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Research Paper

Integrated nutrient management in the system of rice intensification techniques (SRI) for *Kharif* rice (*Oryza sativa* L.) under middle Gujarat conditions

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ABSTRACT

An experiment was conducted during *Kharif* 2009 to integrated nutrient management in the system of rice intensification techniques (SRI) for *Kharif* Rice (*Oryza sativa* L.) under middle Gujarat conditions at insturatand farm, B.A. College of Agriculture. The results revealed that the treatment combination M_4N_3 recorded significantly higher grain yield (4032 kg ha^{-1}) over rest of the treatment combinations, it was found at par with M_4N_2. Economically treatment combination M_4N_2 was proved better with net realization (Rs. 30604 ha^{-1}) and BCR (1: 2.28), followed by treatment combination M_4N_3.

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Key words : Integrated nutrient management, System of rice intensification techniques, Rice, Organic manures, RDN

INTRODUCTION

It is the most important food crop of India and second most important crop of the world. It is raised on about one-tenth of the earth's arable land and is the single largest source of food energy to half of humanity particularly in Asia where rice is the staple food. Rice being high water requirement crop, there is a need to search for alternate methods to reduce water requirement without reduction in the yield. The introduction of new aerobic rice technology in rice cultivation has proved to get reasonably good yields with 2-3 irrigation, thus saving 30-40 per cent of water. System of rice intensification (SRI) is another emerging water saving technology (Laulanie, 1993). An INM plays a vital role in sustaining both the soil health and crop production on long term basis (Singh *et al.,* 2004). The INM primarily related to combined application of different sources of plant nutrients for sustainable crop production without degrading the natural resources.

MATERIALS AND METHODS

The field experiment was conducted during the *Khairf* season of 2009 at Anand, Gujarat. The soil was sandy loam with pH 7.5, organic carbon 0.32 (%), EC 0.20 dSm^{-1}, available P_2O_5 28.15 kg ha^{-1} and K_2O 211.48 kg ha^{-1}. The experiment was laid out in split plot design with organic manures in main plots and RDN in subplots. Treatments consisting of four organic manures *viz.,* M_1-FYM @ 10 t ha^{-1}, M_2-vermicompost @ 3 t ha^{-1}, M_3-poultry manure @ 2 t ha^{-1}, M_4- castor cake @ 1 t ha^{-1} and four levels of nitrogen control, 50, 75, 100 kg ha^{-1}. Rice variety GR-12 was transplanted at 25×25 cm spacing with one seedling hill^{-1} during July and the crop was harvested during Nov. The nitrogen fertilizer was applied as per treatments through urea and phosphorus @ 25 kg ha^{-1} through SSP as basal dose to all the treatments. The remaining half dose of nitrogen was top dressed in two equal splits each at tillering and panicle initiation stages. Remaining all agronomic practices were followed as per recommendation of the crop.

RESULTS AND DISCUSSION

The results obtained from the present investigation as well as well as relevant discussion have been presented