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Tolerance of Some Warm Season Turfgrasses to Compaction under Shade and Sunlight Conditions of Riyadh, Saudi Arabia

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Abstract : A study was conducted to evaluate the compaction-tolerance ability of some warm season turfgrasses under shade and sunlight conditions in Riyadh, Saudi Arabia. Hybrid bermudagrass (Cynodon dactylon): 'Tifway' and 'Tifsport', seashore paspalum (Paspalum vaginatum) and its cultivar 'Sea Isle 2000' were used. The study area was divided into two sections where one was exposed to sunlight and the other one was maintained under shade using green plastic grille (shade 70%). Turfgrasses were planted by sods in beds containing a mixture of sand, silt, and peat moss (4: 1: 1, v/v). The soil compaction was applied using a locally-made cylindrical roll (weighing 250 kg), passing four times over the growing turfgrasses for 3 days/week. The results revealed that compaction treatment led to a decrease in grass height, and it was the lowest (4.0 cm) for paspalum 'Sea Isle 2000' in February. At the shaded area, paspalum turfgrasses retained its high quality degree (4.0) in April, May, and June. In the sunlight area, the grass quality degree was the greatest (4.0) in 'Sea Isle 2000' and the lowest (3.0) in 'Tifsport'. Paspalum turfgrasses gave higher color degree (4) than bermuda grasses (2.5) in April, May, and June. The compaction also led to a decline in leaf area, fresh and dry weights of all grown turfgrasses. The grass density was high for paspalum turfgrasses indicating that their resistance to compaction was greater than bermudagrasses. It can be concluded that the best compaction and shade tolerant turfgrasses are 'Sea Isle 2000' and seashore paspalum.

Keywords : hybrid bermudagrass, seashore paspalum, soil compaction, shade area, sunlight condition
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