Bread Wheat Performance and Yield Stability under Heat-stress Environments in Sudan. (C01-abdalla132221-Poster)

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Abstract:

Wheat is traditionally cultivated in temperate environments. However due to the increasing demand for food, wheat cultivation has extended to tropical and subtropical hot environments. Currently 80% of the wheat area in Sudan is located in areas characterized with high temperature stress throughout most of the growing season. Thus conducting adaptation yield trails to identify genotypes suitable to such harsh non-traditional wheat environment is a major activity for wheat breeding program in Sudan. This study was conducted at 9 environments (site x year combinations) during 1998/99 and 1999/2000. Sixteen bread wheat genotypes including the commercial cultivars Debeira and El Neilain were evaluated in a randomized complete block design trial with four replications. Analysis of variance revealed highly significant differences among genotypes, sites and highly significant genotype X site interaction. Observed mean yields for sites ranged from 5398 kg/ha (Dongla) to 2345 kg/ha (Medani) in a north-south gradient. Effect of temperature regime on observed yields across north-south gradient is discussed. Additive Main effect and Multiplicative Interaction (AMMI) analysis of genotypic response across sites identified genotypes that exhibited high yield and stability.

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