

ABSTRACT

The Effect of Plant Density and Fertilizer on Growth, Development and yield of Plantain (*Musa acuminata* x *M. balbisiana*, AAB)

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The effects of varying plant densities and N, K and Mg levels on the growth, development and yield of plantain (*Musa acuminata* x *M. balbisiana*) were examined in a factorial experiment; parameters of growth and yield were measured during the life of the experiment which included one plant and one ratoon crop.

Plant density had a major effect on the yield and yield components which increased as density increased from 2,050 to 2,989 plants ha⁻¹. Yield increased from 32.3 to 41.7 t ha⁻¹ for the plant crop, 30.6 to 40.8 t ha⁻¹ for the ratoon crop and 62.9 to 82.5 t ha⁻¹ for the combined plant and ratoon crops.

The length of the various vegetative and reproductive phases was also significantly influenced by density. The length of the reproductive phase of the plant crop increased from 94 to 98 days as density increased. The reproductive phase of the ratoon crop was longer than that of the plant crop and ranged from 100 to 115 days.

The levels of applied N ranged from 210 g to 315 g plant⁻¹, K from 330 g to 495 g to 660 g plant⁻¹ and Mg from 56 g to 84 g plant⁻¹. These nutrient levels had little effect on yield and yield components or on the growth parameters measured.

The growth of the plantain crops was affected by levels of variability which included an excess and a deficiency of soil moisture at various times, soil heterogeneity and planting material.

The results from this experiment showed combined yield of plantain from one plant and ratoon crop can be as high as 82.5 t ha⁻¹ compared to the average of 15 t ha⁻¹ obtained in commercial production in St. Lucia.

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