

Assessment of Soil Fertility for Cocoa Production in Kwara State: Southern Guinea Savanna Zone of Nigeria

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KEYWORDS Kwara. Soil. Fertility. Cocoa Production. Fertilizer. Application

ABSTRACT Cocoa industry that had contributed substantially to the growth of Nigerian economy suffered decline since the mid-1970's due to farm abandonment, poor pricing as a result of poor quality produce and rural-urban drift in most cocoa producing communities. Hence, the Nigerian government established the National Cocoa Development Committee (NCDC) with clear terms of reference to revamp the ailing cocoa economy particularly through rehabilitation and replanting most especially in marginal areas such as the Southern Guinea Savanna zone of Nigeria. Part of the zone includes Kwara State and soils of the southern part of the state comprising eight local Government Areas (LGAs) were evaluated for the suitability for cocoa production. The study was conducted using stratified-random sampling technique to a depth of 90cm. Analytical results indicated that the soil pH of the eight LG areas were between 5.58 -7.16 while Oke-Ero LGA had the minimum sand fraction of 540.0g/kg and Offa LG had the highest sand fraction of 677.20g/kg. The silt fraction of the soil ranged from 81.85g/kg in Ekiti LGA to 201.40g/kg in Offa LGA. The total soil nitrogen was at the moderate range of 0.81g/kg in Asa LG to 1.44g/kg in Isin LG while the available P in all the eight LGAs were far below the critical level required for cocoa production. The available P ranged from 2.28mg/kg in Ekiti LGA, to 6.41mg/kg in Ifelodun LGA. The exchangeable potassium ranged from 0.28 cmol/kg in Irepodun LGA to 0.62cmol/kg in Oyun LGA. Similarly, the soil organic carbon ranged from 8.76g/kg soil in Irepodun LGA to 13.06g/kg in Oke-Ero LGA. It is therefore essential that phosphate fertilizer be applied in the management of soils in all the LGAs evaluated. Hence, each of the LGAs areas namely, Asa, Oyun, Isin, Oke-Ero, Irepodun, Ekiti, Offa and Ifelodun would require 145 – 350, 90 – 120, 114 – 160, 174 – 190, 25 – 60, 184 – 192, 135, and 130 – 200 P₂O₅/kg/ha respectively. It is also recommended that there should be irrigation facilities during the dry season because of the high level of sand fraction coupled with low annual rainfall in the areas.