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Effect of integrated nutrient management on growth, yield and quality of short grain aromatic rice varieties (*Oryza sativa* L.) for Chhattisgarh plains

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A field experiment was conducted to evaluate the effect of integrated nutrient management on soil quality and its management. It was carried out at Research cum Instructional Farm, I.G.K.V., Raipur (C.G.) during *kharif* 2012, with the objective to study the response of integrated nutrient management on short grain aromatic rice varieties for optimization of yield and quality. The experiment was laid out in split plot design with three replications having four varieties namely (V_1) Dubraj, (V_2) Badshah Bhog, (V_3) Vishnu Bhog and (V_4) Bisni in main plot and six nutrient management treatments i.e. (N_1) 60:40:30 Kg N:P2O5:K2O ha^{-1} (Inorganic), (N_2) 80:50:40 Kg N:P_2O_5:K_2O ha^{-1}(Inorganic), (N_3) 60:40:30 Kg N:P_2O_5:K_2O ha^{-1} (50%Inorganic+50%Organic), (N_4) 80:50:40 Kg N: P_2O_5: K_2O ha^{-1}(50%Inorganic+50% Organic), (N_5) 60:30:60 Kg N: P_2O_5: K_2O ha^{-1} (Organic-FYM) and (N_6) 80:40:80 Kg N:P_2O_5:K2O ha^{-1} (Organic-FYM) in sub-plots.

The result indicated that the treatments significantly influenced the available NPK status of soil. The application of 80:40:80 kg N:P_2O_5:K_2O ha^{-1} (Organic-FYM) obtained the highest gain of available nitrogen, phosphorus and potassium in soil. While in case of available nitrogen in soil, application of 80:40:80 kg N:P_2O_5:K_2O ha^{-1} (Organic-FYM) found at par with the application of 80:50:40 kg N:P_2O_5:K_2O ha^{-1} (50%Inorganic+50%Organic). The application of 60:40:30 kg N:P_2O_5:K_2O ha^{-1} (Inorganic) had the lowest gain of available nitrogen, phosphorus and potassium in soil. In general, organic manures improve the physico- chemical properties of the soil and improve the microbial activity which resulted in maintaining the soil fertility. Chemical fertilizers applications reduce the post harvest soil nutrients as compared to organic manures application. The building up status of available nitrogen in soil recorded under the application of 80:50:40 kg N:P_2O_5:K_2O ha^{-1} (Organic-FYM). This might be due to application of FYM. FYM added soils gain higher organic residue, this resulted in higher retention of nutrients. In general organic manures reduce leaching and volatilization losses of nitrogen. Organic manures are known to reduce phosphorus and potassium fixation.

Keywords: Integrated Nutrient Management, Soil Quality, Organic Manures and Inorganic Manures.

Biography

Amit Kumar Patel has completed his M.Sc. (Agronomy) in 2012-2013 from Indira Gandhi Krishi Vishwavidyalaya, Raipur, Chhattisgarh. He has published more than 5 papers in reputed journals.

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Mushroom cultivation using coconut waste

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Mushroom, nutrient rich fungi grow on dead and decay materials. Mushroom cultivation is an eco-friendly and economically profitable biotechnology process for recycling of lignocellulosic biomass from coconut palm for the production of high quality protein. Being a perennial crop, the coconut palm produces huge quantities of organic wastes throughout the year. The availability of organic recyclable biomass from a hectare of well managed coconut garden has been estimated to be about 14-16 tonnes annually. Among the different waste biomass from coconut palm, leafstalk and bunch waste are superior to leaflet and coir pith in producing significantly more edible biomass of mushrooms. Mixing of biomass from coconut palm with paddy straw also enabled to achieve higher level of production of mushrooms. A low cost mushroom shed, built exclusively of coconut materials, such as coconut wood and plaited coconut leaves inside a coconut plantation, provided ideal conditions for mushroom production. Among the different species of *Pleurotus* tested on coconut bunch waste, *P. eous*, *P. flabellatus* and *P. sajorcaju* yielded higher quantity of mushrooms and better biological efficiency of conversion than other species. The spent mushroom substrate (SMS) had many positive attributes still left for potential use as a good nutrient source for agricultural use. Hence mushroom cultivation using coconut waste provides additional income besides it generates employment opportunity and reduces burden of waste management.

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