

EFFECT OF BRADYRHIZOBIUM IN ASSOCIATION WITH DIAZOTROPH BACTERIAL INOCULUM ON POD YIELD AND N-ECONOMY OF GROUNDNUT UNDER VARYING N-LEVELS

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ABSTRACT

A two-year field study was conducted during 1998 and 1999 to examine the effect of Bradyrhizobium species (Arachis) as seed treatment, and a mixture of two diazotroph bacterial inoculum (Azotobacter and Azospirillum spp.) as foliar spray on groundnut crop after germination; alone and in combination under N-fertilizer levels of 0, 10, 20 and 40 kg ha⁻¹. Bradyrhizobium sp. along with diazotroph inoculum increased pod number, pod yield, nodular mass/number of groundnut crop, plant-N content and residual soil N during both years. However, higher dose of nitrogen (40 kg ha⁻¹) decreased nodulation. Pod yield of groundnut increased by 44.3 and 43.2% due to application of both inocula compared with uninoculated treatment at 10 and 20 kg N ha⁻¹ fertilizer application, respectively. However, contribution of Bradyrhizobium sp. was more than diazotroph inoculum for increasing pod yield. Bradyrhizobium sp. alone increased pod yield by 31.7 and 33.5% at 10 and 20 kg N ha⁻¹ compared with uninoculated treatment, respectively.

Key Words: Groundnut; *Bradyrhizobium*; Diazotroph; Nitrogen fertilizer; Pod yield.