

SCREENING OF WHEAT GENOTYPES FOR DROUGHT TOLERANCE USING COMBINATION OF MORPHOPHYSIOGENIC AND BIOCHEMICAL MARKER FOR FOOD SECURITY

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Executive Summary

The research work was an attempt to determine the level of drought tolerance among twenty bread wheat genotypes using agronomic traits and proline analyses. The experiment was followed randomized complete block design with three replications during the period from November 2017 to April 2018 in rabi season. The longest plant (84.20 cm) was recorded in genotype Shatabdi, while the shortest plant (63.96 cm) was found in wheat genotype BARI GOM-30. The highest grain yield per plant (5.57 g) was recorded in Prodig, while the lowest grain yield per plant (4.15 g) was observed in the wheat genotype SAWYT-312. Phenotypic coefficient of variation was higher than the genotypic coefficient of variation for all the yield contributing traits. In correlation study, significant negative association was recorded for grain yield per plant of wheat genotypes with days to 50% of heading (-0.397), days to physical maturity (-0.344) while the non-significant negative association for plant height (-0.166), number of productive tillers (-0.226), proline content (-0.190). On the other hand, significant positive association was recorded for grain yield per plant with thousand seed weight (0.707), chlorophyll content (0.244), while non-significant positive association was observed with spike length (0.087), spikelets per spike (0.147), empty spikelet per plant (0.090), number of grain per plant (0.150). Twenty wheat genotypes were clustered into five diverse groups. The maximum number of genotypes were grouped in cluster I followed by cluster V, IV, III and II. In consideration of yield contributing characters and yield Prodig performed better under drought condition followed by DTWYT-22, SAWYT-326, SAWYT-331, Shatabdi, BARI Gom-28, and BARI Gom-30 and favorable adaptive traits useful for breeding.

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