

**Global Warming -2020 : Extended Abstract Title: Soil Organic Carbon Stock under Different Land Use Types in Kersa Sub Watershed, Eastern Ethiopia**

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Abstract :

Understanding and assessing soil organic carbon stock (SOCS) within the framework of greenhouse gas emissions and land degradation is crucial in combating climate change and enhancing ecological restoration. The goal of this study was to quantify the current SOCS of major land use types in Kersa sub-watershed, eastern Ethiopia. Replicated soil samples from 0–20, 20–40, and 40–60 cm depth were collected from three major land use types: grazing, cultivated, and fallow lands. Analysis of variance (ANOVA) was used to compare means and Pearson correlation analysis was used to see relationships between selected soil parameters. The results of the study revealed significant ( $P \leq 0.05$ ) difference in SOCS under the different land use types. Soil under grazing land use type had significantly higher SOCS

(42.9 t/ha and 32.9 t/ha) than the cultivated (32.6 t/ha and 26.3 t/ha) and fallow (23 t/ha and 12.5 t/ha) land use types in the surface and subsurface layers, respectively. Soil organic carbon stock decreased with soil depth in all the land use types and showed positive and significant correlation ( $P \leq 0.05$ ) with clay content, while it was negatively and significantly correlated with bulk density. The results show the potential contribution of vegetation cover as a land use to enhance soil organic carbon sequestration and environmental protection.

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