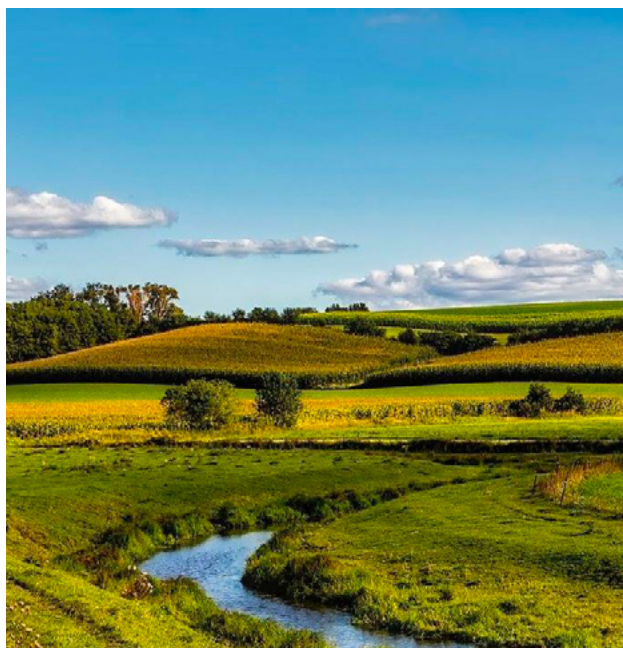




SOIL CARBON NOTES / SCIENTIFIC AND TECHNICAL COMMITTEE

TOWARDS A DEFINITION OF REGENERATIVE AGRICULTURE



The **term regenerative agriculture** is increasingly used in the context of the evolution of agricultural practices around the world, and more particularly when it comes to contributing to the fight against climate change. This term seems to be unanimously accepted by both civil society, which is expressing its desire to see a new model of agriculture developed, and by agri-food companies, which are discovering a sort of panacea that will allow conventional agriculture, which is criticized from all sides for its environmental consequences, to evolve in the direction desired by society. But on closer inspection, if the term is the same, its meaning is significantly different depending on the point of view from which one takes it.

While the FAO and its think tanks such as the High Level Panel of Experts on Food Security and Nutrition (HLPE), the science-policy interface of the United Nations Committee on Food Security, have worked on complex concepts such as agroecology, which is very comprehensive and which for some is similar to regenerative agriculture as well as on validated and universally recognized definitions of organic agricul-

ture, biodynamic agriculture, soil conservation agriculture, or agroforestry, there is not yet an official definition of regenerative agriculture.

In this context, the Scientific and Technical Committee of the "4 per 1000" Initiative thought it would be useful to work on a synthesis of the proposals available in the scientific literature in order to propose an inclusive definition associated with the general principles and practices generally associated with this mode of agriculture. In the context of this definition, the use of the expression "soil health" is understood to be in accordance with the proposed definition put forward by the ITPS in September 2020 (ITPS Soil letters #1).

The ambition of this proposed definition is none other than to contribute to the general debate and to provide concrete elements aiming at unifying the understanding of the term "regenerative agriculture" which appears to be a desirable direction to meet the objectives of the "4 per 1000" Initiative.

A first global vision or **general definition**, with a focus on **soil health**:

"Regenerative agriculture is a system of farming principles and practices that seeks to rehabilitate and enhance the entire ecosystem of the farm from a sustainability point of view, including the improvement of human health and economic prosperity. It is a method of farming that places a heavy premium on soil health and improves the resources (soil, water, biodiversity, etc.) it uses."¹

GENERAL FARMING PRINCIPLES FOR REGENERATIVE AGRICULTURE

1. Adopt holistic management that considers the inter-relatedness of all parts of a farming system, including the farmer and the soil²
2. Whenever possible use resources found on the farm (notably associated biodiversity in addition to planned biodiversity) instead of imported resources³
3. However, basic improvements must be made to the soil beforehand if its natural characteristics mean that it will never reach, without correction of its main defects and deficiencies, the optimum state of "good soil health"
4. Minimize and use inputs efficiently, including synthetic fertilizer and pesticides⁴
5. Integrate livestock and cropping operations, and where possible include perennials and trees on farms.
6. Manage waste using circular economy principles or other recycling and up-cycling principles.
5. Using inoculation with micro-organisms to enhance soil biological processes and regulations.
6. Ensuring good grazing practices to improve pasture and grazing land productivity through improved plant growth, soil fertility, insect and plant biodiversity, and soil carbon sequestration
7. Minimize greenhouse gas emissions to meet climate change reduction targets of no more than 1.5 degrees C by 2100.
8. Avoid deforestation and conversion of peatlands or high value conservation areas to retain carbon in the soil and biomass for climate change mitigation.
9. Manage waste to re-use as inputs to farms or supply chains and reduce negative environmental impacts on the soil, air and water.
10. re-investing the labor time saved, in field observation and thought on system, learning/exchanging with peers and experts, and involvement in the territory social life.

PRACTICES COMMONLY ASSOCIATED WITH REGENERATIVE AGRICULTURE

1. Minimizing or eliminating tillage to avoid soil disturbance and erosion and, in conjunction with other practices, reduce the oxidation of soil carbon, leading to higher soil carbon content and increased water and nutrient holding capacity.
2. Using cover crops and green manure, retaining residues and reducing or eliminating use of open burning to maintain permanent soil coverage, reduce erosion, increase production of dry matter, allowing carbon sequestration and enhanced nutrient cycling.
3. Applying compost, and animal manure to restore the plant/soil micro-biome and increase soil fertility biologically through release, transfer, and cycling of essential soil nutrients.
4. Using crop rotations, planting of multiple crops, inter-cropping, multi-species cover crops, and planting borders with shrubs and trees to promote plant diversity, habitat for beneficial insects, including bees and encourage rich soil microbial communities for improved ecosystem diversity and function.

REFERENCES

- 1) Burgess PJ, Harris J, Graves AR, Deeks LK (2019) Regenerative Agriculture: Identifying the Impact; Enabling the Potential.
 - 2) Francis, C., Harwood, R., & Parr, J. (1986). The potential for regenerative agriculture in the developing world. American Journal of Alternative Agriculture
 - 3) Hannah Gosnell, Nicholas Gill, Michelle Voyer, 2019, Transformational adaptation on the farm: Processes of change and persistence in transitions to 'climate-smart' regenerative agriculture, Global Environmental Change, Volume 59
 - 4) Regeneration International Website« Regenerative Agriculture Could Save the Planet. Why Doesn't Everyone Know About It? », Regeneration International, 2020. <https://regenerationinternational.org/2020/05/29/regenerative-agriculture-could-save-the-planet-why-doesnt-everyone-know-about-it/>
- What is regenerative agriculture ? 2017 from Regenerative Agriculture Initiative, California State University, Chico and The Carbon Underground. https://www.csuchico.edu/regenerativeagriculture/_assets/documents/ra101-reg-ag-definition.pdf
- Rodale Institute website - <https://rodaleinstitute.org/why-organic/organic-basics/regenerative-organic-agriculture>