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ESTIMATE OF SOIL ORGANIC CARBON IN KENYA SOILS

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Abstract

Regional soil data, such as soil organic matter expressed in percent organic carbon for representative soil units or major soil types of Kenya, together with such allied data as bulk density, soil horizon, land areas of soil units and vegetation types, was used in estimating soil C pools in Kenya soils. The effectiveness of such an approach was further enhanced by an overlay of vegetation types on soil units or soil types, thus revealing the influence of vegetation interaction on the soil organic carbon content of the underlying soil units or soil types. With the use of the most recent data on Kenya soils for 63 representative soil pedons, the study calculated 2.64 Gt for 43 individual soil units of Kenya and a sum of 6.53 Gt organic C stored in the soils under different land use systems or vegetation types. An estimated 8.9% of this total amount of organic C is stored in the soils under forests which occupy 2.2% of the land. With the use of other different databases, the analysis shows that a total of 8.53 or 4.73 Gt of organic C is stored in the 1m layer of the soils of Kenya respectively. The discrepancy between 8.53 and 6.53 Gt organic C or 4.73 and 6.53 Gt organic C (a difference of about 2 Gt organic C on either side of 6.53), as well as those in other published estimates can probably be attributed to problems in the data bases and differences in methods of soil estimation.