LUCAS

THE EU'S LAND USE AND LAND COVER SURVEY

2021 edition

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eurostat

LUCAS Survey — land use and land cover across the European Union:

Monitoring socio-environmental challenges, such as: land take, soil degradation and environmental impact of agriculture.

Land cover

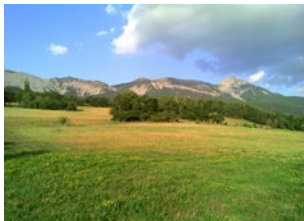### BIOPHYSICAL COVERAGE OF LAND

74 subclasses
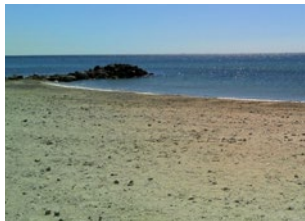
Artificial land

Cropland

Woodland

Shrubland
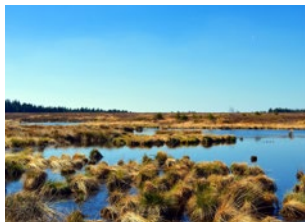

Grassland

Bareland

Water areas

Wetlands

Land use

SOCIO-ECONOMIC USAGE MADE OF LAND

40 subclasses

Primary sector
(for example, agriculture and forestry)

Secondary sector
(industry)

Tertiary sector
(services)

Other uses
(for example, residential use and abandoned areas)

LUCAS Survey

- On-site data collection
- Land use / land cover
- Environmental information
- EU-wide
- Standard survey methodology:

  Two phase sampling, classifications, data collection processes.
- Adapted to policy needs:

  Flexible, ad-hoc modules.
- Reduced statistical burden:

  No questionnaires for farmers, landowners.

Information collected:

- Current land cover and land use;
- Environmental information (e.g. irrigation, grazing, burned areas);
- Landscape features;
- Photos (e.g. landscape, crop);
- Topsoil sample;
- Grassland survey.

LUCAS point and pictures to the north, south, east and west

The data collected in the LUCAS survey is used for production of statistics on land cover/land use at a regional level. Harmonised and reliable statistics provide a crucial source of information on the environment, which is used for monitoring and decision support in a wide range of policy areas. For example, in 2018, for each EU inhabitant, 703.4m^2 of land were covered by settlement area, which is 3.3 % more than in 2015 (LUCAS 2015-2018).

The collected data is freely and openly available for citizens, journalists and policy makers at regional, national and European level. It also provides a rich source of information for the research community.

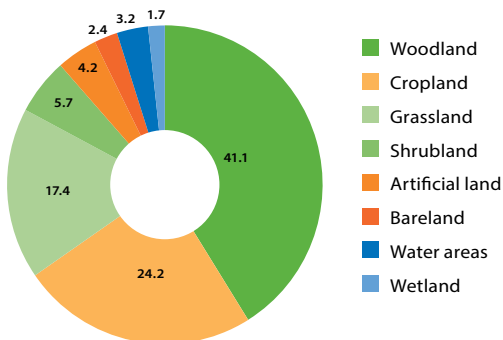### Point distribution in 2018
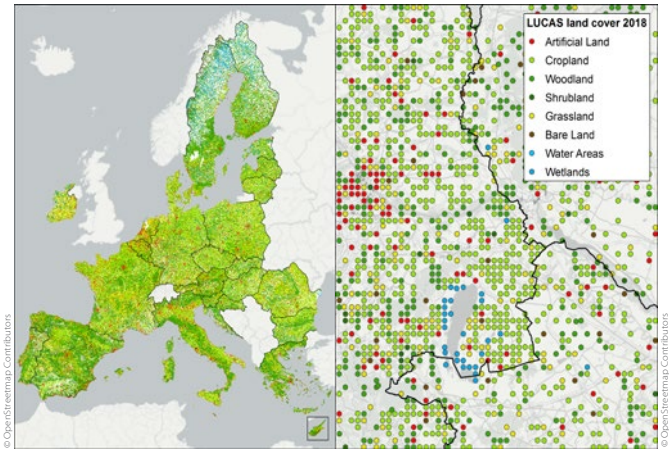
LUCAS field Survey 2022

- 27 countries
- 200 000 points
- 41 000 soil points
- 20 000 grassland points
- 93 000 Landscape Features points
- 150 000 LUCAS points for the Copernicus module
- March – September 2022
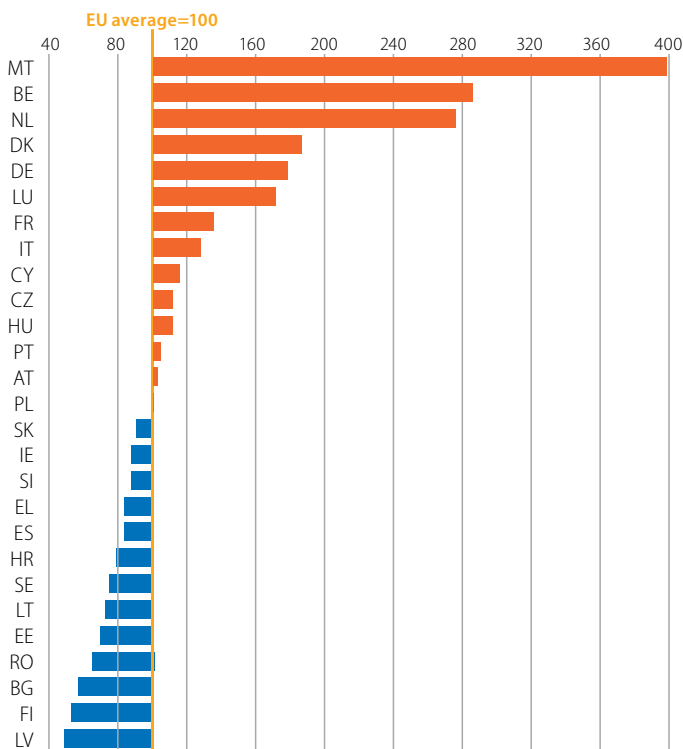
LUCAS Survey 2018: Results

Land cover in the EU

(% of total surface area in 2018)

Legend:
- Woodland — 41.1
- Cropland — 24.2
- Grassland — 17.4
- Shrubland — 5.7
- Artificial land — 4.2
- Bareland — 2.4
- Water areas — 3.2
- Wetland — 1.7

Source: Eurostat (online data code: lan_lcv_ovw)

Settlement Area per capita 2018

EU average=100

Countries (top to bottom): MT, BE, NL, DK, DE, LU, FR, IT, CY, CZ, HU, PT, AT, PL, SK, IE, SI, EL, ES, HR, SE, LT, EE, RO, BG, FI, LV

Source: Eurostat (online data code: lan_settl)

Ground document

eurostat ⬚ Encuesta sobre Cubiertas y Usos del Suelo Mediante Marco de Áreas
LUCAS 2018 - ESPAÑA   **336 823 22**   M1

Provincia: Guipúzcoa   Region Biogeografica: Atlantico
Coordenadas WGS84: Lat (º): 43.331605   Long (º): -1.773875   Altitud: 67 [m]

A. Tecnico:
7. Fecha:
8. Hora inicio: 9. Hora fin:
Ubicación GPS del coche:
11. Lat (º):
12/13. Long (º):
14. GPS: WGS84 ☐ Prob o/ señal ☐
Ubicación GPS del punto:
17. Lat (º):
18/19. Long (º):
15. Altitud: [m]   (16) Precisión   [m]
20. Distancia GPS: [m]
21. Distancia calculada: [m]
☐ Punto extensión PI   ☐ Punto Exante PI
☐ Suelo ☐ Densidad ☐ Bio ☐ H.Org.
☑ Copernicus ☐ Pастrial   ☐ Erosion
(S80) Acceso al punto:

Punto Panel (Datos de la campaña anterior)
Fecha: 09/05/2015
Distancia al punto (m): 1
Lat (º): 43.3317   Long (º): -1.772637
Tipo de observación: En campo punto visible ≤100m
Dirección de observación: En el punto
Cubierta del suelo (LC1-2): E20-8
Uso del suelo (LU1-2): U111-8

Field form (extract)

15   LANDSCAPE FEATURES

15.1   MAIN INFORMATION TO BE COLLECTED FOR EACH LUCAS POINT SUBJECT TO LANDSCAPE FEATURE ASSESSMENT (to be collected first in the PI office and then in the field)

Prefilled from DB

Landscape feature module point:
1 ☐ Yes
2 ☐ No

Main information (PI in office and in field)

Landscape feature survey possible?*
1 ☐ Yes (PI office) ☐ Yes (field assessment)
2 ☐ No (PI office) ☐ No (field assessment)
3 ☐ N.R.

ID	PI – feature 1 (default value: "No LF")	PI – feature 2 (default value: "No LF")	Comment LF PI	Field – feature 1 (pre-filled with PI values, if PI not possible fill with "NA")	Field – feature 2 (pre-filled with PI values, if PI not possible fill with "NA")	Comment LF FS
A1	Feature X	Feature y		Feature X	Feature y	
A2	Feature Z	No LF		Feature Z	No LF	
A3	No LF	No LF		No LF	No LF	

What is LUCAS used for?

Land, a limited resource

Man-made surfaces are an important source of water, soil and air pollution, and the soil sealing by these surfaces can impact upon the water balance, thereby increasing the risk and intensity of flooding. This process of 'land take' also reduces the area available for natural habitats and ecosystems, with the fragmentation of wildlife habitats being a major concern.

Land cover and land use data from LUCAS are used to monitor the increase of settlement area per capita. The indicator captures the amount of **settlement area** due to land take, such as for buildings, industrial and commercial areas, infrastructure and sports grounds, and includes both sealed and non-sealed surfaces. This indicator is included in the Sustainable Development Goal (SDG) indicators for the 2030 Agenda for Sustainable Development.

*An example of land take between the 2015 and 2018 surveys*

Grassland types in Europe

Grasslands have a basic role in feeding animals and provide important ecosystem services, such as erosion control, water management and support **biodiversity** and cultural services, and carbon stock. Knowledge on grassland extent, typology and management is pivotal for nutrients balance and agri-environmental computation for different policies (e.g. CAP).

The integration of LUCAS in situ data and Copernicus remote sensing maps provides grassland information with a better thematic and spatial detail.

Area estimates per country are based on modern regression methods using LUCAS in situ and Copernicus data.

### LUCAS Survey 2018 — Probability of grassland classes
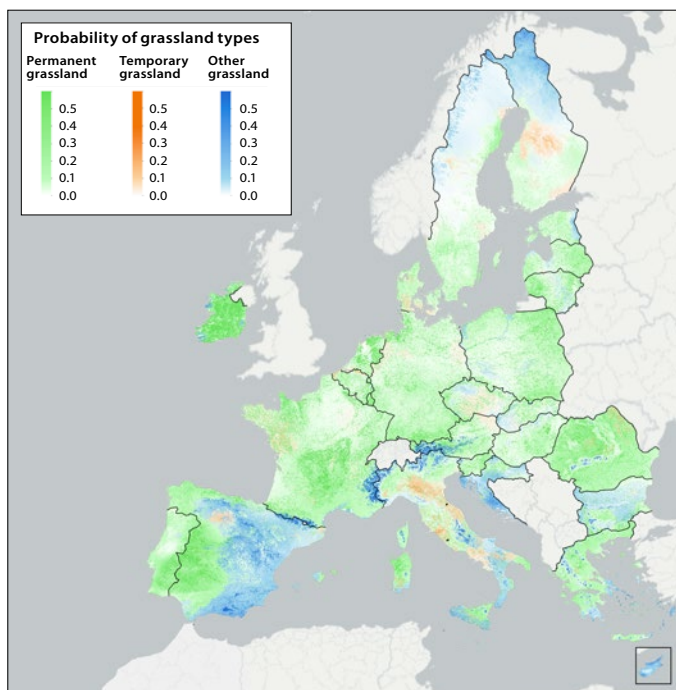
Administrative boundaries: © EuroGeographics © FAO (UN) © Turkstat
Source: European Commission – Eurostat/LUCAS

Soil, an essential element for agriculture

Soil is a key agricultural resource and of prime interest to Common Agricultural Policy. The LUCAS 2009, 2015 and 2018 exercises collected **soil samples** which allowed soil quality (organic carbon content) and other parameters such as soil texture, structure and permeability to be measured. These parameters contributed to the **evaluation of soil erosion**.

Soil erosion in Europe

Agricultural land with severe erosion (2016)
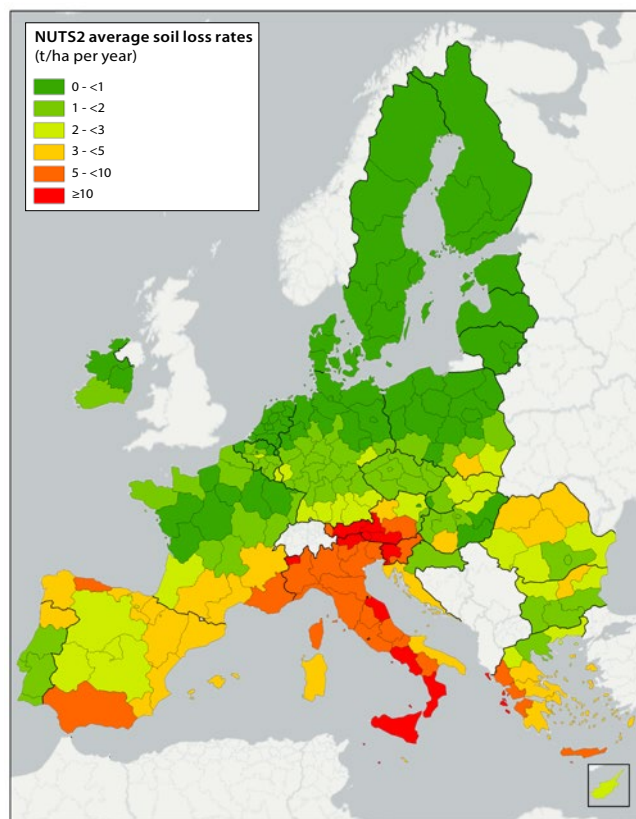
© *European Union, Joint Research Centre (2020)*

LUCAS Use Cases — more information and further examples of how LUCAS is used can be found at:
https://ec.europa.eu/eurostat/web/lucas/publications/use-cases

EU Policy areas

In addition to statistical purposes, the data from LUCAS survey is used to define and monitor various EU policies:

Common Agricultural policy

A new green architecture fostering a sustainable and competitive agricultural sector contributing to the European Green Deal and the Farm to Fork Strategy.

Soil Thematic Strategy

Preventing soil degradation, preserving soil functions, and restoring degraded soils.

Biodiversity Strategy for 2030

Protecting and restoring nature and biodiversity in the EU.

2030 Agenda for Sustainable Development

Encouraging the efficient use of resources for sustainable growth and Land Degradation Neutrality.

Farm to Fork Strategy

Building a fair, healthy and environmentally friendly food system in the EU.

EU climate action and the European Green Deal

Aiming to cutting greenhouse gas emissions, to investing in cutting-edge research and innovation, to preserving Europe's natural environment.

Copernicus

Land monitoring, spatial planning and resources management, as carried out by Copernicus earth observation programme.

Agricultural landscape

Additional information on LUCAS:

LUCAS website:

https://ec.europa.eu/eurostat/web/lucas/overview

LUCAS micro data 2018

The LUCAS micro data 2018 can be downloaded. Each file contains the data for one country.

The LUCAS 2018 photos can be ordered here:
https://ec.europa.eu/eurostat/web/lucas/data/primary-data/order-form.

Belgium	Bulgaria	Czechia	Denmark
Germany	Estonia	Ireland	Greece
Spain	France	Croatia	Italy
Cyprus	Latvia	Lithuania	Luxembourg
Hungary	Malta	Netherlands	Austria
Poland	Portugal	Romania	Slovenia
Slovakia	Finland	Sweden	

Did you know?

- One teaspoon of soil contains more life than all the people on Earth

- Soil organisms are responsible for soil fertility, water purification, protection against pollutants

- Main causes of soil erosion are: inappropriate agricultural practices, the removal of vegetation, over-grazing and construction activities.

- Approximately 18 % of agricultural areas and natural grasslands in EU are affected by moderate to severe soil erosion