



Morphological indices and yield of castor (*Ricinus communis* L.) as influenced by organic and inorganic sources of nitrogen

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ABSTRACT

Morphological indices and yield of castor as influenced by organic and inorganic sources of nitrogen was studied at the Agricultural College Farm, Raichur on deep black clay soil during late *Kharif* season of 2002–2003. The result showed that, green leaf manuring of sunnhemp recorded significantly higher seed yield (10.23 q ha⁻¹), dry matter production (279.11 g plant⁻¹), leaf area index (2.119), number of leaves (48.19), number of branches (3.80) and plant height (188.40 cm) at 120 DAS over the sole castor without green manuring and castor with *in situ* green manuring. Among the nitrogen levels application of 80 kg N ha⁻¹ produced significantly higher seed yield (10.09 q ha⁻¹), dry matter production (269.92 g plant⁻¹), leaf area index (2.236), number of leaves per plant (49.64), number of branches per plant (3.86) and plant height (195.34 cm.) at 120 DAS over the rest of the treatments while it remained at par with the application of 60 kg N ha⁻¹.

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Key words : Green manuring, *In situ*, Green manuring, Inorganic fertilizer, Castor

INTRODUCTION

Castor is an important industrial oil seed crop. Because of its deep root system, draught hardiness and quick growth, it finds a place of prestige in the cropping systems of dryland agriculture in semiarid zones of India. The escalating costs of fertilizers on one hand and their undesirable effects on the physical conditions of the soil on the other, call for inclusion of adequate quantities of organic sources to the soil. But the availability of crop residues and FYM has declined creating great demand for alternate source of nutrient. Hence, the use of green manures should necessarily be explored for increasing soil productivity. The use of green manures with inorganic fertilizer enhances the growth, morphological indices and yield of castor compare to the application of either of them. Therefore, the present study was under taken to find out the effect of green manures and nitrogen levels on morphological indices and yield of castor.

MATERIALS AND METHODS

A field experiment was conducted during the late *Kharif* season of 2002-03 at the Agricultural College Farm, Raichur on deep black clay soil having 215.88 and 31.44 kg ha⁻¹ of available N and P₂O₅, respectively with soil pH of 8.00 and organic carbon of 0.76 per cent. The treatments consisted of three green manures (M₁: Sole castor without green manuring, M₂: Castor with *in situ* green manuring, M₃: Growing of green leaf manuring (Sunnhemp) in separate plot and incorporated in the experimental plot at 35 DAS of castor) to main plot and five nitrogen levels (S₁: 0 kg N ha⁻¹, S₂: 20 kg N ha⁻¹, S₃: 40 kg N ha⁻¹, S₄: 60 kg N ha⁻¹, S₅: 80 kg N ha⁻¹) were assigned to subplots. The experiment was laid out in split plot design and replicated thrice. One protective irrigation was given at 80 DAS.

RESULTS AND DISCUSSION

Seed yield of castor differed significantly due to green

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