

Yield and agronomic characteristics of tropical rice as influenced by high nitrogen rates.

ABSTRACT

An experiment with treatments comprising of five nitrogen rates (0, 120, 160, 200 and 240 kg N/ha) applied as urea was carried out to evaluate the effects of high nitrogen application on the yield and agronomic performance of two rice varieties; MR 211 and MR 219. Raising nitrogen application was found to increase ($P<0.05$) the number of spikelets per panicle but reduce the percentage of filled spikelets ($P<0.05$). Although the increment in number of spikelets per panicle resulted in the reduction of the filled spikelets percentage, the grain yield was not affected due to sufficient production of spikelets per square meter which maintained the grain productivity. The plant agronomic characteristics such as stem height and duration to grain maturity also increased ($P<0.05$) with nitrogen application. Both varieties differ in the yield components and agronomic characteristics. Between the two varieties, MR 219 is superior to MR 211 in view of the higher grain yield and grain: straw ratio. The result from correlation between yield and yield components implies that the total number of spikelets per square meter was believed to be the major determinant of grain yield.

Keyword: Nitrogen; Rice variety; Yield components.