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Select Theme	: Sustainable and equitable farming systems
Endorsement email	:
Keyword 1	: Nutrient management
Keyword 2	: Soil and soil health
Keyword 3	: Sustainable management practices
Title of Entry	: Evaluation of Organic Nitrification Inhibitors for Enhancing Nitrogen use Efficiency in Popular Rice Varieties
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Select only one type of presentation	: 15 minute oral presentation
Abstract	: Nitrogen (N) is the key nutrient element required for rice but its use efficiency is very low (25-40%) under flooded conditions. Addition of nitrification inhibitors retards nitrification, minimizes leaching and gaseous losses of N. A field experiment was conducted to study the efficiency of organic nitrification inhibitors [Neem coated urea (NCU), NCU+Karanjin, NCU+FYM+Azospirillum along with control (no nitrogen)] in three popular rice varieties, IR 64, MTU 1010 and CR dhan 310 in a split plot design during wet season of 2017 at the ICAR-IIRR, Hyderabad. Plant growth, yield parameters, grain and straw

yields and nitrogen use efficiency indices were computed. Gas samples collected from the canopy were analysed for CH₄, CO₂ and N₂O at reproductive stage and important soil parameters were estimated at harvest. Growth parameters (NDVI, SPAD, Plant height) were higher with NCU + Karanjin and in the variety, CR dhan 310. Similarly, panicles and grain number per panicle were higher in NCU+Karanjin. With regard to varieties, though IR64 recorded higher number of panicles, MTU 1010 recorded higher number of grains per panicle. Significantly higher grain yield was recorded in NCU+Karanjin treatment which was significantly superior to NCU and NCU+ FYM+ Azosirillum by 16-19 %. With regard to varieties, MTU 1010 recorded maximum grain yield (4.75 t/ha) followed by IR 64 (4.33 t/ha) and CR dhan 310 (3.92 t/ha). There was no significant difference in soil PH , EC and soil available nutrients and these properties will not change within a short period of experimentation. In case of enzymes, Urease and Protease activity was less in the NCU + Karanjin treatment due to slow release of N. NUE indices were higher with NCU+ Karanjin treatment but among the varieties, no single variety recorded all maximum values. Methane, CO₂ and N₂O emissions were less in NCU treatment. FYM addition increased CH₄ emission to some extent and decreased CO₂ emission. Among varieties, MTU 1010 recorded lower CH₄, N₂O and CO₂ emissions followed by CR dhan 310 and IR 64. Thus, organic nitrification inhibitors have good potential for improving yield, nitrogen use efficiency and reducing losses in flooded rice soils.

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