

MECHANISMS FOR HEAT TOLERANCE IN ANNUAL BLUEGRASS

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Initial screening of numerous annual bluegrass biotypes revealed a 12° C difference between the most sensitive and the least sensitive biotypes. Preliminary results show that the difference observed at the whole plant level is also present at the cell level. A number of factors govern heat tolerance in turfgrass plants. Our research is specifically looking at what role heat shock proteins play in high temperature tolerance of annual bluegrass and other turfgrass species.

Heat shock proteins (HSP) are proteins that form during periods of high temperature stress. Normal protein synthesis shuts down at high temperatures while HSP are beginning to synthesize. Their occurrence is ubiquitous in nature but their role in heat tolerance is not fully known.

The purpose of this research is to determine if HSP synthesis varies in annual bluegrass and other grasses regarding temperature and the rate of synthesis. In addition, we are trying to determine the location of the HSP genes on genomic DNA from turfgrasses.

Considerable progress has been made in investigating mechanisms of heat tolerance and stress in Poa annua L. over the past two years. This report does not represent the final version as we are currently finishing up a number of experiments and a more complete and formal report will be forthcoming.