European Commission

RESEARCH & INNOVATION FOR HEALTHY SOILS & FORESTS

December 2021

The **European Green Deal** package on Nature adopted on 17 November 2021 marks a milestone in the effort to stop deforestation and make soils healthy for people, nature and climate. Healthy soils are key for climate neutrality, a clean and circular economy, reversing biodiversity loss, providing healthy food, safeguarding human health, and halting desertification and land degradation. The new **EU Soil Strategy for 2030** will promote the protection, restoration and sustainable use of soils. Deforestation and forest degradation are central drivers of global warming and biodiversity loss. The new **Deforestation Regulation** will guarantee that products placed on the EU market do not contribute to global deforestation and forest degradation, it will also reduce carbon emissions, and address illegal activities harming forests.

EU SOIL STRATEGY FOR 2030: TOWARDS HEALTHY SOILS FOR PEOPLE AND THE PLANET

Soil health is essential for climate change mitigation, water and nutrient cycles, food system sustainability, and biodiversity. However, soils are at risk in Europe and beyond; as much as 60-70% of land is degraded in the EU. The **EU Soil Strategy**, the **Horizon Europe Mission "A Soil Deal for Europe"**, and the **European Soil Observatory** set up the political framework, concrete measures, and a monitoring system for the protection, restoration and sustainable use of soils, in synergy with other European Green Deal initiatives. To this end, the Horizon Europe Soil Mission will invest in research and innovation, establish a network of 100 living labs and lighthouses, encourage harmonisation of soil monitoring in the EU, and increase soil literacy across society to lead the transition towards healthy soils and safeguard human and planetary health by 2030.

The Soil Strategy recognises the potential of a **circular and sustainable bioeconomy**, in areas such as carbon sequestration in soil, blue carbon, forests, storage in harvested wood products, and material substitution of fossil-based products. Research and innovation is a key player in accelerating the transition towards circularity and sustainability. In particular, **Horizon Europe Cluster 6 'Food, Bioeconomy, Natural Resources, Agriculture and Environment'** will help drive the transformations needed with a systemic and science-based approach.

DEFORESTATION-FREE PRODUCTS ON THE EU MARKET

Deforestation and forest degradation are occurring at an alarming rate, aggravating climate change and the loss of biodiversity. The main driver of deforestation and forest degradation is the expansion of agricultural land to produce commodities such as wood, palm oil, soy, cocoa and coffee, as well as land for cattle. The European Commission has proposed a **Regulation on deforestation-free products** to guarantee that the products available on the EU market do not contribute to deforestation and forest degradation within the EU and globally. Along with the proposal of the Deforestation Regulation, the Commission launched an **EU Observatory on deforestation, forest degradation, changes in the world's forest cover and associated drivers**. The Observatory will better monitor changes in the world's forest cover and related drivers. Moreover, building on already existing monitoring tools, the EU Observatory will facilitate access to information on supply chains for public entities, consumers and businesses, providing easy-to-understand data and information linking deforestation, forest degradation, and changes in the world's forest cover to EU demand for and trade of commodities and products.

SELECTION OF HORIZON 2020 PROJECTS CONTRIBUTING TO HEALTHY SOILS & FORESTS

Towards an EU R&I roadmap for sustainable soil and land management

Project **Soil Mission Support** (SMS) supports the objective of the Horizon Europe Mission "A Soil Deal for Europe" in the framework of the European Green Deal and the UN Sustainable Development Goals (SDGs). The project identified criteria for living labs and lighthouses to demonstrate viable solutions, and is engaging different actors to analyse needs, and identify gaps and priorities for research and innovation. SMS will deliver an EU research and innovation roadmap for sustainable soil and land management.

Creating an integrated research community

The **European Joint Programme (EJP) Soil** project has created an integrated research community to enhance the contribution of agricultural soils to key challenges including climate change, water and food security while allowing sustainable food production, sustaining soil biodiversity and preserving ecosystem services. During its lifetime, the programme will create new knowledge to foster climate-smart sustainable agricultural soil management, deliver tools to support the harmonisation and organisation of soil information and share and transfer knowledge to young scientists and citizens.

Increasing soil quality and the sustainability of EU agriculture

The **SoilCare** project identified and evaluated promising soil-improving cropping systems and agronomic techniques to increase soil quality and profitability and the sustainability of agriculture across Europe. A trans-disciplinary approach was used to evaluate the benefits and drawbacks of a combination of crop strategies and management practices to address soil threats, incorporating all relevant bio-physical, socio-economic and political aspects. The project developed an interactive tool and resources for end-users to help them identify and prioritise suitable combination of practices anywhere in Europe.

Diversifying cropping systems

European arable agricultural systems are often characterised by short rotations or even monocultures, leading to problems such as higher pest pressure, soil erosion, loss of soil fertility, and loss of biodiversity. Project **DiverIMPACTS** has tapped into the full potential of diversifying cropping systems, with the aim to improve productivity, help deliver ecosystem services, and support the development of resource-efficient and sustainable value chains. The project developed a range of technical and organisational innovations to help remove barriers throughout the value chain, from farmers to consumers, as well as create strategies and recommendations to strengthen crop diversification practices in the long-term.

New opportunities for Earth Observation

Project **E-Shape** develops and promotes European Earth Observation capabilities by leveraging Copernicus and opening new opportunities to develop and expand its use. It provides EO services for food security and sustainable agriculture, ecosystem monitoring, disaster resilience and climate monitoring.

Forest monitoring from the sky

Project **REDD-Copernicus** worked on designing a forest monitoring component of The European Union's **Copernicus Programme**. The application of Earth Observation (EO) to forest monitoring supports decision making in halting deforestation and forest degradation.

More information on the projects funded by Horizon 2020 is available at ***cordis.europa.eu***

ISBN 978-92-76-43928-8, doi:10.2777/563218, KI-07-21-102-EN-N

Publications Office of the European Union