International Journal of Agricultural Sciences ☞DOI:10.15740/HAS/IJAS/18.2/666-674
Volume 18 | Issue 2 | June, 2022 | 666-674 ■ ISSN : 0973-130X Visit us : *www.researchjournal.co.in*

RESEARCH PAPER

Emulations of AMMI, BLUP and non-parametric measures to decipher GXE interaction of wheat genotypes evaluated in CZ

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Abstract : AMMI analysis observed highly significant variations due to environments, GxE interactions, and genotypes with, respective 63.2% 18.3% 5.5% towards the total sum square of variations. Absolute IPCA-1 scores pointed for G 2, G4, G7 as per IPCA-2, genotypes G8, G2 G7 would be of choice. ASV and ASV1 measures utilized 54.5% of interaction sum of squares recommended (G2, G7, G3). 96.9% of interaction effects utilized by MASV and MASV1 settled for G7, G2, G13 genotypes. BLUP-based HMGV RPGV HMRPGV measures pointed for G3, G13, G8 genotypes. Non parametric measures $NP_i^{(1)}$ observed suitability of G13, G9 whereas $NP_i^{(2)}$, $NP_i^{(3)}$ $NP_i^{(4)}$ identified G7, G10 wheat genotypes. First two significant principal components accounted for 68.5% of the total variation in the AMMI, BLUP and non-parametric measures in biplot analysis. Measures BLHM, MHPRVG, BLGM, PRVG, HM, Average, BLAvg accounted more of share in first component whereas $NP_i^{(2)}$, $NP_i^{(3)}$, $NP_i^{(4)}$ S_i^1 ,S_i^2 BLStdev S_i^4 were major contributors for second component. Clustering analysis observed the group of average, GAI, HM and BLAvg, BLHM, BLGM, PRVG, MHPRVG measures along with second cluster of CV, BLCV, Stdev, BLStdev , IPC1 placed in one quadrant. AMMI based measures ASV, ASV1, MASV, MASV1 clustered with non-parametric measures $NP_i^{(1)}$, S_i^1, S_i^2, S_i^3, S_i^4, S_i^5, S_i^6, S_i^7 in bigger cluster.

Key Words : AMMI, BLUP, $S_i^{(s)}$, $NP_i^{(s)}$, Spearman rank co-efficient, Biplot analysis

View Point Article : Verma, Ajay and Singh, Gyanendra Pratap (2022). Emulations of AMMI, BLUP and non-parametric measures to decipher GXE interaction of wheat genotypes evaluated in CZ. *Internat. J. agric. Sci.*, **18** (2) : 666-674, **DOI:10.15740/HAS/IJAS/18.2/666-674.**

Article History : Received : 15.03.2022**; Revised :** 11.04.2022**; Accepted :** 13.05.2022

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