INTERNATIONAL JOURNAL OF FORESTRY AND CROP IMPROVEMENT (June, 2011); 2 (1) : 40-43

RESEARCH ARTICLE

Received : Feb., 2011; Accepted : March, 2011

Growth and yield of rice (*Oryza sativa* L.) as influenced by various levels of FYM and cattle urine application in Bhadra Command Area of Karnataka

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ABSTRACT

An experiment was conducted during *Kharif* 2009 in sandy clay loam soil at Agriculture Research Station, Kathalagere, Davanagere Dist, Karnataka to study the growth and yield of rice as influenced by various levels of FYM and cattle urine application under Bhadra command area. The investigation consisted of ten treatments were replicated thrice. Among different treatments application of FYM at 12.5 t ha^{-1} + cattle urine equivalent to 125 kg N ha^{-1} recorded significantly higher plant height (83.8 cm), number of leaves per hill (49.7), leaf area per hill (374.2 cm^2), number tillers per hill (30.5), total dry matter production per hill (88.7 g), number of productive tillers per hill (26.7), panicle length (21.4 cm), panicle weight (4.35 g), test weight (23.2 g), grain yield (45.4 q/ha) and straw yield (57.8 q/ha) as compared to other treatments. Whereas, significantly lower plant height (68.4 cm), number of leaves per hill (34.0), leaf area per hill (316.8 cm^2), number tillers per hill (21.6), total dry matter production per hill (71.8 g), number of productive tillers per hill (19.9), panicle length (18.0 cm), panicle weight (2.96 g), test weight (17.9 g), grain yield (33.7 q/ha) and straw yield (46.3 q/ha) were recorded in the treatment with the application of FYM at 7.5 t ha^{-1} + cattle urine equivalent to 75 kg N ha^{-1}.

KEY WORDS : Growth, Yield, Plant height, Rice, Grain

Gopakkali, Pradeep, Channanaik, D., Rajanna, G.A., Sannathimmappa, H.G. Veeresha and Manjunatha, K.B. (2011).Growth and yield of rice (*Oryza sativa* L.) as influenced by various levels of FYM and cattle urine application in Bhadra Command Area of Karnataka, *Internat. J. Forestry & Crop Improv.,* **2** (1) : 40-43.

INTRODUCTION

Rice (*Oryza sativa* L.) is the principal food crop to billions of people around the world. India occupies a pride place in rice production among the food crops cultivated in the world. About 90 per cent of rice grown in the world is produced and consumed in Asian countries. China and India account for more than half of the total acreage in the world. Organic farming has gained popularity in recent years not only in India, but also in Australia, Argentina, USA, UK, Germany, South Africa, China, Japan and other Asian countries like Srilanka and Pakistan. The general acceptance of organic farming is not only due to greater demand for pollution free food, but also due to natural advantage in supporting the sustainability in agriculture. The essence of practicing organic farming lies in the use of naturally available resources like organic wastes, predators, parasites in conjunction with natural processes like decomposition, biological nitrogen fixation and resistance to achieve the needs of crop production. When rice crop is grown transplanted situation, there are chances of losses of nutrients with flooded condition. To reduce these losses, nutrients should be provided at right quantity and at right stage of crop. This is possible by applying suitable organic manures for transplanted rice crop, which inturn improves the organic matter status of soil. Organic matter not only helps to supply the nutrients, but also improves the physical condition of soil. Further, organic matter acts as a food for microorganisms and encourages the multiplication of their population, which inturn improves the mineralization of nitrogen in soil and thus, fertility and productivity of the soil is improved. In these aspects no systematic studies were carried out to find out the response of transplanted rice to varying levels of FYM and Cattle urine. Therefore, an attempt has been made to study the effect of FYM and cattle urine on growth and yield of rice in Bhadra command area, in order to achieve maximum production.

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