World Academy of Science, Engineering and Technology
International Journal of Agricultural and Biosystems Engineering
Vol:12, No:01, 2018

Carbon Sequestration under Hazelnut (Corylus avellana) Agroforestry and Adjacent Land Uses in the Vicinity of Black Sea, Trabzon, Turkey

Authors : Mohammed Abaoli Abafogi, Sinem Satiroglu, M. Misir

Abstract : The current study has addressed the effect of Hazelnut (Corylus avellana) agroforestry on carbon sequestration. Eight sample plots were collected from Hazelnut (Corylus avellana) agroforestry using random sampling method. The diameter of all trees in each plot with ≥ 2cm at 1.3m DBH was measured by using a calliper. Average diameter, aboveground biomass, and carbon stock were calculated for each plot. Comparative data for natural forestland was used for C was taken from KTU, and the soil C was converted from the biomass conversion equation. Biomass carbon was significantly higher in the Natural forest (68.02Mgha^{-1}) than in the Hazelnut agroforestry (16.89Mgha^{-1}). SOC in Hazelnut agroforestry, Natural forest, and arable agricultural land were 7.70, 385.85, and 0.00 Mgha^{-1} respectively. Biomass C, on average accounts for only 0.00% of the total C in arable agriculture, and 11.02% for the Hazelnut agroforestry while 88.05% for Natural forest. The result shows that the conversion of arable crop field to Hazelnut agroforestry can sequester a large amount of C in the soil as well as in the biomass than Arable agricultural lands.

Keywords : arable agriculture, biomass carbon, carbon sequestration, hazelnut (Corylus avellana) agroforestry, soil organic carbon
Conference Title : ICEAB 2018 : International Conference on Ecological Agriculture and Biotechnology
Conference Location : Amsterdam, Netherlands
Conference Dates : January 22-23, 2018