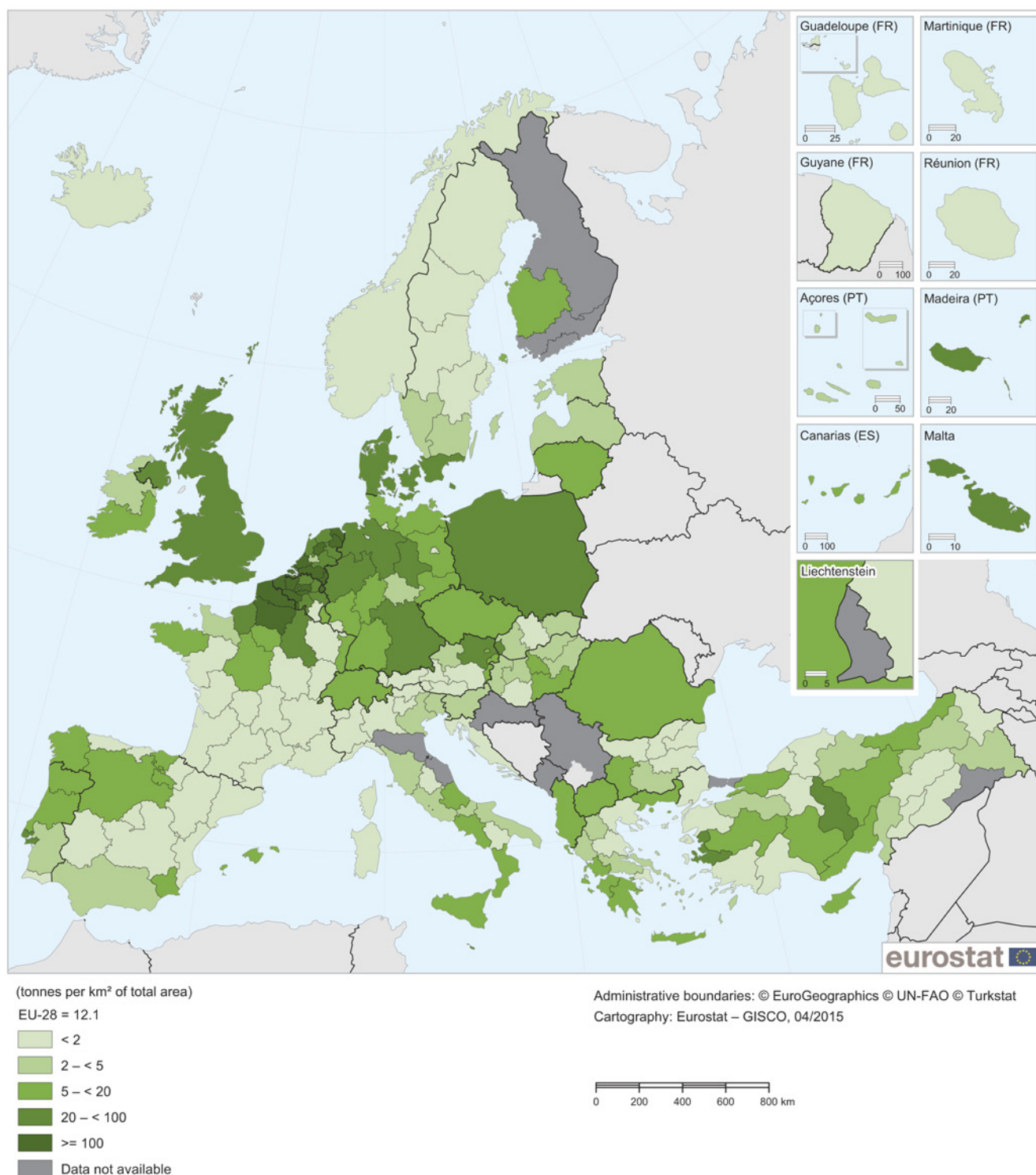
Photo: J. Marijs / Shutterstock.com

Brabant Wallon and Province Hainaut) were the only regions across the EU to record production per km² within the range of 200–400 tonnes. The remaining regions in the darkest shade — where production was within the range of 100–200 tonnes per km² — included three more Dutch regions and two additional Belgian regions, together with the two main potato producing regions of France, namely, Nord - Pas-de-Calais and Picardie.

The level of production relative to area was within the range of 20–100 tonnes per km² (the second darkest shade in **Map 12.8**) in Niederösterreich (Austria) and the neighbouring region of Bratislavský kraj (Slovakia), Lisboa, the Região Autónoma da Madeira (both Portugal) and Sydsvrige (southern Sweden), as well as several NUTS level 1 regions in Germany and in Denmark, Malta, Poland and the United Kingdom (only national data are available for these four Member States).



Map 12.8: Harvested production of potatoes, by NUTS level 2 region, 2013 ⁽¹⁾
(tonnes per km² of total area)



⁽¹⁾ Germany: only available for NUTS level 1 regions. The Czech Republic, Denmark, Poland, Romania, the United Kingdom, Norway, Switzerland and Albania: only available at national level. Croatia: ratio calculated using land area and not total area. Norway, Albania and Turkey: 2012. Bulgaria: 2011.

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



Data sources and availability

Farm structure survey

The [farm structure survey \(FSS\)](#) is a major source of agricultural statistics. A comprehensive survey is carried out by EU Member States every 10 years and is referred to as the [agricultural census](#). This is complemented by intermediate sample surveys which 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](#) took place in 2010. The census was used to collect information about all agricultural holdings in order to present an updated picture of the structure of agricultural activities, covering: land use; livestock numbers; rural development (for example, activities other than agriculture); irrigable and irrigated areas; farm management and farm labour input.

The legal basis for the FSS in 2010 was provided by a regulation of the European Parliament and of the Council on [farm structure surveys and the survey on agricultural production methods](#) ((EC) No 1166/2008), while the definitions to be used in the survey are set out in an implementing [Regulation \(1200/2009\)](#). FSS data are used to collect information on agricultural holdings at different geographic levels and over different periods. Although not shown in this chapter, sub-national FSS data are available at a more disaggregated level, namely for NUTS 3 regions and for local administrative units (LAU) level 1.

Survey on agricultural production methods

The [survey on agricultural production methods \(SAPM\)](#) was carried out in 2010 to collect statistics for agri-environmental measures. Data were collected on tillage methods, soil conservation, landscape features, animal grazing, animal housing, manure application, manure storage and treatment facilities, and irrigation. The results of this survey are available at different geographic levels (EU Member States, regions and local administrative units).

The legal basis and the definitions to be used in the SAPM are laid down in the same Regulations as for the FSS. As individual agricultural holdings were used as the statistical unit this allowed the data collected under the SAPM to be linked with data obtained from the FSS in 2010 in order to derive a range of [agri-environmental indicators](#).

Livestock

The purpose of Regulation (EC) No 1165/2008 [concerning livestock and meat statistics](#) is to establish a common legal framework for the systematic production of EU statistics on livestock and meat production in the EU Member States, in particular: statistics on the numbers of animals, slaughtering statistics in relation to the production of various types of meat, and production forecasts for these meat markets.

Dairy livestock statistics

A dairy farm is an agricultural holding producing milk, usually coming from dairy cows, but also from buffaloes, milk ewes or goats that have kidded. Indeed, most dairy products in the EU are derived from cows' milk, although significant quantities of milk are also produced by sheep, goats and buffaloes in several of the southern EU Member States. For the purpose of this chapter, the populations of dairy species have been adjusted using a conversion factor of 1.000 for dairy cows, 0.089 for buffaloes, 0.016 for milk ewes and 0.034 for goats in order to analyse the dairy livestock specialisation of each region.

A dairy cow is a domesticated animal of the species *Bos taurus* kept exclusively or principally for the production of milk for human consumption and / or other dairy produce, including cows for slaughter (whether fattened or not between last lactation and slaughter). Water buffaloes are domesticated animals of the species *Bubalus bubalis*; these statistics include female breeding buffaloes and other buffaloes. Sheep are domesticated animals of the species *Ovis aries* kept in flocks mainly for their wool, meat or milk. Statistics on milk ewes concern those sheep kept exclusively or principally for the production of milk for human consumption and / or for processing into dairy products, including sheep (whether fattened or not between last lactation and slaughter). Goats are domesticated animals of the species *Capra aegagrus hircus*. Statistics for milk production concern goats mated for the first time and having already kidded.

The minimal coverage for livestock surveys is at least 95 % of the national population with reference to the last survey on the structure of agricultural holdings (the farm structure survey). Regional livestock statistics are produced in November / December of each year. These statistics are generally available for NUTS level 1 and NUTS level 2 regions, although Germany and the United Kingdom have



an exemption to provide data only by NUTS level 1 region. These statistics are optional for territorial units having fewer than 75 000 bovine animals, 100 000 sheep and 25 000 goats if these territorial units together constitute 5 % or less of the national population of the relevant animals.

Statistics on pigs

Pigs are defined as domestic animals of the species *Sus scrofa domestica*. The information shown in this chapter focuses on the number of breeding sows. Eurostat collects a wide range of data on pigs that allow more profound analyses: among others, statistics are available by weight and for the number of piglets, fattening pigs, breeding pigs, boars and sows.

The minimal coverage for livestock surveys is at least 95 % of the national population with reference to the last survey on the structure of agricultural holdings. Regional pig livestock statistics are produced at least in November / December of each year. They are generally available for NUTS level 1 and NUTS level 2 regions, although Germany and the United Kingdom have an exemption to provide data by NUTS level 2 region. These statistics are optional for territorial units having fewer than 150 000 pigs if these territorial units together constitute 5 % or less of the national population.

Agricultural products

The legal basis for the collection of crop statistics is provided by Regulation (EC) No 543/2009; it refers to cereals, other field crops, fruits and vegetables and land use statistics. Since 2010, this legal basis has provided annual statistics for a wide range of crops. The data are obtained from sample surveys supplemented by estimates based on expert observations and administrative data.

Crop statistics refer to the following types of annual data: area, production harvested, yield and agricultural land use.

The statistics provide, for a given product, the area, the yield and the production harvested during the crop year.

Within this chapter, the information presented refers to the agricultural production of crops, which 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 include wheat, barley, grain maize, rye and maslin; in this chapter, the information presented refers to cereals for the production of grain including rice. The statistics presented for potatoes include early potatoes and seed potatoes. For cereals the data are generally presented by NUTS level 2 region, although statistics for Germany and the United Kingdom are presented by NUTS level 1 region, while those for Norway, Switzerland and Albania refer to national totals. For potatoes the data are generally presented by NUTS level 2 region, although statistics for Germany are presented by NUTS level 1 region, while those for the Czech Republic, Denmark, Poland, the United Kingdom, Norway, Switzerland and Albania refer to national totals.

Data interpretation

For variables such as harvested production of crops, Eurostat traditionally relies on additive variables showing absolute values. For illustrative purposes, some indicators in this chapter have been normalised, dividing the regional values by the region's total area (in km²). The resulting indicators (see Map 12.7 and Map 12.8) should not be confused with crop yields, which are based not on the region's total area but the harvested area used for each crop. This normalisation by total area shows spatial distributions across the regions of Europe. For further analyses, it is recommended to make use of the indicators available on Eurostat's website.