

ABSTRACT

Effect of Time after Incorporation of Lablab Green Manure on Root Rot Pathogens and Establishment of Common Bean (*Phaseolus vulgaris* L.)

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Green manure incorporation is important for restoration of soil quality, particularly buildup of organic matter and supply of nutrients to plants. However, undecomposed plant residues reduce crop establishment and plant stand. Therefore, there is need to determine suitable time for green manure incorporation before planting. The effect of time after incorporation of lablab green manure on soilborne pathogens and bean crop establishment was evaluated by incorporating 12t/ha of lablab green manure at planting and at 7, 14, and 28 days before planting. Soil samples were collected before and after incorporation of green manure at planting, and at two, four and six weeks after planting. Data was collected on crop emergence, plant stand, yield, incidence and severity of root rot, and population of root rot pathogens. Incorporation of lablab residues 28 days before planting resulted in 21% improvement in germination, with corresponding reduction in root rot incidence and severity of 8% and 36%, respectively, compared to plots incorporated with green manure at planting. Plots incorporated with lablab green manure earlier before planting had reduced population of root rot pathogens, while those incorporation at planting excited the population of root rot pathogens and also had up to 71% reduction in grain yield compared to plots where lablab residue was incorporated 28 days before planting. The results of the study showed that a period of 28 days between Lablab green manure incorporation and planting is necessary to allow for proper decomposition, resulting in a reduction in root rot incidence and an increase in grain yield.

Keywords: soil health, green manures, *Lablab purpureus*, soil borne pathogens