Heat Tolerance of Tall Fescue Genotypes Differing in Persistence in the Southern Great Plains. (C06-zwonitzer143718-Oral)

Authors:

- J.C.Zwonitzer - *The Samuel Roberts Noble Foundation, Ardmore, OK*
- M.A.R.Mian - *The Samuel Roberts Noble Foundation, Ardmore, OK*

Abstract:

Tall fescue (Festuca arundinacea Schreb) cultivars lack persistence to withstand the hot and dry summers of the Southern Great Plains (SGP). Improvement of heat and/or drought tolerance may contribute to better persistence of tall fescue in the SGP. Nine persistent and nine non-persistent tall fescue genotypes (identified through field screening in the SGP) were evaluated for heat tolerance in growth chambers. Seven clones (4-5 tiller stage) of each genotype were subjected to a maximum temperature of 42-44 C (day)/35 C (night) for seven d by gradually raising the temperature from 24 C (day)/16 C (night) to the maximum temperature over a period of two wks. A low temperature (24/16 C) period of 10 d was imposed following the heat stress for recovery of the plants before harvesting. Two genotypes (one persistent and one non-persistent) maintained green tillers while five genotypes (all non-persistent) died from the heat stress. Cultivar KY31 showed a low level of tolerance to the heat treatment by maintaining a few partially green tillers. Further investigation is being conducted with the two heat tolerant genotypes, KY31, and two of the heat susceptible genotypes using 12 clonal replicates of each genotype. The results from the initial experiment indicate significant difference in heat tolerance of tall fescue genotypes.

Corresponding Author Information:

John Zwonitzer
The Samuel Roberts Noble Foundation
2510 Sam Noble Parkway
Ardmore, OK 73401

phone: (580) 224-6841
fax: (580) 224-6802
e-mail: jczwonitzer@noble.org

Presentation Information:

Presentation Date: Thursday, November 14, 2002
Presentation Time: 8:00 am

Keywords:
Tall Fescue, Heat Tolerance, Persistence, Genotypes