Physiological Responses of Texas Bluegrass x Kentucky Bluegrass Hybrids to Drought and Heat Stress. (C05-huang082802-Poster)

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Abstract:

Kentucky bluegrass has good turf quality while Texas bluegrass possesses good drought and heat tolerance. The project was designed to investigate physiological characteristics of Texas bluegrass x Kentucky bluegrass hybrids exposed to drought or heat stress. A Texas bluegrass and Kentucky bluegrass hybrid (BDF) with good drought tolerance were backcrossed with two Kentucky bluegrass genotypes (Midnight and C-74) which exhibit good turf quality. One hybrid of each cross and its parents (BDF, Midnight and C-74) were exposed to drought and heat stress in growth chambers. Leaf photochemical efficiency, leaf photosynthetic rate, stomatal conductance and transpiration rate decreased after 14 days of drought or heat stress for all genotypes. However, BDF, Midnight and their hybrid had significantly higher photochemical efficiency and photosynthetic rate than C-74 and the hybrid with BDF under severe drought conditions. After 28 days of heat stress, both hybrids had significantly higher photochemical efficiency, photosynthetic rate and transpiration rate than the Kentucky

bluegrass genotypes. Hybridization with Texas bluegrass improved drought and heat resistance of Kentucky bluegrass.

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