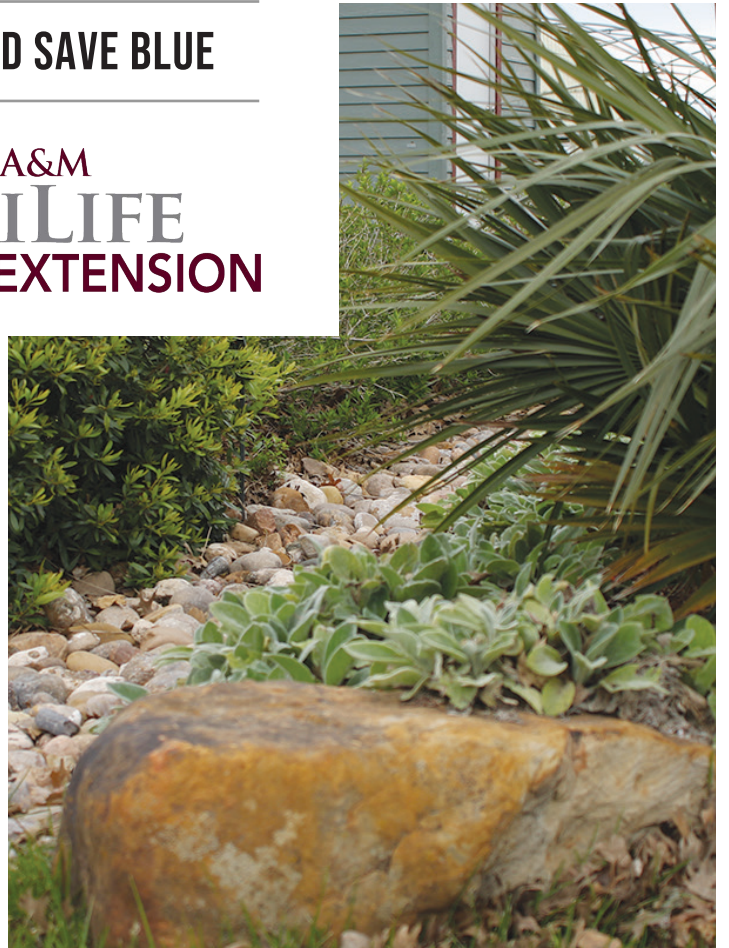




WATER EFFICIENT LANDSCAPING:

GO GREEN AND SAVE BLUE

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Water Efficient Landscaping

Healthy landscapes offer a variety of advantages for the home. They not only add aesthetic value, but can also provide erosion protection, temperature control and serve as usable outdoor space for relaxing and entertaining. Oftentimes however, Texas landscapes can be over-watered, over-fertilized or over-applied with pesticides, which can be detrimental to water resources and your landscape. The EPA estimates that in drier climates like Texas, a household's outdoor water use can exceed the amount of water used for all other residential purposes. In some households, during summer, as much as 60% of a total water budget could be spent on landscape irrigation alone.

By incorporating the following best management practices and by selecting the right plant material for your specific needs, you have the potential to drastically reduce water and chemical use in your landscape.



Design

A healthy water efficient landscape begins with a well planned design. Putting a design on paper is like creating an instruction manual for yourself. Pay close attention to plant spacing, light, and potential long-term maintenance requirements. Remember, a large lawn area requires more maintenance. Incorporating more native and adapted planting areas, meanwhile, will need less maintenance in the long run. Selecting native and adapted plants will also reduce the water and chemical demands of your property. Any style or theme you wish to achieve with your design can be accomplished using native and adapted plants. There is an enormous selection of perennials, evergreens, trees, groundcovers and ornamental grasses from which to choose. Consider designing your landscape with equal

parts turfgrass, planted beds and hardscape to increase water efficiency. A good rule of thumb is the "Landscape Rule of Thirds" as described below.

Bedding

Your landscape bedding is where your style and creativity can really show. Use contrasting, bold colors and contrasting textures of large leaves against plant material and smaller foliage. Organize your plant material for a more contemporary or formal look depending on your personal design preference.

Turfgrass

There are many turfgrass options on the market; choosing the right grass for your needs is important. Some turfgrasses like Bermuda and Zoysia handle high traffic areas while others

like Buffalo do not. Remember, turfgrass needs at least 5 hours of sunlight, so concentrate your turfgrass in the areas where it will perform the best. [See our turfgrass selection chart on page 4 for information.](#)

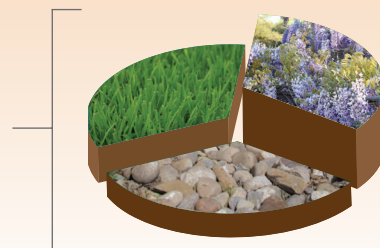
Hardscape

Your hardscape consists of structures like sidewalks, patios, stonework, rocks, and landscape art. Hardscape helps diversify texture for visual appeal. It creates surfaces for multiple uses and can be used to border landscape areas. A dry river rock bed, for example, could partition two areas for different use while a piece of garden art serves as a focal point in an otherwise mundane corner. So plan for your enjoyment or to improve your property value, but most importantly, plan for a more water efficient landscape.

Landscape Rule of Thirds



When designing your landscape, utilize the "rule of thirds" by planting 1/3 drought tolerant turfgrass, 1/3 native and adapted planting beds and 1/3 pervious hardscape. This will give your landscape more visual appeal, usable space and a reduction in water use requirements.



Before you Plant: Soil Preparation, Amendments

A number of amendments can be added to your soil, but what you need depends on the specific characteristics of your site. Drainage, fertility, pH balance and a host of other factors should be considered.



Amendments for Texas Soils

Healthy soils are the foundation of a water efficient landscape. They help to cycle nutrients, reduce runoff and have the potential to absorb any excess nutrients or pollutants. To improve your soil's ability to infiltrate water and maintain soil available nutrients, amend your soil as needed.

Don't Guess, Soil Test!

soiltesting.tamu.edu

Soiltesting.tamu.edu is your one-stop shop for everything you need to get your soil sample submitted to Texas A&M AgriLife scientists for testing.

One of the best methods for evaluating your soil is to collect and mail a soil sample to the Texas A&M Soil Testing Laboratory. Step-by-step instructions for submitting your sample are available at <http://soiltesting.tamu.edu>. For as little as \$10 per sample, you will receive a detailed analysis of your soil and recommendations on how you can improve soil fertility.

Compost is a nutrient rich soil conditioner consisting of broken down organic material. Incorporate up to 2" of compost into beds or pre-sodded turfgrass areas to improve drainage and increase your soil's nutrient availability. Consider topdressing (and rake) in 1/4" to 1/2" of finely screed compost in poor draining areas of your lawn. This technique also works well after aeration in high traffic situations to reduce compaction. You might also consider spreading compost around newly planted trees, shrubs and perennials before you apply mulch. If you have a more sandy soil, compost can also serve to improve your soil's ability to hold water and prevent excess nutrient leaching.

Expanded Shale is a porous, lightweight aggregate with the ability to improve drainage in clay soils and hold moisture at the same time. Expanded shale is most effective when incorporated into the soil when establishing a new planting bed. Add up to 3" then till or mix in thoroughly to a depth of 6" with a shovel or spade.

Irrigation

Remember, irrigation systems are designed to supplement the lack of rainfall. Your system might just consist of you and a hose-end sprinkler and soaker hose, or it might include an automated controller with permanent irrigation heads. In either case, to transition towards a more sustainable lawn and landscape, you should irrigate less often but deeply, as opposed to more often and in shorter intervals.

Irrigation Tips

Water without creating runoff. See "Cycle and Soak Irrigation Method" on page 3.

Check your irrigation system monthly for problems. Flag problem areas so you can locate them easily when it's time to make repairs.

Water only when needed, not just because it's your day to water. A soil moisture probe is an inexpensive tool that can be used to gauge soil moisture at a depth of 6"-8". A long screwdriver can also be helpful. Like a toothpick into a cake, if the screwdriver easily penetrates the soil and has damp soil on it, irrigation is not required. If it is unable to penetrate the dry clay soil, supplemental irrigation could be necessary.



Water new plantings more frequently during establishment, depending on the specific needs of each plant species. After this period, adjust your irrigation method accordingly, tapering off to less frequent watering to help develop a deeper, less dependent root system.

Water your lawn after 6:00 p.m. and before 10:00 a.m. to slow evaporation rates during the active growing season, usually March-October.

Watering in the winter is not usually necessary, unless it is unusually dry.



Visit WaterMyYard.org for weekly advice on when and how much to water.



Automated Irrigation Systems

This type of irrigation system is designed to maintain soil moisture and ultimately to protect the overall health of your landscape. In times of sufficient or excessive rainfall, irrigation systems should be in the off position. When supplemental water is needed, the delivery systems should precisely deliver the water without waste. Accurately calculating plant water needs and taking into consideration soil type as well as slopes in the terrain (which might influence water flow) will help determine the best delivery system to avoid

water waste. Sprinkler heads should be adjusted properly to avoid misting, or over-spraying sidewalks, driveways and streets.

Turf areas may require water more frequently than beds with native and adapted perennial plants or shrubs. Areas with mature trees may require watering deeper and more infrequently than the rest of your landscape. By hydro-zoning or designing your system to water these areas separately, you will avoid both over-watering and/or under-watering your plant material.

Multi-Stream Rotors



These pop up heads use multiple water streams to apply larger droplets of water slowly and evenly for greater efficiency and increased water savings. They are perfect for landscapes with slopes or clay soils. Many have an adjustable pattern from 45 to 270 degrees in addition to radius adjustment. Other multi-stream nozzles can be purchased to mimic the specific pattern of your existing sprinkler nozzle.

Drip Irrigation



This practice offers the most efficient irrigation delivery system by slowly applying the water through emitters or bubblers to the root zone, reducing water loss from evaporation. Understanding proper design and management is key for drip irrigation to work effectively. A properly designed and installed drip system gives you the ability to be precise when dividing precipitation rates for hydro-zoning. It reduces or eliminates runoff.

Rain & Freeze Sensors



These tools aid the homeowner by preventing the irrigation system from running during a rain event or when temperatures are near or below freezing. Freeze sensors can also aid in preventing damage to irrigation systems and safety hazards. It is important to note that rain and freeze sensors are required in many areas and applications.

Cycle & Soak Irrigation Method

Some irrigation systems apply water faster than the ground will absorb. This is especially true in lawn areas with compacted clay soil. To avoid water running off the landscape into the street, you might need to irrigate these areas several short times instead of one long time. Use the cycle and soak method:

1. Determine how long to run each zone. See ['Catch Can Test' on page 4](#)
2. Water each station in 2 or 3 short cycles instead of 1 long cycle by setting several start times.
3. Set multiple start times, 30 to 60 minutes apart, to allow water to soak into soil between cycles.

Most irrigation controllers have a way to set different start times. If you have trouble programming your controller, visit the irrigation controller company's web site or contact their customer service for instructions for cycle and soak. Some newer controllers have a cycle and soak setting, which might warrant upgrading your irrigation controller.

Catch Can Test



This grid shows placement of catch cans in relation to a sprinkler head.

A catch can test is used to determine how long to run an irrigation system or hose-end sprinkler and how well the water is distributed over the landscape. The root zone (where water and nutrient absorbing roots grow) is typically 6 inches deep in clay soil. Usually about 1 inch of water will fill this root zone, but in many cases, irrigation systems apply water faster than the ground can absorb. During a summer drought with high temperatures, the water requirement may be higher. Each type of sprinkler (spray, rotors, multi-stream rotor, drip) applies water at different rates; therefore, a catch can test is essential to determine the run time and efficiency of the system.



**Watch our
catch can
test
instructional
on
YouTube**




www.tinyurl.com/agrican

Turf Selection

There are many different types of turfgrass that thrive in Texas, each possessing its own advantages and disadvantages. Your personal preferences, the characteristics of your property and the way you plan to use your lawn all hold bearing on which grass is right for you. The amount and quality of sunlight your landscape receives, your city's watering guidelines and your personal management capabilities also play an important role in what turfgrass best suits your needs. Turfgrass types vary in color vibrancy, blade texture and growth rate. Bermuda, Buffalo, St. Augustine and Zoysiagrasses are some of our favorite warm-season varieties and are best adapted to the climate and available natural resources of Texas. Turfgrass works best in areas that receive full sun, part sun and, in some cases, part shade conditions.

Did you know?

Turfgrass makes up the largest irrigated crop in the country!

	Bermudagrass	Buffalograss	St. Augustinegrass	Zoysiagrass
				
Minimum Light Requirement	6-8 Hours	7-8 Hours	5-6 Hours	5-8 Hours
Shade Tolerance	Low to Very Low	Very Low	High	High to Moderate
Water Requirement	Moderate to Low	Very Low	Moderate	Moderate
Wearability (foot traffic, pets etc.)	High	Low	Low	High to Moderate
Disease Potential	Moderate to Low	Low	High (in shade)	Moderate to Low
Mowing Frequency	3-7 Days	Infrequent	5-7 Days	5-10 Days
Mowing Height	1-2.5 Inches	3-8 Inches	2.5-3.5 Inches	1-3 Inches

Turf in the Shade: Although turfgrass may have once grown well in a certain area, light quantity and quality can change over time, especially in landscapes with maturing trees, shrubs, new buildings or even new fences. Established

turfgrass might grow successfully in these areas for a while but can begin to decline, becoming thinner and less dense as shade encroaches. Attempting to establish turfgrass in low-light areas is also problematic. Over-

watering and/or over-fertilizing are common responses in lower light situations but are typically unsuccessful in regaining turfgrass quality. They can also be detrimental to landscapes and the environment in the long run. Consider planting turfgrass

alternatives in full shade and dense shade conditions.

Plants

Selection: Right Plant, Right Place

Native and adapted plants are the ideal choice for an aesthetically pleasing, water efficient landscape. Whether you are interested in a more manicured look or a naturalistic landscape design, there are a number of water efficient plants with various colors and textures from which to choose. A healthy plant is a valuable asset, but to ensure the best success, it needs to be planted properly and in the right place, depending on the specific requirements for that plant. Read the plant tag, and pay close attention to its hardiness zone, light requirement, size and spacing.

Native and Adapted Plants are

- Drought tolerant
- Heat tolerant

And they typically require

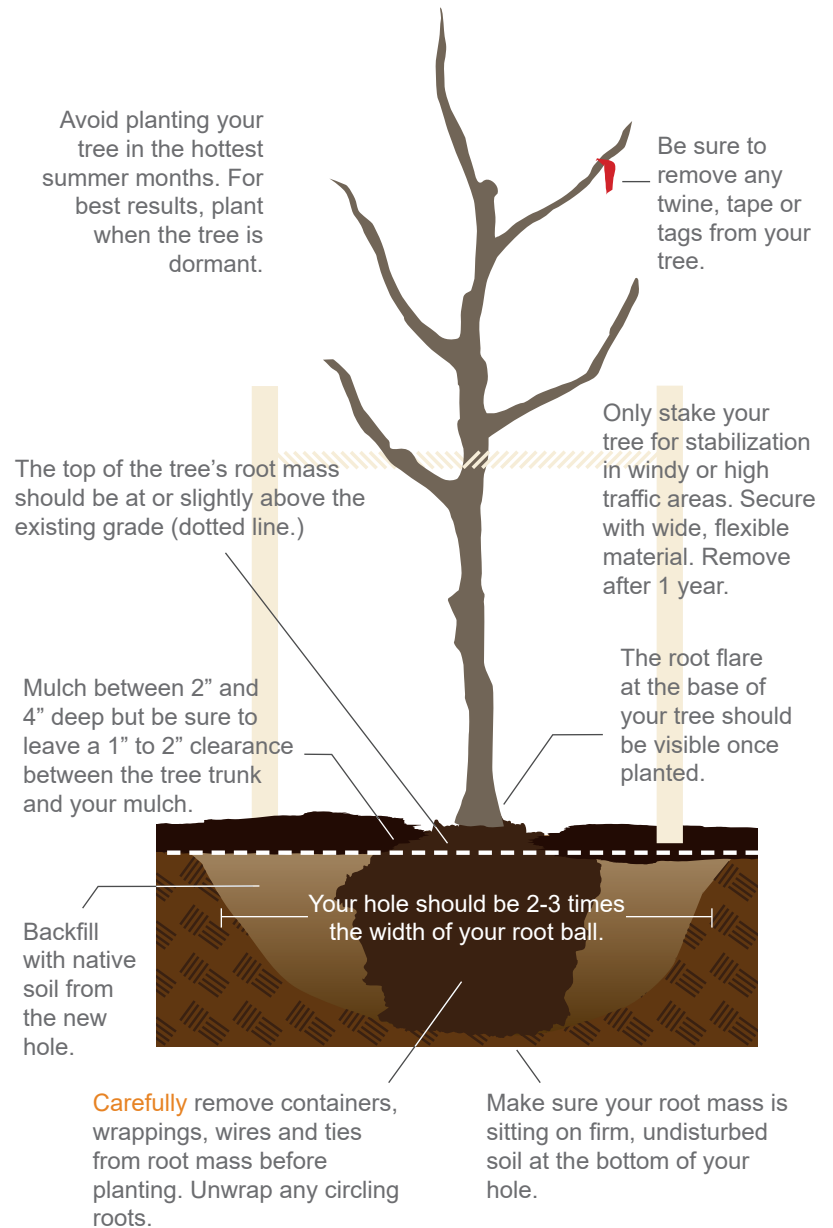
- Less water
- Less fertilizer
- Fewer pesticides

Installation

Whether you are planting a native or adapted tree, shrub or a herbaceous perennial, it is key to make the transition from the nursery to your landscape as easy as possible and to plant properly to ensure a long healthy life for your plant.

- **Planting Width** 2 to 3 times as wide as root ball
- **Planting Depth** No deeper than root ball

Proper Planting



Applying mulch around your planted areas is crucial to a successful garden. A number of natural materials work well as mulch. Hardwood, cedar, cypress and pine straw mulches are all strong options. Water University recommends between 2" and 4" of mulch for most applications. Be sure to taper off near plant bases to avoid fungal problems and other pest issues.



The benefits of mulching are many; they include:

- Increased water absorbing capacity
- Increased water holding capacity
- Reduced water evaporation
- Reduced erosion
- Weed control
- Soil temperature moderation
- Increased soil nutrition as mulch breaks down

Rainwater Harvesting

Rainwater harvesting is simply the process of diverting, capturing and storing rainwater for future use.

Harvesting rainwater for use in the home landscape:

Reduces demand on municipal water supply

Makes efficient use of a valuable resource

Reduces flooding, erosion, and contamination of surface water

Saves you money by reducing your water bill

The amount and quality of water harvested from a roof or catchment is dependent on its size, the surface material and the amount of rainfall received. Gravity moves the water from the catchment surface to the storage container until it needs to be used.

Storage containers are made from polyethylene, fiberglass, wood, concrete or metal and come in a variety of sizes to suit your specific needs. Underground containers are also available but cost more to install, to maintain, and can have increased costs associated with pumping water out of the tank.

Whether you choose to start out with a rain barrel or a larger cistern, rainwater collection and distribution systems can be incorporated into almost any existing site and can be designed to meet your site demands and budget.



The large rainwater cistern at the WaterSense Labeled Apartments stands slightly shorter than the first-story roof trim.



A food-grade rain barrel at the WaterSense Labeled home sits slightly taller than a window sill.

Landscape Maintenance Tips

Proper maintenance is one of the most important components to sustaining a beautiful and healthy water efficient landscape. It is also important to remember to not only create, but manage a landscape that is within your maintenance capabilities.

Design for water efficiency using the landscape rule of thirds (page 1) and remember, the larger the lawn, the more mowing will be needed.

Employ efficient irrigation technologies to save water, time and money. (page 3)

“Don’t bag it! Mulch it!” Use your lawn clippings as mulch for increased water efficiency.

Raise your mower height during the summer months; avoid cutting more than 1/3 of the leaf blade at one time to conserve water and reduce plant stress.

Mulch properly to save water and control weeds. (page 5) Prune (remove dead plant material) and maintain the shapes of trees and shrubs as needed. For most deciduous trees, shrubs and grasses, prune back from February to March to encourage new growth.



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Subject matter currently under review