

Genetic variability studies for grain yield, its components traits and quality traits in ratoon rice (*Oryza sativa* L.)

Hari Ram Kumar Bandi, P V Satyanarayana, D Ratna Babu, N Chamundeswari, V Srinivasa Rao and S Krishnam Raju

Department of Genetics and Plant Breeding, Dr.YSRHU-College of Horticulture, Parvathipuram, Parvathipuram Manyam, Andhra Pradesh, India

ABSTRACT

The present study was to investigate the presence of variability among the 20 rice varieties in the ratoon crop for 27 characters, which were raised in randomized complete block design (RCBD), with three replications; each entry was planted in 3 rows of 3 meters length at 20 cm × 15 cm spacing in *Rabi* season. The analysis of variance of 20 parents showed significant differences for all 27 traits in study (*viz.*, 10 yield associated traits, 3 traits contributing for ratoonability, 6 physical grain quality traits and 8 cooking quality traits). The phenotypic coefficient of variation (PCV) values are higher than the genotypic coefficient of variation (GCV) values and the difference between them is indicating the little role of environment in the expression of these traits. A wide range of PCV (2.21 – 45.27%) and GCV (1.47– 44.53%) was resulted for 27 traits. Higher GCV and PCV values were observed in grain yield per plant followed by number of ear bearing tillers per plant, alkali spreading value and number of ratoon productive tillers as percentage of main crop productive tillers which signifies the additive genetic control in inheritance of these trait. High heritability coupled with high genetic advance as per cent of means were observed for the characters *viz.*, total number of tillers per plant, number of ear bearing tillers per plant, number of ratoon productive tillers as percentage of main crop productive tillers, number of grains per panicle, kernel breadth after cooking, water uptake, gel consistency, alkali spreading value, amylose content and grain yield per plant indicated the role of additive gene action in governing the inheritance of these traits and improvement of yield related and quality traits through simple selection may be rewarded.

Keywords: *Cooking traits, Genetic advance, Heritability, Quality Traits, Rice, Variability and Variance*