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RESEARCH PAPER

Nutrient management in rice-lentil (*paira*)-sesame cropping system under coastal saline zone of West Bengal

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Abstract : A field experiment was undertaken at Regional Research Station, Bidhan Chandra Krishi Viswavidyalaya during 2005-2006 and 2006-2007 under coastal saline soil of West Bengal. The experiment was laid out in Randomized Block Design (RBD) with nine different nutritional treatments each replicated four times, to evaluate the growth, productivity and economics in rice-lentil (*paira*)-sesame sequence. The growth parameters, yield components and seed yield of all the crops in sequence were the maximum when organic manure was applied along with inorganic fertilizer at 75 per cent of the recommended dose (RD). The effect of well decomposed fishmeal (WDFM) was as good as farm yard manure (FYM) vis-à-vis vermicompost and sometimes it showed better result over FYM and vermicompost. The maximum rice equivalent yield, net returns and net production value in rice-lentil (*paira*)-sesame sequence were obtained from the crops treated with 75 per cent RD of NPK+2 t WDFM ha-1 only to rice.

Key Words : *Paira* cropping, Nutrient management, Fishmeal, Coastal saline zone

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INTRODUCTION

Presently fertilizer application is based on the nutrient requirement of individual crop and the carry-over effect of the manures or fertilizers applied to preceding crop are generally ignored. Further, application of inorganic fertilizers even in balanced amount can not sustain the soil fertility and crop productivity under diversified continuous cropping or mono-cropping and as a result of these things agriculture is now facing a lot of stresses. Integrated nutrient management involving conjunctive use of organic and inorganic sources of nutrients may improve the soil productivity (Patra *et al.*, 2000), and system productivity becomes sustainable (Raju and Reddy, 2000), rather to say, the soil-water-plant-animal-human continuum is maintained *i.e.* the agriculture is thus conserved to a large extent. It is fact that in the village cowdung is becoming scarce day-by-day. A large part of the available amount of it is used for preparing cowdung cakes for fuel purpose. So, emphasis should be given to use alternative sources (specifically different for different areas) for organic manures. In the coastal saline zone of West Bengal, farmers are habituated in applying raw fishmeal in the vegetables and some other crops, but it causes problems of disease and insect occurrence. Preparation of well-decomposed fishmeal (WDFM) from dried fish, easily and amply available at low cost in this zone and application it increases the yield of crops without causing any pest problem and improves soil fertility simultaneously. In this context, with a broader objective of utilizing the organic resources for substituting the chemical fertilizer partly, augmenting the soil health for sustainability in agricultural production and increasing the cropping intensity of the coastal saline zone in an eco-friendly manner. Inclusion of low water requiring crop like oilseed and pulse in the cropping sequence after *Kharif* rice not only increases the cropping intensity but also promote optimal utilization of land-water-nutrient resources. Moreover, a deficit in demand

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