

P-82 (94)**TURF QUALITY AND PHYSIOLOGICAL RESPONSES TO DROUGHT AND SHADE IN TWO COOL-SEASON TURFGRASSES UNDER ARID CONDITIONS**

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In urban landscape, turfgrasses are often exposed to more than one environmental stress at the same time, but, most studies have concentrated on the response of grasses to individual environmental stress. This study was conducted to investigate the interactive effects of different levels of shade (0, 50, and 70%) and water treatments (well-watered and non-irrigated) on wheatgrass (*Agropyron deserturum* L.) and tall fescue (*Festuca arundinaceae* Schreb. 'Forager') under arid conditions. Drought stress decreased turf quality (TQ), relative water content (RWC), catalase (CAT) and ascorbate peroxidase (APX) activities under three irradiance levels, whereas, the reduction percentage under shade (50 and 70%) was lower than full sunlight (FS). Results showed that drought stress increased electrolyte leakage (EL) of leaves and free proline and malondialdehyde (MDA) content under three irradiance levels, which was lower under shade treatments compared to full sun light. On the other hand, compared to Tall fescue, Wheatgrass was more tolerant to drought at high shade level (70%), as indicated by less decreases in TQ, RWC and APX activity, less increases in EL and MDA as well as greater increase in proline content. These results demonstrated that when these plants are subjected to drought and shade, the parallel changes in physiological characteristics could mitigate the potentially detrimental effects of drought stress. Also our results implied that Wheatgrass performed better than tall fescue under low light and low water availability.

Keywords: Interactive effects of drought and shade, turfgrass, turf quality, physiological responses