



Effect of different sources and time of application of organic manures on growth parameters, growth indices, dry matter production and nutrient uptake of aerobic rice (*Oryza sativa* L.)

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ABSTRACT

A field experiment was conducted during *Kharif*, 2009 at Zonal Agricultural Research Station, V.C. Farm, Mandya, University of Agricultural Sciences, Bengaluru. The initial status of available N, P₂O₅ and K₂O of the experimental site was 248.5, 26.8 and 202.8 kg ha⁻¹, respectively. The variety used was Thanu (KMP-101). The results of the field experiment showed that application of recommended dose of fertilizer (100:50:50 kg N:P:K ha⁻¹) + 10 tonnes of FYM ha⁻¹ recorded significantly higher growth indices like plant height (63.2), number of tillers per hill (35.7), leaf area (1509.8 cm² hill⁻¹), leaf area index (LAI) (2.42), leaf area duration (LAD) (56.49 days), absolute growth rate (AGR) (1.6806 g p⁻¹day⁻¹), relative growth rate (RGR) (0.1369 g g⁻¹day⁻¹) and dry matter production. Significantly higher dry matter production at harvest (95.43 g hill⁻¹) recorded with recommended dose of fertilizer (100:50:50 kg N:P:K ha⁻¹) + 10 tonnes of FYM ha⁻¹. Significantly higher nitrogen, phosphorus and potassium uptake (103.7, 20.8 and 77.9 kg ha⁻¹, respectively) registered with recommended dose of fertilizer (100:50:50 kg N:P:K ha⁻¹) + 10 tonnes of FYM ha⁻¹.

KEY WORDS : Aerobic rice, AGR, RGR, Poultry manure, Biodigester liquid, Jeevamrutha

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INTRODUCTION

Rice (*Oryza sativa* L.) is the major crop of India and occupies larger cropped area of 43.18 m ha with an annual production of 97.0 m t and a productivity of 2101 kg ha⁻¹. In Karnataka, rice is grown in an area of 1.42 m ha with an annual production of 3.60 m t and productivity is 2.53 t ha⁻¹ (Anonymous, 2010). Rice production is the most water consuming system and utilizes about 60 per cent of total available irrigation water. More than half of the water used for irrigation in India is shared by rice. Although rice is water loving, increasing the area under rice faces the twin problems of water scarcity and soil

salinization. Thus, there is a need to find out alternate means of rice cultivation which require less water. Aerobic rice assumes greater importance in the light of the water scarcity and increasing demand for rice. Although the use of fertilizers promises increase in productivity, the indiscriminate and imbalanced use of fertilizers affects the yield, soil health and environment. Now the focus of agriculture is to evolve ecologically sound nutrient management practices. Organic farming is one such approach. The farmers use several organic sources with varying levels of nutrients. Hence, it is necessary to evaluate the different sources of organic manures for standardizing the recommendation to farmers. In the light of the above, the choice of the problem on "Effect of different sources and time of application of organic manures on growth parameters, growth indices, dry matter production and nutrient uptake of aerobic rice (*Oryza sativa* L.)" is an effort and appropriate for achieving maximum production.

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MATERIALS AND METHODS

A field experiment was conducted at Zonal