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Additive Main Effects and Multiplicative Interactions Analysis of Yield Performances in Bread Wheat Genotypes across Environments

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Abstract: This study was carried out to determine the yield performances of 20 bread wheat genotypes across six environments in Central Anatolia, Turkey, in the 2000-2001 growing season. The experimental layout was a randomized complete block design with four replications. Additive main effects and multiplicative interactions analysis (AMMI) indicated that the yield performances of genotypes were under the major environmental effects of genotype by environmental interactions. The first two principal component axes (PCA 1 and 2) were significant ($p < 0.01$) and cumulatively contributed to 78.64% of the total genotype by environment interaction. A biplot generated using genotypic and environmental scores of the first two AMMI components also showed that genotypes with larger PCA 1 and lower PCA 2 scores gave high yields (stable genotypes), and genotypes with lower PCA 1 and larger PCA 2 scores had low yields (unstable genotypes), as in the sites tested.

Key Words: Bread Wheat, Yield, AMMI Analysis, Biplot

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