

Research Article

Genetic variability, heritability, genetic advance and correlation among yield and yield components of rice (*Oriza sativa* L.)

Bhim Nath Adhikari^{1,*}, Bishnu Prasad Joshi¹, Jiban Shrestha² and Naba Raj Bhatta¹

¹Regional Agriculture Research Station (RARS), Dipayal, Doti, NARC

²National Commercial Agriculture Research Program (NCARP), Pakhribas, Dhankuta, NARC, Nepal

*Correspondence: bhimadhikari.mail@gmail.com, ORCID: <https://orcid.org/0000-0002-1812-3311>

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ABSTRACT

This study was conducted during summer 2015 at Regional Agriculture Research Station, Dipayal, Doti, Nepal to estimate the genotypic and phenotypic variability, heritability, genetic advance and correlation on grain yield and yield associated traits using 26 advance genotypes of lowland irrigated rice. Analysis of variance revealed the existence of significant difference for days to flowering, maturity, plant height, panicle length, thousand grain weight and grain yield. High heritability was estimated for days to flowering (0.88), maturity (0.79), thousand grain weight (0.48) and plant height (0.43) suggesting these traits are under high genetic control. High phenotypic variation was observed for grain yield (24.87%), number of grains/panicle (22.45%), number of panicles/m² (20.95%) and straw yield (20.75%) while grain yield had medium (12.02%) and remaining traits showed low genotypic coefficient of variation (<10%). High phenotypic coefficient of variation estimated as compared to genotypic coefficient of variation showed environmental influence on the expression of traits. Grain yield (11.98) and days to flowering (10.32) showed medium and remaining traits showed low genotypic advance as percent of mean. High to low heritability with moderate to low genotypic advance as percent of mean suggested these traits were governed by non additive gene thus direct selection is not beneficial. Further improvements on yield potentiality and yield traits on these genotypes are suggested by creating variation and selection. Panicle length ($r = 0.230$), days to flowering ($r = 0.247$), effective tillers ($r = 0.488$) and straw yield ($r = 0.846$) manifested significant positive association with grain yield indicating that yield can be increased if selection applied in favor of those yield components.

Keywords: Rice, variability, heritability, genetic advance, correlation

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