

Brussels, 15th March 2022

Agroecology as a focal element to establish a EU legal framework for soil health

Agroecology Europe, the European association promoting agroecology as a set of practices, a science and a movement across Europe, welcomes the Commission's initiative to table a new legislative proposal on soil health by 2023 to help achieve having all soils in healthy condition by 2050 and to make protection, sustainable use and restoration of soils the norm.

Agroecology Europe is calling upon the European Commission to adopt a strong EU harmonised legislative approach to address soil and land degradation based on agroecology principles and practices promoting sustainable soil management.

Agroecology Europe will be pleased to support scientifically and technically the consultations conducted within the framework of the upcoming impact assessment.

1. Agroecology: Producing in respect with ecological processes and ecosystems

Soils are at the heart of terrestrial ecosystems and are composed of a great diversity of organisms - a quarter of all known species, fulfilling a fundamental role for the long-term maintenance of the ecological functionality of natural and cultivated ecosystems and therefore for sustainable food production: (i) ensuring a productivity of plant biomass through the mineralization of the organic matter, nitrogen fixation (ii) preservation of natural resources such as air, water and biodiversity, and by such (iii) promoting the health of plants, animals and humans by favoring the physiological processes involved in their self-defense systems¹.

Agroecological practices including crop diversification, intercropping, agroforestry, the integration of crop and livestock systems, and soil management measures such as continuous soil coverage, reduced tillage and chemical inputs embrace the living nature of soils and consider **soils as a living system** (FAO, 2011). These practices constitute an alternative to industrial agriculture that considers soil as a mere support.²

The following are suggested paths of action that Agroecology Europe is submitting to the Commission in order to implement consistent policies for soil health, biodiversity maintenance and climate change mitigation. Such agroecological practices should be considered within the impact assessment as requirements to improve the sustainable use of soil and should be further defined.

¹ For more information, see: <https://www.tifsinitiative.org/news-1/healthy-soil-contributes-to-a-healthy-gut>

² Alexander Wezel, Marion Casagrande, Florian Celette, Jean-François Vian, Aurélie Ferrer, et al.. Agroecological practices for sustainable agriculture. A review. *Agronomy for Sustainable Development*, Springer Verlag/EDP Sciences/INRA, 2014, 34 (1), pp.1-20.

2. Agroecology: a focal element for the establishment of a comprehensive EU legal framework for soil health

2.1 Funding and implementing adapted training and income support schemes for European farmers to adopt agroecological practices to preserve soil health

Erosion is a major threat to soil health and is mainly caused by the generalization of deep plowing, the intensive use of chemical inputs, the transformation of grassland into cultivated land, and deforestation. Plowing increases erosion by a 10 to a 100 factor, disrupts soil structure, accelerating surface runoff and soil erosion. Erosion is amplified by the fact that due to the aeration of soil through plowing and increased respiration of soil, it keeps less organic matter and stores less carbon.

One of the priorities for promoting soil health on a large scale in Europe is to **promote non-tillage techniques and drastically reduce dependence on synthetic inputs that destroy soil life.**

Furthermore, a **shift from synthetic fertilizers to organic sources of nutrients** needs to be encouraged through the creation of synergies between livestock and cropping systems. The hyperspecialization of farming systems and territories reinforces the structural dependency on synthetic inputs. This is why we encourage the Commission to promote the diversification of farming systems through specific financial support both at farm (Pillar I) and territorial (Pillar II) levels.

The CAP is a considerable lever to encourage the adoption of agroecological practices and the diversification of farming systems, especially through the eco-schemes³. In addition, **capacity building programs for EU farmers on agroecology** should be funded and implemented on a mandatory basis by the Member States in their National Strategic Plans.

2.2 Engage a virtuous territorial planning approach through the development of Biodistricts

Urban sprawl is a major challenge on the way to sustainable land use as it causes the artificialization, the impermeabilisation of soils. This trend is particularly damaging and condemns the most fertile soils in peri-urban areas.

To counter this trend of irreversible destruction of high quality soils, the **development of Biodistricts**⁴ should be encouraged and specifically supported within the framework of the European Regional Development Fund (ERDF).

Beyond the scale of plots and farms, it is essential to consider soil health through the prism of territories and to foster the development of diversified agroecological food systems that reconnect producers and consumers and that offer opportunities for local economic development.

³ Agroecology Europe, 2021. Integrating agroecology into European agricultural policies. Position paper and recommendations to the European Commission on Eco-schemes: 8 pp.

https://www.agroecology-europe.org/wp-content/uploads/2021/07/AEEU_Positionpaper_Ecoschemes_FINAL_english.pdf

⁴ <https://www.fao.org/3/bt402e/bt402e.pdf>

2.3 Implement a farmer-friendly, participatory multi-criteria framework for soil health assessment and monitoring

In order to monitor and assess the evolution of soil health, it is necessary to develop a harmonized soil health assessment system at the European level based on a simple set of indicators that are user-friendly, in particular for farmers. This system should take into account **local environmental, social and cultural specificities, providing evidence-based results** that can be easily appropriated by local stakeholders such as farmers, advisors, researchers and policy-makers.

The indicators need to follow certain characteristics:

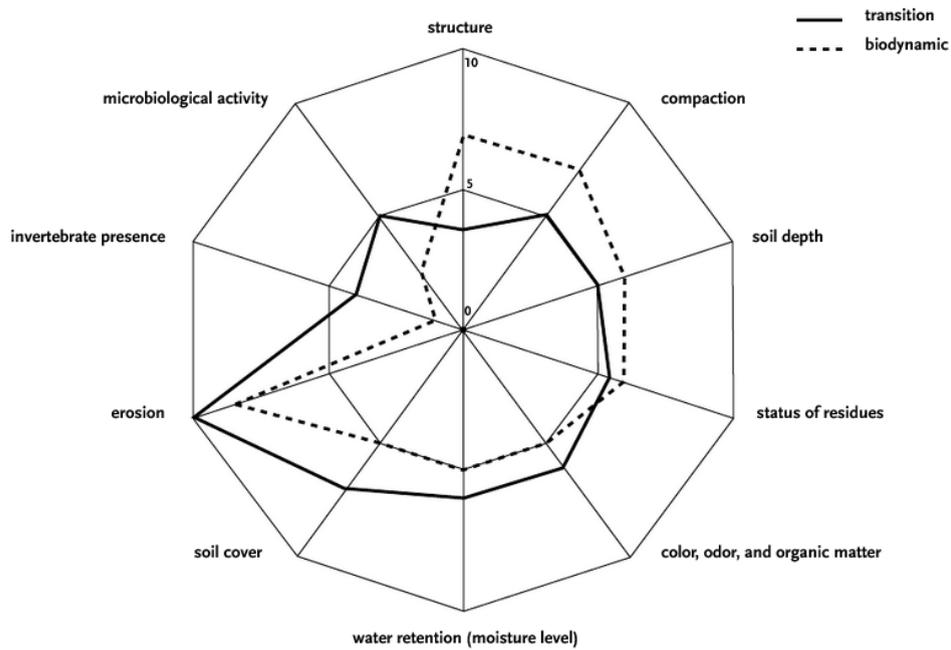
- they are relatively precise and easy to interpret by farmers
- they are practical for making new management decisions
- they are sensitive enough to reflect environmental changes and the effects of management practices on the soil and the crop
- they have the capability of integrating physical, chemical and biological properties of the soil
- they can relate to ecosystem processes, for example the relationship between plant diversity and pest population stability and/or disease incidence

In the following is a list of proposed indicators and their related positive impacts on soils and other natural resources:

Indicators of soil health	Positive impact
Soil Organic Matter	<ul style="list-style-type: none"> - Increased carbon sequestration - Increased soil water holding capacity - Increased biological activity - Ameliorated water retention - Increased nutrient retention and cycling
Biological activity and diversity	<ul style="list-style-type: none"> - Nutrient cycling - Control of soil pathogens
Water retention and infiltration	<ul style="list-style-type: none"> - Reduced superficial runoff and erosion, results in lower losses of nutrients (preventing eutrophication and reducing water treatment cost) and extended life of dams (by reduced sedimentation)
Physical Structure	<ul style="list-style-type: none"> - Increased exchange of gas (CO₂, O₂), air - Increased soil volume to be explored by roots, resulting in higher nutrient and water capture and higher climatic resilience

Table 1: List of indicators for soil health and their positive impact (Source: Agroecology Europe, 2022)

Figure 1 : Radar diagram of a systemic multi-criteria assessment of soil health (Source: Nicholls and al., 2004)⁵



We encourage the Commission to adopt such a systemic and multi-criteria assessment system that will lead to the **empowerment of farmers by co-creating and exchanging knowledge with advisors, researchers and policy-makers.**

Agroecology Europe is at the disposal for any request from the Commission and would be pleased to offer the expertise in this process of elaboration of a legislative proposal on soil health.

For further information, please contact our Secretariat:

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⁵ Nicholls, Clara & Altieri, Miguel & Dezanet, Andre & Lana, Marcos & Feistauer, Diogo & Ouriques, Maykol. (2004). A Rapid, Farmer-Friendly Agroecological Method to Estimate Soil Quality and Crop Health in Vineyard Systems. *Biodynamics*. 2004.

https://www.researchgate.net/publication/253208812_A_Rapid_Farmer-Friendly_Agroecological_Method_to_Estimate_Soil_Quality_and_Crop_Health_in_Vineyard_Systems/citation/download