

Direct and Residual Effect of Integrated Nutrient Management Practices in Groundnut-Maize Cropping System on Yield and Soil Fertility

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ABSTRACT

A field experiment was conducted “Integrated Nutrient Management in Groundnut (*Arachis hypogaea* L.)-Maize (*Zea mays* L.) Cropping System” during two consecutive years (2015-2016 and 2016-2017) at the Agricultural Research Station, Vizianagaram of Acharya N.G. Ranga Agricultural University (ANGRAU), in the North - Coastal Agro-Climatic Zone of Andhra Pradesh, to study the effect of integrated nutrient management practices on growth and yield of *kharif* groundnut and succeeding *rabi* maize. The present research was conducted to study the direct and residual effect of organics on groundnut (*Arachis hypogaea* L.) maize (*Zea mays* L.) crop sequence. Results demonstrate that combined application of RDF₁₂₅+FYM_{5t}+ *Rhizobium* inoculation +PSB+VAM resulted in 71.17% and 66.75% higher pod yield over RDF₁₀₀+FYM_{5t} (control) during both years of study. Among the different INM practices application of RDF₁₂₅+FYM_{5t}+ *Rhizobium* inoculation +PSB+VAM proved its superiority in terms of yield attributes, quality and pod yield of groundnut. Combined application of RDF₁₅₀+FYM_{5t}+ *Rhizobium* inoculation +PSB+VAM to the preceding groundnut crop influenced indirectly to produce more kernel yield of maize than RDF₁₀₀+FYM_{5t} (control) plots during both the years. In respect of direct treatments applied to maize, the treatment combination of RDF₁₀₀+ *Azospirillum* + PSB+VAM + groundnut residue incorporation compared to RDF₁₀₀+ *Azospirillum* + PSB+ VAM. Application of RDF₁₂₅+FYM_{5t}+ *Rhizobium* inoculation +PSB+VAM to groundnut followed by direct application of RDF₁₀₀+ *Azospirillum* + PSB+VAM + groundnut residue incorporation recorded highest system productivity and also leave highest amount of available N, P and K in the soil.

Key words: *Groundnut, Maize, Nutrient uptake, Soil parameters, System productivity, yield.*