EFFECT OF COMBINE USE OF ORGANIC MANURES AND INORGANIC FERTILIZER ON NITROGEN FIXATION AND PERFORMANCE OF COWPEA GROWN IN SANDY REGOSOL

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ABSTRACT

Biological nitrogen fixation is considered as an important characteristic of cowpea for economic production. Yet the process of nitrogen fixation alone does not adequate for the plant to achieve a maximum productivity. Nitrogen fixation and nodulation of cowpea is influenced by sevegenral factors such as soil fertility, agro-ecological zones, organic manures, inoculation and cowpea varieties etc. This study was conducted to investigate the combine use of organic manure and inorganic fertilizer on Nitrogen fixation and performance of vegetable cowpea grown in sandy regosol. This experiment was laid out in a Complete Randomized Design (CRD) with seven treatments and three replicates. Gliricidia, ipil ipil, paddy straw, poultry manure, cattle manure and goat manure were evaluated with recommended level of inorganic g fertilizers on nitrogen fixation and performance of cowpea grown in sandy regosol. Among the different types of organic manure combinations with inorganic fertilizer, highest crop yield was obtained with the treatment combination of poultry manure and recommended level of inorganic fertilizer. Highest nodulation was obtained in sole application of inorganic fertilizer and lowest nodulation but high nitrogen in soil was in poultry manure combination. This indicates that legumes will obtain less of their Nitrogen requirement from the atmosphere if there is an adequate supply of nitrogen available from the soil. In addition, the results revealed that among plant materials straw was inferior to ipil ipil and gliricidia as a source of organic manure for vegetable cowpea production. Therefore, the combined use of poultry manure with inorganic fertilizer can be recognized as the most suitable way for ensuring the high crop yield and the second best source is ipil ipil manure and chemical fertilizer combination.

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CHAPTER THREE

3.0MATERIAL METHODS