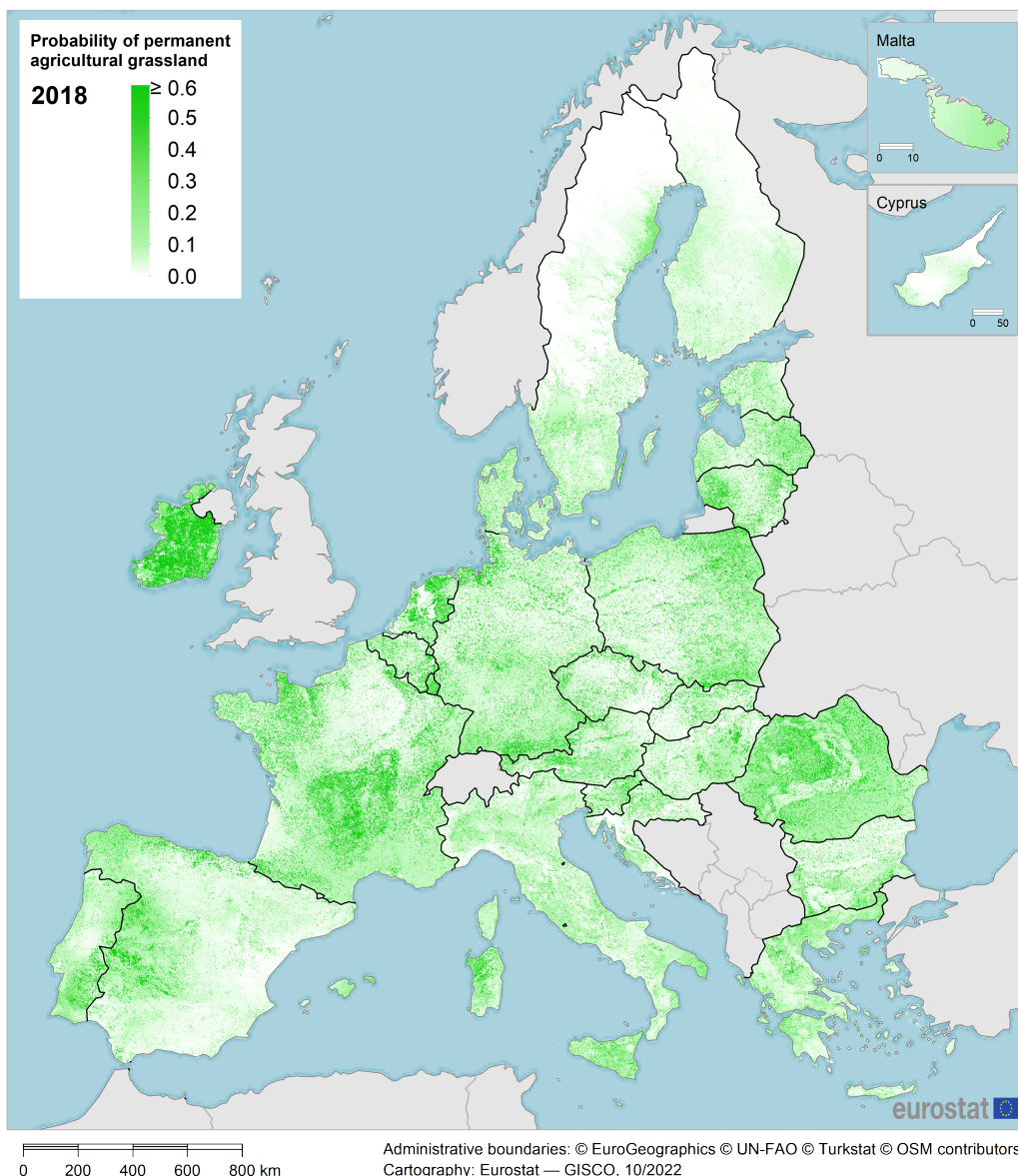


Permanent agricultural grassland in Europe

Statistics Explained

No update is planned for this article.



The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the European Union.

Source: Eurostat (estimation based on LUCAS 2018, Copernicus HRL – Grassland 2018 and CORINE Land Cover 2018)

Map 1 - Probability of permanent agricultural grassland - 2018 Source: Eurostat (estimation based on LUCAS 2018, Copernicus HRL – Grassland 2018 and CORINE Land Cover 2018)

This article presents statistical data on the extent of [permanent agricultural grassland](#) computed using an innovative, model-based approach at [EU](#) and country-level. The primary data were collected in the framework of the last two Commission Land Use/Cover Area Surveys (LUCAS), undertaken between March and November 2015 and 2018, and integrated with products from the Copernicus Land Monitoring Service.

Permanent agricultural grassland includes permanent grassland used to grow grasses and other herbaceous forage (not part of a crop rotation, i.e. existing for ≥ 5 years) for agricultural use. Permanent agricultural grassland and other natural and semi-natural grassland areas provide a wide range of ecosystem services (e.g. animal nutrition, soil conservation, climate regulation, and landscape aesthetics) and are a key component of agro-ecological systems. Their significance is acknowledged in different EU policies and strategies (e.g. Common Agricultural Policy, Biodiversity Strategy).

Permanent agricultural grassland at EU level

The probability of permanent agricultural grassland in 2018 is shown in Map 1. A more intense green indicates a higher probability of this type of grassland, whereas the white colour indicates regions with other types of grassland or other types of land cover. The estimated distribution of permanent agricultural grassland, based on LUCAS 2018 data, shows a clear spatial pattern across the EU: some countries have a dense and homogeneous distribution (e.g. Ireland), while others exhibit some local clustering (e.g. Spain, France and Portugal). Permanent agricultural grassland covered 13 % of the EU area (538 766 km²) in 2015 and also 13 % (540 507 km²) in 2018, remaining very stable between the two years. In terms of spatial distribution (Map 1), environmental conditions play a role in the occurrence of permanent agricultural grassland with low coverage in southern Spain (arid climate) and in the northern Scandinavian Peninsula (harsh conditions compared to temperate regions).

Permanent agricultural grassland at country level

France and Ireland dominate respectively in terms of absolute and relative grassland area.

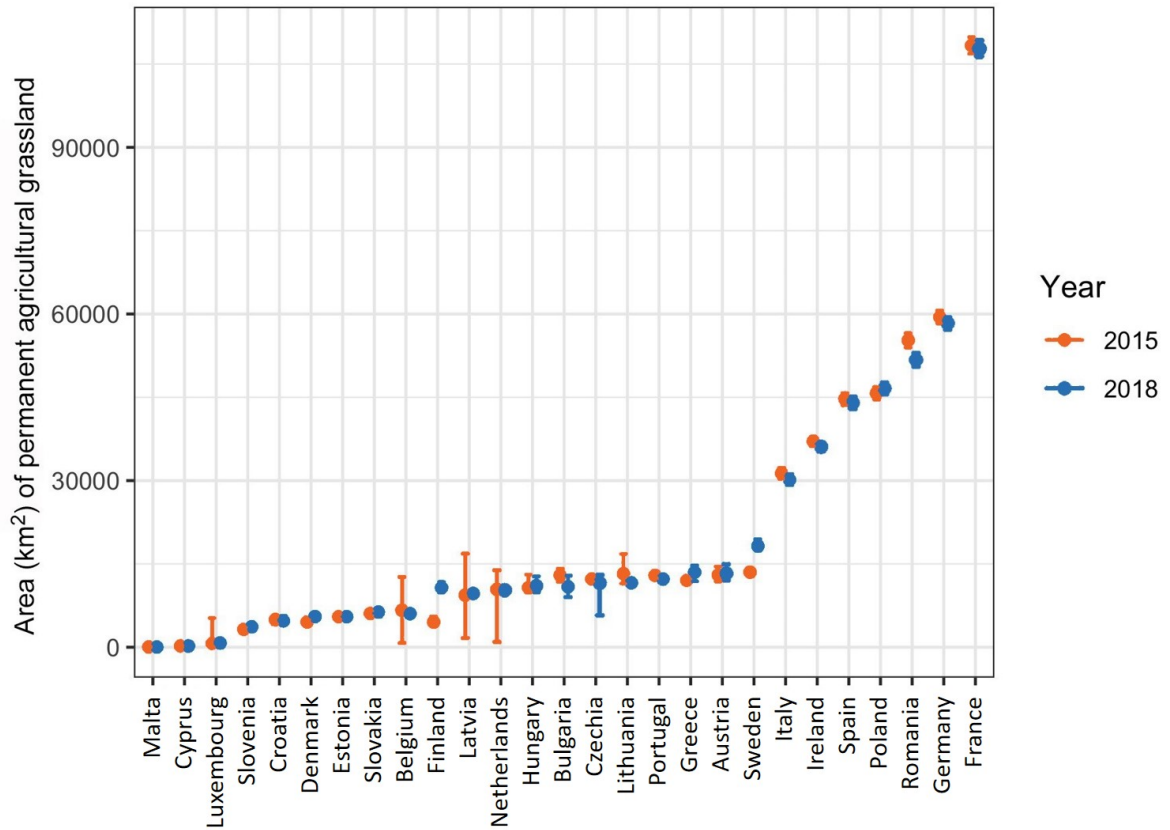
According to Figure 1, France shows the highest absolute values of permanent agricultural grassland (approx. 108 000 km²), followed by a group of countries with values above 40 000 km² (Germany, Romania, Poland, and Spain).

Considering the share of permanent agricultural grassland per country (see Figure 2), Ireland reaches the highest value (52 %), while the countries with percentages higher than 20 % are Romania (22 %), the Netherlands (27 %) and Luxembourg (29 %). By contrast, the lowest shares are estimated for Finland, Sweden and Cyprus, with values between 2 % and 4 % due to the environmental conditions in these countries.

With respect to temporal changes, the narrow time span (2015-2018) and the estimation errors prevent identifying relevant trends: all estimated differences in Figure 2 are quite low. This pattern is also in line with the green measures of the [Common Agricultural Policy](#) requiring farmers to maintain the ratio of permanent grassland to total agricultural area at a minimum of 5 %.

In both Figure 1 and Figure 2, some country-year combinations are associated with relative large error bars (representing 95 % confidence intervals). Possible reasons for this are limited number LUCAS data related to permanent agricultural grassland (e.g. due to small countries and/or a low permanent agricultural grassland probability) in interplay with the availability and quality of additional (e.g. remote sensing-based) variables used to support the modelling.

Model-based estimates of total permanent agricultural grassland for 2015 and 2018
 (expressed in km²), evaluated separately for each EU Member State



Note: The error bars represent 95 % confidence intervals.

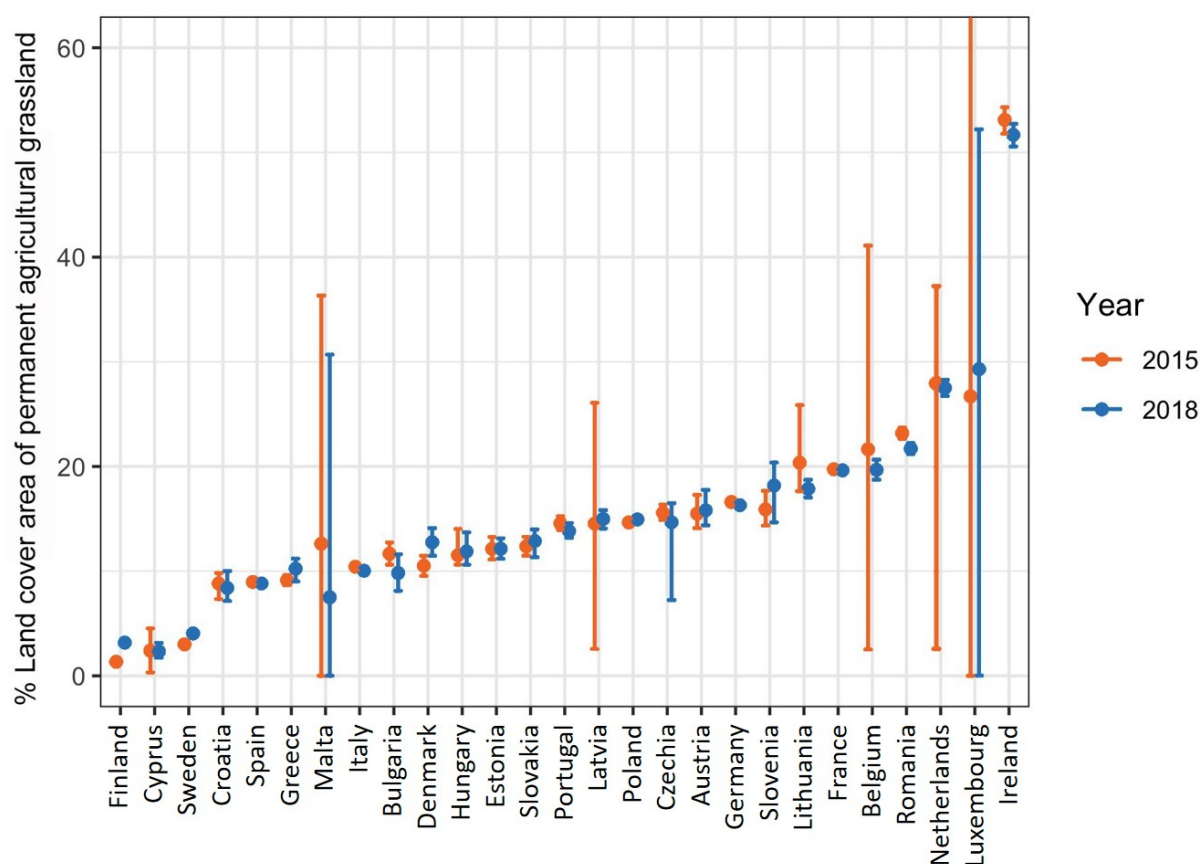
Source: Eurostat (estimation based on LUCAS 2015, LUCAS 2018 and Copernicus Land Monitoring Service products).



Figure 1: Model-based estimates of total permanent agricultural grassland for 2015 and 2018 (expressed in km²), evaluated separately for each EU Member State. Source: Eurostat (estimation based on LUCAS 2015, LUCAS 2018 and Copernicus Land Monitoring Service products).

Model-based estimates of the relative land cover area of permanent agricultural grassland for 2015 and 2018

(expressed in %), evaluated separately for each EU Member State



Note: The error bars represent 95% confidence intervals.

Source: Eurostat (estimation based on LUCAS 2015, LUCAS 2018 and Copernicus Land Monitoring Service products).



Figure 2: Model-based estimates of the relative land cover area of permanent agricultural grassland for 2015 and 2018 (expressed in %), evaluated separately for each EU Member State. Source: Eurostat (estimation based on LUCAS 2015, LUCAS 2018 and Copernicus Land Monitoring Service products).

Source data for tables and graphs

- [Download Excel file](#)
- Map 1: Probability of permanent agricultural grassland in the EU in 2018
- Figure 1: Model-based estimates of total permanent agricultural grassland for 2015 and 2018 (expressed in km²), evaluated separately for each EU Member State
- Figure 2: Model-based estimates of the relative land cover area of permanent agricultural grassland for 2015 and 2018 (expressed in %), evaluated separately for each EU Member State

Data sources

Indicator definition Permanent agricultural grassland is permanent grassland and permanent pasture that is not part of a crop rotation (i.e. ≥ 5 years) and on which grasses and other herbaceous forage can grow naturally (self-seeding) or by cultivation (sowing).

Data used The estimation of permanent agricultural grassland is mainly based on in-situ data collected during the [LUCAS — Land Use and Cover Area frame Survey](#) campaigns for sample points surveyed in the EU countries (2015: 321 922; 2018: 320 601) and combined with products from the Copernicus Land Monitoring Service. LUCAS aims to collect harmonised data on land use/cover through direct observations by surveyors in the field. LUCAS data also provide territorial information that facilitates the analysis of agriculture-environment interaction and can be used as a vehicle for other data collection (for example, in 2009, 2015 and 2018, soil samples were collected at approximately 10 % of the points visited). The latest LUCAS data collection was carried out in 2018 for the EU. Between March and October 2018, land cover and land use data were collected for approximately 238 000 field points and for 100 000 photo-interpreted points. More detailed background information can be found in the [LUCAS - Land use and land cover survey](#) article.

Specific LUCAS (core and modules) variables were used to extract eligible grassland points, such as land cover, land use, and herbaceous cover. Furthermore, additional variables from both LUCAS (e.g. geographic coordinates of the points, NUTS levels), and external data sources (i.e. gridded data from Copernicus High Resolution Layers (HRLs) – Grassland and CORINE Land Cover) were employed in the estimation procedure.

Methodology and limitations A model-based approach was applied to estimate spatially the probability of occurrence of permanent agricultural grassland on a 2x2 km point grid in the EU. The model uses the joint information power from LUCAS and external data to produce reliable estimates. The likelihood was then used to compute the areal extent at country level and to produce statistics for 2015 and 2018. A limitation of the approach is that the reliability of the estimations is highly dependent on the local LUCAS data density in interplay with the quality of the additional supporting variables available. This sensitivity is reflected, for example, in some widely varying confidence interval sizes between 2015 and 2018 (e.g. in Belgium, Latvia and the Netherlands). Confidence estimates are not present in the spatial plot (Map 1). Particularly small-scale patterns may be connected with relative high uncertainties.

Context

In Europe, permanent agricultural grassland and natural and semi-natural grassland are an important component of the landscape, providing a large part of the feed needs of the livestock sector. At the same time, grassland plays an active role in providing ecosystem services and benefits to society (landscape and aesthetic values, soil conservation, carbon storage, flora and fauna biodiversity, etc.). In general, the distribution and abundance of this land cover depends on environmental and management practices, climate and soil conditions and can severely limit the production potential. In addition, the spatial distribution and dynamics of grassland have been influenced by the farming sector and economic and political actions in recent decades.

Policy relevance context The new 2023-27 Common Agricultural Policy raises ambitions towards the European Green Deal by changing the current greening systems and increasing incentives for climate and environmentally friendly agricultural practices. Grassland areas are the target of greening measures to maintain this land cover for carbon sequestration and biodiversity. The ratio of permanent grassland to agricultural land is determined by EU countries, and some grassland areas can also be classified as “environmentally sensitive”, which prevents farms from transforming these areas. Appropriate measures in the farming sector will contribute to the EU biodiversity and the Farm to Fork strategies by counterbalancing biodiversity loss in agriculture and grassland. Sustainable practices (e.g. precision farming, agro ecology and organic farming) will be fostered to reduce biodiversity loss and ecosystem degradation and enhance climate resilience.

See also

- [LUCAS - Land use and land cover survey](#)
- [Land cover statistics](#)

Dedicated section

- [Land cover / use statistics](#)

External links

- [Common Agricultural Policy \(CAP\)](#)
- [Biodiversity strategy](#)
- [CORINE Land Cover](#)
- [Copernicus High Resolution Layers \(HRLs\) – Grassland](#)
- [European Green Deal](#)

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