Manures and Zinc Supplementation Effects in Rice (*Oryza sativa L.,*) – Blackgram (*Vigna mungo L.*) Sequence at Different Nitrogen Levels

S Prathibha Sree, R Veera Raghavaiah, G Subbaiah, Y Ashoka Rani and V Sreenivasa Rao
Department of Agronomy, Agricultural College, Bapatla 522 101, Andhra Pradesh

ABSTRACT

A field experiment was conducted at the Agricultural College Farm, Bapatla on a sandy clay loam soil during 2010 – 11 and 2011 – 12 to study the influence of manures and zinc supplementation effects at different nitrogen levels on productivity and nutrient uptake of rice-blackgram sequence. The experiment was laid out in a split plot design replicated thrice. The study revealed that the highest grain yield of 5130 kg ha^{-1} and 5062 kg ha^{-1} during 2010 and 2011, respectively, was recorded with Greenmanuring *in situ* + $ZnSO_4$ @ 50 kg ha^{-1} as basal which was comparable with FYM 10 t ha^{-1} + $ZnSO_4$ @ 50 kg ha^{-1} as basal in enhancing the productivity of rice during both the years of study. Straw yield was not significantly influenced by organic manures during both the years of study. Significantly higher grain yield, straw yield and harvest index were recorded with the highest level of nitrogen 180 kg N ha^{-1} irrespective of the manure and zinc supplementation. Straw yield and harvest index values were comparable with 120 kg N ha^{-1} during both the years of study. Nutrient uptake (N, P, K and Zn) was significantly influenced by manures and zinc supplementation and nitrogen levels. The highest nutrient uptake was recorded with the greenmanuring *in situ* + $ZnSO_4$ @ 50 kg ha^{-1} as basal at the highest level of nitrogen (180 kg N ha^{-1}) application.

The productivity of blackgram that followed rice in the sequence also increased significantly with manures and zinc supplementation to rice at every level of nitrogen application upto 180 kg N ha^{-1} showing residual benefit of the practice in the system.

Key words : Blackgram, Rice, Manures, Nitrogen levels, Nutrient uptake, Zinc.