

Performance of *basmati* rice under organic sources of nutrition

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ABSTRACT

A field experiment was conducted during *kharif* 2004 and 2005 to compare organic and inorganic practices on productivity of *Basmati* rice. Different organic sources of nutrition along with organic plant protection measures were used to assess the performance of *Basmati* rice variety Pusa Basmati-1. Control (inorganic nutrition) treatment having recommended practices produced the highest grain (3.14 tonnes/ha) and straw (9.02 tonnes/ha) yield in pooled data, which may be attributed to their high number of tillers. Control plot was followed by green manure treated plots which performed better than other treatments. Treatments having nutrition through FYM and vermicompost, respectively recorded 29.0 and 30.6 per cent reduction in grain yield as compared to control. Vermicompost treated plots had comparatively high number of filled grains per panicle (80.3) and low percentage of floret sterility (20.7), however, it recorded the lowest grain yield due to their low number of ear bearing shoots.

Key words : Basmati, Green manure, FYM, Vermicompost.

INTRODUCTION

Rice is one of the most extensively grown food crop of the world. It is staple food for more than one third of world's population *i.e.* East Asia, South Asia and South-East Asia, where 90 per cent of world rice is produced and consumed.

There are thousands of rice varieties, among them, aromatic rice varieties constitute a small but special group owing to their unique characteristics like aroma, cooking quality, taste and palatability. These rice varieties are considered best in quality and fetch high price in domestic and international market. India is the major exporter of high quality Basmati rice to the USA, Europe and Gulf countries (Bhasin, 2000). Since the continuous use of chemical fertilizers on the same piece of land deteriorate the soil health and productivity which may lead to reduced crop productivity and its quality. Use of pesticides along with chemical fertilizers also lead to accumulation of their residue in the produce which may be harmful to human health.

With increasing awareness amongst consumer, the demand of organic food is increasing day by day especially in the developed countries. Mani (2004) also advocated that the demand of aromatic rice may be further enhanced if grown under organic farming system. Some organic manures *viz.*, farm yard manure, vermicompost and green manure, are important constituents of the organic farming system which may not only improve the soil health but also enhanced the quality of the produce.

Therefore, an experiment was designed to evaluate

the performance of Basmati rice under organic production practices.

MATERIALS AND METHODS

The experiment was conducted during *kharif* 2004 and 2005 at Crop Research Centre of Govind Ballabh Pant University of Agriculture and Technology, Pantnagar, Uttaranchal on silty clay loam soil. In previous year (2003) Rice- Wheat rotation was followed under organic fertilization. The soil was neutral in reaction (pH=7.3), rich in organic carbon(1.062%), medium in available phosphorus (20.7Kg/ha) and potassium(140.5Kg/ha). Ten treatments comprising combinations of inorganic and organic production practices, were

- T₁, control (recommended fertilizer);
- T₂, FYM @ 10 tonnes/ha + cyclic submergence;
- T₃, FYM @ 10 tonnes/ha + Vanguard;
- T₄, FYM @ 10 tonnes/ha + *Trichogramma*;
- T₅, Vermicompost @ 2 tonnes/ha + cyclic submergence;
- T₆, Vermicompost @ 2 tonnes/ha + Vanguard;
- T₇, Vermicompost @ 2 tonnes/ha + *Trichogramma*;
- T₈, green manure @ 10 tonnes/ha + cyclic submergence;
- T₉, green manure @ 10 tonnes/ha + Vanguard;
- T₁₀, Green manure @ 10 tonnes/ha + *Trichogramma*.

The experiment was laid out in a randomized block design with 3 replications. The nursery of rice variety

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