

Evaluation of Bread Wheat (*Triticumaestivum*L.) Genotypes for Yield Potential and Related Traits under High Temperature Stress Condition at Middle Awash, Ethiopia



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ABSTRACT

Information on the extent and performance of genotypes present in a crop species under high temperature stress condition are essential for effective crop adaptation program. To generate such information 36 bread wheat genotypes with three released varieties (Fentalle, Amibara and Werer-2) were tested in Triple Lattice Design with three replication at Werer agricultural research center, Afar in 2017. The objective of the study were to develop bread wheat genotypes that adapted to middle Awash area and to identify best performed bread wheat genotypes for yield under high temperature stress condition. The data generated from the experiment were subjected to analysis of variance. The analysis of variances of bread wheat genotypes evaluated for 15 traits revealed highly significant difference between the genotypes for most traits and significant difference among genotypes for days to emergence. It was interesting to note that genotypes identified for short grain filling period and early maturing were G-4, G-18, G-3, G-26 and G-15 with maturity days of 70, 76, 77, 77 and 79 days after sowing respectively, than the released check variety Werer-2 (84 days). Similarly genotypes G-16, G-22, G-28, G-32 and G-34 had better required low canopy temperature reading than released check varieties Fentalle, Amibaraand Werer-2. The most important genotypes for showing excellent performance on grain yield per hectare under high temperature obtained from G-2, G-7 and G-21 with grain yield of 2479 kh/ha, 3039 kg/ha and 2409 kg/ha respectively, than the best performed released check variety Werer-2 (2362 kilo gram per hectare). Hence, from the current results it has been observed adequate existence of genotypes showing adaptability and good performance on grain yield in the studied area and this could be exploited in future bread wheat selection and breeding for high temperature stress condition.

BIOGRAPHY

TadiyosBayisaSerbesa has earned his B.Sc. Degree in Crop production and protection inJuly 2010 G.C from Haramaya University and joined Gewane Agricultural College as Lecturer and served as head of the plant science department Up to 2014. Then after he was employed by Ethiopian Institute of Agricultural Research (EIAR), Werer Agricultural Research Center (WARC) as Assistant Researcher in Cereal Crops Research Breeding. After two years of Work experience from EIAR he joined Ambo University in Agriculture specialized MSc. Degreein Plant Breeding and graduated in July 2018G.C.He has a Work experience since May 2014 as Assistant Researcher on cereal crops breeding in EIAR based at Werer Agricultural Research center. Currently his Research position is an Associate Researcher and working in irrigated cereal crops breeding and genetics department.

PUBLICATIONS

1. Evaluation of Bread Wheat (*Triticumaestivum* L.) Genotypes for YieldPotential and Related Traits under High Temperature Stress Conditionat Middle Awash, Ethiopia
2. Evaluation and Development of Bread wheat Varietiesadapted to irrigated lowland areas of Ethiopia.
3. Genetic Variability Study of Yield and Yield Related Traits in Rice (*Oryza sativa* L.) Genotypes
4. Enhancing Sustainable Wheat Productivity and Production through Development of Wheat Varieties Best Adapted to Irrigated Lowland Areas of Ethiopia

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