

Biological Nitrogen Fixation and Yield of Groundnuts in Response to Plant Density, Inorganic Fertilizer and Rhizobia Seed Inoculation

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Plant density and nutrition are among the factors that affect crop productivity. On-station experiments were conducted at two sites in Lilongwe, Malawi, during the 2019/20 and 2020/21 growing seasons to evaluate the effect of plant densities, inorganic fertilizer application and rhizobia seed inoculation on yield and biological nitrogen fixation of two groundnut varieties, Chitala (Spanish) and CG-9 (virginia).

The results over two seasons indicate that application of D compound fertiliser increased peanut productivity. In both varieties, inorganic fertilizer increased nodule weight and total amount of N fixed by 20 to 35%; while application of inoculant increased nodule numbers per plant. The study also revealed that doubling plant density increased peanut grain yield, biologically fixed N and net income. Similarly, application of inorganic fertilizer and rhizobia inoculant increased grain yield of for both peanut varieties. However, the Spanish variety (Chitala) is more responsive to inputs (inorganic fertilizer and rhizobia seed inoculants) than virginia variety (CG-9).