

- ◆ Switch to drip irrigation for watering shrubs. Drip irrigation is about 20% more water efficient than sprinklers are.

- ◆ Automated emergency shut-off devices save water by automatically shutting off the water when something in the irrigation system breaks. Automated emergency shut-off devices are often used on irrigation systems where a break or valve failure could cause serious damage. They also are used often in locations where a leak might go undetected for days, such as a vacation home or remote location.

- ◆ Separate plants into hydro-zones. A hydro-zone is an area where all the plants use more or less the same amount of water and have the same sun and wind exposure. For example, lawn in the sun would be one hydro-zone, the lawn in shaded areas would be another hydro-zone, lawn in the sun on a windy hill-top would be yet another hydro-zone. (The lawn in shade uses less water than the sunny area, the windy hill top uses more water than the sunny area. Wind dries out the grass quickly, similar to how a blow-dryer dries your hair quickly.) The irrigation is separated so that each hydro-zone area is watered by a different valve. This allows you to water each hydro-zone individually for just the right time to apply the water needed by the plants, without over-watering.

Give your sprinkler system a tune up. This is another reasonably inexpensive step that gives a good return on your investment.

Sprinkler System Tune-up Step 1:

- ◆ Check for problems. Turn on each valve, one at a time, and carefully inspect your irrigation system. Look for wet spots that indicate there might be a leaking irrigation pipe. Repair any leaks.

- ◆ Replace controller battery. Most irrigation controllers have a back-up battery that maintains the time and program during power failures.

- ◆ Straighten any sprinkler heads that are leaning to the side. In most situations sprinkler heads need to be installed so that they are perpendicular to the ground to work correctly. If they lean to one side they may create dry spots and also waste lots of water.

- ◆ Replace any broken or malfunctioning sprinklers. Be sure to replace broken sprinklers with the same brand/model as the other sprinklers on the same valve circuit.

Sprinkler System Tune-up Step 2:

- ◆ Clean spray-type sprinklers. If you have spray-type sprinklers start by removing the nozzle from each head and cleaning the screen. The screen will be under the nozzle. An old toothbrush works good for cleaning the filter.

- ◆ Clean rotor-type sprinklers. Most pop-up gear-driven rotors have a filter in them that can be cleaned. Gear driven rotors are identified by the very quiet operation and the water stream that moves smoothly as it rotates. You must unscrew and remove the cap on the top of the rotor. When you remove the cap the nozzle and drive assembly will be attached to it and come out with it. Look for the screen on the bottom of the drive assembly you just pulled out.

Sprinkler System Tune-up step 3:

- ◆ Adjust spray-type sprinklers. On top of each spray-type nozzle is a small radius adjustment screw. Turn the adjustment screw to adjust each of your spray-type sprinklers so that they don't spray onto sidewalks or walls. If spray-type heads are creating a lot of mist try partially closing the adjustment screws by turning the screw clockwise to reduce the misting. Partially closing the adjustment screw will reduce the water pressure inside the nozzle, which will cut down on how much mist is created. After adjusting, make sure that the spray from the nozzle still goes all the way to the next sprinkler. When sprinklers are properly spaced and adjusted the water from each sprinkler should spray all the way to the next sprinkler in each direction.

- ◆ Adjust the rotor-type sprinklers. The most common adjustment error is to try to create even coverage by breaking up the water stream using the radius adjustment screw. On a typical rotor the radius adjustment screw is located on top of the sprinkler, just in front of the nozzle. When turned the screw drops down into the water stream causing the stream to deform. This deflects the water stream and reduces the distance it shoots from the sprinkler. Turn the adjustment screw clockwise until it is touching the water stream which will change shape when the screw contacts it. Now turn the screw counter-clockwise just enough that it is not touching the stream. This is the proper default position, unless the sprinkler is spraying too far you should leave it in this default position.



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How to Save Water with your Irrigation System...

- ◆ Have your irrigation system audited. The auditor should carefully examine and test your irrigation system. They should then create a report for you detailing the condition of the system, including a list of recommendations for repairs and improvements. Some auditors also will provide you with an irrigation schedule showing how often and how long you should water during each month of the year. After you have your audit in hand, you can then get quotes from landscapers for performing the repairs and improvements you want done.

- ◆ Adjust your irrigation controller (timer) run time for seasonal changes in weather once a month. Simply making a monthly change to the irrigation operation times can save more water and money than any other thing you can do. Most controllers even have a % key that makes changing the time quick and reasonably painless. Put a reminder on your calendar so you are reminded each month. Even greater savings come with weekly time adjustments, but monthly will provide the most return in water savings for your time invested.

- ◆ Run your irrigation system during the morning hours, especially if you use sprinklers. Less water is lost to evaporation when the temperature is cooler, plus in most areas the wind doesn't blow as hard in the mornings. Watering in the evenings can lead to turf and plant disease problems because the water sits on the plants all night, especially in humid climates.

- ◆ If you irrigate with automatic sprinklers, program your irrigation timer so that it waters in 2-3 short cycles rather than a single long period of time. Allow the water to soak into the ground between the cycles. For example, if you normally water for 15 minutes, try this; water for 4 minutes, wait 30 minutes or more for it to soak in, then water another 4 minutes, then wait again, then water another 4 minutes. Now you have watered a total of 12 minutes rather than 15. Even with the reduced total watering time, chances are you will see a significant improvement in how good your lawn looks. Cycling the irrigation gives the water time to soak into the ground and reduces water run-off, it also will help reduce the wet spots in the lawn where lawn diseases get started.

- ◆ Make sure tall grass, groundcovers, or shrubs are not blocking or deflecting the water spraying out of the sprinklers. The water from sprinkler heads that pop-up less than 3 inches high is often deflected by tall grass around the sprinkler head. When the water pattern is deflected by tall grass or leaves it results in uneven watering and water waste. The industry standard for lawns is to use sprinkler heads with a pop-up height of 4 inches or more. Turn on the sprinklers right before the next time the lawn is scheduled to be mowed and see if the grass around the heads is blocking the spray. If it is, consider replacing the sprinkler heads with a model that pops up higher. Shrubs and groundcover that have grown since the sprinkler system was installed may also block the spray of sprinklers. If you don't want to replace or raise the sprinkler heads, trim the shrubs around the heads so that the spray is not blocked. In shrub areas it is not always necessary for the spray to go over the top of the shrubs. In many cases it is OK for the water to spray into the side of the shrubs, especially if the shrubs are 6 feet or more away from the sprinkler. Shrub roots will often grow out to where the water is. If the shrubs are not wilting and are healthy, then there is no need to change the sprinklers. If you want to really save a lot of water consider changing the sprinklers in shrub areas to a drip system, which will use even less water

- ◆ Relocate sprinklers so that they are between 4 and 6 inches from the edge of sidewalks, curbs, patios, etc. in lawn areas. In shrub areas they can often be 12 inches from the edge, especially with a mature landscape. This will reduce the amount of spray onto the paved surface and will not create a dry area along the edge of the lawn. It will also reduce the amount of damage that trimmers cause to the sprinkler heads. Almost all stores that sell irrigation equipment will have flexible riser pipes made for relocating sprinklers. Using the flexible riser pipe makes relocating the sprinklers much easier, and the flexible pipe allows the sprinklers to move if a car or heavy lawn mower hits them without breaking a pipe or the sprinkler.

- ◆ Fix leaking valves. Look for water running onto sidewalks or over curbs after the sprinkler system is turned off. If water flows constantly when the

sprinkler system is off (often there will be mold or algae growing on the cement or ground) that indicates that a valve is not fully closing. A valve that doesn't close usually is caused by a small grain of sand stuck inside the valve. Clean, or simply replace, the valve.

- ◆ Fix low head drainage. Do your sprinklers spit and spew air mixed with water for a short period each time they are turned on? This is caused by a phenomena called "low head drainage". Low-head drainage occurs when the sprinkler system has been installed on a sloped area. After the sprinklers are turned off, the water in the pipes drains out through the lowest sprinkler heads and is replaced by air. The water that drains out is wasted, and often flows into the gutter or creates a muddy area around the lowest sprinkler head or drip emitter. Then the air is violently forced out the next time you run the sprinklers. This puts a lot of stress on the sprinklers and pipes. The easiest way to tell if you have this problem is when you turn on the sprinklers. If they spit and spew air when the valve is turned on, then you have low head drainage

- ◆ Install a Smart controller. A Smart controller does the work of periodically adjusting the sprinkler operating times for you. It changes the run times to reflect the current water needs of the plants.

- ◆ Install a rain switch. A rain switch is a simple rain sensor. When it detects measurable rainfall, it turns off the automatic irrigation valves. You can buy a rain switch almost anywhere irrigation products are sold, most will work with any brand of irrigation controller or timer and any brand of valve. You mount the rain switch on the side of the house, on a pole, or on a fence in a location where water will fall on it but sprinkler water will not hit it.

- ◆ Install a filter on your irrigation system. A filter saves water (and money) indirectly. Most valve and sprinkler malfunctions result from contaminants in the water supply. Typically this is small grains of sand, pipe scale, or small fresh-water snails. All of these are common in many public water systems. Installing a simple screen filter at the water source (before the valves) will greatly reduce the frequency of sprinkler system breakdowns and save water.

- ◆ If your irrigation system is located in an area where hard frosts occur make sure you properly winterize it each year before the cold weather hits.