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Perspective

Impact of climate on carbon present in soil

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ABOUT THE STUDY

Climate change was not the only threat to soil's role as a sequestering carbon becoming a source of emissions. The way we use land has a significant effect on the amount of carbon that may be deposited in the soil. Climate change poses a significant hazard to global food security, not least due to its impact on soils. Weather and climate patterns may have a significant influence on the organic matter and processes that occur in our soils, as well as the plants and crops that develop from them. Agriculture and land management methods must undergo substantial changes in order to solve the connected challenges of environmental food security and climate change. Agro-ecology, organic farming, conservation agriculture, and agro - forestry are examples of improved agricultural and soil management practises that raise soil organic carbon. They provide fertile soils rich in organic matter (carbon), maintain soil surfaces vegetated, demand fewer chemical inputs, and encourage crop rotations and biodiversity. Healthy soils are the ultimate terrestrial carbon storage. Soils, when maintained sustainably, can play an essential role in climate change mitigation by storing carbon and reducing greenhouse gas emissions in the atmosphere. However, if soils are maintained properly or cultivated utilizing unsustainable agricultural techniques, soil carbon can be released into the atmosphere as carbon dioxide contributing to climate change. The majority of the atmospheric carbon dioxide is produced by biological activities in the soil. Carbon sequestration occurs when atmospheric carbon is absorbed and retained in soil. This is an essential element because the more carbon deposited in the soil, the less carbon dioxide in the atmosphere that causes climate change. The carbon they absorb from the air is taken up by plants. In a process known as photosynthesis, plants use carbon dioxide from the atmosphere, water from the soil, and sunshine to produce their essential nutrition and proliferate. Soils are the biggest terrestrial carbon storage on the earth. Conserving and enhancing carbon *via* wise soil use and land management can assist in climate change mitigation, combating soil and water quality deterioration, and addressing food security. Many of the benefits of soil carbon derived from diverse ecosystem services remain acknowledged or are outside of current products. Farmers and other organisations may ameliorate greenhouse gas emissions from the soil by using strategies including conservation tillage, weed management, and multiple cropping. Such treatments improve organic matter input into the soil while minimizing organic matter degradation. The soil and how we manage it can both help to mitigate the consequences of climate change. Greenhouse gases such as Carbon dioxide and Nitrous oxide are naturally stored in soil, which helps to lower the amount of these gases in the atmosphere. Research into such complex soil organisms is an important element toward improvement of soil development and sustainable. Soil, after the coastlines, is the greatest carbon wellspring and one of the Carbon dioxide building components. Plants and trees absorb Carbon dioxide from the environment and employ photosynthesis to transform it into oxygen and plant biomass such as roots and leaves. Restoring deteriorated grasslands through sustainable grassland management can improve carbon storage in soils and biomass, increase soil moisture capacity, and improve grassland biodiversity.

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