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Influence of organic nutrition on quality and grain yield of rice under upland condition

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SUMMARY

An experiment was conducted during kharif season of 2005 to study the influence of organic nutrition on rice quality and grain yield of rice (*Oryza sativa* L.) under upland condition. The experiment was laid down in randomized block design with 12 different treatments. The quality characters were found better in treatment T_2 (RDF 80:50:50 NPK kg/ha), however all quality characters were non-significant. The grain yield of rice significantly found more in treatment T_2. Among organic nutrient treatments, treatment T_5 GLM (Glyricidia) (5 t/ha) + FYM (10t/ha) recorded significantly more grain yield over other organic treatments and control.

Key words : Grain quality, Rice yield, Upland condition.

A number of festivals in India such Bihu in Assam, Pongal in Tamil Nadu and Onam in Kerala are associated with the rice harvest. So in India "Rice is life" indicates importance of rice. Now with increasing rice production greater emphasis is being given to rice grain quality. In international market consumer give more preference to rice quality. Any agricultural commodity is bounded by international standards to get good price by exporting in foreign market. So today rice research is turning towards rice quality, because India's share in world rice market is more than any other country. Adoption of agronomic and nutrient management practices play a vital role in improving rice productivity as well as a obtaining rice grain with the superior grain qualities. Therefore, the present study was undertaken to findout influence of organic nutrition on quality and grain yield of rice under upland condition.

MATERIALS AND METHODS

A field experiment was conducted during *kharif* season of 2005 and was laid down in randomized block design with three replications on the farm of Upland Paddy Research Scheme, Marathwada Agriculture University, Parbhani. The soil was clayey in texture and slightly alkaline in reaction with pH 8.25, low in available nitrogen (267.45 kg/ha), medium in P(22.48 kg/ha) and high in K (353.41 kg/ha). In this experiment there were 12 treatments, T_1 – control, T_2 – Recommended Dose of Fertilizers (RDF 80:50:50 NPK kg/ha), T_3 – Green Leaf Manuring of Glyricidia (GLM 10 t/ha), T_4 – GLM (5t/ha) + wheat straw (10 t/ha), T_5 – GLM (5t/ha) + Farm Yard Manure (FYM 10t/ha), T_6 – FYM (10t/ha), T_7 – GLM (5t/ha) + FYM (5t/ha), T_8 – Neem Cake (1.5 t/ha), T_9 – vermicompost (2.5 t/ha), T_{10} - GLM (5t/ha) + *Azotobacter* (1.5 kg/ha), T_{11} – GLM (5t/ha) + PSB (5kg/ha), T_{12}-GLM (5t/ha) + *Azotobacter* (1.5 kg/ha) + PSB (5kg/ha). The variety tried in experiment was Parbhani Avishkar (Basmati type). Spacing was 30 x 10 cm. The gross and net plot size was 5.4 x 4.5 m and 4.5 x 3.6 m, respectively. The seeds sown by hand drilling method. The basal dose of RDF i.e. 20 % N, 100 % P_2O_5 and 100 % K_2O applied at sowing and 50 % N at 30 DAS and 30 % N at 60 DAS, respectively. Farm yard manure, vermicompost, neem cake and wheat straw applied before sowing. Green leaf manuring (*Glyricidia*) was done to soil 21 DAS. In quality studies, length and breadth of Kernels were measured by Micrometer Screw Gauge and recorded in millimeter. Length classified as extra long more than 7.5 mm, long -6.60 – 7.55 mm, medium -5.51 to 6.60 mm, shorter -5.50 mm or less, from which L/B ratio was computed by dividing length by breadth. Kernel length also measured after cooking and from that elongation ratio calculated by formula - Elongation Ratio = kernel length after cooking (mm)/ kernel length before cooking (mm). Amylase content was estimated as per the Simplified Calorimeter Procedure of Juliano (1971).

RESULTS AND DISCUSSION

Effect on quality parameters

The data given in Table 1 indicates that the quality parameters of rice get influenced due to different treatments but not upto significant level. The data related to head rice recovery (%) was recorded more in treatment T_2 (48.16 per cent). Among organic nutrient treatments treatment T_5 recorded more head rice recovery (47.70 per cent). Kernel length (mm) was found more in

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