

Planning a Drip Irrigation System

(Part 1 of 2)

It's spring and we're seeing a few 60-70 degree days! Gardening juices are starting to flow and planning a drip irrigation system might be a good way to utilize that extra gardening energy. Drip irrigation is the most efficient and environmentally friendly watering system. Water is a non-renewable resource that is so readily available and affordable in the Tulsa area that we tend to undervalue it. In Oklahoma, 30-40% of household water is used to maintain our home landscapes. As stewards of the land, it is up to us to make choices that increase efficient water usage. A drip irrigation system enables us to deliver the precise amount of water needed at the time it is needed which in turn provides less runoff, evaporation and easier weed control.

Water requirements vary

Plants need 1-1/2" of water per week, but can survive drought with half that amount. Deep, more infrequent watering will encourage deeper, healthier root systems. Temperature, wind and soil texture will determine how much water to apply. The Mesonet - Oklahoma's Weather Network - at mesonet.org is an invaluable resource to determine soil temperature and sub-soil moisture content in your area. Well established trees require less water than ornamental shrubs. A rule of thumb - the deeper the root system, the less supplemental water will be required. A vegetable garden or flower bed will require less supplemental water than a pot. Differing water requirements will require separate delivery systems or zones that can be controlled manually or automatically. Because of this, it may be better to group plants with the same water requirements in adjacent areas.

What are your goals?

When beginning the planning process, determine what you are trying to accomplish. Do I want to avoid having to drag hoses around, or do I want to have a system where I do not have to worry about my landscape when I am out of town or really busy? The answer to these questions will determine the complexity and expense of the system.

Plan the physical layout

The layout will begin with the location of the outdoor water source; spigot, hose, rain barrel, well, etc. Determine how many zones will be established and determine route of 1/2" poly tubing for each zone. At the water source, a back flow preventer needs to be installed to prevent contaminants being sucked back into the water supply by a sudden change in water pressure. In order to help prevent clogged emitters, install a filter. If using a good quality municipal water supply, the filter may be as simple as a 150 micron mesh screen. If establishing multiple zones, install control valves to turn water on and off. These valves may be manual or automated. A pressure regulator that adjusts pressure to 10-30 psi (depending on components) needs to be installed in the drip system to adjust for variations in water pressure. Distribution to individual plants or plantings is provided by 1/4" vinyl tubing attached to the 1/2" poly tubing. The zones enable you to control the frequency and length of watering. The amount of water that is delivered in the specified time is determined by the emitter placed at the end of the 1/4" vinyl tubing at the individual plant or planting.

Check out options

Once you have a basic design in mind, check any nursery, big box store or online store to familiarize yourself with the many different parts available to build your system. Next month, we'll provide some information on the installation and maintenance of a drip irrigation system.

Resources: OSU Fact Sheets:

[E-1038](#)

[BAE-1511](#)

[HLA-6610](#)