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Effect of different sources and time of application of organic manures on yield attributes, yield and economics of aerobic rice (*Oryza sativa* L.)

G.A. RAJANNA*, K. MURALI, PRADEEP NAYAK, R.N. LAKSHMIPATHY[1], PRADEEP GOPAKALLI AND V. PARAMESH

Department of Agronomy, College of Agriculture, University of Agricultural Sciences, G.K.V.K., BENGALURU (KARNATAKA) INDIA

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, P_2O_5 and K_2O 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 indicated that significantly higher number of productive tillers per hill (28.02), number of filled grains per panicle (140.2) and thousand grain weight (22.78 g) recorded with recommended dose of fertilizer (100:50:50 kg N:P:K ha^{-1}) + 10 tonnes of FYM ha^{-1}. Application of recommended dose of fertilizer (100:50:50 kg N:P:K ha^{-1}) + 10 tonnes of FYM ha^{-1} recorded significantly higher grain yield (40.49 q ha^{-1}) and straw yield (46.35 q ha^{-1}). However, it was at par with poultry manure equivalent to 10 t of FYM + biodigester liquid at 100 % N equivalent basis, vermicompost equivalent to 10 t of FYM + biodigester liquid at 100 % N equivalent basis, poultry manure equivalent to 10 t of FYM + jeevamrutha at 100 % N equivalent basis and vermicompost equivalent to 10 t of FYM + jeevamrutha at 100 % N equivalent basis. Significantly higher net return (Rs.28267) as well as higher benefit cost ratio (3.68) was recorded with poultry manure equivalent to 10 t of FYM + biodigester liquid at 100 % N equivalent basis.

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Key words : Aerobic rice, Organic manures, Yield, Economics

INTRODUCTION

Rice (*Oryza sativa* L.) occupies a pride place among the food crops cultivated in the world. The world rice production in 2008-09 was 610 m. t. cultivated over an area of 147 m ha with the productivity of 3.75 t ha^{-1}. India has the largest area among rice growing countries and stands second in production. India produces 97.0 m t of rice in an area of 43.18 m ha with the 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. To meet the water crisis head on, valuable gains can be achieved by growing rice with less water. Therefore, there is a need to develop an alternate system that requires less water. Aerobic method is a new concept of growing rice. It is a production system, which concentrates on direct seeding and irrigating intermittently, in contrast to the practices such as rising of nursery, puddling, transplanting and submergence. The concept of organic farming has been gaining momentum with the use of different manures and crop residues in order to increase the productivity of crop as well as the soil fertility status. So, the present investigation on response of irrigated aerobic rice to various levels of nitrogen through organic sources on yield attributes, yield and economics of irrigated aerobic rice for achieving maximum production has been carried out.

MATERIALS AND METHODS

A field experiment was conducted at Zonal Agricultural Research Station, Visweshwaraiah Canal Farm, Mandya, University of Agricultural Sciences, Bengaluru during *Kharif* 2009. The soil of the experimental site was red sandy loam with neutral pH (6.53) and low in organic carbon (0.45%). The initial status of available N, P_2O_5 and K_2O of the experimental site was 248.5, 26.8 and 202.8 kg ha^{-1}, respectively. The experiment was laid out in a Randomized Complete Block Design with eleven treatments replicated thrice.

Detail of treatments and the corresponding symbols

*** Author for correspondence.**

[1] Department of Agricultural Microbiology, College of Agriculture, University of Agricultural Sciences, G.K.V.K., BENGALURU (KARNATAKA) INDIA