

Agriculture

9





Eurostat's coverage of regional agricultural statistics for the European Union (EU) comprises three main fields: land use and crops, agricultural accounts, and livestock. At the time of drafting, the data from the agricultural census for 2010 were not available with sufficient coverage to present preliminary results. As such, this chapter starts with an analysis of data from the *economic accounts for agriculture (EAA)*, which provide statistics on agricultural activity and the income generated by it. These accounts integrate a wide range of statistics and administrative information about agriculture. 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, one of the measures tracked within the policy is income development from farming activities, which may be analysed using economic accounts for agriculture.

The chapter then moves on to look at recent livestock statistics, first in terms of grazing livestock and then more specifically in relation to dairy farming and output. Recent and ongoing reforms of the CAP are expected to change the geographical pattern of animal production over the coming years.

The analysis within this chapter concludes with a presentation of crop production, covering cereals, potatoes and the output from vineyards.

Main statistical findings

Economic significance of agriculture

In 2009 agriculture in the EU-27 generated around EUR 130 600 million of value added, around 1.2% of the added value for the whole economy: the contribution of agriculture fell from 1.4% a year earlier (2008), from 1.8% 5 years earlier (2004) and from 1.9% at the turn of the decade (2000).

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 Severozapaden and Severen tsentralen, where it reached 14.1% and 11.9% respectively of total value added.

Agriculture's contribution to the whole economy was above 3.5% in 36 out of the 241 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, five regions in 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 France (Champagne-Ardenne and the overseas region of Guyane), Italy (Provincia Autonoma Bolzano/Bozen and Calabria), the Netherlands (Friesland and Flevoland) and Portugal (Alentejo and the

island region of the Açores). Agriculture's contribution was also above 3.5% in the former Yugoslav Republic of Macedonia (which is just one region) and Croatia (no regional data available).

The regions with the lowest contribution from agriculture included many capital city regions, or regions around capital cities, and those with other large urban areas. There were 47 regions in 2009 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 34 regions (those beyond the capital city regions) where agriculture accounted for 0.5% or less of value added were 15 regions in the United Kingdom (for example, several regions surrounding London, as well as regions around Greater Manchester and Liverpool, in Wales and in the west of Scotland), 12 regions in Germany (for example, in the regions around Stuttgart, Karlsruhe, Bremen, Hamburg, Düsseldorf and Köln), three regions in central Sweden, two in central and eastern Slovakia and one each in the Czech Republic (Moravskoslezsko) and Austria (Vorarlberg).

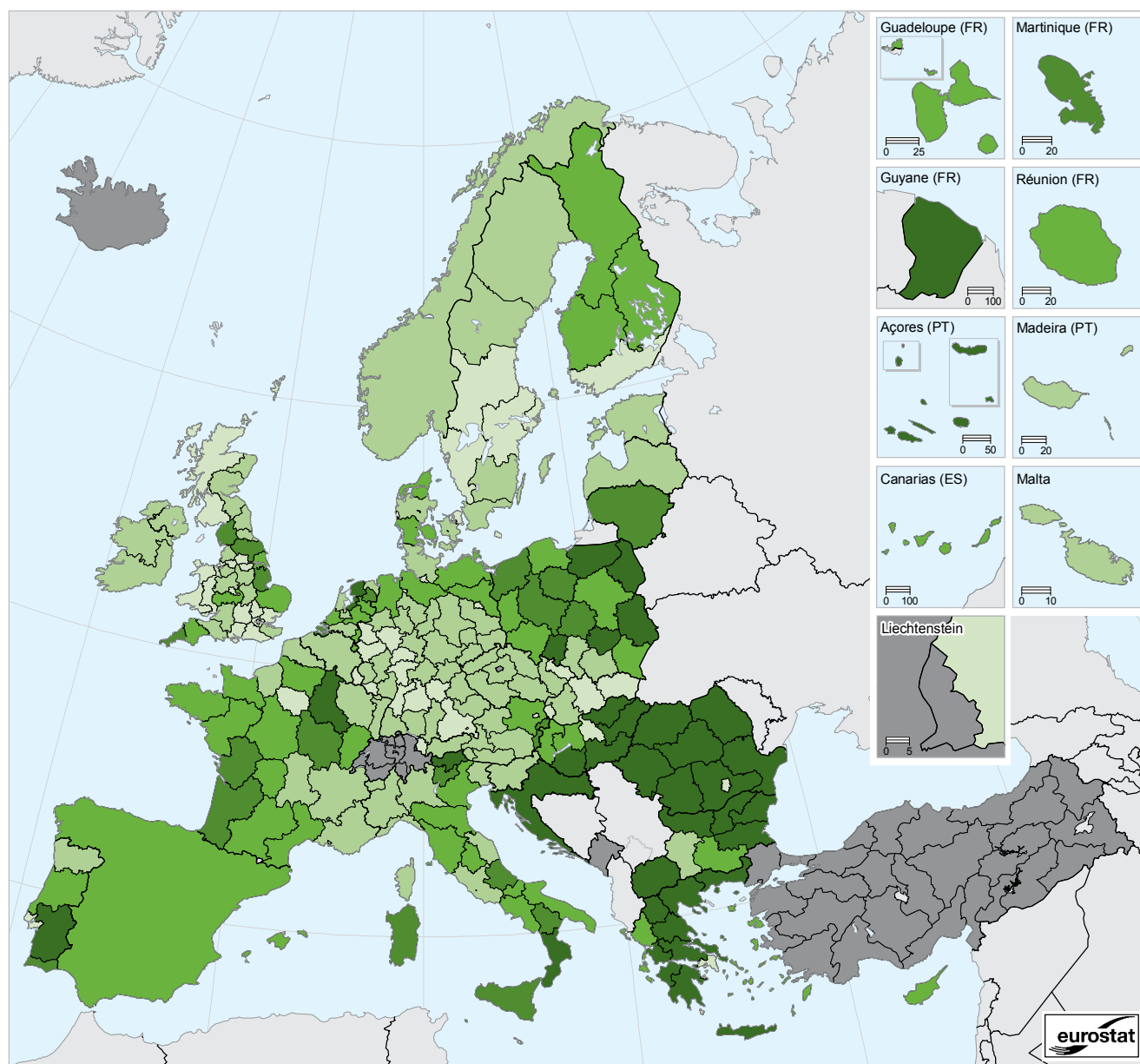
Agricultural labour productivity

Agriculture is a highly labour-intensive sector 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, agricultural labour is 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. It should be remembered that labour productivity is only a partial productivity indicator, as it does not take account of all factors.

EU-27 agricultural gross value added per annual work unit was estimated at EUR 13 200 in 2010. This was the same level as in 2007, which is the latest year for which regional information exists (see Map 9.2). There is clearly a big difference between the western and eastern parts of Europe in terms of this productivity ratio for NUTS level 2 regions. In 40 regions, mainly in France (12 regions), the Netherlands (11 regions), the United Kingdom (5 regions), Denmark and Germany (4 regions each), gross value added per annual work unit was above EUR 35 000 in 2007, which was also the case in Belgium (no regional data available). 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. In contrast, 32 regions within the EU recorded agricultural labour productivity of EUR 5 000 or less. These regions were mainly in



Map 9.1: Share of agriculture in the economy, gross value added at basic prices, by NUTS 2 regions, 2009 ⁽¹⁾
 (% of total value added)



(% of total value added)
 EU-27 = 1.24

- <= 0.5
- 0.5 – 1.5
- 1.5 – 2.5
- 2.5 – 3.5
- > 3.5
- Data not available

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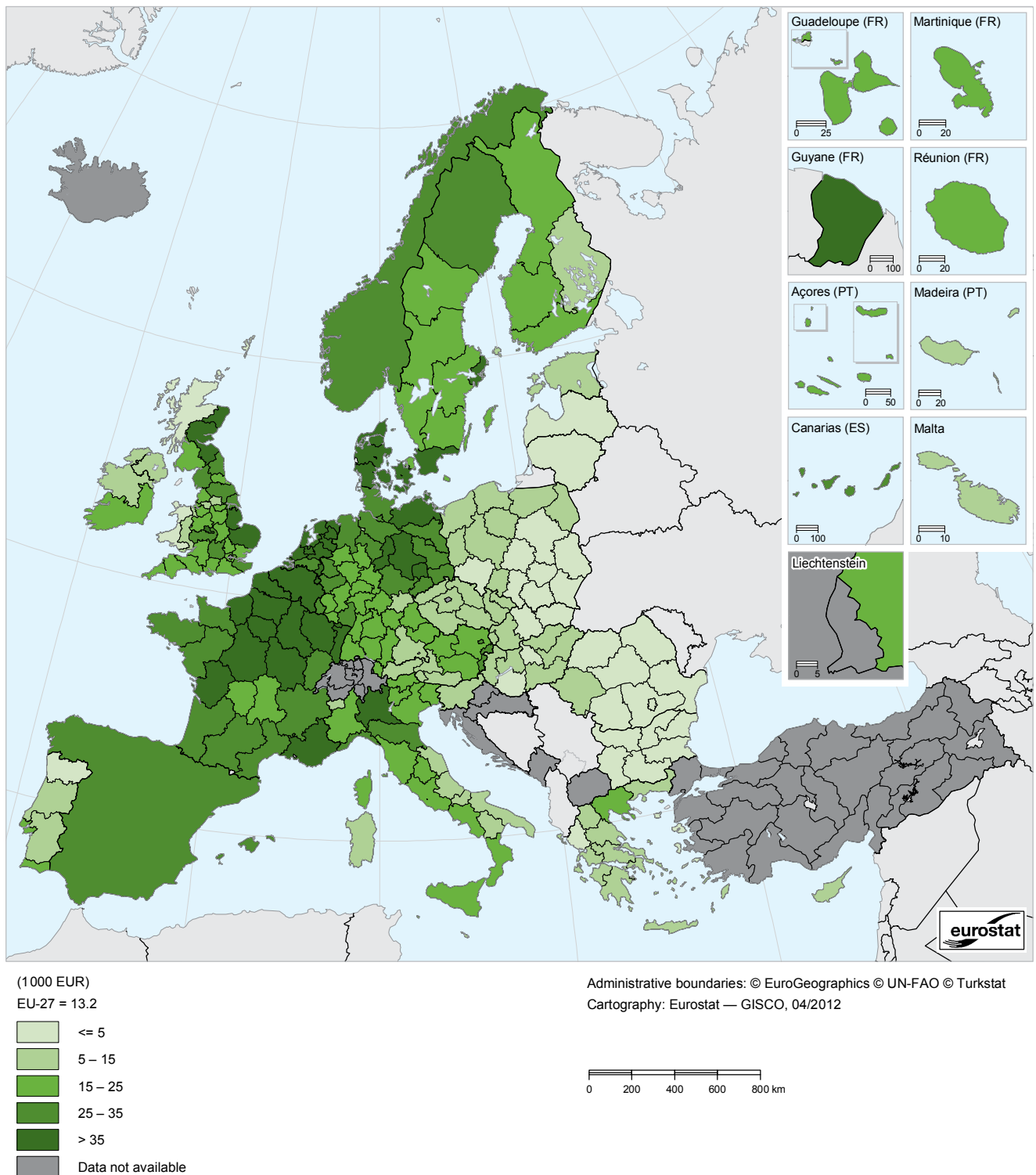
0 200 400 600 800 km

⁽¹⁾ Cyprus, Latvia, Lithuania, Luxembourg, Malta and Poland, 2008; Belgium, Spain, Slovenia, Norway and Croatia, national level.

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



Map 9.2: Gross value added at basic prices in agriculture, per annual work unit, by NUTS 2 regions, 2007 ⁽¹⁾
(1 000 EUR)



⁽¹⁾ Belgium, Spain, Slovenia and Norway, national level.

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

Poland (8 regions), Romania (7 regions) and Bulgaria (6 regions). The lowest level of productivity, by this measure, was in Podkarpackie (Poland) where value added averaged EUR 1 100 per annual work unit.

Agricultural labour productivity is strongly influenced by farm structures. In most of the eastern (and also in some southern) Member States, average farm sizes are small, the level of mechanisation is low, and a significant part of production is for on-farm consumption. The influence of farm structures on labour productivity can, for example, be noted in the Czech Republic, a Member State with many large cooperatives. Two regions in the Czech Republic (Střední Čechy and Severozápad) reported value added above EUR 10 000 per annual work unit; the only other regions within the Member States that joined the EU in 2004 or 2007 that reached this level were Malta and Cyprus (both of these Member States are composed of a single region).

Livestock density

Regions with high levels of animal production are to be found in many parts of Europe, depending on local conditions and traditions. Grazing livestock include cattle, sheep, goats and equidae (for example, horses and donkeys). Grazing livestock density (see Map 9.3) measures the stock of grazing animals per hectare of fodder area. High stocking densities generally involve a risk of nutrient pollution and overgrazing, and a need to import animal feedstuffs. The highest densities of grazing livestock across EU regions in 2007 were recorded in the Portuguese island region of Madeira, the Greek region of Anatoliki Makedonia, Thraki, and the Spanish region of Murcia, all with an average of more than 5 livestock units (LSU) per hectare of fodder area. In total there were 40 regions in the EU where grazing livestock density exceeded 2.0 LSU per hectare of fodder area: nine of these were in Belgium and the same number in the Netherlands, five each in Bulgaria and Greece and four in France. At the other end of the scale, some 23 regions had 0.5 LSU or less per hectare of fodder area: several of these were capital city regions (such as Inner London, Stockholm, Comunidad de Madrid, Praha and Wien) characterised by very low levels of agriculture. These aside, there were several regions with low livestock densities in relatively mountainous regions, such as the Tirol (Austria), Provence-Alpes-Côte d'Azur (France) and the Highlands and Islands (United Kingdom).

Cows and cows' milk production

Cows' milk production is often linked to large areas of rich grassland, as found, for example, in Northern Ireland, Scotland and the South West (all in the United Kingdom), Ireland, the Netherlands, western and some central parts of France, Lithuania and north eastern Poland. Cows' 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 those areas where grassland is rarer (for example, in northern regions or in Mediterranean areas) cows' milk production tends to be lower. With less favourable climatic conditions and a relatively low area of grassland, cows' milk production in some of these regions is replaced by milk production from ewes and goats; this is especially the case in Mediterranean regions.

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 cows' milk is the proportion of dairy cows in the total number of cows. Map 9.4 shows the number of cows per square kilometre (km²) in each NUTS level 2 region in 2010, a density that averaged eight cows per km² in the EU-27. In total there were 38 regions in the EU with more than 20 cows per km², mainly in the north-west of the EU: 10 out of 12 regions in the Netherlands, nine out of 11 regions in Belgium, six regions in France, three NUTS level 1 regions in the United Kingdom, two out of five regions in Denmark, both Irish regions, Luxembourg and Malta (both just one region), and one region each in Germany (NUTS level 1), Italy, Poland and Portugal.

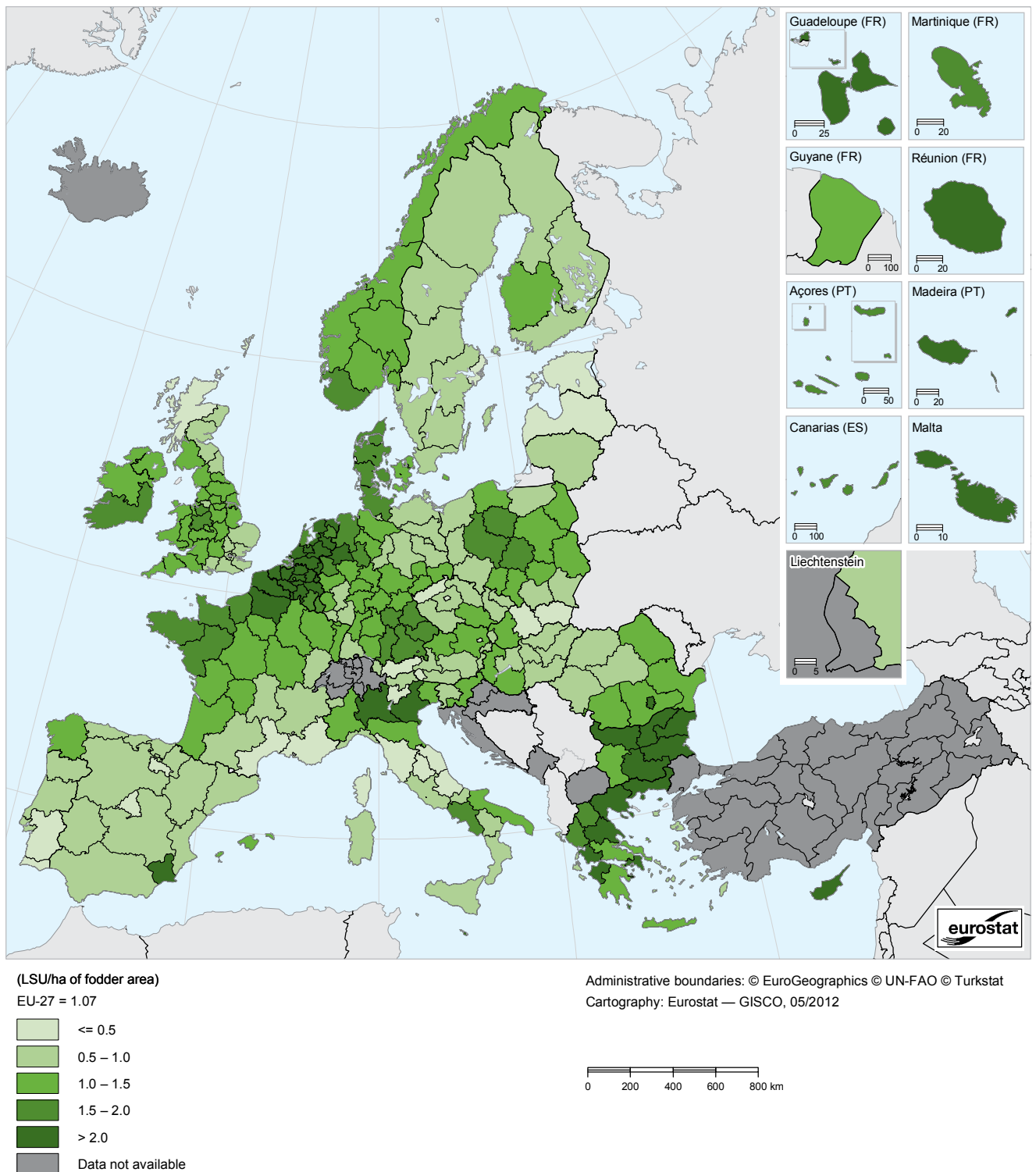
In those regions where it is more difficult to grow fodder crops, cattle farming is more likely to be orientated towards a more extensive form of meat production. Dairy cows accounted for a large proportion of all cows in most regions with particularly high numbers of cows in German, Italian, Dutch, Polish and British (apart from Scotland) regions; non-dairy cow farming was more prominent in most of the Spanish regions that had large numbers of cows, as well as in Scotland and Alentejo (Portugal). France and Ireland were evenly split, with some of their regions with a large number of cows concentrated on dairy farming (such as Bretagne in France and the Southern and Eastern region of Ireland) and others more specialised in non-dairy cow farming (such as Limousin and Bourgogne in France and the Border, Midland and Western region in Ireland).

The average production of cows' milk per km² (of land area) in the EU-27 was 33.7 tonnes in 2008. Table 9.1 presents more information concerning the 10 regions with the highest level of cows' milk production per km², which was dominated by eight regions from the Netherlands.

A total of 49 EU regions (out of 258 for which data are available) produced more than 100 tonnes of cows' milk per km², with these regions spread across 12 Member States. Collectively these 49 regions produced just under half (47.6%) of all of the cows' milk produced in the EU-27. Eleven of these regions were in Germany, 10 in the Netherlands (all but two of the Dutch regions), eight in the United Kingdom, six in Belgium and four in France — including Bretagne, which had the highest production level among NUTS level 2 regions at 5.1 million tonnes. The second largest level of production was 4.3 million tonnes in the Southern and Eastern Irish



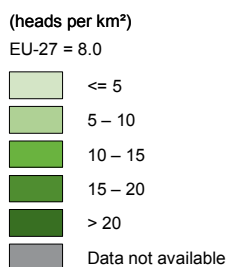
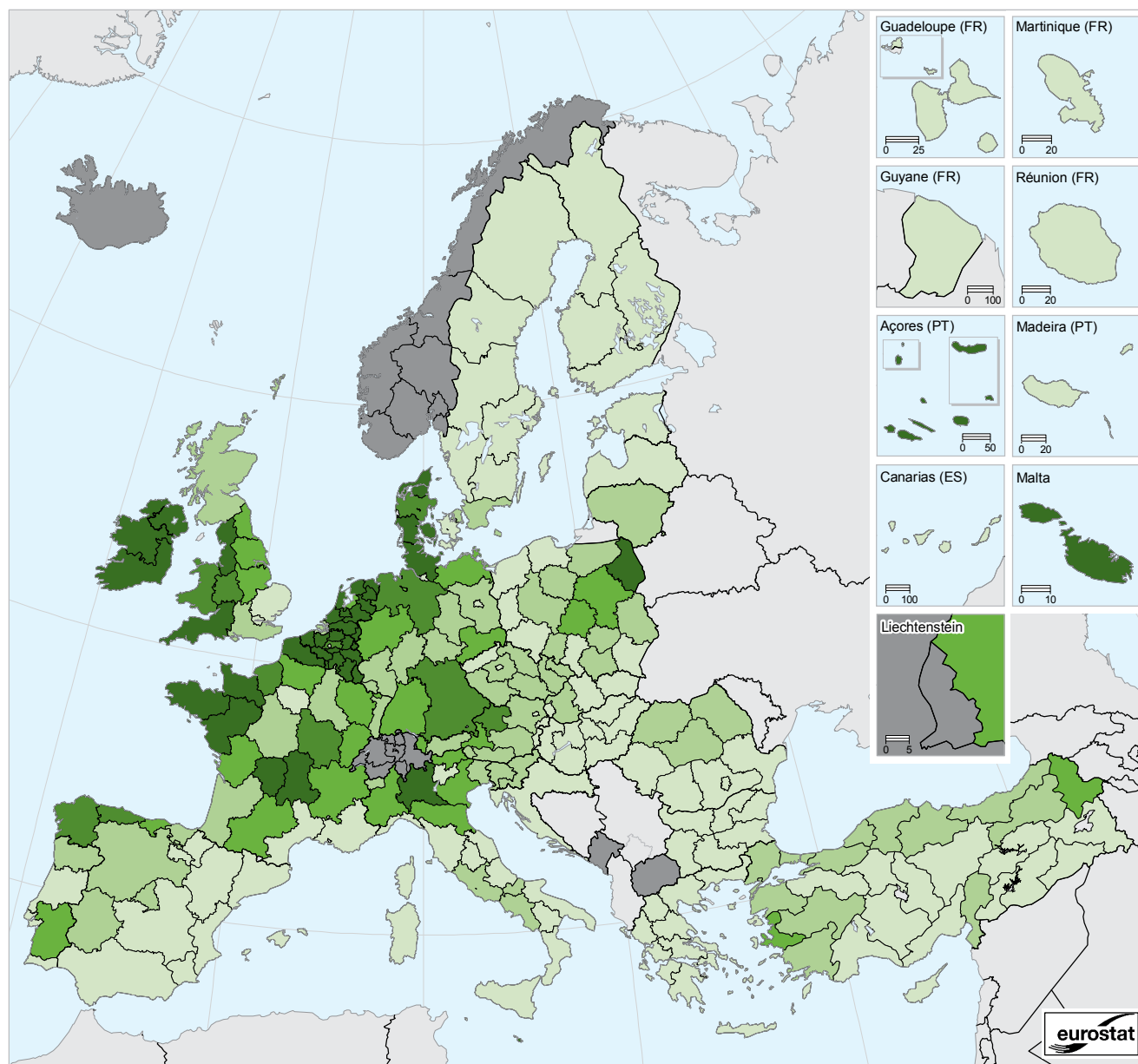
Map 9.3: Grazing livestock density, by NUTS 2 regions, 2007
(LSU/ha of fodder area)



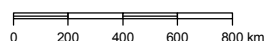
Source: Eurostat (online data code: [aei_ps_ld](#))



Map 9.4: Cows, by NUTS 2 regions, December 2010 ⁽¹⁾
(heads per km²)



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Cartography: Eurostat — GISCO, 04/2012



⁽¹⁾ EU-27, provisional; the Czech Republic, Latvia, Lithuania, the Netherlands, Poland, Romania and Finland, December 2011; Greece, Départements d'outre-mer (FR9) and Slovenia, December 2008; Turkey, December 2004; Germany, Départements d'outre-mer (FR9) and the United Kingdom, by NUTS 1 regions; Croatia, national level.
Source: Eurostat (online data code: [agr_r_animal](#) and [demo_r_d3area](#))

**Table 9.1:** Top 10 regions for dairy cow farming, by NUTS 2 regions, December 2010 ⁽¹⁾

	Cows' milk production		Cumulative share of EU-27 cows' milk production (%)	Cumulative share of EU-27 land area (%)	Cumulative share of EU-27 dairy cows (%)	Share of dairy cows in the total number of cows (%)	Apparent milk yield (tonnes of milk per cow)
	(tonnes per km ²)	(1 000 tonnes)					
Overijssel	554.8	1 898.0	1.3	0.1	1.1	92.8	7.7
Utrecht	449.9	652.0	1.7	0.1	1.4	91.2	7.9
Friesland (NL)	363.6	2 090.0	3.1	0.2	2.6	95.7	7.8
Gelderland	346.5	1 780.0	4.3	0.4	3.6	88.4	7.8
Noord-Brabant	326.1	1 657.0	5.4	0.5	4.5	91.9	7.7
Cheshire	305.2	715.0	5.9	0.5	:	:	:
Drenthe	273.5	733.0	6.4	0.6	4.9	92.2	7.7
Groningen	238.5	706.0	6.9	0.7	5.3	94.8	7.7
Região Autónoma dos Açores (PT)	237.8	552.1	7.3	0.7	5.7	76.4	6.1
Prov. West-Vlaanderen	232.7	731.7	7.8	0.8	6.1	44.6	9.5

⁽¹⁾ Střední Čechy (CZ02), the Netherlands, Poland, Romania, Slovenia and Finland, December 2011; Greece and Départements d'outre-mer (FR9), December 2008; Germany, Départements d'outre-mer (FR9), Slovenia and the United Kingdom, by NUTS 1 regions.

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

region and the third highest level of output was the 4.2 million tonnes of milk produced in Lombardia (Italy, 2009 data).

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 2010, the EU-27 produced 282.9 million tonnes of cereals. Cereal production exceeded 4 million tonnes in the NUTS level 2 regions of Champagne-Ardenne, Picardie, Centre and Poitou-Charentes (France, 2007 data), Castilla y León (Spain) and Wielkopolskie (Poland, 2009 data), as well as NUTS level 1 regions in Germany (Bayern, Niedersachsen, Nordrhein-Westfalen and Sachsen-Anhalt) and the United Kingdom (East of England).

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 cereals production relative to the region's area were recorded in Sjælland (Denmark) and Picardie, both over 260 tonnes per km². Four out of the five Danish regions recorded cereals production in excess of 130 tonnes per km², as did four of the seven Hungarian regions and eight of the 22 French regions (with data available). Such an intensity of cereals production relative to land area was also recorded in

several regions in Belgium, Germany, Italy, Poland and the United Kingdom.

In contrast, the lowest levels of cereals production relative to land area (10 tonnes per km² or less) were recorded mainly in coastal or mountainous area. These included five of the seven Portuguese regions, Cyprus, four northern Swedish regions, three Alpine regions in western Austria, eight coastal regions in Spain (including the Spanish territories of Ceuta and Melilla, which had no significant cereals production), two northern Finnish regions, several Alpine or coastal regions in Italy, the Alpine and coastal region of Zahodna Slovenija, the French island of Corse and the mountainous Bulgarian capital city region of Yuzhapon. Malta is not a producer of cereals, while the French overseas regions of Guadeloupe and Martinique also had no substantial production of cereals.

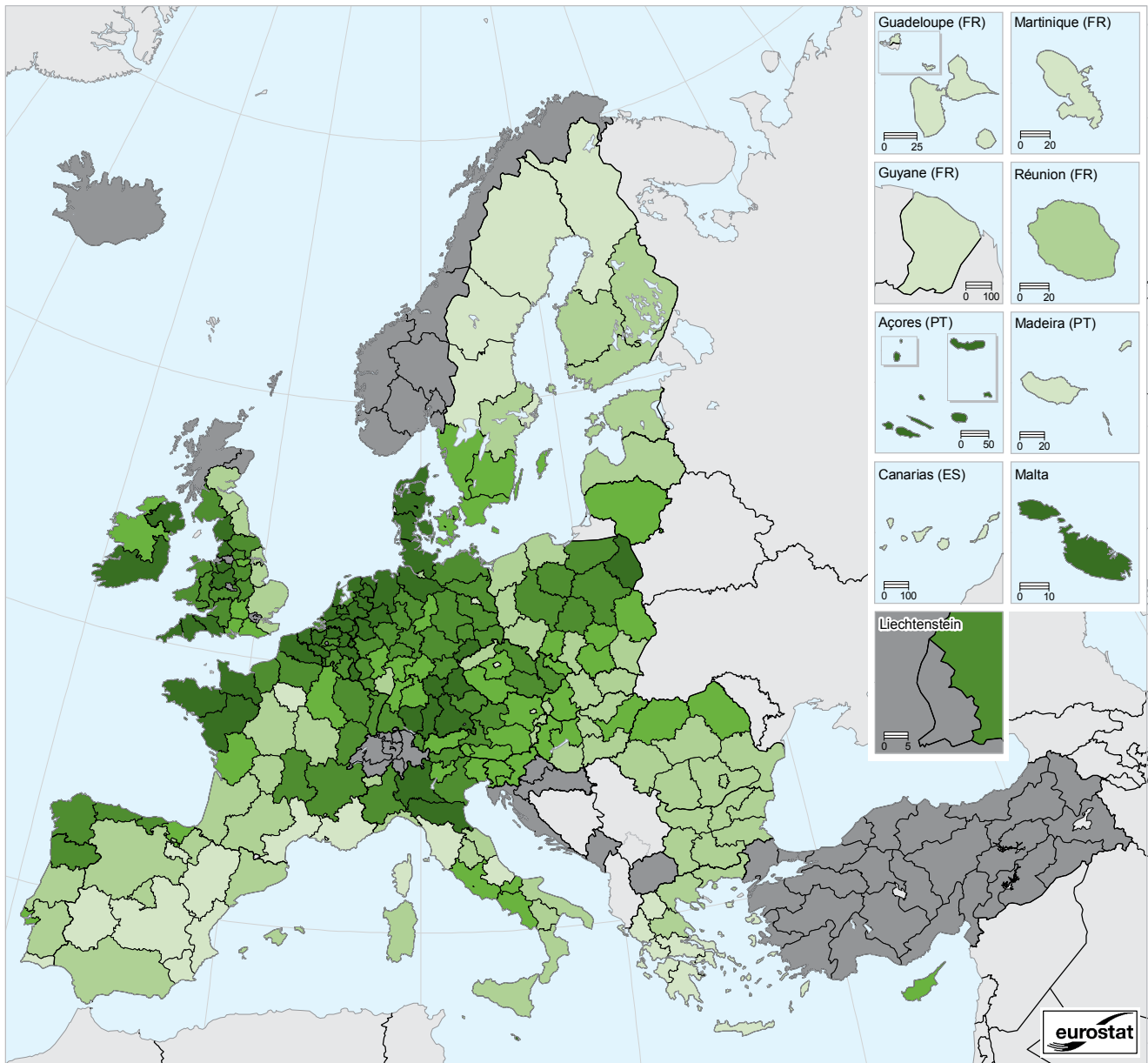
Potatoes

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 growing has been steadily falling in the EU-27 for many years. In 2009, potato production in the EU-27 was estimated to be in excess of 60 million tonnes with an average production of just over 14.2 tonnes per km² of land area.

The greatest production of potatoes in 2010 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 of over 1 million tonnes was also recorded in the Dutch regions of Drenthe and Groningen, the Polish regions of Mazowieckie and Łódzkie (2009 data), as well as the Romanian region of Centru (2009 data). For Germany, data are



Map 9.5: Production of cows' milk on farms, by NUTS 2 regions, 2010 ⁽¹⁾
(tonnes per km²)



(tonnes per km²)
EU-27 = 33.7

	<= 5
	5 – 20
	20 – 35
	35 – 100
	> 100
	Data not available

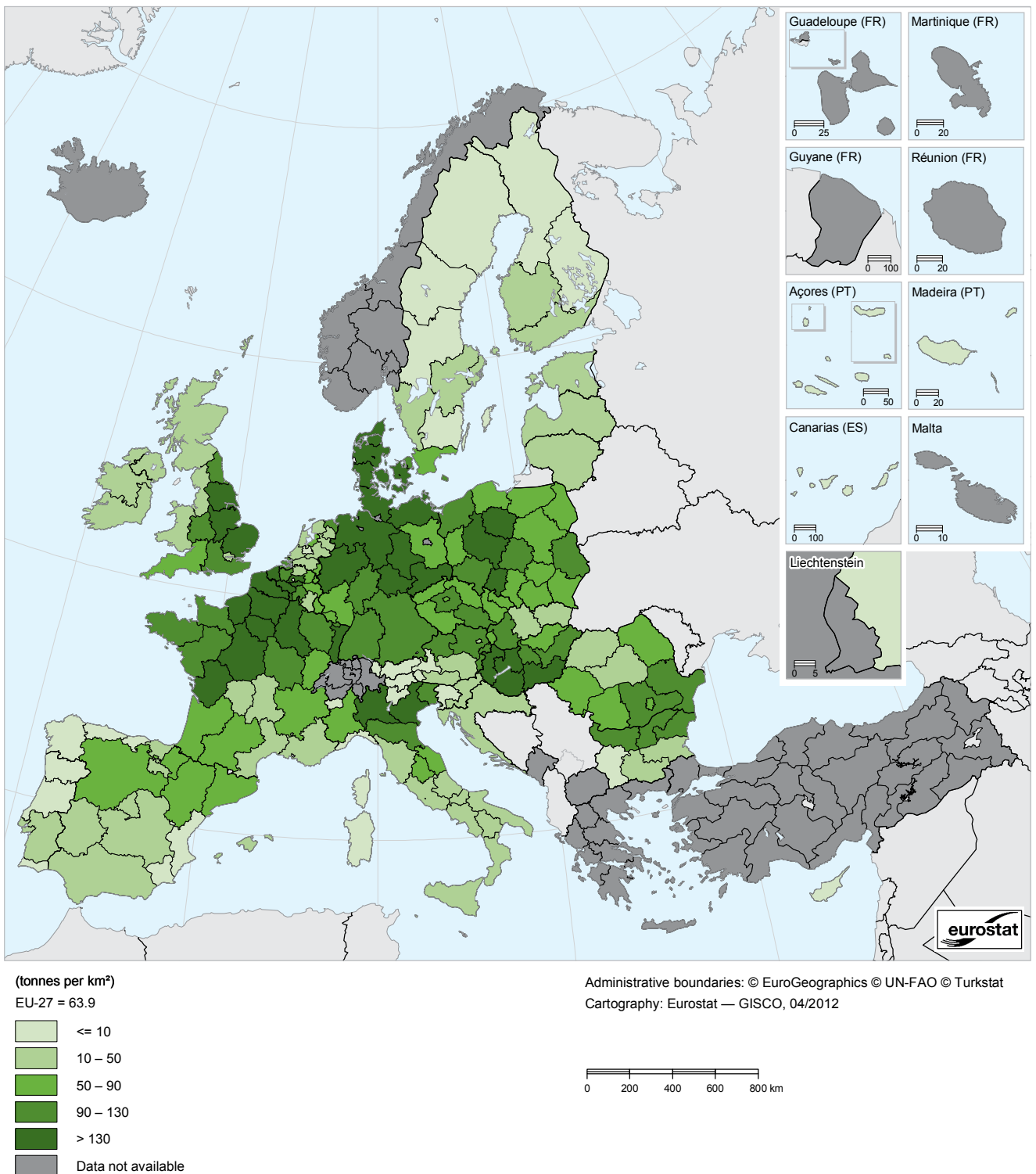
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Cartography: Eurostat — GISCO, 05/2012

0 200 400 600 800 km

⁽¹⁾ Rheinland-Pfalz (DEB), Italy, Lithuania, Luxembourg, Slovenia and Shropshire and Staffordshire (UKG2), 2009; EU-27, Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest (BE10) and Malta, 2008; Croatia, 2007; North East (UKC) and East of England (UKH), by NUTS 1 regions.
Source: Eurostat (online data code: [agr_r_milkpr](#) and [demo_r_d3area](#))



Map 9.6: Harvested production of cereals (including rice), by NUTS 2 regions, 2010 ⁽¹⁾
(tonnes per km²)



⁽¹⁾ Ireland, Poland, Portugal and Åland (F120), 2009; France, 2007; Comunidad de Madrid (ES30) and Canarias (ES70), 2006; Germany, the United Kingdom and Croatia, by NUTS 1 regions.
Source: Eurostat (online data codes: [agr_r_crops](#) and [demo_r_d3area](#))

only available for the NUTS level 1 regions, and several of these had large scale potato farming, notably Niedersachsen, where 4.6 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 Drenthe, Flevoland and Groningen, all over 300 tonnes per km². Overall, there were 22 regions in the EU with potato production levels over 50 tonnes per km², of which 10 were in the Netherlands (out of a total of 12 Dutch regions), six in Belgium (out of a total of 11 regions), two in France, and one each in Denmark, Germany, Poland and Portugal. Many mountainous regions in France, Italy, Austria and Sweden had very low potato production, as did capital city regions in the Czech Republic and Sweden, the sparsely inhabited north and east of Finland and most of Bulgaria. 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 was between 0 and 1 000 tonnes in nine of the Member States: Belgium, Denmark, Estonia, Ireland, Latvia, Lithuania, the Netherlands, Finland and Sweden. Production was also relatively low in Poland and the United Kingdom.

The total harvested production from vineyards in the EU-27 in 2009 was around 23.1 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), and there were four other regions with production above 1 million tonnes: Puglia, Sicilia and Veneto in Italy and Languedoc-Roussillon in France (all 2007 data).

Map 9.8 shows the production from vineyards per km² of land area: note that no recent regional data are available for Greece, although annual Greek production was around 1 million tonnes in 2010. Relating the level of production to the land area, there were nine regions with more than 30 tonnes of output per km², including all five regions with production levels over 1 million tonnes, as well as a fourth region in Italy (Emilia-Romagna), a second region each in France (Poitou-Charentes) and Spain (La Rioja) and the German NUTS level 1 region of Rheinland-Pfalz.

Data sources and availability

The agricultural accounts data at regional level are compiled in the same context as the EAA at national level. Gross value added (GVA) is the difference in basic prices between the value of output and the value of intermediate consumption. The regional data are for output items which are often building blocks for the result at national level, while the regional data for intermediate consumption (direct input of goods and services in production) are often broken down from national results using other information, using a top-down approach. The regional results are, therefore, often less accurate than data at national level. Eurostat has been collecting, processing and publishing data on the EAA in the form of a regional analysis for more than 15 years.

The farm structure survey (FSS) is another major source of agricultural statistics. The basic statistical unit underlying the FSS is the agricultural holding. The FSS covers all agricultural holdings with a utilised agricultural area (UAA) of at least 1 hectare (ha) and those holdings with a UAA of less than 1 ha if their market production exceeds certain natural thresholds or if a certain part of their production is for sale. As such, its coverage is slightly less than the EAA as it excludes the smallest farms. The fodder area used in Map 9.3 for livestock grazing density is based on FSS data.

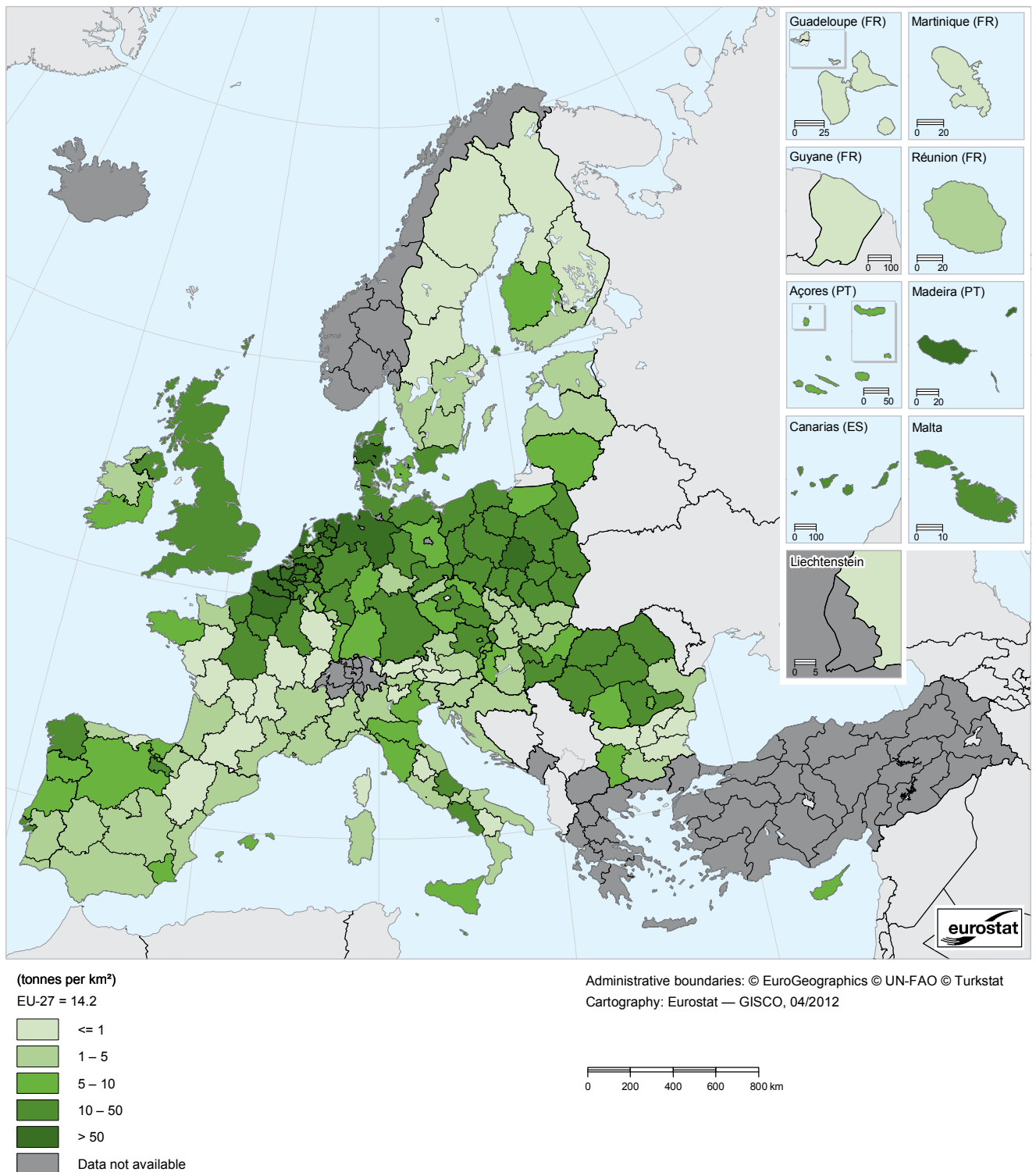
For livestock numbers there are specific agreements with Member States to provide data to Eurostat. Grazing livestock include [cattle](#), [sheep](#), [goats](#) and [equidae](#). In order to combine data for different types of livestock, all animals are converted into a common measurement unit, named [livestock units \(LU or LSU\)](#), a measure that is related to the feed requirements of each individual animal category; for example, 1 LSU corresponds to one dairy cow or 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](#)).

This publication also presents more detailed data on cows, dairy cows and dairy farming. Among other classifications, bovines (cattle) can be distinguished by age and sex: female bovines that have calved are cows, while those that have not are 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



Map 9.7: Harvested production of potatoes, by NUTS 2 regions, 2010 ⁽¹⁾
(tonnes per km²)

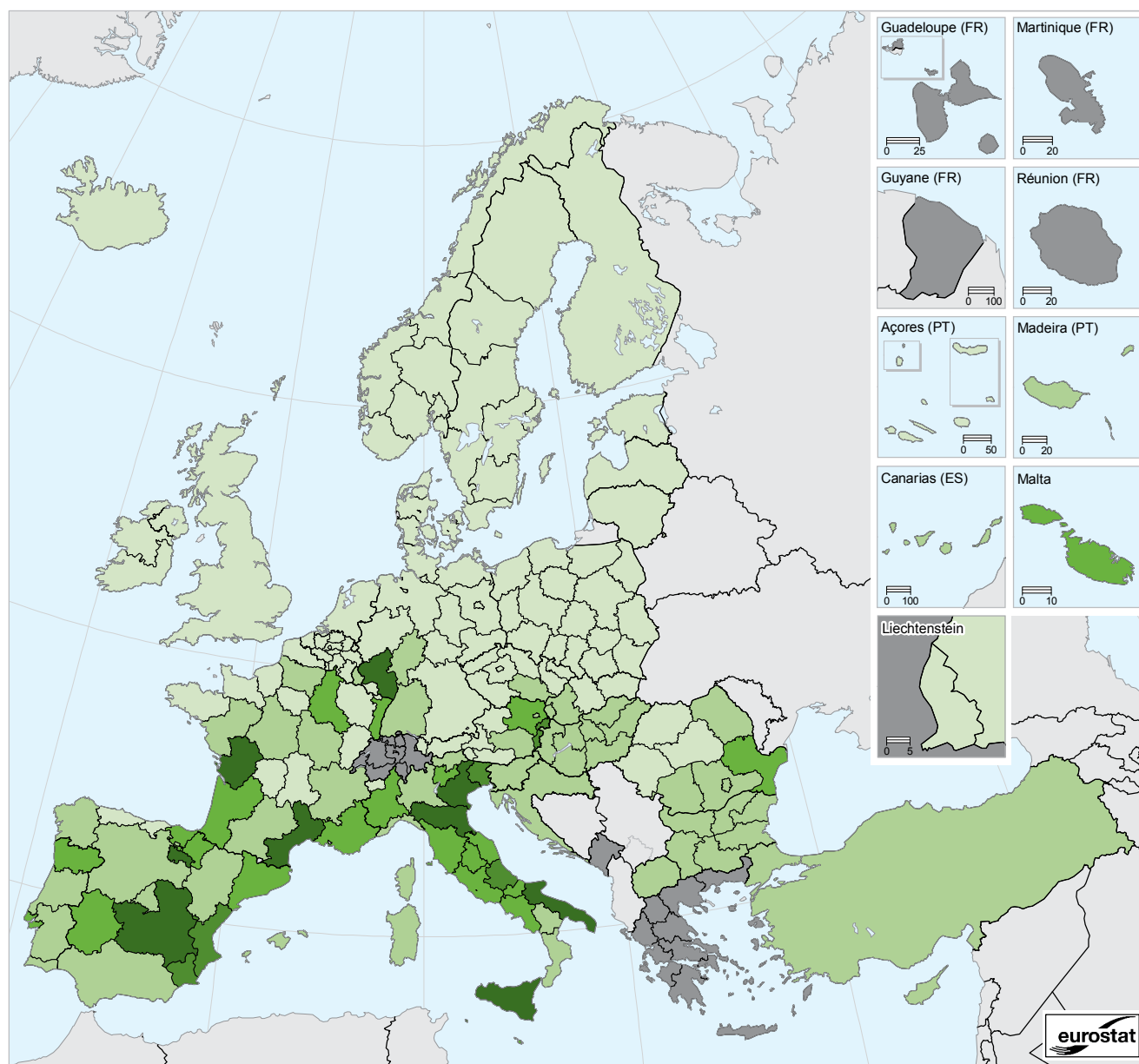


⁽¹⁾ EU-27, Bulgaria, the Czech Republic, Denmark, Ireland, Hungary, Poland, Portugal, Romania and Finland, 2009; France (except Départements d'outre-mer (FR9)), 2007; Comunidad de Madrid (ES30), Canarias (ES70) and Départements d'outre-mer (FR9), 2006; Germany, by NUTS 1 regions; Slovenia, the United Kingdom and Croatia, national level.

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



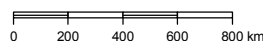
Map 9.8: Harvested production in vineyards, by NUTS 2 regions, 2010 ⁽¹⁾
(tonnes per km²)



(tonnes per km²)



Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2012



⁽¹⁾ Bulgaria, the Czech Republic, Germany, Hungary, Austria, Poland, Portugal, Romania, Slovakia and Turkey, 2009; France and Italy, 2007; Belgium and Spain, 2006; Germany, by NUTS 1 regions; the Netherlands, Slovenia, Finland, the United Kingdom, Croatia and Turkey, national level.

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



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 reference year when data for fresh fruit and vegetables were collected under a regulation (previously they were collected under various informal agreements). 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** and losses during transport, storage and packaging. The main cereals harvested within the EU are wheat, barley, grain maize, rye and maslin; in this publication the production of cereals also includes rice. The data are obtained from sample surveys supplemented by estimates based on expert observations and administrative data.

When presenting additive variables on a map using shaded colours there is a bias linked to the area of each region (the bigger the region, the more the value of the variable will increase). In order to limit this bias, variables can be normalised by dividing their value by the region's area in km². The resulting indicator is intended to show a given variable on a map but is not necessarily suitable for interpretation. In this article, this method was used for presenting production data in Maps 4, 5, 6, 7 and 8.

Further information

For further information about agriculture statistics please consult Eurostat's website at <http://epp.eurostat.ec.europa.eu/portal/page/portal/agriculture/introduction>.

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**, and 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 terrains and land cover that permit almost all the land surface 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 varies from region to region across Europe.

As a major user of the soil, agriculture shapes the rural landscape. Half of the surface area of the EU is used for agricultural purposes, hence the importance of agriculture to the EU's natural environment. The quality (or balance between intensive and extensive farming practices) of grasslands can be roughly assessed by studying **livestock densities**. Higher livestock densities are likely to contribute more **greenhouse gas** emissions, as a result of manure production and enteric fermentation, and may also result in nutrient leaching into the water and air. In contrast, a low level of livestock density may increase the need for industrial fertilisers to be used on agricultural land or lead to the risk of land abandonment, which may also result in an elimination of environmental diversity.

Production quality and agricultural intensity are not the only factors influencing the development of the agricultural sector. Other criteria, such as rural development, the environment and food safety have become increasingly important, and could yet alter the current face of agriculture in Europe's regions.

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 will be decoupled by 2012.

The **Europe 2020** strategy offers a new perspective on economic, social, environmental, climate-related and technological challenges, and future agricultural reform is likely to be made in relation to the goals of developing intelligent, sustainable and inclusive growth, while taking account of the wealth and diversity of the agricultural sector within the EU Member States. As part of this process, the **European Commission** launched a public debate on the future of the CAP during 2010. The outcome of the debate, coupled with input from the European Council and Parliament led the Commission to present a communication '**The CAP towards 2020: meeting the food, natural resources and territorial challenges of the future**' (COM(2010) 672 final) in November 2010.