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Effect of Organic Fertilizer Fortified with Phosphate Fertilizers and Arbuscular Mycorrhizal Fungi Inoculation on the Growth of Cashew in Two Ecologies in Nigeria

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KEYWORDS Organic Fertilizer. Cashew. Growth. Phosphate Fertilizers. Arbuscular Mycorrhizal Fungi

ABSTRACT Cashew (*Anacardium occidentale, L.*) is an important export-earning crop in Nigeria. Its productivity is being limited mostly by soil fertility particularly phosphorous deficiency among others. Investigations were conducted to assess the influence of organic fertilizer fortified with inorganic phosphate fertilizers and arbuscular mycorrhizal fungi (AMF) on the growth of newly transplanted cashew (four months old at transplanting) in two ecologies in Nigeria. The experiments were conducted in the fields of Ibadan and Uhonmora in a split-split plot design with three replications involving AMF inoculation as main-plot factor at two levels (with and without), organic fertilizer made from ground cocoa pod husk applied at three levels (0, 2.5 and 5tha^{-1}) as sub-plot factor and phosphate fertilizers at 0 and 30kg P_2O_5 ha^{-1} from single super phosphate and Sokoto rock phosphate (SRP and SSP) sub-sub-plot factor. Organic fertilizer applied at 2.5tha^{-1} significantly ($p<0.05$) increased the height of cashew in Uhonmora by 20 % at 21 MAP compared to the control. Application of SSP in combination with 2.5tha^{-1} of organic fertilizer increased plant height significantly at 12 and 18 MAP by 84% and 52% respectively compared with the control in Uhonmora. In Uhonmora, organic fertlizer applied at 5t/ha improved leaf-P marginally by 10 % compared to the control, whereas, in Ibadan, organic fertilizer significantly ($p<0.05$) improved leaf-P by 33 %. Sokoto rock phosphate (SRP) had comparable effect with SSP on the growth of cashew, hence, SRP a viable alternative for cashew production.