

A CASE STUDY

Secondary genetic productivity factors (SGPFs) in expression of grain yield in rainfed upland rice of Bastar Plateau

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In present investigation, 18 new genotypes were tested for upland rainfed ecology during *Kharif* 2013 and 2014, to identify promising genotypes and formulate phenological relationships at phenotypic and genotypic levels with uncertain weather parameters. The test populations exhibited enough variation to carry on crop breeding research however, genotypes responded differentially to water stress and late season drought with respect to morphological and yield traits. Considering genetic secondary productivity factors (SGPF), days to flowering, plant height, panicles per unit area, spikelet fertility and harvest index was observed to be major contributors for water scarce survivals. Days to flowering was found to be negatively associated with grain yield (-0.1941, -0.2986*, -0.2586 for *Kharif* 2013, 2014 and pooled over environment, respectively). Grain yield was positively and significantly associated with total crop biomass (0.6669**, 0.6122**, 0.6185**), plant height (0.5059**, 0.4145**, 0.4541**) and crop duration. Biased selection for earliness cause reduction in grain yield due to shortened vegetative phase hence, research is to be focused to minimize the yield penalty associated with earliness.

Key words : Upland rice, Rainfed ecosystem, Stress physiology, Genetic productivity factors

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