RESEARCH ARTICLE | International Journal of Plant Sciences, (July to December, 2009) Vol. 4 Issue 2 : 535-537

Study of variability of rice germplasm accessions used for wild rice eradication

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Accepted : May, 2009

SUMMARY

The 100 genotypes from germplasm of Indira Gandhi Agricultural University, Raipur were studied for eight characters. The genotype exhibited significant variability for days to 50 % flowering, flag leaf length, plant height, panicle length, number of filled grains per panicle, 100 seed weight and grain yield per plant. The magnitude of PCV was slightly more than GCV for all the character. The highest GCV (20.51%) and PCV (20.53%) were observed in grain yield per plant and lowest GCV (5.78%) and PCV (5.85%) in plant height. Maximum heritability was observed in number of filled grain per plant and grain yield per plant (99.80), while, genetic advance in terms of percentage was highest for number of effective tillers per plant (38.78) followed by number of filled grain per panicle (31.28). These characters showed high genetic advance with high heritability estimates.

Key words : GCV, Genetic advance, Heritability, Rice PCV, Variability

The genetic components of variability being heritable play important role in the crop improvement programme. Maximum genetic improvement for quantitative traits can be achieved through a clear understanding of types and amount of variability present in genetic stock and interest. Study of variability in crop is essential for selecting the desired types and knowledge of inter- relationship among various traits and component characters contributing to yield may help the breeder in simultaneous improvement of several characters in selection programme (Singh *et al.*, 1980).

MATERIALS AND METHODS

The present research work was conducted at Research Farm, Department of Plant Breeding and Genetics, Indira Gandhi Agricultural University, Raipur (Chhattisgarh) during *kharif* 2000. The experimental material for this study was comprised of 100 genotypes. Each genotype was grown in single row in each replication. Normal agronomic practices were followed throughout the crop period. Five plants from each row were randomly selected and were tagged for recording characters *viz.*, days to 50 per cent flowering, flag leaf length, plant height, panicle length, number of effective tillers per plant, number of filled grains per panicle, 100 seed weight and grains yield per plants. The Genotypic Coefficient of Variation (GCV), Phenotypic Coefficient of Variability, heredity in broad sense and genetic advance were estimated as per the standard procedure cited by Singh and Chaudhary (1977).

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RESULTS AND DISCUSSION

The analysis of variance (Table 1) indicated that the mean of squares due to genotypes were significant for all the characters. This indicated that sufficient variation was present in the genotypes under study for all the characters. The high magnitude of variability among the genotypes for yield and yield attributing characters suggested that enough scope is there for the improvement of various traits for selection.

Days to 50 per cent flowering were observed between 78.00 to 99.67 with a mean of 91.52. Flag leaf length varied from 21.60 cm to 39.00 cm. Plant height varied from 109.20 cm minimum to 135.53 cm maximum with a mean of 120.64 cm. Panicle length showed a mean value 23.91 cm within the range of 19.27 cm to 27.47 cm. The mean number of effective tillers per plant was 4.77 with minimum 3.40 to a maximum of 6.60. Total number of filled grains per panicle ranged from 93.53 to 192.60 with a mean of 130.46. Hundred (100) grain weight was recorded in between 1.75 gm to 2.63 g with a mean of 2.44 g. Grain yield per plant had a mean of 12.39 g with minimum of 7.15 g and maximum of 20.06 g (Table 2).

The high genotypic coefficient of variation (20.51 per cent, 20.53 per cent), were recorded grain yield per plant for followed by number of effective tillers per plant (19.04 per cent, 19.28 per cent), and number of filled grains per panicle (15.20 per cent, 15.22 per cent). Gonzales and Ramirez (1998) who also reported high