

## **Tillage impacts on soil carbon level and aggregate stability under rice-wheat cropping system**

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**ABSTRACT :** Field experiment was conducted to assess the impact of different tillage practices in rice-wheat cropping system on water stable aggregates (WSA), mean weight diameter (MWD), geometric mean diameter (GMD), aggregate size distribution (ASD) and soil organic carbon in aggregate size distribution for two consecutive years. The MWD, GMD and WSA all were found to be significantly higher in zero tillage treatments for both rice and wheat, but insignificant over the years, which shows the repeatability of the results. The average MWD, GMD, WSA and SOC were 3.16 mm, 1.40 mm, 680 g/kg and 12.75 g/kg (for aggregate size class of 2-4.75 mm) respectively, for zero tilled rice and wheat crops, which were found to be significantly superior over other tillage treatments in rice-wheat cropping system over the years. Zero tillage treatments significantly increased the proportion of macro-aggregates. Moreover greater SOC storage was also observed in macro-aggregates, suggesting the importance of continuing zero tillage for better soil structure and soil quality.

**Key Words:** Geometric mean diameter (GMD), Mean weight diameter (MWD), Soil organic carbon (SOC), Water stable aggregates (WSA).