Characteristics of Wheat Cultivars Adapted to Production Systems Prone to High Temperature and Drought Stress During Grain Filling. (C03-tewolde113413-Poster)

Authors:

- H.Tewolde - *USDA-ARS, Mississippi State, MS*
- C.J.Fernandez - *Texas Agric. Exp. Sta., Corpus Christi, TX*
- C.A.Erickson - *USDA-ARS, Aberdeen, ID*

Abstract:

Cultivars released for a particular production system often are not characterized for tolerance to high temperature stress. The objective of this study was to test and identify wheat cultivars adapted to production systems with risks of high temperature stress during grain filling. Fifteen diverse wheat cultivars and one unreleased genotype were evaluated at the Texas A and M Univ. Agric. Res. and Ext. Center, Uvalde, TX during two seasons characterized by daily maximum temperatures as high as 36 C. Grain yield varied between 2979 and 4671 kg/ha in the first season and between 1916 and 5200 kg/ha in the second season. Late planting in the second season delayed heading resulting in grain filling to occur during periods of high temperature. Within each season, early-heading cultivars outperformed late-heading cultivars because of two distinct advantages: The early-heading cultivars had longer grain filling period and completed a greater fraction of the grain filling when temperatures were lower and generally more favorable. The results suggested that earliness to heading may be an effective single trait defining wheat cultivars adapted to production systems prone to high temperature stress during grain filling.

Corresponding Author Information:

Haile Tewolde
USDA-ARS
810 Hwy 12 East
Mississippi State, MS 39762

phone: 662-320-7464
fax: 662-320-7544
e-mail: htewolde@ars.usda.gov

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