

IMPACT OF CONTINUOUS ORGANIC AND INORGANIC FERTILIZER APPLICATION ON RICE-RICE CROPPING SYSTEM UNDER TAMIRAPARANI RIVER BASIN IN TAMIL NADU, INDIA

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ABSTRACT

The Permanent Manurial Trials were conducted at Rice Research Station, Ambasamudram with the treatments such as T₁- Control, T₂- Organic Manuring (Farm Yard Manure on N equivalent basis + biofertilizers), T₃- Inorganic Fertilization (as per blanket recommendation-120:40:40 Kg NPK/ha), T₄- Integrated Nutrient Management (FYM 12.5 t/ha + NPK+ biofertilizers). The treatment has been modified slightly with STCR-IPNS recommendation and implemented from 2015 onwards. The mean grain yield of ASD16 was ranged from 2676 to 6564 and from 3952 to 7175 kg/ha during pishanam and kar seasons respectively whereas it was ranged from 2728 to 6774 kg/ha and from 2769 to 5599 kg /ha during pishanam and kar respectively under ASI0024. Though the grain yield was more during kar season than the pishanam season, the difference in grain yield between kar and pishanam seasons were narrowed down by the application of nutrients based on STCR-IPNS method. Application of nutrients through INM practice (FYM 12.5 t/ha + STCR-IPNS based recommendation for 5 t/ha + Bio-fertilizer as per CPG) reduced the nitrogen requirement from 14.25 kg/t to 11.75 kg/t of rice grain production. The soil available nitrogen content was depleted under control whereas it built up under INM practice with STCR-IPNS. The mean organic carbon content under control and inorganic source of nutrient application was almost same and increased to 0.65 % by the organic source of nutrient application and to 0.70 % by the INM practice of nutrient application. The soil was compacted under the continuous application of inorganic fertilizer and loosened with more porespace by the application of nutrients through organic alone or in combined with inorganic fertilizer as observed from the reduced bulk density from 1.35 to 1.23 Mg/m³.

KEYWORDS: Rice, PME, Organic farming, Inorganic farming & STCR-IPNS

Received: Jan 28, 2021; **Accepted:** Feb 18, 2021; **Published:** Mar 15, 2021; **PaperId.:** IJASRJUN202118