

Improvement of the growth, yield, and tuber quality of purple yam through macro and micronutrient fertilization

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ABSTRACT

The high demand for yam as food and for industry calls for the development of new technologies and innovations that will increase yam production. This study was conducted to assess the effects of the addition of different levels of micronutrient fertilizers (Biozome-200 micronutrient soil conditioner) to NPK fertilizers on the growth and yield of purple yam. Seven sets of experiments were conducted in six years employing different fertilizer treatments representing five levels of inputs. Purple yam (VU - 2 variety) was used as planting materials and these were planted at a distance of 1 m X 50 cm at a depth of 10 cm.

Results showed that addition of 4 to 16 kg/ha of Biozome-200 to 150-50-150 kg/ha of NPK fertilizers produced significantly bigger yams and higher plant biomass as compared to the unfertilized plots and those applied with NPK fertilizers only. Total tuber yields ranging from 15 tons to 26 tons/ha was obtained through the application of 150-50-150 kg/ha N - P₂O₅-K₂O + 4 to 16 kg/ha Biozome-200 using 100 gm tuber setts as planting materials. In terms of tuber quality, plant tissue analysis of tubers showed that purple yams that were fertilized with macro and micronutrients have higher amounts of total N, K, Zn, Ca, Mg, Fe, Mn, and Cu as compared to the unfertilized plants. These results implied the improvement of the nutritional content of purple yam tubers with macro and micronutrient addition.

Keywords: purple yam, macronutrients, micronutrients, yield, income.