

ABSTRACT

Effect of Lablab Green Manure on Population of Soil Microorganisms and Establishment of Common Bean (*Phaseolus vulgaris* L.)

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Green manures improve soil health and fertility but application of undecomposed lablab residues lead to low crop establishment. The study was carried out to determine the effect of green manure on microbial population and establishment of bean crop. Bean varieties were planted on plots each treated with lablab green manure at one ton ha⁻¹ over whole plots and in rows, DAP fertilizer was applied at 75 kg/ha. Data was collected on microbial population, crop emergence, root rot incidence and severity, and yield. Green manure incorporation increased soil organic carbon, nitrogen, phosphorus and potassium but reduced germination percentage by about 35% and increased incidences of root rot by 30% compared to plots without green manure. The population of root rot pathogens was significantly higher in plots treated with green manure two weeks after emergence while the population of saprophytic fungi was low. Plots treated with lablab green manure reduced grain and biomass yields by 25%. Green manure increases soil nutrients directly and improves crop establishment after decomposition. Results of the study revealed a considerable increase in the population of root rot pathogens with corresponding decrease in the population of antagonistic fungi thus the poor emergence and crop establishment can be associated with increase in population of root rot pathogens and stress experienced by seeds during decomposition.

Keywords: Green Manure, *Phaseolus vulgaris*, Root Rot, Soil Health