

EFFECT OF DIFFERENT COMBINATIONS OF ORGANIC MANURES AND BIOFERTILIZERS ON GROWTH, YIELD, GRAIN QUALITY AND ECONOMICS IN ORGANIC FARMING OF SCENTED RICE

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Received-05.03.2015, Revised-24.03.2015

Abstract: The field experiments carried out at the Indian Agricultural Research Institute, New Delhi during *Kharif* season of 2002 and 2003 to study the effects of different combinations of organic manures and biofertilizers on growth, yield, quality and economics of scented rice. The results indicated that application of farmyard manure (FYM) and Sesbania green manuring (SGM) significantly increased all the growth parameters and yield attributes of rice over absolute control which led to 17-27% and 26-33% increase in grain yield of rice, respectively. Combination of SGM + FYM was significantly superior to SGM and FYM alone and increase grain yield of rice by 44-53% over control. Inoculation of BGA with SGM and SGM + FYM resulted in a 4-11 and 3-8% increase in the grain yield over SGM and SGM + FYM, respectively. The highest grain yield of rice was obtained with the combinations of FYM + SGM + BGA this combination is, thus recommended for organic farming of rice.

Keywords: Organic farming, Farmyard manure, Sesbania green manuring, Blue green algae

REFERENCES

- Aulakh M.S, Khera, T.S, Doran, J.W, Singh, K. and Singh, B. (2000). Yields and nitrogen dynamics in a rice-wheat system using green manure and inorganic fertilizer. *Soil Sci. Soc. Am. J.* **64**: 1867-1876.
- Awan, Z.I., Absasia, M.K. and Hashmi, N.I. (2000). Effect of organic and inorganic manures on growth and yield of rice variety Bansmati-2000. *Pakistan J.Agric.Res.* **16** (2):105-108
- Bhattacharya S.P, Sitangshu, S., Karimadkar A.J, Bera P.S, Latika, M, Sarkar, S. and Mandal, L. (2003). Effects of humic acid (earth) on the growth and yield of Transplanted Summer rice. *Environment and Ecology*, **21** (3): 680-683.
- Dixit, K.G. and Gupta, B.R. (2000). Effect of farm yard manure, chemical and biofertilizers on yield and quality of rice (*Oryza sativa* L.) and Soil Properties. *J. Indian Soc. Soil Sci.* **48** (4): 773-780.
- FAI (2000). Fertilizer Statistics. *Fertilizer Association of India*, New Delhi.
- Hemalatha, M., Thirumungan, V. and Balasubramanian, R. (2000). Effect of organic services of nitrogen on productivity quality of rice (*Oryza sativa*) and soil fertility in single cross wetlands. *Indian J. Agron.* **45** (3): 564-567.
- Mann, R.A, Salim, M. and Aslam, M. (1999). Establishment of N₂ fixing legumes for improving the productivity of rice-wheat system. *Pakistan J. Soil Sci.* **17** (3-4): 15-2.
- Palaniappan, S.P. (2000). An overview on green manuring in rice based cropping systems. **13**: 141-161.
- Prakash, Y.S., Bhadoria, P.B.S. and Rakshit, A. (2002). Relative efficiency of organic manure in improving milling and cooking quality of rice. *Intl. Rice Res. Notes* **27**(1):43.
- Quyen, N.V. and Sharma, S.N. (2003). Relative effect of organic and conventional farming on growth, yield and grain quality of scented rice and soil fertility. *Arch. Agron. Soil Sci.* **49**:623-629.
- Rana, D.S., Singh, H., Sharma, K.N., Bhandari, A.I. and Singh, H. (1988). Economy of fertilizer nitrogen through green manuring in rice. *Indian J. Agric. Sci.* **58** (11):848-849.
- Rathore, A.L, Chipde, S.J. and Pal, A.R. (1995). Direct and residual effects of bio-organic and inorganic fertilizers in rice (*Oryza sativa*)-wheat (*Triticum aestivum*). *Cropping system.* **40** (1):14-19.
- Shanmugam, P.M. and Veeraputhran, R. (2001). Effect of organic and inorganic N and zinc application on soil fertility and nutrient uptake of *rabi* rice (*Oryza sativa* L.). *Madras Agril. J.* **87**(1/3):90-93.
- Singh, A.K. Amgain, L. P. and Sharma, S.K. (2000). Root characteristics, soil physical properties and yield of rice (*Oryza sativa*) as influenced by integrated nutrient management in rice-wheat system. *Indian j. Agron.* **45**(2):217-222.
- Singh, S., Prasad, R. and Sharma, S.N. (1995). Effect of blue green algae, nitrogen levels and modified urea materials on yield attributes and yield of wet land rice (*Oryza sativa*). *Indian J. Agron.* **40** (4): 594-597.
- Sriramanchandrasekhan, M.V. (2001). Effect of organic manures on the nutrient uptake, yield and nutrient use efficiency in lowland rice. *J. Ecobiol.* **13**(2):143-147.
- Stockdale, E.A, Lampkin, N.H., Hovi, M., Keatinge R, Lennartssen EKM, Mac Donald D.W., Padel, S., Tattersall, F.H., Woffe, M.S. and Watson, C.A. (2001). Agronomic and environmental

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implications of organic farming systems. *Adv. Agron.* **70**:261-327.
Yadav, R.L., Yadav, D.S, Singh, R.M. and Kumar, A. (1998). Long-term effects of inorganic

fertilizer inputs on crop productivity in a rice-wheat cropping system. *Nutr. cycling Agroecosyst.* **5**:193-200.