Comparative assessment of F_2, F_3 and F_4 generations derived from an intra-specific cross under RGA and field conditions in Chickpea (*Cicer arietinum* L.)

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ABSTRACT

A total of 228 F_2, F_3 and F_4 lines in chickpea were evaluated under speed breeding, semi-controlled glasshouse and field conditions at International Crops Research Institute for the Semi-Arid Tropics, Hyderabad during summer 2024, *kharif* 2024 and *rabi* 2024-25 respectively. Observations were recorded for days to flowering, days to maturity, seeds per pod and grain yield per plant. Pair-wise two sample t-test across generations revealed highly significant differences for the all the traits showing progressively delayed flowering, maturity and higher yield per plant. Number of seeds per pod showed inconsistent trend with $F_2 > F_3$ and $F_4 > F_3$. Low inter-generation correlations and regressions indicated a strong influence of the environment on the performance of lines. Transgressive segregants were observed for all traits across generations. This study reveals the scope of selection in segregating populations advanced under diverse growing conditions.

Key Words: *Chickpea, Generation advancement, Inter-generation Association and Transgressive segregation*