

CHARACTERIZATION AND SUITABILITY EVALUATION OF RUBBER GROWING SOILS OF NIGERIA

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Morphological, physical and chemical characteristics of the rubber growing soils of south-western and south-eastern Nigeria were studied. The terrain is flat to gently sloping. The soils are well drained, deep and generally sandy with clay content ranging from 1.2 to 35 per cent, of low fertility and very acid (pH 4.2) to moderately acid (pH 5.5). Effective cation exchange capacity ranged between 1.56 and 8.93 cmol per kg soil. The organic carbon, total N and available P ranged from 1.1 to 42.7, 0.04 to 2.8 g per kg and 2.4 to 24.2 µg per g respectively. Soil structure varied from granular on the surface to weak moderate angular blocky and subangular blocky in the subsoils with friable to slightly sticky consistency.

The soils were found to be generally suitable for rubber (*Hevea brasiliensis*) growth with only slight limitations of fertility and low clay content in most areas and a threatening erosion around Calabar. The suitability of soils from different areas was in the order : Okhuo and Benin > Akwete > Odagwa > Calabar.

Key words : *Hevea brasiliensis*, Soil characterization, Soil productivity, Suitability evaluation.

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INTRODUCTION

The rubber growing belt of Nigeria comprises of the south-eastern and south-western parts of the country extending from southern part of Ondo to Cross River States. The area is situated within longitude 4° 20' to 8° 30' E and latitude 4° 50' and 5° 20' N. Annual rainfall usually exceeds 2000 mm and the mean temperature is about 26 °C. The soils are underlain by cretaceous and tertiary sediments of the Abeokuta, Ewekoro, Itaro, Benin, Nsukka, Imo and Ameki formations (Kogbe, 1975). Greater part of this area is generally termed as 'acid sands' and is derived from unconsolidated sedimentary deposits of the Miocene - Pleistocene periods (ILACO-NEDECO, 1966).

The soils are generally characterized by deep, well drained pedons with sandy texture and diffused horizons. Although these soils in their natural cover support luxuriant vegetation, they have been described as poor due to excessive leaching (Timker and Ziboh, 1959; Enwezor *et al.*, 1981; Lekwa and Whiteside, 1986). Despite these very widely held views of poor fertility the soils have been rated as having immense agricultural potential for tree-crops (Ataga *et al.*, 1981).

Several characterization studies with emphasis on chemical and pedological parameters are available for these soils (Lekwa and Whiteside, 1986; Omenihu, 1989). Most of the schemes used in characterizing the