

Quantification of weather relationship with seed vigour development and germination percentage in *desi* cotton (*Gossypium arboreum* L.)

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ABSTRACT

The present investigation was carried out during 2015 and 2016 at Research Farm of Cotton Section, Department of Genetics and Plant Breeding, CCS Haryana Agricultural University, Hisar to study the impact of weather parameters on seed development in *desi* cotton under varying environmental conditions. The experiment was comprised of three varieties of *desi* cotton namely, HD 123, HD 324 and HD 432 planted under three environmental conditions (early, normal and late sown). The results revealed that seed development as indicated by germination, protein content, gossypol content and seed vigour was affected significantly by delayed sowing. The seed quality parameters of April sown cotton crop were maximum except gossypol content. The cotton seed of variety HD 432 recorded the highest seed vigour and germination (54.49%) while the lowest values were observed in cotton seed of variety HD 123 (49.5%). Cotton seed vigour development was correlated with weather parameters prevailed during seed development phase pooled for both seasons. Weather factors and thermal indices had positive correlation with seed vigour protein content and germination except maximum temperature which was negatively associated whereas this response was reverse in case of gossypol content of cotton seeds.

Keywords: Seed development, seed germination(%), photothermal unit, polynomial response and weather