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
of

Agriculture and Forestry

**Effect of Tillage Implements and Operating Speeds on Soil Physical Properties  
and Wheat Emergence**

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**Abstract:** Tillage is an operation to improve soil conditions for optimal crop emergence and yield. Different tillage implements and operational variables may affect soil physical properties. An experiment with different primary tillage implements and operating speeds and their influence on physical properties of loamy soil and wheat seedling emergence was conducted in northeast Anatolia in 2003. The compared tillage implements were: 1. Moldboard plow (MP); 2. Slatted moldboard plow (SMP); 3. Disk plow (DP); 4. Chisel plow (CP); and primary tillage + rotary harrow systems (mounted at the back of this primary tillage): 5. MPH, 6. SMPH, 7. DPH, and 8. CPH. In the experiment, the operating speeds used for each tillage implement were 1.25, 1.5, and 1.75 m s<sup>-1</sup>. Effects of tillage implements on mean weight diameter (MWD), moisture content, penetration resistance, bulk density, and emergence rate index (ERI) were determined. Tillage implements had a significant effect on soil physical properties and ERI. The best ERI and optimum soil physical properties were found with the operating speed of 1.5 m s<sup>-1</sup>.

**Key Words:** Primary soil tillage, soil physical properties, wheat emergence

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