

Effect of Various Tillage Systems on Soil Compaction

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Abstract : The prime importance of tillage is that it prepares the land where the seed easily germinate and later the plant can well establish. Using different types of equipments driven manually or by powered, machines make the soil suitable to place the seeds into the desirable depth. Moreover, tillage loosens the compacted layers. Heavy equipment and tillage implements can cause damage to the soil structure. Effect of various tillage methods on soil compaction was studied in Rabi season of 2013-14 at village Ladwa, Hisar, Haryana (India). The experiments studied the effect of six tillage treatments i.e. no tillage or zero tillage (T1), tillage with rotavator (T2), disc harrow (T3), rotavator + sub soiler (T4), disc harrow + sub soiler (T5) and power harrow (T6) on soil compaction. Soil compaction was measured before tillage and after sowing at 0, 30, 60 and 90 days after sowing. No change in soil resistance was recorded before and after no tillage treatment. Maximum soil resistance was found in zero tillage followed by disc harrow up to 150 mm soil depth. Minimum soil resistance was found in rotavator immediately after the tillage treatment. However, the soil resistance approached the same level as it had been before the tillage after the soil strata where the implement cannot reach.

Keywords : tillage, no tillage, rotavator, subsoiler, compaction

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