

EFFECT OF DIFFERENT TILLAGE SYSTEMS ON SOME SOIL PHYSICAL PROPERTIES AND THEIR INFLUENCE ON GROWTH AND YIELD OF WHEAT (*Triticum aestivum* L).

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ABSTRACT

A field experiment was conducted to study the effect of different tillage systems on some soil physical properties and its effect on growth and yield wheat (*Triticum aestivum* L.). Randomized Complete Block Design was with three replicates. The treatments consist of three tillage systems:

1. no tillage system
2. Mold board plow + Rotivator plow
3. Mold board plow + Grader + Subsoiler.

The results showed superiority of tillage treatments upon no tillage system in reducing bulk density. Mold board plow + Rotivator plow recorded (1.37, 1.40 and 1.45) M gm.m⁻³, and Mold board plow + Grader + Subsoiler treatment recorded (1.35, 1.39 and 1.42) M gm.m⁻³ at stages of tillering, flowering and physiological maturity, respectively in compression with no tillage which recorded (1.41, 1.45 and 1.52) M gm.m⁻³ at the same growth stages. Tillage treatments recorded the highest values of Saturated hydraulic conductivity at tillering and flowering stages; Mold board plow + Rotivator plow recorded (2.31 and 2.71) cm.h⁻¹ and Mold board plow + Grader + Subsoiler treatment recorded (2.52 and 3.84) cm.h⁻¹ whereas no tillage treatment recorded (1.96 and 1.82) cm.h⁻¹ respectively. The results showed a significant increase in plant growth characters including: number of spikes, grains per spike and plant yield by using Mold board plow + Grader + Subsoiler treatment. The results refer that the treatment of Mold board plow + Grader + Subsoiler gave the best soil physical properties and best wheat yield there was no significant differentness between zero – tillage and moldboard and motivate treatment .