

Assessing Your Irrigation Systems Efficiency

by Keith Mickler *

May 16, 2002

If I were to ask you how much water your irrigation system puts out in a given time could you tell me? If no, you're not alone. Most of my clients cannot give me an answer when it comes to watering.

Taking care of a lawn is quite a job. Our close family friend Sandy knows everything about lawn care! Sandy hated to do it but after considerable thought and agony she finally broke down and stopped by my office.

Sandy burst in through my office questioning how long she should let her lawn irrigation system run. My first question for Sandy was, "How much water does your irrigation system put out in a given time"? Sandy shrugged her shoulders and said "I don't know, does it matter?" "Well for sure it matters!" I exclaimed. How can you water efficiently if you don't know how much water you are applying to your lawn?

I explained to Sandy that she must determine how much water her sprinkler system applies in a given amount of time in order for her or for me to know how long the irrigation system should run.

I gave Sandy a copy of the following procedure for calibrating an in-ground or hose-end sprinkler:

Step 1: Obtain 5 to 10 empty coffee cans, tuna cans or other straight-sided cans. Cans that are 3 to 6 inches in diameter work best.

Step 2: For an in ground irrigation system, randomly place the containers within the irrigated area, so to catch the water when the irrigation system is turned on. If your irrigation system has more than one zone, calibrate each zone separately. For a hose-end sprinkler, evenly space the cans in a straight row so that the first can is close to the sprinkler and the last can in the row is just at the ending edge of the watering pattern.

Step 3: Turn the water on for 15 minutes.

Step 4: After 15 minutes, measure the water in all the cans.

Step 5: Determine the average depth of water collected in the cans.

Larry Williams is Extension Horticulture Agent for the University of Florida IFAS Extension in Santa Rosa County. Step 6: Multiply the average depth by 4 to determine the application rate in inches per hour. Now that you know the sprinkler system irrigation rate, you can apply water more efficiently. For example, if the sprinkler system applies water at the rate of 1/4 inch per hour and you wish to apply one-half inch, then run the sprinklers for 2 hours.

It's best to do this calibration exercise during the same time of day the system is normally run so that the water pressures are similar.

After Sandy had read over the calibration procedures she and I discussed why knowing the amount of water an irrigation system applies over a certain time period is an important step in using water efficiently. I told Sandy that most people irrigate for a given number of minutes without knowing how much water they are really applying. This leads either to giving too little water, which will cause a shallow developed weaken root system, or wasted water, which runs down sidewalks and streets, or through the root zone and deep into the ground where grass roots cannot reach it.

I explained to Sandy in order for her lawn to develop a deep root system and be capable of surviving hot, dry weather it is best to switch the automatic irrigation timer to manual. Watering a lawn on an as-needed basis is the best way to water correctly and develop a deep-rooted lawn. I asked Sandy to apply $\frac{1}{2}$ to $\frac{3}{4}$ inch of water to the lawn, but only when the grass indicates that water is needed.

One-half to three-quarters an inch of water is all it should take to wet the soil to a depth of eight to twelve inches. This is where most grass roots are located. It's best to irrigate during early morning hours to prevent lawn diseases and to minimize water lose due to wind and evaporation

In addition I gave Sandy a copy of several techniques she could use to identify signs that her lawn needs water:

Color test: If your lawn exhibits a bluish-gray cast then it needs water.

Leaf check: If the grass leaves exhibit signs of wilting such as rolling or folding, then the lawn needs water.

When 30 to 40 percent of the lawn shows these signs of needing water, turn on the irrigation system. Do not water again until the lawn begins to show these signs of water need.

The best time to observe these signs of water need is during the evening when the grass is not in full sun. Also remember that the lawn is a great indicator for when other plants in a landscape may need water.

Finally, after almost an hour I had explained to Sandy how to irrigate her lawn properly. The reprogramming of her "know it all" gardening brain was complete. Another successful case for the County Agent Man! Happy Watering!

**Keith Mickler is an Extension Agent with the University of Georgia Extension Service in Grady County.*

[\[Back\]](#)