ABSTRACT

A sole inorganic fertilizer application study was done in southern Mali in Sikasso during the rainy season 2016-2017 to assess its effect on cassava growth and yields parameters. A randomized complete block design (RCBD) experiment with three replicates in two sites was used. The inorganic fertilizer used was the NPK (15-15-15) at 4 rates (0 kg^{ha-1}, 100 kg^{ha-1}, 200 kg^{ha-1} and 300 kg^{ha-1}). Two cassava genotypes, *Bonima* (local) and *Sika* (from Ghana) were used in Finkolo and Loulouni. The fertilizer rates were applied in splits at equal quantity, two weeks after planting and the rest two months later. Analysis of soil nutrients before planting and plant leaves N, P and K content were performed. Data on numbers of branches, number of tubers per plant and fresh tuber yield were collected. The Least Significant Difference (LSD) at p=0.05 served to separate means. Our findings showed that *Sika* genotype and 300 kg ha^{-1} of NPK are the best genotype and NPK (15-15-15) rates respectively in the two study sites. For the N, P and K content in the cassava leaves, the fertilizer effect was significant on P at 5 percent; while the N and K uptake were found to be affected by the site effect. Therefore site conditions should be considered when growing cassava. The Application of 300 kg ha^{-1} of NPK increases cassava production allowing smallholder farmer's a progress for food security and higher profit. The results will inform and brief policies makers on cassava production in the country.