

SCREENING OF ONION (*Allium cepa* L.) GENOTYPES FOR DROUGHT TOLERANCE USING MORPHO- PHYSIOLOGICAL AND YIELD CONTRASTING INDICES

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Executive Summary

Eight genotypes of onion (*Allium cepa* L.) viz. BARI Piaj 1, BARI Piaj 2, BARI Piaj 3, Taherpuri, Faridpuri, Bombay, Annex N-53 and Laltir King were evaluated to find out the genotypes for drought tolerance using morpho-physiological and yield contributing indices at Sher-e-Bangla Agricultural University, Dhaka during July, 2021 to June, 2022.. The experiment was laid out in Complete Randomized Design (CRD) with three replications. Mean performance, genetic parameters, Pearson's correlation coefficient, and principal component biplot analysis on different yield contributing characters and yield of onion genotypes were estimated. The longest plant (49.43 cm) was recorded in the genotype Laltir king, while the shortest plant (20.287 cm) was found in onion genotype BARI Piaj 3. The highest bulb yield/plant (34.50 g) was recorded in the genotype of Laltir King, whereas the lowest bulb yield/plant (21.38 g) from the genotype of BARI Piaj 3. Phenotypic coefficient of variation was higher than the genotypic coefficient of variation for all the yield contributing traits indicating drought stress influences the genotypes. In person's correlation study, yield/bulb positively and significantly correlated with plant height (0.818), root length (0.511), no. of leaves (0.744), leaf length (0.720), leaf breadth (0.756), bulb length (0.469), bulb diameter (0.716), leaf area (0.893), chlorophyll content (0.886) and dry weight per bulb (0.854). The positive and significant correlation observed between bulb yield and traits under-drought stress conditions provides evidence that studied traits might ultimately be considered as a tool for effective selection of drought tolerant genotypes. The study selected 8 genotypes with high bulb yields under drought stressed conditions and favorable adaptive traits useful for breeding. In consideration of yield contributing characters and yield, Laltir King performed better under drought condition followed by BARI Piaj 1, BARI Piaj 2, BARI Piaj 3, Taherpuri, Faridpuri, Bombay and Annex N-53.

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