

Category	: International Rice Research Conference
Select Theme	: Sustainable and equitable farming systems
Endorsement email	:
Keyword 1	: Nutrient management
Keyword 2	: Sustainable management practices
Keyword 3	: Yield gaps
Title of Entry	: Field screening of rice genotypes for higher nitrogen use efficiency
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Select only one type of presentation	: 15 minute oral presentation
Abstract	: The nitrogen use efficiency (NUE) of fertilizer N in rice is very low, i.e. 21-33%. Low NUE reduces farm profits, water quality, air quality and the agronomic efficiency. Several strategies including split N application, use of slow release N fertilizers and nitrification inhibitors (NIs) have been suggested to increase NUE in rice. Although, most of the NIs remain still unpopular with most of the Asian farmers due to their high cost and limited availability. Under such a scenario the better option could be to identify the N-use efficient genotypes. Therefore, a field experiment was conducted at the ICAR-Indian Agricultural Research Institute, New Delhi to screen the rice genotypes for higher NUE during wet seasons of 2016 and 2017. Treatments were combinations of 3 nitrogen levels (0, 50 and 100% of the recommended dose, i.e. 120 kg N/ha) and 10 genotypes, allocated in a split-plot design with 2 replications. Some genotypes were common during both the years. In first year, genotypes, Taipe 309, Nagina 22, Himdhan, Swarna, BPT 5204, MTU 1010 and Jaya produced at par grain yields. Genotypes differed significantly with respect to harvest index (HI). Nagina 22, Himdhan, TKM 6, Swarna, BPT 2504, MTU 1010 and Jaya recorded at par values of HI in first year. Nagina 22, Himdhan, Swarna, BPT 2504 and MTU 1010 recorded significantly higher HI over Kala Dhan and Pusa 44. The highest grain yield efficiency index (GYEI) was recorded in Nagina 22 (1.15), followed Taipe 309 (1.09) and Himdhan (1.09), indicating their worth as N efficient genotype. In second year, genotype Nidhi produced significantly higher grain yield of rice over all other genotypes. The next best genotypes, with respect to grain yield, were CR Dhan 310 and Nagina 22, both producing significantly greater grain yields over BPT 5204, MTU 1010, Rasi, Pusa 44, Panvel, CR Dhan 311 and Taipe 309. Genotypes Nidhi recorded the highest HI, which perhaps has led to

highest grain yield achieved by this genotypes. In second year, Plants grown under 100% RDN had a relatively higher root growth rate, with more pronounced effects compared to the nitrogen limiting treatment.

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