Abstract:

This study was conducted to monitor the effect of tillage on potentially mineralizable nitrogen during the growing season of
rain-fed sorghum (*Sorghum bicolor*). Two sites (with conventional tillage & traditional tillage) located southern central clay
plain were selected. Auger soil samples were taken from the 0-30 and 30-60 cm soil depths every two weeks during the rainy
season. Results showed that content of total mineral nitrogen (NH_4^+-N+NO_3^--N) in traditional tillage was significantly higher
than that obtained under conventional tillage. Accordingly, mineral nitrogen under traditional tillage determined after 2, 4, 6, 8
and 10 weeks were 366.2, 217.78, 206.12, 202.86, 189.8 kg ha^{-1}, respectively. Respective values for conventional tillage were
139.01, 160.34, 166.13, 177.18, 212.08 kg ha^{-1}. This possibly reflects the effects of accumulation of undisturbed crop residues
in traditional tillage, thereby, securing more N. Therefore, traditional tillage system is characterized by fewer chances of
leashing of NO_3^--N. It could be concluded that less soil disturbance with traditional tillage provides the subsequent crop with substantial amounts of mineral N during the growing season, unlike conventional tillage where NO_3^--N was leached down
beyond the rooting zone. This should also be taken into consideration during establishment of N fertilization budget.