



ORIGINAL ARTICLE

SIGNIFICANCE OF TILLAGE TECHNIQUES ON AMELIORATION OF SOME SOIL PROPERTIES AND MAIZE PRODUCTION: A REVIEW

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Abstract: Selection of appropriate tillage practices is crucial for better seed placement, resulting in better emergence and a more prosperous crop. Conventional tillage practice changes the characteristics of soils such as bulk density (BD) and moisture. In this context, conventional tillage can cause soil organic matter to rapidly mineralize and lead to the loss of soil carbon (C) and nitrogen (N). Conservation tillage is an agronomic practice that maintains soil properties such as soil structure, aggregation, aggregate stability, and porosity. However, conservation tillage CST methods could result in a reduction in pore space and an increase in soil strength and need time before reaping the desired benefits. No-tillage (NT) as a type of CST practice allows for an earlier seeding procedure compared to traditional tillage, since direct seeding does not require tillage prior to seeding, furthermore can reduce planting costs. No-till farming can severely impact soil in multiple ways, including increased nutrient stratification and increased (BD). No-till adoption may result in the layering of inorganic N and other nutrients. Through periodic soil disturbances, those nutrients will be redistributed. Researchers have shown great changeability in maize yield response to various tillage treatments, which are often determined by preceding crops and physical soil drainage characteristics. Maize growers, however, are still concerned about yield variability with tillage methods. The purpose of this paper is to summarize literature concerning tillage practices and their interaction effects on the soil environment. Additionally, to describe how different tillage practices affect yield and identify areas that require further study.

Key words: Conventional tillage, Grain yield of maize, No-tillage, Soil chemical properties, Soil properties.

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