Temperature and CO2 Effects on Eastern Gamagrass Photosynthetic Performance. (A03-gitz133920-Poster)

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Abstract:

Eastern gamagrass (Tripsacum dactyloides (L.) L.) was grown in large 1 m^3 bins on a sand-vermiculite mix with regular application of a complete nutrient solution in closed sunlit chambers (Soil Plant Atmosphere Research (SPAR) chambers) at 370 or 740 umol mol^-1 CO2 and 20/14, 27.5/21.5 or 35/29 day/night temperatures. Plants were allowed to develop from mid-May to mid-October. Leaf and canopy photosynthesis were investigated. Results from leaf based observations were consistent with canopy level observations. Temperature effects on assimilation were much more pronounced than CO2 effects. Increased temperatures led to increased maximal assimilation rates and increased quantum use efficiencies (as Fv/Fm and CO2 assimilation vs PAR). In plants grown at lowest temperature the maximum rate of carbon assimilation was reached at relatively low PAR flux densities (1500 umol m^-2 s^-1 PAR) as compared to high temperature plants (2500 umol m^-2 s^-1). We found no conclusive evidence of a CO2 effect on carbon assimilation in these plants.

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