

## PERFORMANCE OF DIFFERENT RICE VARIETIES UNDER DIFFERENT FERTILITY CONDITIONS OF SOIL

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It is important to select suitable varieties for different soil and environmental conditions when selecting rice varieties for future rice production. In this context, identifying the performance of rice varieties under different fertility conditions is very important. Varieties perform well in low soil fertility conditions can be used for low fertile soils for higher yields and varieties show better performance in high fertility condition can be used for intensive paddy cultivation. Also, some varieties have an ability to absorb certain nutrients under low fertility levels than other varieties and this situation can be exploited to select varieties with better nutrient uptake ability and high nutritional value of grain.

A field experiment with 20 rice varieties including traditional, old improved and new improved varieties was conducted in the research field at Rice Research and Development Institute, Batalagoda in 2007/2008 Maha season. The selected varieties were cultivated in non fertilized plots (Maintained for twenty seven years without fertilizer application) and the same varieties were grown with recommended levels of fertilizers. Randomized Complete Block Design was used with three replicates. Soil was analyzed for nutrient status prior to cultivation. Number of tillers and plant height were recorded in each variety after four weeks from transplanting under both conditions. Plant sampling was done at maximum tillering stage and at flowering. Weight of above

ground and below ground parts were measured for both stages. The plant samples were analyzed for Zn and Fe content at flowering stage.

Bg 359 showed the highest (55.5%) relative tiller number and Bg 407 H showed the highest relative plant height (85%). Highest relative straw weight was recorded by Bg 403 at tillering and Murungakayan showed highest value at the flowering stage. At 307 and Murungakayan showed 58.5% and 103% respectively, for dry root weight. Relative Zn absorption was higher than 100% in Bg 360 and Bg 359. Murungakayan, H4, Bg 379-2, Bg 450, Bg 403, Bw 400, Bg 407H, Bg 358 and At 306 showed relative values higher than 100% for Fe content. The study indicated that performance is better with four month varieties than 3-3 ½ month varieties under low fertility conditions.

*Key words:* Rice varieties, Soil fertility, Performance