

Water Conservation in the Landscape

Gary Forrester

Environmental Horticulturalist/Master Gardener Coordinator

Clemson University Cooperative Extension Service

Horry County

Conway, SC — October 22, 2007 - Water is a precious natural resource that should be conserved in all endeavors concerning landscape management. In urban areas as much as 60% of all water usage goes to maintaining landscapes. Much of this water is applied to high water-demanding landscapes or is just wasted through inefficient use. To stop this loss, landscapes should be designed as water-efficient.

These water-efficient landscapes should incorporate seven basic principles:

- Good water conserving design
- Thorough soil analysis and preparation
- Limiting high water use shrubs and turf areas
- Use of adapted, low water use plants
- Effective and efficient watering systems
- Use of mulch in flower and shrub beds
- Proper landscape management practices

By incorporating these basic principles into your landscape, you can help to preserve a valuable resource.

Water efficient landscape need not be barren, planted with cactus and loaded with rocks. They can be colorful, cool landscapes full of beautiful plants maintained with water-wise practices. One can develop a pleasing, functional landscape we are accustomed to and still preserve water quantity and quality.

Begin with a well thought out plan. Sketch your entire site locating various existing trees, shrubs and grassy areas. If possible, begin working with your site from the very beginning even before a structure is established. Also note any areas that may hold drainage problems and be sure to correct these spots. Once a master layout is finished, consider the landscape budget, desired appearance, function maintenance and water requirements. Make use of local landscape architects, nurserymen and county Extension agents in your decision making process. The implementation of you master plan need not be done in one year. The landscape can be planted over several years as money dictates.

Once all structure locations are decided upon, begin the process of placing plants into your design. Use the thought process of creating rooms in your design. This can include a grassed area for family use, flower gardens such as roses and azalea, butterfly rooms using butterfly friendly plants and possibly a wildflower area. Each of these rooms, or planting beds, should contain plants of equal water use. This will allow you to design a watering system that can be customized to each rooms water need. Try to minimize the amount of high water-use plantings and maximize those rooms that are designed for low water-use.

Once you have determined the location of your landscape rooms, select plants that will thrive with little input. Trees, shrubs, flowers and turf should be selected based on their adaptability to your local site. This will include adaptability to the region's climate as well as the climate at your particular site. The use of native plants is highly recommended since these plants will have a lower water demand, less management requirements and will be more resistant to pest problems. Combining native plants with well-adapted exotic plants is the key to a beautiful, interesting landscape that conserves water.

Achieving a significant reduction of water usage as well as reducing the management needs of your landscape involves reducing the size of water-sensitive areas through the use of permeable patios, decks, shrub beds and ground covers. Be sure all areas not designed as beds or turf are made of permeable materials such as mulch, rock or permeable pavers. Using these materials will allow water entering the site to flow through the soil eliminating runoff and reducing the potential for downstream pollution.

Once your design has been completed and has been put on paper, actual site preparation can begin. To preserve plant health and help to conserve moisture, most soils will need to be amended with organic matter. On sandy soils, water and nutrient retention will be increased while in heavy soils; drainage will improve with the addition of organic matter. As a rule-of-thumb, incorporate 4 inches of compost into ornamental beds. The decision to amend soils in turfed areas will depend on budget size and existing soil condition. It is generally not recommended to amend soil for turf unless the existing soil condition is extremely poor. It is always recommended to have your soil tested to determine its chemical health.

An added benefit to designing a water-wise landscape is a reduction in the amount of maintenance that will be needed to keep it healthy. A well designed landscape can decrease maintenance by as much as 50% through reduced mowing, once-a-year mowing, elimination of weak, non-adapted plants, reduced pest problems and more efficient water techniques.

Much of the tremendous amount of water applied to landscapes is never absorbed by plants and put to use. Water not used by plants is lost by draining below the root level, evaporation or runoff. This usually occurs when water is applied too fast for the plant to use, too much applied at one time or too frequent. An efficient irrigation system will apply water to specified areas of the landscape as needed. The varying water-use areas should also be separated so that high use plants are located on one station while those low use areas are situated on their own station. This way the irrigation system can be used in a very efficient manner.

Most lawns will receive twice the amount of water needed to maintain a healthy appearance. The key to irrigating turf is to water deep and infrequent. This will create a deep root system that can efficiently use water and nutrients in the soil. Watering for short durations every day will create a turf that has a shallow, weak root system. Promoting this type of growth will set your lawn up for failure during stressful periods.

To know when to irrigate, simply observe your turf every day. Wilting and discoloration are signs of water stress. At the first sight of wilting, you have 24 to 48 hours to apply water before injury occurs. At this sign, apply one inch of water early in the morning hours. Avoid runoff if possible. Check for localized dry spots that can be syringed by hand independently of the entire system. There is no need to run an entire irrigation system for one dry spot. Only irrigate the entire lawn when the entire lawn is dry.

Newly planted trees and shrubs will require more water than established plants. It may take several years for a plant to become established and will require frequent watering during this period. Once established, water-efficient plants can be weaned to tolerate more droughty conditions.

As with turf, trees and ornamentals will benefit from a deep, infrequent irrigation. In the absence of rain, a good soaking twice a month should be sufficient. An adequate mulching of the root zone will help to conserve moisture as well. When mulching, be sure to keep the mulch off the trunk of plants and well as no more than 2 to 3 inches deep. Use less mulch on poorly drained soils. Remember that normal lawn watering is not a substitute for thorough tree and shrub watering.