

Determination of the Effects of Different Tillage Methods on CO₂ Emission and Physical, Chemical and Biologic Properties of the Soil.

Research Area	Soil, Water Resources and Environment
Research Program	Agriculture - Climate Change Interaction P-01
Executive Institute	International Agricultural Research and Training Center Directorate
Supporting Institute/s	Ege University. Faculty of Agriculture. Department of Agricultural Machinery and Technology Engineering - Adnan Menderes University Faculty of Agriculture. Department of Soil Science and Plant Nutrition
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<p>Project Summary: It is crucial to take measures to decrease CO₂ emission and support the studies on global warming which is one of the most fundamental problems in countries over the world. The main purpose of this study, to investigate the effects of different tillage methods on CO₂ emissions, physical, chemical, biological and biochemical properties of soil.</p> <p>The study will be conducted on the International Agricultural Research and Training Center's experimental field in cotton- wheat+ corn (silage) rotation system. Conventional tillage, reduced tillage and no tillage treatments will be applied in randomized block design in three replications in four years. The amount of CO₂ emissions will be measured with CO₂ analyzer at regular intervals. Changes in physical properties such as soil structural stability, bulk density, bulk density and changes in chemical properties such as cation exchange capacity, plant nutrients, soil organic matter, organic C and changes in nitrogen content and also changes in microbiological and biochemical properties such as microbial biomass of C, CO₂ formation, dehydrogenase, alkaline phosphatase, urease, enzyme activities, N-mineralization and some biochemical and microbiological analysis will be determined.</p> <p>In the end of this study, comparison of tillage methods in terms of soil, water and environment, and determination of the effects of different tillage methods on some physical, chemical, biological and biochemical properties of the soil and especially on CO₂ emission will be possible. This study will develop capacity for adaptation to climate change and avail us to quantify the amount of the greenhouse gas emissions from agriculture at regional level for short-term, national and global level for long-term.</p> <p>Key words: Tillage Methods, soil respiration, Microbial biomass-C, CO₂ Emissions, Soil Enzyme Activity,</p>	