Carbon sequestration in terrestrial ecosystems mitigates the Green House Gases (GHGs) effect and combats land degradation. This makes soil carbon sequestration a vital ecosystem functions that contributes to soil structure, water-holding capacity, cation exchange capacity, and the soils ability to form complexes with metal ions and to store nutrients. However land management practices have significant influence on the ability of soils to store the carbon stocks. This study will be carried out in Murang'a County in the central region of Kenya. The study will assess the potential for soil carbon sequestration udder different land management practices in small holder farms of Murang'a County. Small holder farmers are experiencing declining productivity due to continuous cropping without adequate addition of inputs like fertilizer and manure. Declining soil fertility causes substantial net losses of soil carbon resulting in increased carbon flux to the atmosphere. There is need to sustain efforts for carbon sequestration through sustainable land management practices.' The main objectives of the study are to; measure the amount of soil carbon stocks at different depths under different land use types; assess how the different land management practices affect the amount of organic carbon sequestered by soils and determine if there are significance differences in soil carbon stocks among the two major soil types. This study will sample soils at different soil depths of; 0~30, 30~60 and 60-90 cm to evaluate the soil organic carbon stocks at the three different depths under different land use. Samples will be analysed for soil bulk density, percent organic carbon, Nitrogen, Phosphorous, potassium, pH and C: N ratio. Determination of organic carbon will use Walkley-Black chromic acid wet oxidation method. A questionnaire will be administered to the farmers whose farms will have been identified for soil sampling in order to capture the land management practices 'currently in use. Data collected will be analyzed to generate general or summary statistics. Data will also be subjected to Analysis of Variance to evaluate if there exists significant difference in the vertical distribution of soil organic carbon stocks and cross the land use types and management practices. Effects of land management practices on the soil organic carbon stocks at different depths and in different soil types will also be evaluated. The study is expected to show the potential sequestration capacity of soils in the study 'area under the different management practices and land use types. An evaluation will be done to assess if the stocks available are adequate for carbon market participation. This is expected to inform the policy direction on small holder farmer's participation in the carbon market and also show which land use types and management practices accrue significant carbon stocks. Finally data from this study can be used to model a baseline scenario for future soil carbon stocks assessment and trend analysis in Murang' a County.