ABSTRACT

Poor crop productivity, high cost of inorganic fertilizers and low crop response to inorganic fertilizers are major problems that affect sustainability of crop production in Kenya. Application of inorganic fertilizers at rates much below the recommendation, which is mainly due to the limited economic capacity of smallholder farmers, has become the underlying cause of poor crop productivity along with the worsening soil acidity. Hence, the present study was carried out to find out the effect of integrated soil fertility management on the productivity of tea Timbilil tea estate. Kericho, Kenya. The trial was set up in a Randomized Complete Block Design (RCBD) with three replicates. Forty-two composite soil samples were collected randomly from each of the experimental plots. The data collection process included soil sampling during the short rain season in 2017 and annual tea yield sampling. The samples were analyzed for total organic matter, nitrogen content, bulk density, porosity, soil pH, porosity, particle density and soil moisture content. The data obtained were subjected to analysis of variance (ANOVA) using MSTAT-C programme package. SPSS version17.0 was used to analyse Pearson correlation and all the data presented in tables and figures. The tea yields determined showed a weak positive correlation between SOM and yields.The tea yields determined showed a weak positive correlation between SOM and yields. Results showed that fertilizer types significantly ($p \leq 0.05$) affected SOM with enriched sheep manure giving the highest values. Fertilizer rates had no significant ($p \leq 0.05$) difference on SOM. Fertilizer application at the highest rate of 240 kg N/ha had the lowest SOM content, which means high fertilizer application, causes more harm than good.From the results obtained it can be concluded that enriched manures tend to increase SOM content in soil which improve productivity and is recommended especially in the tea industry