

Establishment of Gene Pools for Yield Within the Ghanaian Sweetpotato Parental Germplasm

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Abstract : The increasing world population poses a threat to food security. To meet current and future food demands, sweetpotato stand a good chance because of its recent food security roles. Concerted efforts are needed for both regional and local level varietal development. Heterosis exploiting breeding scheme (HEBS) is one of the options used to improve yield in some crop species and could be a good approach for sweetpotato improvement in Ghana by establishing heterotic gene pools within a population. To achieve this, 22 parental lines were collected from different sources and put in a full diallel arrangement. A total of 149 families, 20 individual cuttings per family, were taken to the field, including 'checks' and parental lines for experimentation in a 1m X 0.3m planting order according to the Westcott design. Results from this study led to the characterization of the selected parents into three main heterotic gene pools based on their suitability for use as male, female or both, respectively. This study serves as a baseline for further characterization of the rest of the germplasm in the Ghanaian sweetpotato breeding program.

Keywords : sweetpotato, heterosis, germplasm, food security

Conference Title : ICABS 2023 : International Conference on Agricultural and Biological Sciences

Conference Location : New York, United States

Conference Dates : September 11-12, 2023