EFFECT OF SEED INOCULATION AND DIFFERENT NITROGEN FERTILIZER LEVELS ON GROWTH AND YIELD OF MUNGBEAN

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Mungbean (*Vigna radiata* L.) is an important pulse crop for cropping systems of dry and intermediate zones of Sri Lanka. The conventional mungbean cultivation in the dry zone generally records low yields, due to wide array of constraints. Poor availability of effective *Rhizobia* strains and inherently deficient soil fertility are substantial bottlenecks for achieving higher yields. This study was designed to evaluate the impact of seed inoculation and nitrogen (N) fertilizer regimes on growth and yield of mungbean. Two varieties (i.e. MI5 and MI7) were tested for their response to aforementioned factors during *Maha* 2019/2020 at the Field Crop Research and Development Institute, *Maha-Illuppallama*. The Department of Agriculture (DOA) fertilizer recommendation for mungbean was used as the control. The other treatments were 1/3 of N and 2/3 N of DOA recommendation (Mungbean) combination with *Rhizobium* inoculation and sole *Rhizobium* inoculated crop. The experiment was a two-factor factorial experiment laid out on Randomized Complete Block Design including four replicates. The observations were analysed using Generalized Linear Mixed models. No significant differences ($p>0.05$) were observed in plant height, leaf area, SPAD value, number of nodules, root length, and root surface area at 50% flowering across treatments. The biomass at 50% flowering stage was the only superior ($p<0.05$) parameter of DOA recommended full N treated crop compared to the rest. The seed yield remained non-significant ($p>0.05$) across different N regimes. Contrastingly, MI5 recorded higher growth and yield compared MI7 with and without *Rhizobium* inoculant. In conclusion, the *Rhizobium* inoculant with reduced N showed contrastingly similar results as the full N benchmark, thus substituting mineral N by enhancing biological nitrogen fixation during mungbean cultivation in dry zone is possible.

Keywords: Inoculation, Mungbean, Nitrogen, Rhizobium