Multi Trait Selection of Backgram Genotypes using Multi-Trait Genotype Ideotype Distance Index (MGIDI)

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ABSTRACT

The growing demand for superior genotypes has led the black gram breeders to seek auxillary techniques on multivariate selection to obtain ideal cultivars with improved traits. The Multi trait Genotype Ideotype Distance Index (MGIDI) provides a unique, robust and easy to handle selection process and also identifies the strengths and weaknesses of the genotypes. The present experiment was carried out with 50 black gram genotypes at Agricultural College Farm, Bapatla during two *kharif* seasons of 2021 and 2022 for the genetic selection of superior black gram genotypes using Multi trait Genotype Ideotype Distance Index. It provided desired values of selection differential and expected selection gain for all the traits except for plant height, indicating the potential to select superior genotypes. A total of ten traits were grouped under two factors, cumulatively explained 57.2% of total variance with a significant eigen value of more than one. The MGIDI index identified five genotypes *viz*., LBG 884, TBG 129, TBG 141, SUG 11-37 and LBG 904 at 10% selection intensity. Among the two factors, factor 2 contributed least towards the MGIDI value of majority of the selected genotypes, while factor 1 is the higher contributer. The identified genotypes can be used as parents in hybridization programmes which may result in good hybrid combinations to produce transgressive segregants in their respective F_2 and subsequent segregating generations.

Key Words: Factor contributions, Linear relationships, Multitrait Genotype Ideotype Distance Index, Selecton gain and Transgressive Segregants.