IMPACT OF LONG TERM (9 YEARS) DEPOSITION OF ANIMAL WASTES ON SOIL PHYSICAL PROPERTIES IN ABEOKUTA, SOUTH-WESTERN NIGERIA-IMPLICATIONS FOR SOIL MANAGEMENT

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ABSTRACT

Soil profile pits were examined to evaluate the effects of deposition of animal wastes on some soil physical properties. One profile pit each was dug at pig, cattle, sheep and poultry waste dump sites and one at a control site in an area where animal wastes have not been disposed of. It was observed that soil bulk density was significantly lower at animal waste dump sites than non-dump site but a saturated hydraulic conductivity (K_s~ of 1.27 cm min-^{3} at the non-dump site was significantly higher than K_s of 0.30 - 0.88 cm min- obtained at all the animal waste dump sites, probably due to creation of water repellent property as a result of long term large quantity deposition of animal wastes. At the surface layer (0-20 cm) of the soil profiles, a clay dispersion ratio (COR) of 9.5% at the control site was significantly higher than that of 6.9 - 9.3% obtained at animal waste dump sites, implying higher microaggregate stability at the surface of the dump sites. Similarly, poultry waste had significantly lowest COR (6.9%) and highest K_s (1.16 cm min-^{3}) than other animal wastes at the uppermost soil layer. Therefore, accumulation of animal wastes should be avoided by spreading them evenly on farm land intended to be used for future crop husbandry.

Keywords: Animal waste; microaggregate stability; soil physical properties; soil profile; water repellent