EFFECT OF DIFFERENT RATES OF NITROGEN AND PHOSPHOROUS ON GROWTH AND NODULATION OF *Glycine max* (L.)

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ABSTRACT

Soybean is an important crop worldwide as a good source of protein and vegetable oil. Cultivation of soybean is very low in the Batticaloa district due to its poor yield. It may be increased using more amounts of fertilizers, however, it is not economical for poor farmers and also not favorable for the environment. Finding of suitable fertilizer combination is very important in this situation. Therefore an experiment was conducted to study the effect of different rates of nitrogen and phosphorous on the nodulation and growth of soybean and also to find out the optimum levels of nitrogen (N) and phosphorous (P) for maximum nodulation and growth of soybean.

The pot experiment was conducted under a rain shelter in Agro Technology Park, Eastern University, Sri Lanka. The experimental design was Complete Randomized Design (CRD) with four replicates. Different fertilizer combinations were used as treatments such as T1 – 30N:150P:75K: kg/ha, T2 – 70N:150P:75K: kg/ha, T3 (control) – 50N:150P:75K: kg/ha, T4 – 50N:125P:75K: kg/h and T5 – 50N:175P:75K: kg/ha. Measurements were taken and data were statistically analyzed. The results revealed that there were significant ($p<0.05$) differences among the treatments on plant height, number of leaves, leaf area, number of pods, plant fresh and dry biomass, plant nitrogen content, number of nodules and number of effective nodules. Plant height and number of leaves were not significantly affected from different fertilizer combinations at initial stages. It was observed that T4s (50N:125P:75K: kg/h) showed significant increment in growth and nodulation of soybean. Therefore application of fertilizer combination with reduced amount of phosphorous fertilizer could be used to get maximum growth and nodulation of soybean in sandy regosols in Batticaloa district.

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