The University of Georgia

Cooperative Extension

Colleges of Agricultural and Environmental Sciences

Best Management Practices for Landscape Water Conservation

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No doubt, water conservation is a concept that must be adopted as water resources become more limited. Water conservation should be institutionalized across all industries, including the green industry, production agriculture, pulp and paper, and manufacturing, just to name a few. Furthermore, the aesthetic, sociological, and environmental benefits of landscapes also must be recognized by water authorities and policy makers. Policies that value a landscape will not only reduce water consumption, they can accentuate the environmental and societal benefits.

Landscapes can have a positive influence on human behavior characteristics such as improved ability to concentrate and self-discipline (Taylor et al., 2001).

Views of “nature” have been correlated to more effective, self-disciplined lives in inner city girls who had an open view of natural settings or landscapes from their homes or apartments. This life style is thought to translate into improved academic achievement. While landscapes mitigate environmental concerns, the influences on the human psyche are just beginning to be understood.

Turf grass, an integral component of the landscape, plays a significant role in reducing water runoff and mitigating storm water problems in urban and suburban environments with significant areas of impervious surfaces such as parking lots, sidewalks, and driveways. A healthy turf grass root zone will:

- Help improve soil structure and reduce soil compaction, leading to greater infiltration of rain or irrigation water into the root zone. These waters percolate through the soil and contribute to ground water recharge;
- Help improve soil processes that facilitate the biodegradation (breakdown) of various types of pollutants and air contaminants;
- Encourage soil-building processes through decomposition of organic matter and formation of humus, which contributes to easier lawn care with fewer fertilizer, pest control, or water inputs.

Furthermore, recent research (Bandaranayake et al., 2003) indicates that turf grass systems help rid the atmosphere of greenhouse gases, like carbon dioxide (CO_2), which contribute to global warming. Turf grasses, like all plants, use the carbon requiring process of photosynthesis to produce their own "food." Studies have shown golf course putting greens and fairways store nearly a ton of carbon (C) per acre per year, with effects lasting for 31 to 45 years (Elstein, 2003). Interestingly, these data are comparable to carbon sequestration rates of lands placed in federal Conservation Reserve Programs. Because of the high productivity and lack of soil disturbances in turf grass systems, golf courses, home lawns, athletic fields, and other grassed areas serve as effective, long-term "traps" for CO_2 while providing aesthetic, economic, and recreational benefits. To meet Georgia's growing demands for water resources, the focus must be on how to use water more efficiently without sacrificing environmental quality. This objective can be achieved through proper plant selection and installation, and the use of landscape management practices that accentuate a plant's natural ability to survive despite a temporary deprivation of required resources (e.g. nutrients and water).

By employing proper techniques in landscape design, installation, and routine maintenance, water use in the landscape can be more efficient and, therefore, reduce the amount of water used. The purpose of this publication is to provide BMPs for landscape design, planting installation, effective use of irrigation systems, proper turf grass maintenance, and guidance of irrigation practices. When combined, all these practices become an integrated approach to achieve landscape water conservation. The practices presented in this publication can be used by landscape professionals, homeowners, water purveyors, municipalities, and state regulatory agencies to improve water use efficiency while maintaining a healthy and attractive landscape.

BMPs for Turf Grass Water Conservation in Landscapes

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Use a turf grass that is best adapted to its region or microclimate. Plant selection and adaptation are the most important factors in planning, planting, and maintaining a lawn for water conservation. A properly selected grass species or cultivar is more likely to thrive and need fewer inputs (e.g. water, fertilizer, pesticides, etc.). Selection and adaptation include the influence of environmental factors as well as the ability of the turf grass plant to withstand periodic dormancy.

Irrigate each unique microclimate/zone within the landscape separately according to the needs within the microclimate or zone.

Modify the root zone. Improvement in either the chemical or physical characteristics of the soil can reduce turf grass irrigation needs by enhancing infiltration of rainfall, increasing soil moisture retention and promoting deeper rooting to reduce water leaching beyond the root zone. This practice involves understanding Georgia’s soils.

The water and nutrient holding capacity of the sandy soils in Coastal Georgia have different needs than the clay soils of the Piedmont and need to be modified or managed accordingly.

Employ cultural practices that encourage minimal water use and accentuate root growth. These practices can be subdivided into four major categories: fertility, mowing, cultivation (i.e. aeration, top dressing, and vertical mowing), and pest management. Each component can affect turf grass water use, and the interrelationship among practices can influence water uptake and use.

Prior to irrigation, determine the need for supplemental water by checking the moisture level of the soil in the turf grass root zone or using the turf grass plant as an indicator of moisture stress. Allow plant factors to indicate a need for supplemental water. Apply only the amount of water the turf grass needs to wet the root zone.

Manage extrinsic stresses, like traffic. To reduce water use, maintain turf grass stand density and promote survival during periods of drought stress, wear must be minimized. A thinned, weakened turf grass will require more water for basic maintenance of physiological processes and recovery than a turf grass that has ample cover despite being drought stressed.

To see complete UGA article and other good info on watering the landscape, go to: http://pubs.caes.uga.edu/caespubs/pubcd/B1329/B1329.htm#Economics