Irrigation Strategies for Water Conservation on Tall Fescue Turf

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Tall fescue, *Festuca arundinacea*, is the most commonly planted turfgrass in California. Thus, using strategies to conserve water for this popular turfgrass is very important. Tall fescue possesses a high degree of drought and heat resistance, relative to other cool-season turfgrass species. Generally, drought resistance is defined as the ability of a plant to endure and survive drought conditions. A lower water use rate (evapotranspiration rate) is one of several plant traits or mechanisms which increase drought resistance. Though the use of drought resistant plants is important, it needs to be coupled with appropriate irrigation management for water conservation to occur. Tall fescue drought resistance is primary due to a strong genetic rooting potential which results in increased water absorption and maintenance of tissue hydration. Thus, cultural practices involving plant and soil which promote rooting will also increase tall fescue drought resistance. Listed below is an outline of some of the practices for conserving irrigation water. Please note that water conservation will probably involve multiple practices, possibly customized to local circumstances, and that climate (especially evaporative demand) has a substantial effect in southern California.

Landscape

1. In order to satisfy a landscape-wide water budget, it maybe necessary to exchange some tall fescue with areas planted with more drought resistant plants, including warm-season turfgrasses.
2. Try not to plant irrigated turfgrass on extreme slopes or narrow areas.
3. Try to grow and maintain tall fescue on soils which possess sufficient physical and chemical properties, such as water and nutrient water holding capacity, water infiltration and percolation, porosity, fertility, pH, salinity characteristics, and others.

Irrigation System and Application

1. Pursue using recycled water instead of potable water.
2. As best as possible, implement landscape irrigation with hydrozones.
3. Maintain the highest possible irrigation system distribution uniformity.
4. Adjust (schedule) irrigation amount as frequently as possible and base it on climatic changes of evaporative demand along with rainfall amount.
5. If deficient irrigation amount, increase the number of irrigation days per week. If irrigation amount is close to 100% irrigation water requirement of tall fescue, then increase irrigation application efficiency, by using the lowest number of irrigation days per week.

Irrigation System and Application Continued

6. Increase irrigation application efficiency by not allowing irrigation application rates to exceed water infiltration rates into turfgrass and soil. To help achieve this, divide and schedule total daily irrigation run time into several run soak times. The use of irrigation heads and nozzles with lower water application rates also may help.
7. Schedule irrigation during the hours just prior to sunrise.
8. If there is irrigation runoff onto sidewalks and streets, keep working to improve the irrigation system and application efficiency.

Plant and Cultural Management

1. Maintaining a healthy tall fescue is the first step toward drought resistance and irrigation water conservation. This includes mowing and fertilizing within the range of recommended levels. It also includes controlling pests when necessary along with maintaining sufficient soil physical and chemical properties, as mentioned above.
2. During the latter part of spring, begin conditioning tall fescue for summer stress by promoting slower shoot growth and allowing visual drought symptoms to appear. Also, begin raising the height of cut. Continue these practices until optimal climatic growing conditions return in the fall.
3. Promote moderate shoot and root growth during the fall and spring. During these times of relatively high growth potential and recovery, use the more-aggressive practices of plant and soil improvements. In terms of climate, not including rainfall, tall fescue growth in southern California is most limited by low air and soil temperatures of winter.
4. Select tall fescue varieties with improved drought resistance. Please note that reports concerning field studies on this topic are limited. However, tall fescue varieties with a higher root to shoot ratio have been reported to possess greater drought resistance.

Additional information and resources on this topic and others are available on the UCR Turf website at http://ucrturf.ucr.edu