

The effect of different levels of NPK fertilizers on the yield and yield components of mango (*mangifera indica* L)

To maintain productivity of trees in the long term and sustain production capacity of mango trees, application of nutrients, particularly of nitrogen, phosphorus and potassium (NPK) based on its availability in the soil and plant requirement is necessary management practice in mango orchard. Nutrients are required for fruiting, while at the same time trees are allowed to grow and maintain sufficient vigour for producing high yields in the following season. This study aimed at finding out the effect of various levels of N.P.K fertilizers on the yield and yield components of two conventional mango varieties in Kenya and specifically: (I) evaluate the influence on fruit yield of the two varieties under different NPK regimes; (2) examine the effect of various N.P.K levels on the various yield components; (3) evaluate the influences of NPK levels on the internal and external qualities of the two varieties; and (4) examine and detect the optimum dose of fertilization source. A field experiment conducted in Ajigo sub-location, Bondo Township location, Maranda division of Bondo district in Siaya county on a sandy-clay soil of low fertility, with NPK at 0.05% 0.34%, 0.36% respectively, to study the effects of different rates of NPK application on the yield of two sets of conventional mango varieties. In randomized complete block design replicated three times, each plot (represented by one mango tree) received 40Kg of farm yard manure. Twenty four trees of uniform size and vigour under similar cultural conditions were selected for this study. Composite soil sample was analyzed for physico-chemical composition and leaves sampled for chemical analysis. Data were collected for yield, fruit size and numbers, flowering density trunk cross-sectional circumference and laboratory analysis of fruits for *B*-carotene, vitamin C, calcium and iron. The data on yield and yield components parameters were individually subjected to the analysis of variance while those on internal quality parameters will be compared with those established elsewhere, as affected by leaf NPK contents. Results indicated that: (I) positive and significant relationship between NPK rates and yield per tree and number of fruits per tree for both varieties; (II) non significant relationship between of NPK rates and flowering density; (III) contents of fruits was positively and significantly influenced by NPK rates in both cultivars, while in Apple cultivar, NPK rates influenced vitamin C content of fruit; and (IV) positive and significant relationship between NPK rates and fruit weight in Apple variety. In conclusion, high levels of N.P.K resulted into improved fruit numbers per tree and give rise to high yield per tree. In certain varieties, fruit weight may also increase with higher levels of NPK levels also improve the internal qualities of the resultant fruit by improving the contents of *B*-carotene and lutien.