

## Contribution of different Green Manures to Phosphate Nutrition of Sugarcane

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Received on 14.12.97

### ABSTRACT

A field experiment was conducted to study the relative contribution of different green manuring crops to phosphate nutrition of sugarcane in two consecutive cropping seasons of 1995-96 and 1996-97 at Patudangi and Jamalpur farms of Thakurgaon Sugar Mills under Old Himalayan Piedmont Plain Soil. The experiment was set up comprising of three intercrops viz., sugarcane with indigo (*Indigofera tinctoria*), dhaincha (*Sesbania rostrata*), sunhemp (*Crotalaria juncea*) and control with no intercrop in main plots and four different rates of phosphorus (0, 60, 120 and 180 kg  $P_2O_5 ha^{-1}$ ) in sub plots. Sunhemp (*C. juncea*) produced the highest biomass yield and P-contribution to soil. Significantly higher number of tillers, millable cane and yield of sugarcane per hectare were obtained in both the seasons and locations where 120 kg  $P_2O_5 ha^{-1}$  was applied.

**Key words :** Green manure, sugarcane, phosphorus uptake.

### INTRODUCTION

Green manuring involves incorporation of legume crops of green matter collected from trees and other sources for improving various properties of soil. The organic matter content of the crop land is depleted due to continuous cropping with the use of unbalanced fertilizer resulting hardening of the soil & acute shortage of N, P, S and Zn (Anon., 1984). Among the bulky organic manures, green manures are of importance next to compost and farm yard manure in terms of manurial value and production. Green manures have been turned available P is enriched considerably. To date, there has been attempt by researches locally or elsewhere to determine the comparative role of different kind of green manure crops in the P nutrition of sugarcane. Therefore, the experiment was undertaken to study the relative contribution of different green manuring crops to P nutrition of sugarcane.

### MATERIALS AND METHODS

The experiment was conducted at Patudangi and Jamalpur farm of Thakurgaon Sugar Mills under Old Himalayan Piedmont Plain Soil in two consecutive cropping seasons of 1995-96 and 1996-97. The used sugarcane variety in the study was Isd 25. The experiment was laid out in split plot design with four replications comprising of three levels of intercrops viz. sugarcane with indigo (*Indigofera tinctoria*), dhaincha (*Sesbania rostrata*), sunhemp (*Crotalaria juncea*) and with no intercrop in main plots and four different rates of phosphorus (0, 60, 120 and 180 kg  $P_2O_5 ha^{-1}$ ) in sub-plots. The following treatments were accommodated in the experiment.