
Changes in the Characteristics of a Degraded Paleustult Under Fallow in Southwestern-Nigeria

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ABSTRACT A paleustult in SW-Nigeria was continuously cultivated for about 15 years and this resulted in physical and chemical degradation of the soil. The potentials of two shrub species: *Leucaena leucocephala* and *Gliricidia sepium*; a herb: *Chromolaena odoratum* and a grass: *Panicum maximum*, in the regeneration of the soils' physical and chemical properties' were assessed. Results showed that the ultisol under *C. odoratum* and *P. maximum* has significantly lower ($p < 0.05$) gravel content (5.5%), and higher clay content (21.5%) than in other plots. Similarly, the erodibility indices for the soils under *C. odoratum* and *P. maximum* were significantly lower ($P < 0.05$) than in other plots. Total porosity was significantly lower ($P < 0.05$) in the soils that were continuously cultivated than those under fallow. *L. leucocephala* significantly increased the organic matter, available-P, exchangeable Ca & K content of the soil than other plant species. Next in potential to improve the physical and chemical properties of the degraded soil is *Gliricidia sepium* while the grass fallow appeared to be the least effective. It is suggested that to improve the physical and chemical properties of the degraded soils and reduce the length of fallow period in the region, *L. leucocephala*, *G. sepium* and *C.odoratum* could be cultivated as fallow species instead of the usual bush fallow system. The result will be significant reduction in the length of fallow period, more intensive and productive landuse, increase in crop yield and this will translate into increased income to farmers and at the same time ensure sustainable environment.

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