Direct and Residual Effects of Integrated Nitrogen Management on Soil Biological Properties and Yields of Rice Based Cropping Sequences

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ABSTRACT

A field experiment was conducted at College Farm, Agricultural College, Bapatla during *kharif* and *rabi* seasons of 2015-16 and 2016-17. The results of the investigation indicated that the adoption of INM (Integrated nitrogen management) comprising of 50% RDN+ 25% N through FYM+ 25% N through neem cake+ microbial consortium (Azpospirillum + PSB @ 2.5 kg ha^{-1}) recorded significantly higher grain yield and straw yield of rice and residual effect of INM and 100% RDF gave higher yields of blackgram, maize, sorghum, sunflower and mustard. Regarding biological properties, residual effect of INM had influenced the DHA activity by 11.8% and 13.43% during 2015-16 and 2016-17, respectively. Bacteria (15.11 to 20.0%), fungi (8.37 to 18.36%) and actinomycetes (5.9 to 16.45%) populations were increased by residual effect of INM.

Key words: *Biological properties, INM, Microbial populations, Rice, Rice fallow crops*