

Soil fertility depletion has been described as the single most important constraint to food security in West Africa. Over half of the African population is rural and directly dependent on locally grown crops. Further, 28% of the population is chronically hungry and over half of people are living on less than US\$ 1 per day as a result of soil fertility depletion.

Soil organic carbon (SOC) is simultaneously a source and sink for nutrients and plays a vital role in soil fertility maintenance. In most parts of West Africa agro-ecosystems (except the forest zone), the soils are inherently low in SOC. The low SOC content is due to the low shoot and root growth of crops and natural vegetation, the rapid turnover rates of organic material as a result of high soil temperatures and fauna activity particularly termites and the low soil clay content. With kaolinite as the main clay type, the cation exchange capacity of the soils in this region, often less than 1 cmol kg^{-1} , depends heavily on the SOC. There is a rapid decline of SOC levels with continuous cultivation. For the sandy soils, average annual losses may be as high as 4.7% whereas with sandy loam soils, losses are lower, with an average of 2%. To maintain food production for a rapidly growing population, application of mineral fertilizers and the effective recycling of organic amendments such as crop residues and manures are essential especially in the smallholder farming systems that rely predominantly on organic residues to maintain soil fertility. There is need to increase crop biomass at farm level and future research should focus on improvement of nutrient use efficiency in order to increase crop biomass. Research should also focus on ways of alleviating socio-economic constraints in order to increase the legume component in the cropping systems. This will produce higher quality fodder for the livestock and also increase biomass at farm-level. This paper reviews various strategies and lessons learnt in improving soil organic carbon status in West Africa soils.

