

## Effect of organic and inorganic fertilizers on yield and aroma of scented rice in lowland situations

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### ABSTRACT

The field experiment was conducted at Agricultural Research Station, Mugad, during the wet season of 2000. The treatments comprised of three levels of inorganic fertilizers and four levels of organic manure. There were no significant differences between sources of organics. Even though sun hemp was the cheapest organic source as it had recorded (2843 kg/ha) equivalent yield to that of costlier FYM (2817kg/ha). Among the levels of RDF, 50 per cent (2997 kg/ha) and 100 per cent (3055 kg/ha) recorded at par yield and were significantly superior over zero per cent RDF (2192 kg/ha).

**Key words :** Organic fertilizers, Sun hemp, Aroma, Scented rice.

### INTRODUCTION

Importance of organics is increasingly felt these days in sustainable crop production systems. Organic sources such as paddy straw, FYM and glyricidia in conjunction with fertilizers were found to substitute 25-50 per cent of nitrogen requirement in rice without reducing grain yield or nitrogen uptake (Panchakshariah *et al.*, 1996)

The aromatic fine quality rice is traditionally grown in the north and northwestern parts of Indian sub continent for centuries. Efforts are now being made to explore the possibility of cultivating the “Basmati” rices in non traditional area to prove their potential and increase the production. Hence, it is necessary to standardize the nutrient requirement of basmati rice to these areas. It is also known that, organics have positive effect on the aroma of scented rice. Green manures make a substantial difference to rice crops (Turkhede *et al.*, 1996). Hence the study was conducted to know the effect of organic and inorganic fertilizers on yield and aroma of scented rice.

### MATERIALS AND METHODS

The field experiment was conducted at agricultural research station, Mugad, during the wet season of 2000. The soil was silty clay loam with Ph- 7.2, OC-0.75, available N,  $P_2O_5$  and  $K_2O$  of 250, 10.5 and 110 kg/ha., respectively. The treatments comprised of three levels of inorganic fertilizers i.e. recommended dose of fertilizers (100: 50:50, N :  $P_2O_5$  :  $K_2O$  kg/ha) at the rate of 0, 50 and 100 per cent and four organic manure levels i.e. poultry

manure @ 2t/ha, FYM @ 10 t/ha, sunhemp @ 5 t/ha and no organic manure. Among the organic manures, poultry manure and FYM were applied at the time of sowing and fifteen days before sowing, respectively. Sunhemp was raised with rice and incorporated into the soil after 40 days of sowing (used as in-situ green manuring). Method described by Nagaraju *et al.* (1991) was adopted for the evaluation of aroma from brown rice. Then treatmentwise replicated samples were tested for aroma by using organoleptic evaluation (Swaminathan, 1995).

### RESULTS AND DISCUSSION

With regard to grain yield, different sources of organics fertilizer do found significantly superior over no organic manure (Table 1). The results are in agreement with that of Turkhede (1996). There were no significant difference between sources of organics. Even though sunhemp is the cheapest organic source as it had recorded (2843 kg/ha) equivalent yield of costlier FYM (2817 kg/ha). Among the levels of recommended dose of fertilizers, 50 per cent (2997 kg/ha) and 100 per cent (3055 kg/ha) recorded at par yield and were significantly superior over zero per cent RDF (2192 kg/ha). The same trend was observed in no. of panicles/sq.m.

With regard to aroma, Poultry manure was superior over others. Sun hemp did not have any significant effect on aroma. The aroma was equivalent to that of no organic manure application. By reducing the inorganic fertilizer level, aroma was improved.

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