

Influence of different tillage systems on yield of corn (*Zea mays*): an overview

Abstract

Corn (*Zea mays* L.) is the world's most important crops after wheat, barley and rice. Among the factors that influence corn productivity is tillage practices. Tillage operation affects the physical properties of soil structure and will change specific gravity of soil, apparent tolerance and thermal conductivity. Also reports showed that tillage effects had advantages on water distribution, porosity, root distribution and crop yield. Change in soil porosity leads to the change in soil aeration or air transfer and water soluble into the soil which may reform the crop production. Researchers reported that no tillage causes the decrease of soil porosity space which can have reverse effect on the rain fed crop yield. Between 1970 and 1980 there appeared considerable changes in the concept of tillage requirement for produce of products. These changes were energy consumption reduction and use of minimum tillage methods which often lead to reduction of soil erosion, and also no tillage for seed bed preparation. The rotary cultivator method which has been the common practice for corn has some disadvantages and it would be worthwhile to compare it with other tillage methods. The shallow depth of ploughing and degradation of the soil because of intensive impact of the rotary blade with the soil has been identified as problems of this tillage method. Knowledge of soil physical properties of the areas with annual rain fall of above 1000 mm is necessary and important since the use of an unsuitable tillage method can lead to soil erosion.

Keyword: Tillage systems; Soil properties; Corn; Energy