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Soil area the size of Berlin lost each year due to water erosion in the EU

A recent assessment carried out by the JRC estimates that water erodes 970 million tonnes of soil every year in the EU. This would mean a one metre-depth loss of soil

from an area corresponding to the size of the city of Berlin, or a one centimetre loss from an area twice the size of Belgium. The fact that it takes 100 years to form 1 cm of new soil under natural temperate grasslands gives an idea of the magnitude of the problem of soil loss in the EU.

Soil erosion by water accounts for the greatest loss of soil in Europe compared to other erosion processes, such as wind. The highest average annual rates of soil erosion by water were found in Italy (8.46 t/ha), Slovenia (7.43 t/ha) and Austria (7.19 t/ha), and the lowest were found in Finland (0.06 t/ha), Estonia (0.21 t/ha) and the Netherlands (0.27 t/ha). Agricultural lands account for 68.3% of total soil losses, while forests account for less than 1%. A new high resolution map (100 m) of soil erosion by water in the EU (2010) is now available, providing details of soil erosion by water across the EU.

The JRC estimates that an average of 2.46 tonnes per hectare of soil are lost every year across the EU from land that is prone to erosion (agricultural, forests and semi-natural areas), amounting to a loss of 970 million tonnes of soil (around 600 million m³) per year. This gives cause for concern, especially considering that the average annual rate of soil formation in Europe is considerably less, at 1.4 tonnes per hectare.



Soil erosion by water accounts for the greatest loss of soil in Europe compared to other erosion processes.

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Related Content

Publication: The new assessment of soil loss by water erosion in Europe

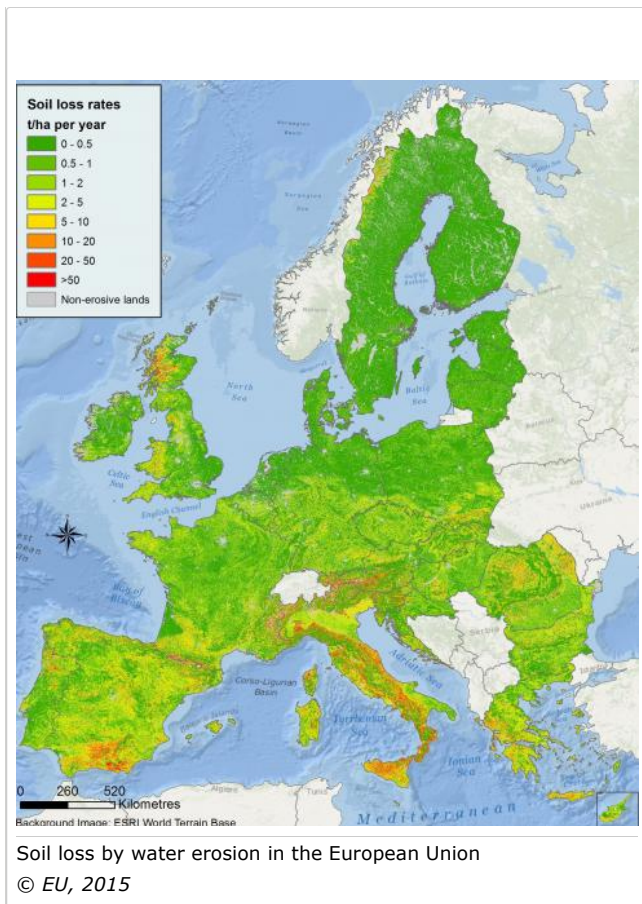
European Soil Data Centre: Soil erosion by water (RUSLE2015)

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While recent policy interventions (such as the Good Agricultural and Environment Condition requirements of the CAP, and the EU Soil Thematic Strategy) have reduced the rate of soil loss in the EU by an average of 9.5% overall, and by 20% for arable lands, the study finds that four million hectares of EU croplands have unsustainable rates of soil loss (more than 5 tonnes per hectare per year).

The map of soil loss by water erosion delineates areas of concern that will require special protection measures, such as financing more sustainable land management practices. As soil erosion has huge impacts on ecosystems, food production, drinking water, carbon stocks and biodiversity, the EU has called for quantitative assessments of soil rates at EU level, and put soil protection at the heart of its environmental agenda. The authors recommend that soil protection measures focus on the 24% of EU lands that experience an average annual soil loss of two tonnes per hectare.

According to future land use scenarios, estimations are that rates of soil loss by water will fall slightly by 2050, mainly due to an increase in forest areas. However, pressures to increase the amount of arable land for food and fuel could offset the reduction, unless more sustainable land management practices are applied. On the other hand, climate change scenarios estimate that the soil loss rates may increase by 10-15% by 2050 due to an analogous increase of rainfall-induced erosion in Europe.

The new assessment of soil loss by water erosion in Europe was published by Environmental Science and Policy.

Keywords: soil

Mission

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