Soil carbon footprints and climate-smart soils

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Carbon is sequestered in the soil in organic (SCSo) and inorganic (SCSi) forms. This sequestration is controlled by different soil properties. SCSo, a boon, enhances the physical and chemical conditions of the soil to improve soil drainage and provide adequate nutrition to the plants. SCSi, contributed mainly by pedogenic calcium carbonates (PCs), is a bane and degrades the soil chemically. Soil acts both as a source and sink of carbon. With the global warming threat looming, conservation of the soil for sustenance has gained more importance in view of its role in providing various ecosystem services, including food production. Therefore, identifying climate-smart soils that can withstand climate change and warming is important. These climate-smart soils will help identify global hotspots for soil conservation. The present study provides a method to measure soil carbon footprints (CFs) to identify climate-smart soils, citing a few examples from tropical India. This effort will help move forward the subject of soil carbon research and its importance for preserving this limited natural resource for humankind. Increased atmospheric carbon footprints (CF) are harmful, while those in the subsurface (soil) are good and will continue to save humanity from the vagaries of climate. It requires global awareness and proper utilization of the soils.

Keywords: Carbon footprints, climate change, climate-smart soils, global warming, sequestration.

SOILS play an important role by removing atmospheric carbon dioxide (CO_2) ... system servi...