

Abstract

Continuous operation and correct violations of soil tillage on agricultural lands has been reduced yields, which are related to loss of soil organic matter and soil structure degradation. Continue the process of degradation in agricultural land, lead to be left as barren and arid land. Even some cases severity of land degradation is to be extent, which land lost the restore ability and has led to ward desertification. So that are regarded as potential sources of soil erosion and sediment production. In recent years to reduce destructive effects on soils in agricultural lands and compensation for damages, Has been a significant development in how to tillage systems. The Aq Qala plain in Golestan province is one of the regions That has been used new method tillage interest In agriculture. The study Region has been in 25 kilometer of Aq qala. The aim of this study, is estimates and compares the amount of carbon sequestration in soil, and the amount of soil erodibility in Aq Qala plain under different Tillage systems (no-tillage, reduce tillage and conventional tillage). After that field evaluation of treatments, Samples were harvested with a randomized complete block design of 0-25 and 25-40 centimeter of soil depths for each treatment. Parameters studied is included of: Soil Organic Carbon, total Organic Matter, Bulk density, Carbon Sequestration, the index of aggregate stability (Mean Weight Diameter) And Physical parameters of soil (clay, silt, sand), is both depths, that were measured and determined in soil and water Laboratory. Laboratory test the results were analyzed by using of one-way Anova and Dunkan test in Spss software. The results Carbon Sequestration changes showed that there is a significant difference at 5% level between tillage systems, no-tillage and reduced tillage systems with conventional tillage systems. But results Analysis were non-significant for aggregate stability changes and bulk density in tillage systems. Analysis results also showed changes in soil physical parameters, which changes in clay at 1% level and sand at 5% level, Is a significant difference between tillage systems. According to the overall results, advantages of no-tillage system can to established favorable conditions of soil fertility and protection for agricultural land than other tillage methods, in the region. Of coarse it is recommended that implementation of this system be implemented compliance with relevant requirements and the long periods.

Key words: Carbon Sequestration, Erodibility, Tillage systems, Aggregates, Aq Qala.