



TURFAX™



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TURFAX™ — The International Newsletter about Current Developments in Turfgrass

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The goal of this 6 issue per year newsletter is to provide international turf specialists with a network for current information about turf. It is FAXed to all Institute Affiliates that use the ISTI technical assistance services on an annual basis. FAXing is more costly, but ensures quick delivery to those outside the United States.

For non-affiliates, a TURFAX™ subscription is available by annual payment of U.S. \$60.00. Payment may be made by sending a check to the address below. Foreign orders please send a check or money order on a U.S. bank.

WHERE WE'VE COME FROM!

"Horses and cattle can be kept off putting greens if a few shovelfuls of finely sifted coal-fire cinders are scattered over the greens every now and again after mowing." by Reginald Beale in *The Practical Greenkeeper* of 1913.

UNDERSTANDING HEAT STRESS

Heat stress is most commonly a problem with C₃ cool-season turfgrasses, especially when attempts are made to extend them into the transitional and warm climatic regions. Creeping bentgrass (*Agrostis stolonifera* var. *stolonifera*) is being extended to its limits.

When you assess research reports of heat stress resistance of turfgrass cultivars, it is important to understand there are two types of resistance: (a) heat avoidance and (b) heat tolerance. **Heat avoidance** is the ability to sustain tissue temperatures below lethal heat stress levels via transpirational cooling. The higher the evapotranspiration rate of a cultivar, the greater the heat avoidance, assuming adequate rooting can be sustained for moisture uptake. In contrast, **heat tolerance** is the internal physiological ability of the plant to survive high internal tissue temperatures.

Turfgrass cultivars that exhibit improved heat resistance in low humidity environments such as Arizona, California, or Kansas, may fail to exhibit comparable heat resistance in humid areas such as Mississippi, Georgia and New Jersey, if the resistance is of a heat avoidance type. In contrast, turfgrass cultivars with good internal heat tolerance will exhibit this trait in both humid and arid climatic regions. This is an important distinction to understand in interpreting heat resistance data of cultivars.

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