

**INFLUENCE OF INORGANIC FERTILIZERS ON YIELD AND QUALITY
OF TISSUE CULTURE BANANA (*Musa Sp.*)
RATOON CROP**

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ABSTRACT

This study investigated the influence of in-organic fertilizers on the post harvest fruit quality characteristics of tissue culture banana (*Musa* sp.) cultivar giant Cavendish ratoon crop. The fertilizer rates under investigation in this trial were; Nitrogen (N) at 400kg/ha, half rate applied in the form of urea and a control with no Nitrogen applied. Phosphorous (P) at 50kg/ha applied in form of TSP and potassium (K) at 600kg/ha, half rate applied in the form of MOP and a control with no K applied. Micro-nutrients were supplied as follows; Magnesium (Mg) at 60kg/ha, Zinc (Zn) at 6kg/ha, Molybdenum at 0.5kg/ha and Boron at 1kg/ha. Post harvest assessment was done on all the treatments.

Day 0 was designated the day when ripening was commenced. Three hands from each treatment were ripened at 20°C at 90% ± 5% relative humidity until fully ripe stage six. Passion fruits were used to provide ethylene for ripening purposes. The bananas were harvested at three-quarter stage of maturity were harvested from an already existing fertilizer trial; undertaken at an established banana farm in Maragua Ridge, Maragua district. Three equatorial region hands were obtained from which three fingers per hand were analysed separately in the laboratory. On harvesting, the hands were weighed, washed to remove latex, then packed in crates and transported to JKUAT food science laboratory. Three hands from each treatment were ripened at 20°C at 90% relative humidity until fully ripe stage six. The fruits from the different treatments were analyzed for total soluble solids content, total titrable acidity, ascorbic acid content, individual sugars (sucrose, fructose and glucose) and their levels, ripening, peel colour, peel and

pulp ratio, chlorophyll content, mineral content, moisture content, flavour and flesh firmness. Observations on the Shelf life were made. The fruit were assessed every second day during ripening period. Sensory analysis on the ripened fruit was done using 20 panelists for 15 out of the 20 harvests. Fresh weight decreased consistently and slowly between day 0 and day 6. Pulp moisture content was significantly different for fruits from different treatments ($p=0.002$). Fruits from 400kg/ha N, 50kg/ha P, Micro-nutrients treatment had the lowest pulp moisture content while those from 400kg/ha N, 50kg/ha P, 600kg/ha K, micro-nutrients treatment had the highest pulp moisture content. Total soluble solids were not significantly affected by the treatments ($p=0.3$). There were significant differences ($p<0.05$) in the measured bunch quality characteristics between the treatments. The yield was affected by macronutrients and micronutrients application rates. Inorganic fertilizers showed promise of increasing and stabilizing yields of tissue culture bananas ratoon crops.