

Four Steps to Tune Up Your Irrigation System

Why Tune Up Your Irrigation System?

An inefficient irrigation system does more than waste water — it wastes your money. An improperly maintained system may develop costly leaks, cause lawn damage by overwatering or run during restricted times. With new water rate increases for Manatee County Utilities Department customers and the increasing stress on Florida’s water resources, it’s more important than ever to make sure your irrigation system works at maximum efficiency. Outdoor water use accounts for up to 50 percent of residential water usage, with automatic irrigation systems being the largest user and the most often overlooked. Manatee County Utility customers may be eligible for rebates for improvements. Call (941) 792-8811 ext. 5327.

The Four-Step Tune-Up

If your irrigation controller is in good working condition and you can manage light do-it-yourself projects, this four-step irrigation system tune-up will help ensure that your system runs efficiently.

1. Look for Problems, Make Corrections and Repairs

- Once a month, manually start your irrigation system (on your assigned watering day) and cycle the controller through each irrigation zone. Some controllers have a “test” mode for this.
- In each zone, look for leaks, broken pipes, damaged or tilted sprinkler heads, blocked sprinkler patterns and overspray onto impermeable surfaces such as roads, driveways and buildings. Make corrections and repairs as necessary. Use the same brand and model sprinklers within a zone to improve watering uniformity.
- Check for dry areas. Dry patches are a sign that sprinklers may be spaced too far apart, that the water pressure is low, that sprinkler patterns may be blocked by overgrown grass, shrubs and low-hanging limbs or of clogged screens inside the sprinkler heads. Sprinklers should throw water 80 to 100 percent of the distance to adjacent sprinklers; sprinklers may need to be added or moved. Don’t mix spray-type sprinklers and rotor-type sprinklers in the same zone; sprayers have much higher application rates.



Broken Sprinkler Head



Dry Areas Between Sprinklers

2. Adjust the Irrigation Controller for Compliance and Efficiency

- Set the controller for the current date and time.
- Set the controller for your watering days. Be sure to comply with your local watering restrictions.

Southwest Florida Water Management District Watering Restrictions:

- Even-numbered addresses may water on Tues. and/or Sat.
- Odd-numbered addresses may water on Wed. and/or Sun.
- No watering between 10 a.m. and 4 p.m.
- Certain exemptions and exceptions apply.
- Call 1-800-848-0499 or go to WaterMatters.org.



Irrigation Controller

2. (Continued)

- Set the controller for each zone to apply $\frac{3}{4}$ inch of water per irrigation cycle, which will moisten the soil to about 8 to 9 inches deep and encourage deeper rooting. Your lawn will gradually become more drought-tolerant. To determine how many minutes each zone should run to apply $\frac{3}{4}$ inch of water, do a calibration test. It may sound complicated but its really simple. Every irrigation system and every irrigation zone is unique and should be calibrated.

Calibrating the Irrigation System

Setting the irrigation controller to apply $\frac{3}{4}$ inch of water in each zone during every irrigation cycle:

- a) On an allowed watering day, randomly place 10 sprinkler gauges throughout the area watered in zone one. Empty tuna or cat food cans may be used if sprinkler gauges are not available. Do the test when the wind is calm and during your normal watering time.
 - b) Turn on zone one, time how long it takes to get an **average** depth of $\frac{3}{4}$ inch of water in gauges. *If there are large differences in water depths among the gauges, corrections should be made before continuing so water is applied uniformly throughout the zone; see step one.* Set that number of minutes in the controller for zone one. Write it down for reference.
 - c) Repeat steps a, b and c for each zone. All zones don't have to be calibrated in one session.
- Set the controller for the time to begin irrigation. Water between 4 and 7 a.m. to reduce evaporation and plant disease. To find the start time, add together the run times from each zone and subtract the total from 7 a.m.
 - If your controller has a “percent setting” (adjusts all zone run times up or down), set it at 100 percent and leave it there. Change only when you water, not how much you water in a cycle.
 - Water on an “as needed” basis to avoid overwatering and to encourage roots to grow deeper. This can save a lot of water. Plants will gradually become more drought-tolerant. Here's how: Put the irrigation controller in the “off” setting. Daily look for signs of dryness in the lawn such as grass blades folded in half lengthwise, a blue-grey color, footprints that remain in the grass or dry soil an inch or two below the surface. When these conditions are noticed in about a third of the lawn, turn the controller to the “automatic” setting for watering on the next allowed day. Return the controller to the “off” setting after watering. Don't make the mistake of watering on every allowed day. However, while you are away on vacation, leave the controller on “automatic.”
 - Replace the battery about every two years so the controller will remember your instructions after a power outage.



Calibrating the Irrigation System



Folded Grass Leaf Blades – Dry

3. Check the Rain Sensor

- Install a rain sensor irrigation shutoff switch if your system doesn't have one to prevent your automatic irrigation system from operating during and after a rainfall. Locate it away from overhead obstructions with a clear view of the sky and at least five feet left or right of AC units and pool heaters. Roof edges are usually good locations.
- Test it monthly (quarterly in the dry season) by wetting the sensor and verifying the system won't operate when the controller is turned on. Repair kits are available.
- Adjust the sensor to stop irrigation after ½ inch of rain and adjust the vent ring (if equipped) near the closed setting to keep the system off for two to three days. Rain sensors have been required by Florida law on new automatic irrigation systems since 1991.



4. Inspect or Install Micro-Irrigation

- Consider installing a micro-irrigation system (sometimes called low-volume or drip irrigation). Micro-irrigation can be more efficient for watering shrubs, flower beds and vegetable gardens.
- Use the procedures from step one to inspect and perform maintenance on your micro-irrigation system monthly. Add or move micro-irrigation as plants mature or are moved. Adjust or relocate lawn sprinklers to prevent them from watering in the areas being watered by micro-irrigation.
- Clean filters and flush the system every month or, more often if needed.
- Micro-irrigation usually needs to operate more frequently than lawn zones. If your micro-irrigation system is controlled by the main irrigation controller, set an independent schedule for the micro zones if possible. Most controllers feature dual program capability. It's like having two separate controllers in one unit. Lawn schedule could be on program A; micro schedule on program B.
- If your micro-irrigation system is supplied by a spigot or hose, install a spigot-mounted timer valve to ensure proper run times and prevent overwatering. Several models are available.



Irrigation System Terms to Know

Application rate: The average rate at which water is applied by an irrigation system or from rainfall. Also known as the precipitation rate, units are given in inches of water per hour.

As needed basis: A flexible irrigation plan where irrigation frequency is adjusted to meet actual plant needs rather than watering on a rigid, time-based schedule without regard for actual moisture conditions.

Calibration test: A process to accurately determine the length of time an irrigation zone should operate in order to apply the proper amount of water. Measured in minutes, the time is used to set that zone’s run time in an automatic irrigation controller. Also, an indication of watering uniformity within the zone can be determined by comparing the variation of water levels among the catch cans. (See picture on page 2.)

Catch cans: A set of uniform, empty, open-top tuna or pet food cans used to collect irrigation water in a zone over a timed irrigation event. Sprinkler gauges work very well as catch cans due to their water depth markings and built-in stake that holds them upright.

Irrigation: Controlled, artificial application of water to crops, lawns or landscapes to supplement rainfall.

Irrigation controller or time clock: A timing device to automatically turn electrically operated water valves on and off in irrigation zones according to a schedule set by the owner. (See picture on page 1.)

Micro-irrigation: The frequent application of small quantities of water directly on or below the soil surface, usually as discrete drops, tiny streams or miniature sprays through emitters placed along distribution tubing. Pressures and flows are less than conventional irrigation. Polyethylene tubing and plastic components are commonly used, which adds flexibility and ease of installation. (See page 3.)

Nozzle: The replaceable part of a sprinkler that controls the water flow rate and pattern.

Rain sensor irrigation shutoff switch: An accessory for automatic irrigation controllers to interrupt irrigation operation after a predetermined amount of rainfall and allow normal operation after the water evaporates. (See picture on page 3.)

Rotor sprinkler: A sprinkler for larger lawn areas using higher water pressure to disperse water in an arching stream-type pattern. Due to sprinkler rotation, a circular area or part circle is irrigated from one or two replaceable nozzles. An adjustable, internal mechanism drives the rotation operation. Application rates are around one-half inch per hour and therefore shouldn’t be mixed with spray-type sprinklers in the same zone because of their different application rates.



Spray sprinkler: A sprinkler with an easily replaced nonrotating nozzle producing a solid spray pattern at moderate water pressure. A wide choice of nozzle patterns makes this sprinkler ideal for watering small or irregularly shaped areas. Application rates range from one to two inches per hour.



Sprinkler head: A generic term for rotor and spray-type lawn sprinklers.

Valve: A device that controls water flow, such as an electrically operated valve wired into a controller.

Zone or irrigation zone: A group of sprinklers operating together from a single valve.

This publication is for educational purposes and not for complete sprinkler system repairs. Refer to component manuals and professional services for tasks beyond homeowner capabilities. Written July 14, 2006, by Jack Tichenor, Extension Agent, Manatee County Extension Service, 1303 17 St. W, Palmetto, FL 34221. Thanks to Chris Claus, St. Petersburg Water Resources for portions of this material. Funded by the Manasota Basin Board of the Southwest Florida Water Management District.

