



## Watering Your Florida Lawn<sup>1</sup>

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Water is an essential element in all living plants:

- It combines with carbon dioxide and sunlight for photosynthesis.
- Food manufactured by photosynthesis and nutrients absorbed by the roots are transported by water to all parts of the plant.
- Plant temperatures are maintained by transpiration of water.
- Seeds need water to germinate.
- Turfgrasses that have been fully watered can withstand more stress and wear.

Lawn irrigation is often necessary in Florida's hot climate. Daily temperatures can be over 90°F (32.2°C) 6 months per year which causes large water losses from soils and plants. Rainfall averages 60 inches per year, but half the amount falls from June through September, often in sporadic large rainstorms. Less rainfall occurs during the winter and spring. Another reason for lawn irrigation is the fact that Florida's sandy soils do not hold much water.

An efficient watering program must include three basic steps:

1. determining when water is needed,
2. determining how much should be applied, and
3. deciding how water is to be applied.

### DETERMINING WHEN TO WATER

The most efficient way to water a lawn is to apply water when it begins to show signs of stress from lack of water. The following signs are indications of water need:

- bluish-gray areas in the lawn,
- footprints or tire tracks that remain in the grass long after being made (Plate 24),
- many leaf blades folded in half (Plate 25 and Figure 1), and
- soil sample from the rootzone feels dry.

Prolonged dry periods of high temperatures, strong winds, and low relative humidity cause these symptoms. During such times, plants wilt even though water may be in the soil, because they are

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1. This document is Fact Sheet ENH-9, a series of the Environmental Horticulture Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. This information is included in the [Florida Lawn Handbook](#), SP-45. For a copy of this handbook, request information on its purchase at your county extension office. First published: May 1991. Revised: January 1995.

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The term "plates," were used in this document, refers to color photographs that can be displayed on screen from CD-ROM. These photographs are not included in the printed document.

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losing water faster than it is absorbed through root systems. However, watering may be needed.

Watering immediately when the lawn first shows signs of stress is the most economical way to water; delay can cause permanent damage. Add-on devices are available for some sprinkler systems to automatically determine when to water. Electronic moisture sensing units or tensiometers (Figure 2) allow automatic sprinkler systems to operate only when soil water is getting low. These devices eliminate overwatering and have potential for water savings.

### AMOUNT OF WATER TO APPLY

The amount of water to apply at any one time varies with the amount of water present in the soil, the water-holding capacity of the soil, and drainage characteristics. *An efficient watering wets only the turfgrass rootzone, does not saturate the soil, and does not allow water to run off.*

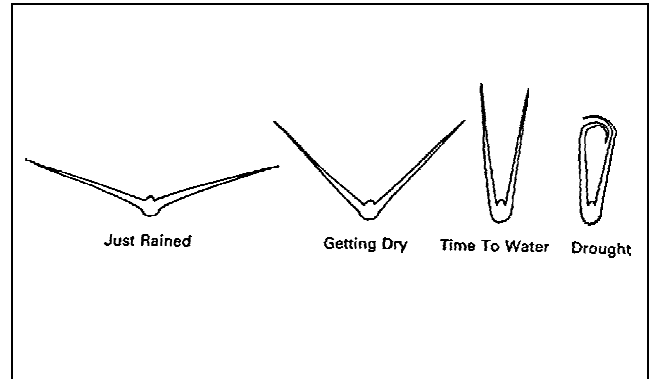
Florida soils are typically sandy and hold 1 inch of water in the top 12 inches of soil. If the roots are in the top 12 inches of soil and the soil is dry, then  $\frac{3}{4}$  to 1 inch of water is required to wet the area thoroughly. This is equivalent to 465 to 620 gallons of water for each 1000 square feet of lawn.

Generally, turfgrasses require no more than 0.3 inches of water per day. Under extreme summer conditions, water use can be as high as 0.4 inches of water per day. During the winter when grasses are not actively growing, water use can be as little as 0.05 inches of water per day.

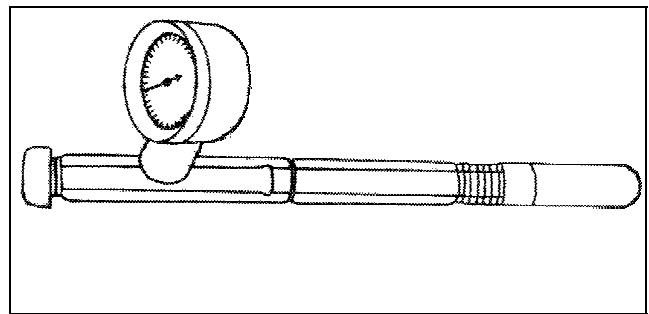
A simple watering schedule would be to apply  $\frac{3}{4}$  inch of water when the turfgrasses show water deficiency symptoms as discussed earlier. Once this  $\frac{3}{4}$  inch of water is applied, do not apply any more until water stress symptoms are again noticeable. Typically, two to three waterings per week in the summer and once every 10 to 14 days in the winter are required. If rainfall occurs, irrigation should be suspended according to the rainfall amount.

### MANNER OF APPLYING WATER

Water should never be applied at a rate faster than it can be absorbed by the soil. If the sprinkler applies too much water, it runs off, and is wasted. This seldom happens with small sprinklers unless the lawn is thick or the soil compacted.



**Figure 1.** Cross sections of grass leaves showing varying degrees of wilting. Left: leaf fully expanded. Center: leaves wilting and folded. Right: leaf rolled up under drought conditions.



**Figure 2.** Tensiometer.

Avoid extremes in watering frequency and amount. **Light, frequent watering is inefficient and encourages shallow root systems. Excessive irrigation, which keeps the root system saturated with water, is harmful to the lawn.** Roots need a balance of water and air to function and grow properly.

The time of watering is important. The best time for lawn irrigation is in the early morning hours. Watering during the day can waste water by excessive evaporation and during very hot periods can scald the lawn. Watering in late afternoon or late morning may be detrimental if it extends the time the lawn is naturally wet from dew. Lawn irrigation should be scheduled to avoid peak residential water demand if using municipal water.

### LAWN WATERING ECOLOGY

To insure quality turf, bermudagrass (*Cynodon* spp.) and St. Augustinegrass (*Stenotaphrum secundatum* [Walt.] Kuntze) need supplemental irrigation. Lack of properly timed irrigation can weaken the turfs and predispose them to weed

invasion and other pest problems. Centipedegrass (*Eremochloa ophiuroides* [Munro.] Hack.) often needs no supplemental irrigation under shaded conditions where natural rainfall and runoff is often sufficient. However, in sunny open areas, centipedegrass may need supplemental irrigation. Bahiagrass (*Paspalum notatum* Flugge.) is the southern turfgrass that when properly established and maintained requires less irrigation than the others. Improper watering of bahiagrass lawns is detrimental to turf quality and leads to weed problems.

Underwatering of turf is obvious by wilting of the leaves, but overwatering is not so obvious and may show up in numerous ways. Excessive thatch buildup and constantly wet turf are signs of overwatering. The presence of pennywort (*Hydrocotyle umbellata*) and sedges (*Cyperus* spp.) indicate too much water is being applied and turf disease and other pests may invade the lawn under this situation.

An efficient watering program combined with a moderate level of fertilizing and proper mowing height will produce a superior lawn. Not only will your lawn look good, but it will also be able to withstand the stresses it encounters.

### **INSPECT SPRINKLER SYSTEM FREQUENTLY**

- Check sprinkler heads for an even spray pattern and direction of spray.
- Check for damaged sprinkler heads, replace these if leaking.
- Check that valves open and close properly.
- Check for proper time on controller if your system has one.

### **TIPS FOR TURFGRASS**

Follow these tips to reduce leaching, thus saving fertilizer. Remember, your objective is to keep water and fertilizer in the root zone of the grass for as long as possible.

- Know how much water your system applies over a time period. Simply place coffee cans in a straight line from your sprinkler to the edge of the watering pattern (Plate 26). Turn the water on for 15 minutes and calculate the average depth of water. Multiply this number by four to determine the irrigation rate in inches per hour.
- Make sure your sprinkling system applies water uniformly. Don't mix head types or let the reach of two sprinklers overlap excessively.
- Apply no more than  $\frac{3}{4}$  to 1 inch of water per irrigation.
- Wait until turf stress symptoms are noticeable before applying  $\frac{3}{4}$  inch of water. Watch the grass for a bluish-gray color, folded leaf blades, and/or inability to recover from foot or vehicular traffic.
- Don't water when rain is forecasted for your area.
- Don't be fooled by the word "organic." Some organic fertilizers leach as quickly as inorganic.
- Look for the words "slow release" and "insoluble" on the fertilizer labels. Nitrogen in this type of fertilizer will not wash away as quickly.
- Include potassium (K) in your fertilizer as this element is necessary to increase the turf's drought tolerance.
- Lime your lawn if your soil is highly acidic (a low pH) to reduce phosphorus solubility.
- Increase mowing height of lawns; this increased height allows the plant to develop a deep root system.