Water only when your grass needs it. Water conservation isn't the only reason to limit the amount of water you give your lawn. Overwatering is also bad for your lawn's health and can contribute to the development of fungus and disease. Many people, however, don't know that they're overwatering. Some types of grass require more water than others, and environmental factors, such as temperature, humidity, and wind, can dramatically affect how frequently you need to water your lawn. Fortunately, the most accurate way to determine whether your lawn needs water is also the easiest: just look at the grass. When grass needs water, it will begin to take on a blue-gray tint, and the older leaf blades on the plant will begin to curl up or wilt. In addition, footprints will remain on the grass for longer than usual, as the grass won't "bounce back." When 30-50% of your lawn shows these symptoms, it's time to water.

Water deeply to encourage deep root growth. Frequent shallow waterings encourage weed germination, and they also cause the grass plants' roots to grow shallow, leaving the plant more susceptible to drought and to certain diseases. Watering only when your grass really needs it encourages the roots to grow deeper, but only if you apply enough water each time to penetrate the root zone. The most accurate way to determine the depth of the root zone is to dig a small hole and measure how far the roots go down. Alternatively, you can follow these general approximations: if you have a bluegrass lawn, each watering should moisten the soil to 6-8 inches, while for most other grasses, the water should penetrate 8-12 inches. You can determine how long to leave the sprinkler(s) on by using one of the following methods.

Turn on your sprinkler for 15 minutes. After 18-24 hours, find out how deep the water soaked in by digging a small hole in the watered area or using a probe (a probe will push easily through damp ground). You can also push a shovel into the ground and use it as a lever to spread the soil apart enough so that you can see several inches below the surface. Once you see how deep the water went in 15 minutes, you can calculate how long you need to leave your sprinkler on. For example, if the soil is damp to 4 inches below the surface and your goal is to moisten the soil to a depth of 8 inches, you'll need to leave the sprinkler on for 30 minutes (2 X 15 minutes) each time you water.

Estimate how much water you'll need based on your soil type. In general, 1" of water will penetrate sandy soils to 12", loamy soils to 6-8", and clay soils to 4-5". Using these estimates isn't quite as accurate as digging, but it's pretty close, especially if you have a good knowledge of your soil composition. To figure out how long you need to keep your sprinkler or sprinkler system on, calibrate your sprinklers.

Water early in the morning. When you use sprinklers, some water evaporates before it hits the ground. On a hot, windy day, the amount of water that never reaches your grass can actually be quite substantial. To reduce loss to evaporation, water sometime between 4 A.M. and 9 A.M., when the air is still cool and the wind is usually at its calmest.

Aim your sprinklers to water the lawn, not the sidewalk or street. Slight adjustments to your sprinklers can save a lot of water. Ideally, you shouldn't water your sidewalk, patio, street, or driveway at all.

Avoid creating runoff. Even with sprinklers correctly targeted at the lawn, many people water until (or even after) water begins to run off the grass and into the street or driveway. This can waste a lot of water, and it isn't doing your lawn any good. If water starts to run off your lawn before you've been able to give it a deep watering, turn off the water for 15-20 minutes to let the ground absorb the water, and then continue watering as needed (rotating a sprinkler between one area and another will also do the trick). Some soil types absorb water more slowly than others, but runoff can also be caused by excessive thatch buildup, which can promote disease--and which is sometimes caused by routine overwatering.

Let the rain do your work for you. Nothing looks more wasteful than running your sprinklers while it's raining. If your sprinkler system is on a timer, get and install a rain sensor that automatically turns the water off when it rains. If possible, also avoid watering if rain is expected later in the day or during the next day. Your grass should be fine, even if it looks stressed. Use a rain gauge to determine how much rain you received, and then water a bit more only if needed.

Get a Rain Barrel. Use a rain barrel to water gardens and landscapes. A properly installed rain barrel which harvests rain water from the gutters of your home provides ample water for gardens and landscape areas. Capturing this rain water reduces the amount of run off that may otherwise be picking up garbage, oils, fertilizers, pesticides and other pollutants that are on your lawn, sidewalk and street. Thus, this also reduces the amount of pollution getting into our rives, lakes, streams and ocean.

Water problem areas by hand. Many lawns have one or two spots that require more water than the rest of the lawn. A south-facing slope (or, in the Southern Hemisphere, a north-facing slope), or an unshaded area in an otherwise shady lawn are two common examples of these "problem areas." If you water your entire lawn every time you need to water these hot spots, you'll likely overwater everyplace but these spots. Instead, water them by hand or use a separate sprinkler that's not attached to the rest of your irrigation system.

Irrigation for Specific Landscape Plants

Irrigating Turfgrass

Most turfgrasses used in North Carolina can survive seasonal dry periods without irrigation and therefore can be used in any water-use zone. In moderate-water-use zones, turfgrass is irrigated only when it shows signs of moisture stress.

Turf under water stress appears dull bluish green, the leaf blades roll inward, and footprints remain on the grass after a person walks over an area. To pre-vent serious plant damage and maximize water-use efficiency, irrigate turf in the moderate-water-use zones with a portable lawn sprinkler within 24 to 48 hours after these signs appear.

Under optimum growing conditions in a high-water-use zone, turfgrasses use 1 to ll/2 inches of water per week during hot, dry weather. It is usually best to divide this amount into two applications per week, applying l/2 to 3/4 inch each time. Never apply more than 1 inch at a time as this will likely result in runoff or deep percolation below the root zone. Early or late in the season when temperatures are cooler, irrigating only once a week is usually adequate.

Never water grass daily except during the establishment period. Daily irrigation with a small amount of water encourages a shallow root system and reduced drought tolerance, as shown in Figure 4. Since roots generally grow where the soil is moist, a shallow root system also prevents efficient uptake of plant nutrients. Shallow, frequent irrigation also increases evaporative water loss from the soil.

Irrigating Trees and Shrubs

Woody omamental trees and shrubs have deeper, more extensive root systems than turfgrasses or herbaceous omamental plants. The root system of a mature tree, for instance, extends two to three times the canopy spread. Woody plants can therefore extract moisture from the soil even when the soil surface appears bone dry, and they can survive long dry periods without supplemental irrigation.

Use drip irrigation on trees and shrubs in the water-use zones of the landscape. Locate the emitters within the drip zone line of plants where the concentration of absorbing roots is the highest. During extended dry periods, operate the system 1 to 2 times per week. Run the system long enough to thoroughly wet the soil 6 to 8 inches deep. Regular and thorough watering of newly planted trees and shrubs encourages good root establishment and greater drought resistance.

Irrigating Herbaceous Ornamentals (Annuals and Perennials)

Herbaceous omamentals vary widely in their tolerance to drought. Some perform adequately with a minimum of supplemental water, whereas others require close attention to soil moisture. Irrigation can be provided most efficiently if the plants within a bed have similar water needs. Herbaceous omamentals generally have a shallower root system than woody ornamentals and are among the first plants in the landscape to show water stress during dry periods. Water these plants once or twice a week and use drip irrigation whenever possible. Be sure to mulch the entire bed area with 3 to 4 inches of organic material.

Other water saving tips for your lawn:

To further increase your water savings, you should mow your grass correctly and use “grasscycling,” which means leaving the grass clippings on your lawn. The grass clippings act as natural mulch, retaining moisture and returning nutrients to

the soil. This will improve soil texture and water retention. Reel mowers are a great way to grasscycle. Also, make sure to read this guide to grass cutting heights for more information.

Removing weeds can also help your grass use water more efficiently, as weeds compete with your grass for water. Invest in a good quality weeder to effectively remove weeds from your lawn.

Also, look for drought resistant and water-wise grasses. This website from Texas Aggie Horticulture is a good place to look for grasses that will use less water than standard turf grasses.

To further your water savings, you can use water absorbing polymers (water crystals) in your lawn to help you save water. These water absorbing gel products, such as Solid Water polymer gels, can help reduce the amount you water your landscaping by up to 50 percent.

Water absorbing polymer gels work by absorbing high quantities of water, in addition to beneficial nutrients, and then slowly releasing the water through osmosis. When mixed into the soil, the gel polymers come in direct contact with the roots of your grass. This translates to extremely efficient use of water in your landscaping. Gel polymers are safe for your family and pets and will not cause problems with root rot or soil borne diseases.

Landscape Irrigation — depending on climate, up to 75 percent of a home's total water use during the growing season is for outdoor purposes (during drought conditions, outdoor watering restrictions may be imposed, so some of the following tips will not apply):

- Detect and repair all leaks in irrigation system.
- Use properly treated wastewater for irrigation where available.
- Water the lawn or garden during the coolest part of the day (early morning is best). Do not water on windy days.
- Water trees and shrubs, which have deep root systems, longer and less frequently than shallow-rooted plants that require smaller amounts of water more often. Check with the local extension service for advice on watering needs in your area.
- Set sprinklers to water the lawn or garden only — not the street or sidewalk.
- Use soaker hoses or trickle irrigation systems for trees and shrubs.
- Install moisture sensors on sprinkler systems.
- Use mulch around shrubs and garden plants to reduce evaporation from the soil surface and cut down on weed growth.
- Remove thatch and aerate turf to encourage movement of water to the root zone.
- Raise your lawn mower cutting height — longer grass blades help shade each other, reduce evaporation, and inhibit weed growth.
- Minimize or eliminate fertilizing, which promotes new growth needing additional watering.
- When outdoor use of city or well water is restricted during a drought, use the water from the air-conditioning condenser, dehumidifier or sink on plants or the garden. Don't use water that contains bleach, automatic-dishwashing detergent or fabric softener.

Other Outdoor Uses:

- Sweep driveways, sidewalks and steps rather than hosing off.
- Wash the car with water from a bucket, or consider using a commercial car wash that recycles water.
- When using a hose, control the flow with an automatic shut-off nozzle.
- Avoid purchasing recreational water toys which require a constant stream of water.
- Consider purchasing a new water-saving swimming-pool filter.
- Use a pool cover to reduce evaporation when pool is not being used.
- Do not install or use ornamental water features unless they recycle the water. Use signs to show the public that water is recycled. Do not operate during a drought.

1. Right Plant, Right Place
2. Water Efficiently
3. Fertilize Appropriately
4. Mulch
5. Attract Wildlife
6. Manage Yard Pests Responsibly
7. Recycle
8. Reduce Storm water Runoff
9. Protect the Waterfront
10.