

ABSTRACT

Residual Effects of Lablab Green Manure on Root Rot Pathogens and Performance of Common Bean (*Phaseolus Vulgaris L.*)

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Organic manures often have considerable residual effect on the subsequent crops in the soil. Residual effects of lablab green manure on root rot pathogens and bean crop establishment was evaluated by conducting field experiments at two sites with varying soil fertility in Nandi South. Common bean varieties KK8 and GLP2 seeds were planted on plots previously treated with different soil amendments. Soil samples were collected before planting and six weeks after emergence to determine the populations of root rot pathogens. Throughout the experiment, data was collected on crop emergence, plant stand, root rot incidence and severity, as well as crop yield. There was increase in crop emergence by 40% for GLP2 and 19% for KK8 with corresponding 7% reduction in root rot incidence in plots previously treated with lablab green manure. There were variations in the population of root rot pathogens between the two studies, with Kapkerer exhibiting a higher pathogen population compared to Koibem. The primary root rot pathogens isolated and identified were *F. solani*, *F. oxysporum* and *Pythium ultimum*, *F. solani* and *F. oxysporum* were the most dominant species isolated in over 90% plant and soil samples. Residual plots treated with lablab green manure recorded a substantial increase in yield with an impressive increase of 22% when compared to other treatments. Correlation analysis established that disease incidence, and severity was negatively correlated with yield while plant stand was positively correlated with yield. Our research highlights the long-term benefits of lablab green manure as an organic soil amendment, showcasing its ability to improve crop emergence, reduce root rot incidence, and boost overall crop yield. This knowledge can guide farmers in optimizing their agricultural practices for increased productivity and sustainable soil health.

Keywords: Common beans; *Lablab purpureus*; organic manure *Phaseolus vulgaris*; root rot pathogens