Genetic variability Correlation and path analysis for seed cotton yield and fiber quality traits in BT cotton (*Gossypium hirsutum* L.)

B Jeevana Jyothi, Rani Chapara, N Chamundeswari and L Rajesh Chowdary
Department of Genetics and Plant Breeding, Acharya N G Ranga Agricultural University, Agricultural College, Bapatl - 522101, Andhra Pradesh, India

ABSTRACT

A field experiment was conducted during *kharif* 2025-26 at Regional Agricultural Research Station (RARS), Lam, Guntur using randomized block design used to estimate genetic variability, correlation and path analysis for seed cotton yield and fiber quality traits in Bt cotton (*Gossypium hirsutum* L.). The experimental material comprised of 4 lines, 4 testers, 16 hybrids and two standard BG-II checks (Rasi Swift and RCH 659).

Analysis of variance revealed significant differences among the genotypes, suggesting substantial variability in experimental material. High GCV and PCV was observed for plant height, number of monopodia , number of sympodia, number of bolls per plant, seed index and seed cotton yield. High heritability along with high genetic advance as per cent of mean observed for plant height, number of monopodia per plant, number of sympodia per plant, number of bolls per plant, boll weight, lint index, seed index, ginning out turn, seed cotton yield per plant, upper half mean length and micronaire, indicating that direct phenotypic selection may be effective. Correlation analysis revealed that plant height, number of sympodia, number of bolls per plant, lint index and ginning out turn showed positive and significant association with seed cotton yield. Path analysis revealed that plant height, number of sympodia per plant and number of bolls per plant showed positive direct effects with significant association, indicating that improvement in these traits may improve the seed cotton yield.

Key Words: *Correlation, Genetic variability, Heritability and Path coefficient analysis*