

THE EFFECT OF VARIABLE NITROGEN LEVELS ON GROWTH AND YIELD OF SELECTED RICE VARIETIES

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The experiment was conducted at the Rice Research and Development Institute (RRDI) at *Bathalagoda* in *Yala* 2022 to determine the varietal response of rice to different levels of N fertilizer. Rice varieties Bg 352 and Bg 374 and 0, 50, 100, and 150 kg N ha⁻¹ nitrogen levels were selected for the study. The N level was used as the main factor and variety was used as the subfactor in a split-plot experimental design. Soil samples were collected from the surface soil depths (0-15 cm) at the initial stage and analysed for main soil fertility parameters. The paddy crop was transplanted and soil plant analysis development (SPAD) readings and leaf colour chart (LCC) readings were collected once a week from 3 weeks after planting until 8 weeks after planting. The crop was harvested at three and a half months. Yield parameters and grain yield were collected at the time of harvesting. Data analysis was done by ANOVA procedure using statistical tool for agricultural research (STAR) software 2.0.1 version. Yield increment to N application was significant ($p < 0.05$) up to 100 kg N ha⁻¹ for both varieties and Bg 374 showed a better response compared to Bg 352. The N use efficiency of Bg 374 was higher at 50 kg N ha⁻¹ and it was declined at higher N levels. The N use efficiency of Bg 352 was higher at 100 kg N ha⁻¹ and it was also declined at higher N levels. The N use efficiency of Bg 374 was 21.4 kg kg⁻¹ N at 100 kg N ha⁻¹ and that of Bg 352 was 7.24 kg kg⁻¹ N at the same level of nitrogen. The results of this experiment reveal the importance of selecting rice varieties that respond to different levels of N fertilizer in increasing crop yield.

Keywords: Nitrogen use efficiency, Rice varieties, Urea