

## Abstract

Water for use in turfgrass irrigation is becoming increasingly limited, which often leads to decline in turf quality, particularly in semiarid and arid regions. Therefore, water conservation becomes a prime concern of turfgrass managers and growers. This situation is complicated by weather patterns that lead to extreme weather such as extended drought and heat. The objective of this investigation was to evaluate visual quality and drought resistance of native *Festuca ovina* in Lorestan in the forms of two separate experiments. In the first experiment, in order to assess the turf quality, after establishing and covering the surface of the PVC pots (60 cm deep) with turf grass, three levels (2, 4 and 6 cm) were applied in species every week. This experiment was done factorial based on completely randomized blocks design and during that shoot growth, tillering, color, leaf width, fresh and dry weight were measured every week. The result of first experiment showed *Festuca ovina* despite of less color compared to *Poa pratensis* was suitable for turf establishment for such an important variety characteristic as field germination speed, sward density, re-growth after cuts and leaf width (0.59 mm). By the way surface of 2 cm is the best height for this species. The objective of the second experiment was to determine the drought resistance of turfgrasses. This experiment was done on the completely randomized blocks design. Drought treatment was done with withholding irrigation until leaf wilting of most control plants reach 100%. During the stress period, shoot growth, fresh and dry weight, color, proline content, chlorophyll content (Chl), catalase (CAT), ascorbate peroxidase (APX), percentage of drying, root penetration, root fresh and dry weight and effective depth of root density were measured. The result of second experiment showed that in every two species, drought stress caused to decline grass quality. Reduction of shoot growth, fresh and dry weight in *Poa pratensis* was greater than *Festuca ovina*. *Festuca ovina* was the best for root fresh and dry weight, root penetration and depth of root density. Proline content, chlorophyll content, color, catalase and ascorbate peroxidase was the most in *Festuca ovina* in comparison with control plants at 20d. Drying penetration in *Festuca ovina* was increased with more delayed than *Poa*. The prolonged drought stress decreased APX and CAT activities and increased proline content and drying penetration in *Festuca*. These results suggested that drought tolerance could be related to increases in antioxidant activities and proline content. However, prolonged drought stress suppressed APX and CAT activities.

**Key Words:** *Festuca ovina*, drought stress, enzyme, proline, visual quality