

Effect of Different Land Uses on Soil Characteristics and Production in Aiyetoro Enclave of Ogun State

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Abstract

One of the major problems confronting modern day agriculture is the inappropriate allocation of good agricultural lands for other purposes especially of quicker economic returns. Hence, there is a need to assess the effect of different land uses on the soil characteristics and determines its implication on soil productivity especially in the Nigeria where food production is still a major challenge. Five different land uses; Building Site (BS), Secondary Forest (SF), Fallow land (FL), Arable Farm (AF) and Tree cropped Farm (TF) were selected and soil samples at surface (0-15 cm), sub-surface and (15-30 cm), and profile depths were collected for laboratory analysis. Most of the soil properties correlated positively at the surface and sub-surface depths ($p < 0.05$). The bulk density, structure, Organic carbon, Organic matter, soil pH, CEC, Nitrogen, Available Phosphorus, exchangeable bases, and available micronutrients were affected by land use. %Nitrogen, %Carbon and %Organic matter were highest significantly at the surface and sub-surface depths in SF. Secondary forest also had the highest CEC (7.47) at the surface depth although AF had the highest (6.55) at the sub-surface. Exchangeable Ca, Na and Mg were also highest in SF although not significantly different from the other land uses. pH values of all the land uses were close to neutral at the surface and sub-surface depths. The study indicated that secondary forest land use option was the best followed by tree cropped farm for promoting sustainable agricultural development and in order to also meet up with the food demand of the ever increasing world population.