

3RD WORLD BIOTECHNOLOGY CONGRESS

December 03-04, 2018 Sao Paulo, Brazil

Impact of mineral fertilizer on the yield of groundnut and soil available phosphorus in the Karaga district of Ghana

Jefferson Addo

University of Camerino, Italy

Field experiments were carried out to ascertain the impact of mineral fertilizer application on the yield of groundnut and the soil available phosphorus at Nyong Guma, Pishegu and Cheshegu. Mineral nutrients applied were phosphorus(P), potassium(K), magnesium(Mg), sulphur(S), zinc(Zn) and boron(B). Triple superphosphate(TSP) fertilizer was used for P, potassium chloride(KCL) for K, zinc sulphate monohydrate(HOSZn) for Z, magnesium sulphate (MgSO₄) for Mg and S and finally borax for B. The experiments were laid in a randomized complete block design(RCBD) with six treatments. Response parameters measured were shooting biomass at 50% flowering, grain yield, agronomic efficiency and value cost ratio. Buffer rows were created to avoid over-spill of inputs between plots and the non-leguminous crop was used as a reference crop in the case of estimation of biological nitrogen fixation. Soil pH was determined by using temp pH meter. Barkley and Black method were used to determine the organic carbon. Kjeldahl distillation method was used to determine total nitrogen. Bray 1 extraction method was used to determine phosphorus. Exchangeable cations were determined using ammonium acetate at pH of 7.0. All data were subjected to Analysis of Variance (ANOVA) and means were separated using GENSTAT statistical package 12th edition. Least significant difference (Lsd) at 5% probability level was used to compare the treatment means. Chinese variety of groundnut was used and planted at a spacing of 60cm between rows and 20cm between plants for spreading type or 50cm row and 15cm plant to plant for erect types. None of the mineral fertilizers applied significantly ($P < 0.05$) increased in shoot biomass. The use of PK increased the biomass yield at 50% flowering by 62% over the control. The sole application of P yielded the highest agronomic efficiency. The use of PKMgS had the highest grain yield of 800kg/ha which was however not a significant ($P < 0.05$) increase over control in all the study sites. All the mineral fertilizer application options were not cost effective.

nanacampa@yahoo.com

Notes: