

Genetic variability studies for yield and agronomic traits in chickpea (*Cicer arietinum* L.) reference set

**B Sriram Kumar, V Jayalakshmi, K Hima Bindu, K Radhika, V Srinivasa Rao,
A Lokeshwar Reddy, B Jyothi and P Malik Babu**

Department of Genetics and Plant Breeding, Acharya N.G. Ranga Agricultural University,
Agricultural College, Bapatla -522101, Andhra Pradesh, India

ABSTRACT

The improvement in chickpea productivity depends upon the magnitude of genetic variability available in the breeding material. Thus, the present investigation was carried out with chickpea reference set (280 genotypes) to study variability present for yield and agronomic traits, viz., days to first flowering, days to 50% flowering, days to first podding, days to maturity, plant height, number of pods per plant, 100 seed weight, seed yield, and harvest index. The germplasm was evaluated in an alpha lattice design with three replications at the Regional Agricultural Research Station, Nandyal, Andhra Pradesh, India, during rabi 2022-23 and 2023-24. For nine characters GCV, PCV, heritability, and genetic advance as a per cent of the mean were analysed to understand the magnitude of genetic variability in reference set. High values of PCV and GCV were observed for 100SW, NPP, SY, and HI. High heritability and genetic advance were observed for the traits DFF, DFPP, PH, 100SW, NPP, and HI highlighting their responsiveness to selection and their contribution to yield improvement in breeding programs. This study underscores the potential of genetic variability as a foundation for enhancing yield-related traits in chickpea. Traits with moderate heritability, such as seed yield, suggest that yield improvement may benefit from indirect selection through associated stable traits with higher heritability. A combination of traits with high heritability coupled with high genetic advance can be used as a selection index for the improvement of chickpea productivity.

Key words: *Chickpea, Heritability, Genetic advance and Seed yield*