

Agriculture and environment



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Irrigation

Precision machinery and techniques

Rural development and renewable energy production

Agri-environmental indicators in the European Union

This bulletin discusses some results of the 2023 Farm Structure Survey in relation to environmental issues. We complement this overview with some agri-environmental indicators from Eurostat, which allow us to compare the situation with other EU Member States.

- The irrigable area has decreased by 3.8% in the last decade.
- 4% of the farms used treated waste water.
- Almost half of the irrigated area was irrigated using localised irrigation methods, which minimise water consumption.
- 23.5% of all farms with Utilised Agricultural Area have precision machinery to optimise production, a figure which rises to 38.6% in

the larger farms.

- 60.064 farms had renewable energy production equipment, predominantly those with solar panels.

The countries with the highest percentage of irrigated area to utilised agricultural area (UAA) in 2016 were Cyprus, Malta, and Italy, all with figures above 30%. The Netherlands, Malta, and Belgium had the highest ratios of stocking density to UAA. The agricultural sector accounted on average for 10.5% of greenhouse gas emissions in the EU in 2022, with the highest figures in Ireland, Denmark, and Latvia.

Sources: INE (Farm Structure Survey) and Eurostat.

Videos



Un día en cifras



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PROYECCIONES DE POBLACIÓN

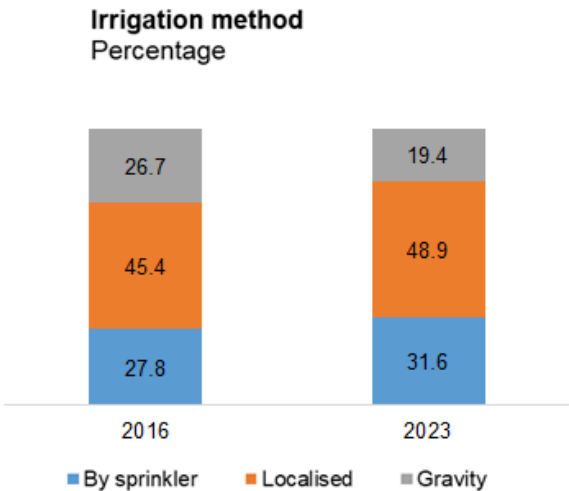
3.8% less irrigable area than 10 years ago

According to the results of the recent Farm Structure Survey, a total of 358,520 farms had irrigable land in 2023, amounting to 3.5 million hectares. In relative terms, it is 15.0% of the Utilised Agricultural Area (UAA). Compared to 2013, the irrigable area has decreased by 3.8%.

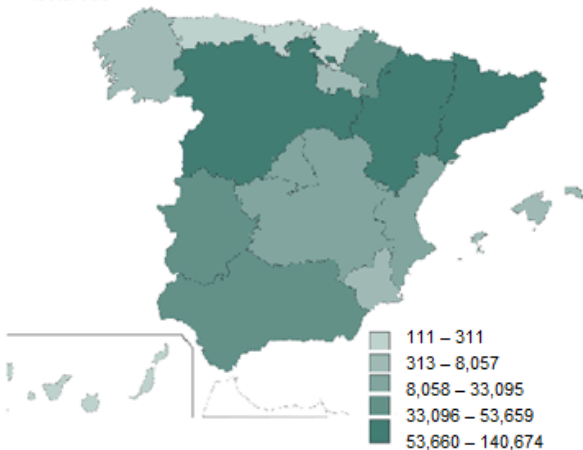
The survey estimates that 246,430 farms have irrigated area (irrigated at least once in the reference period or crop year), bringing the total to 2.7 million hectares.

4% of the farms used treated waste water

The water used by farms with irrigable area was 40% from underground sources and another 40% from surface sources. Public networks supplied 16% of the farms and 4% of the farms used treated waste water. The highest percentage of water from this source was recorded in the Canary Islands (9%) and in the Region of Murcia (8%).



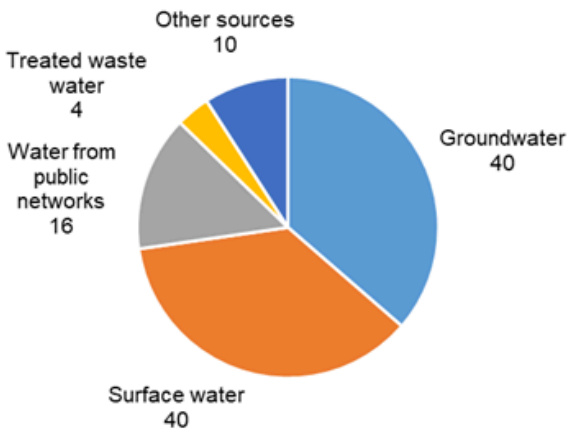
Gravity irrigated agricultural area. 2023
Hectares



98.2% of irrigated land, in the open

Almost all irrigated hectares were in the open (98.2% of the total). Cereals, olive groves, and vineyards accounted for 53.9% of the area.

Source of irrigation water. 2023
Percentage



80.6% of irrigation economises water consumption

Almost half of the irrigated hectares were irrigated using a localised irrigation method, such as drip, micro-sprinkler, misting, or hydroponic systems (48.9%), which minimise water consumption. Andalusia and Castile-La Mancha accounted for 39.0% and 18.2% of the total irrigated area under localised irrigation, respectively.

The second most used irrigation method was sprinkling, with fixed, mobile, or self-propelled sprinklers (31.6%). One out of every three hectares irrigated by sprinkler irrigation was located in Castile and León (34.8%) and 19.4% in Aragon.

Gravity irrigation is the least optimal in terms of consumption and was also the least used, affecting 19.4% of the total hectares. Most of the area irrigated by gravity irrigation was concentrated in the north-eastern part of the peninsula and the northern half: 26.4% in Aragon, 17.6% in Catalonia, and 17.1% in Castile and León.

Irrigated outdoor area by crop type 2023

Percentage





More than 180,000 farms were equipped with precision machinery

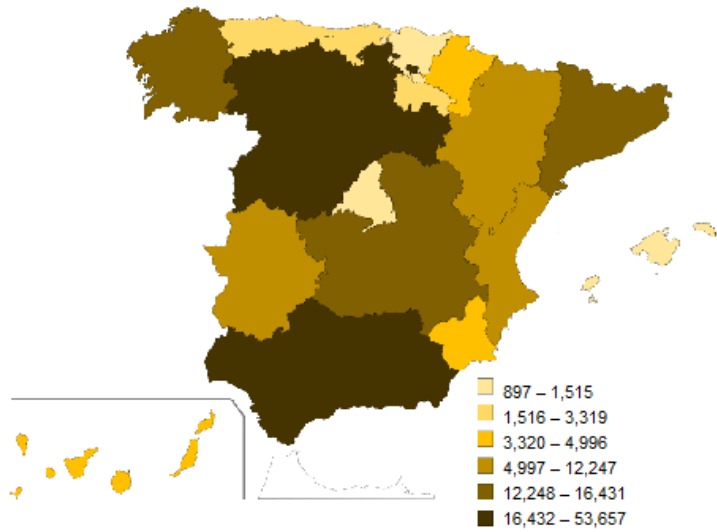
Of the 784,141 total farms surveyed in 2023, 183,985 had various types of precision machinery, accounting for 23.5% of the total.

In general, the larger the size of the farms, the higher the proportion of farms with some type of precision machinery, with 38.6% among larger farms.

Robotic machinery predominated, accounting for 65.4% of the total, followed by soil analysis through sampling (42.6%).

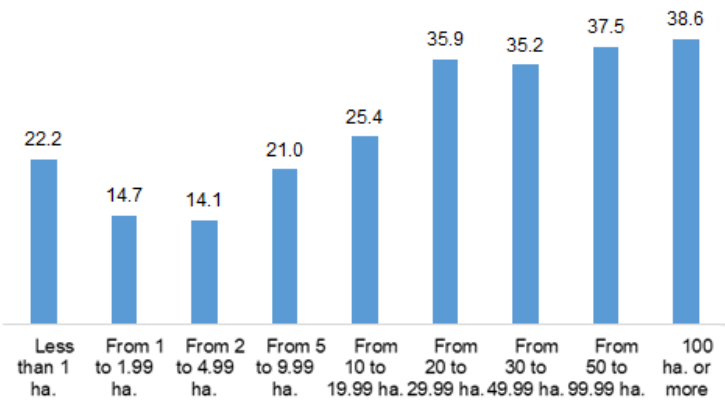


Farms with precision machinery. 2023



Farms with precision machinery. 2023

Percentages based on the total of each size



Farms with various types of precision machinery. 2023

Total	183,985	Percentage
Robotic machinery	120,372	65.4
application of plant protection products	14,781	8.0
- Band spraying of crop protection products	56,138	30.5
Variable rate techniques	30,809	16.7
Precision crop monitoring	19,073	10.4
Soil analysis by taking samples	78,418	42.6

A single farm may have more than one type of precision machinery.

Andalusia had the highest number of farms with precision machinery

The highest number of farms with precision machinery was recorded in Andalusia (29%), followed by Castile and León (13%). The lowest number was observed in the Community of Madrid, the Basque Country, and the Balearic Islands, which together accounted for 2% of the total number of farms with this type of machinery.

However, with respect to the total number of farms within each autonomous community, the highest presence of this machinery was found in the Canary Islands (41%), Galicia (39%), and Catalonia (33%).



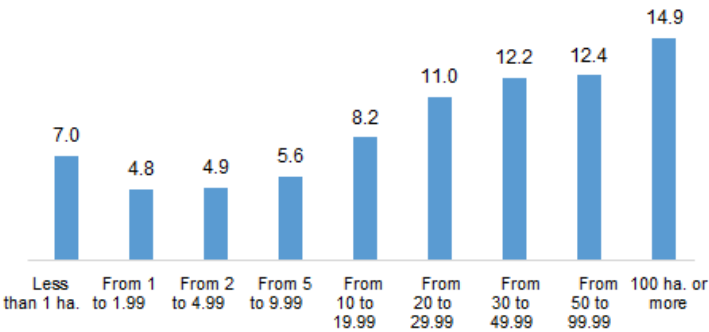
Solar panels predominated

In 2023, 60,064 farms were registered with renewable energy production equipment, predominantly solar panels. This represents 7.7% of the total number of farms, rising to 14.9% among larger farms (100 hectares or more).

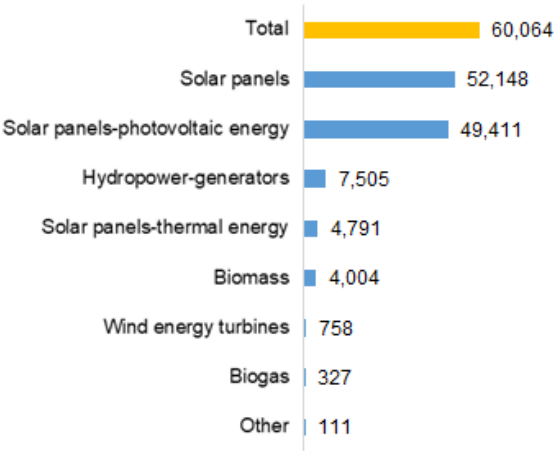
Leap in recent years

In the 2016 Survey, 560 farms were recorded as having renewable energy production equipment for sale (wind, biogas, solar, etc.), compared to 339 in the 2013 Survey, ten years earlier. This gives an idea of the increase in this area of rural development and other activities complementary to agricultural activities in recent years.

Farms with renewable energy production equipment by farm size. 2023
Percentage of total by farm size



Farms with renewable energy production equipment. 2023



Andalusia has the highest number of farms with renewable energy sources

The most common renewable energy production equipment on farms were solar panels, mainly photovoltaic.

The largest number of farms with such equipment were located in Andalusia, Castile-La Mancha, and Extremadura. Andalusia led the ranking in almost all types of renewable energy generation, except for wind energy turbines, where it ranked fourth, behind Castile and León, Catalonia, and Aragon.

Environmentally focused rural development

In 2023, rural development measures were adopted on a total of 164,752 farms.

Among the most important characteristics of the farms where these measures were applied were that 85,831 farms were located in areas with natural constraints, more than 65,000 adopted agri-environmental and climate measures, slightly more than 34,000 applied organic farming, and almost 15,000 invested in physical assets.



Farms with rural development measures. 2023

Total	164,752
Areas with natural constraints	85,831
Agro-environment and climate	65,294
Organic farming	34,188
Investment in physical assets	14,520
Business creation for young farmers	14,081
Investments in forest area development	5,064
Quality systems for agricultural products and food products	4,314
Natura 2000 and water framework directive	3,174
Animal welfare	2,275
Natural disasters and catastrophes	1,061
Creation of companies for the development of small farms	663
Silvo-environmental, climate-related services, and forest conservation	20
Advisory, management and replacement services for farms	7

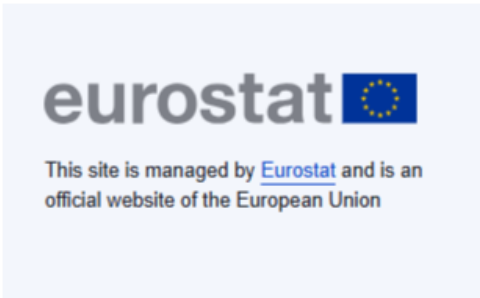
The same farm may have one or more measures.



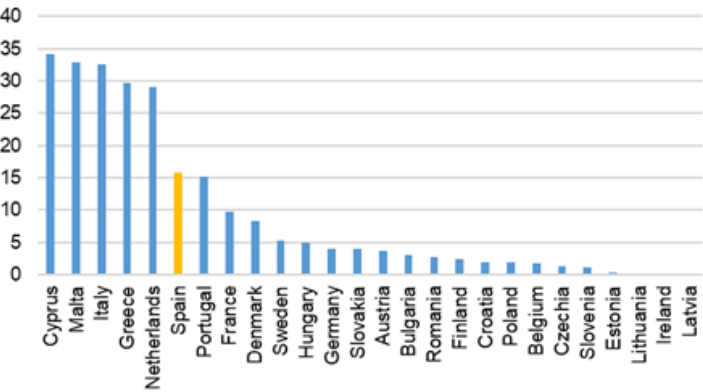
European agri-environmental indicators

Through Eurostat, European statistics periodically report on the state of the agricultural sector and its environmental implications through a set of indicators that are harmonised across all EU countries.

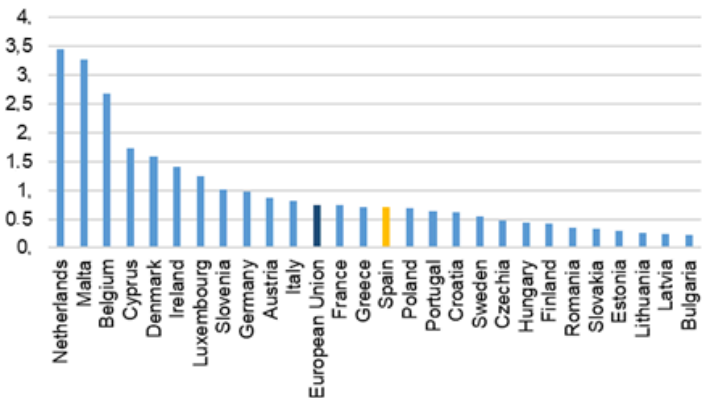
As an example, we highlight three of them here: the irrigable area in each country, the livestock density index, and the share of greenhouse gas (GHG) emissions that the agricultural sector accounts for in each country.



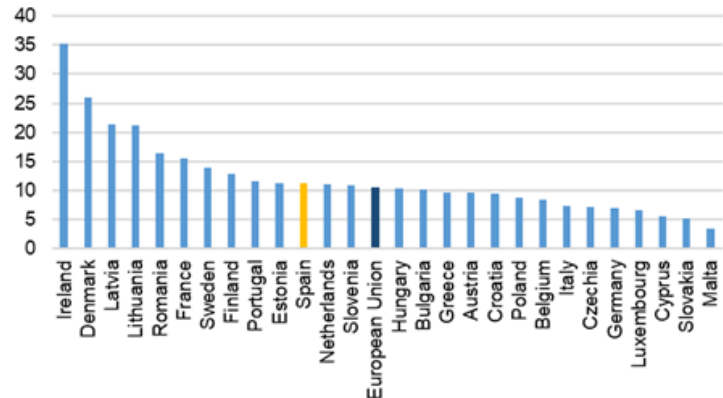
Irrigable area. 2016 (% of UAA)



Livestock density index. 2020 (% of UAA)



GHG emissions from Agriculture. 2022 (% of total)



Irrigation, livestock, and emissions

In 2016, the countries with the largest irrigable area in relation to their utilised agricultural area were Cyprus (34.1%), Malta (32.9%), and Italy (32.6%). In Spain, the figure was 15.7%.

Another relevant aspect due to its relationship with the surroundings and the environment is livestock farming. In this sense, the Livestock Density Index provides the number of livestock units per hectare of utilised agricultural area. Measured as a percentage, the EU average was 0.75% in 2020, using the latest Census of Agriculture as a reference. In Spain, the figure was 0.70%. The countries with the highest figures for this indicator were the Netherlands (3.45%), Malta (3.27%), and Belgium (2.68%).

In terms of GHG emissions, in 2022 — the most recent year with data available for all countries — Agriculture contributed 10.5% of total emissions across the EU, with Ireland (35.3%), Denmark (26.0%), and Latvia (21.3%) accounting for the highest shares. In Spain, the figure was 11.3%.

