

## Failure of Agriculture Soil following the Passage of Tractors

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**Abstract :** Compaction of agricultural soils as a result of the passage of heavy machinery on the fields is a problem that affects many agronomists and farmers since it results in a loss of yield of most crops. To remedy this, and raise the overall future of the food security challenge, we must study and understand the process of soil degradation. The present review is devoted to understanding the effect of repeated passages on agricultural land. The experiments were performed on a plot of the area of the ESIER, characterized by a clay texture in order to quantify the soil compaction caused by the wheels of the tractor during repeated passages on agricultural land. The test tractor CASE type puissance 110 hp and 5470 kg total mass of 3500 kg including the two rear axles and 1970 kg on the front axle. The state of soil compaction has been characterized by measuring its resistance to penetration by means of a penetrometer and direct manual reading, the density and permeability of the soil. Soil moisture was taken jointly. The measurements are made in the initial state before passing the tractor and after each pass varies from 1 to 7 on the track wheel inflated to 1.5 bar for the rear wheel and broke water to the level of valve and 4 bar for the front wheels. The passages are spaced to the average of one week. The results show that the passage of wheels on a farm tilled soil leads to compaction and the latter increases with the number of passages, especially for the upper 15 cm depth horizons. The first passage is characterized by the greatest effect. However, the effect of other passages do not follow a definite law for the complex behavior of granular media and the history of labor and the constraints it suffers from its formation.

**Keywords :** wheel traffic, tractor, soil compaction, wheel

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