EVALUATION OF MUNGBEAN GERMPLASM FOR
YIELD AND YIELD COMPONENTS
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ABSTRACT
180 germplasm lines of mungbean comprising both indigenous and exotic collections along with checks were evaluated in augmented block design for yield and its components during rabi 2002-03. The checks were found to be superior to the test material for all the characters studied, except for 100 seed weight. The ANOVA for yield indicated highly significant differences among test varieties and checks. The traits plant height and number of clusters per plant recorded highly significant and positive association with grain yield, while number of seeds per pod showed negative association with seed yield.

Mungbean (Vigna radiata L. Wilczek) is an important pulse crop of India grown in an area of 2.53 m ha with 0.86 m.t production and productivity of 340 kg/ha (Anonymous 2003). In India, mungbean is grown in wide range of soils by enriching them and fitting into various niches available in our cropping systems without directly competing with other system components. Due to uncertainties of assured returns, mungbean is cultivated in fallow lands without applying any inputs. So, development of high yielding varieties in mungbean is sure to spread this crop very fast as an essential and complimentary component of all highly intensive cropping systems without replacing any major components of these systems.

One hundred and eighty genotypes of mungbean both indigenous and exotic collections were evaluated for yield and other seven yield component characters under ICAR Ad-hoc Scheme “Genetic enhancement of mungbean with special emphasis to plant type, disease resistance and photo and thermo insensitivity and grain yield” at Regional Agricultural Research Station, Lam, Guntur. The lines were planted in Augmented Block design with 6 checks of mungbean repeated after every 10 lines of test material grown under 3 blocks. Each genotype was sown in a single row of 4m length with a spacing of 30 x 10 cm. The data were recorded on 5 randomly selected plants from each genotype for plant height, number of branches per plant, number of clusters per plant, number of pods per plant, pod length, number of seeds per pod, 100 seed weight and yield per plant. The mean data were subjected for analysis. The augmented design analysis followed is as per Sharma (1998). The coefficient of variation (CV) and least significant difference (LSD) were computed as per Peterson (1985).

The mean, range, CV and LSD of all characters are presented in Table 1. The mean values of checks indicated that checks are superior than the genotypes for all the characters studied except for 100 seed weight. The checks recorded more seed yield, since they are developed and selected for the situation and hence they are more adapted than the test entries. However, several genotypes were found better than checks for traits like number of pods, number of seeds per pod, number of clusters per plant. Of these, M 403 had more number of branches per plant. M 1817 recorded more number of clusters per plant and M 1833 had more pods per plant while, LGG 487 had more number of seeds per pod. Hence, these genotypes may be used in hybridization programmes to obtain
superior genotypes for selected traits.

The ANOVA for yield indicated highly significant differences among varieties, checks and between varieties and checks (Table 2). The magnitude and direction of correlation coefficients are found to be highly and positively significant for yield per plant with plant height and number of clusters per plant (Table 3). Here it indicates that as the plant height increases it results in more number of pods per plant in mungbean. The trait number of seeds per pod recorded negatively non significant correlation with seed yield, the character number of clusters per plant recorded highly positive significant correlation with plant height and number of branches per plant.

Hence, special emphasis is to be given to select genotypes where the supposed negative correlation between seed size and other yield components is weakened or
changed to positive direction. In case of negative correlation between seed size and yield per plant, a compromising selection criterion between moderate seed size and high grain yield per plant may be followed. Quantitative analysis for yield and its components in mungbean have lead to the conclusion that variability exists for plant types with more number of pods per cluster, number of clusters per plant and plant type with erect branches, top bearing, pod length, seed size, dwarf plant etc. Hence, a judicious breeding programme should combine these components in such a way that pods per plant per unit area increased by 40-50 per cent.

REFERENCES