



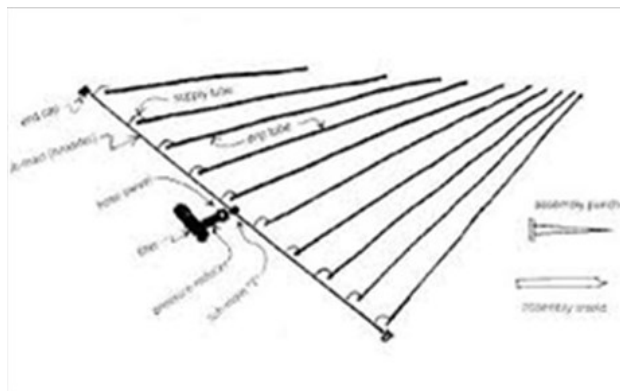
# Guilford Gardening Journal

*Timely Tips from a Professional Gardening Expert*

## WHAT IS DRIP IRRIGATION?

Drip irrigation is the slow and precise application of water and nutrients to the root zones of a planting. Other names for drip irrigation are micro-irrigation and trickle irrigation.

Drip irrigation conserves water and reduces leaching of water and nutrients below the root zone. To make sure the drip irrigation works effectively, the system needs to be placed properly around the root zone for good root development. The system will require regular maintenance and inspections. The tubing for the drip irrigation should be placed in a position where no one will trip over it, dogs cannot play with it, and where a lawn mower could not run over it.



Basic Layout of Drip Irrigation [www.wasatchgardens.org](http://www.wasatchgardens.org)

## PLANNING YOUR DESIGN

1. Identify the plants you will be watering.
2. Select the appropriate volume of water based on plant material.
3. Determine the soil type.
4. Measure the water source flow rate.

## LAYOUT

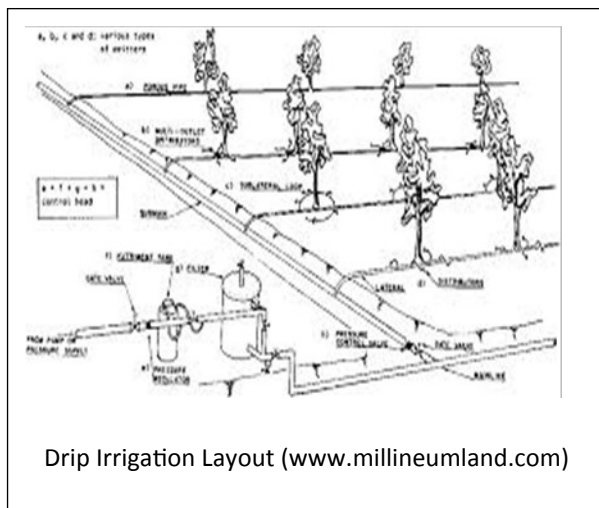
While drip irrigation works well in the vegetable garden, particularly where the garden is planted in rows, it can also be designed/installed in the home landscape. Most soils are suitable, with special consideration for clay soils where water must be applied slowly to avoid pooling and runoff. With sandy soils, higher emitter discharge rates will be needed to ensure adequate lateral wetting of the area.



Drip Irrigation Layout ([www.uri.edu](http://www.uri.edu))

## COMPONENTS

Irrigation kits for home use can now be purchased at local garden centers. A typical drip irrigation system consists of a pump unit, control head, main and sub-main lines, laterals, and emitters or drippers. The pump unit takes water from the source and provides the needed pressure for delivery into the pipe system. The control head consists of valves to control the discharge and pressure throughout the system. The valves may also contain filters to clear the water. Filters include screens and sand filters, which remove substances that are suspended in the water. Control heads can include a fertilizer or nutrient tank to slowly add a measured dose of fertilizer during irrigation. Main lines, sub-lines and laterals supply water from the control head to the fields. These are usually made from pvc or polyethylene hose and should be buried to prevent solar degradation. Emitters and drippers are devices used to control the discharge of water from laterals to the plants. They are normally spaced 1 meter apart.



## OPERATION AND MAINTENANCE

Systems are generally designed to provide one inch of water per week. This may mean they operate for 30 minutes to an hour of run time several times per week after plant establishment. Adjust emitter sizes and numbers accordingly. Consider soil type, plant water requirements and season when setting and adjusting irrigation schedules. More water will be required in summer heat than in cooler spring and fall temperatures, so change run times accordingly. You will also need to make sure you have a rain sensor if you are using an automated system. Again, one of our key reasons for using drip irrigation is to conserve water.

In the spring, flush the main line to clear any accumulated dirt. Clean the filter. Cap the system, and pressurize and check emitters to be sure they are operating. Clean emitters if necessary by soaking in water and using forced air to clear particles.

During the growing season, periodically check and clean emitters for proper operation. Flush the system thoroughly after breaks and repairs to avoid emitter clogging. Clean the filter more often if using well or pond water and less often if using municipal water. Winterization tasks for drip systems are minimal. Detach the head assembly, which consists of the control valve (if portable), backflow prevention device, filter and pressure regulator, and store indoors for winter. Uncap the mainline to drain, especially if an emitter is not located at the low point in the system, and then re-cap. Systems with many right angle fittings may retain water and require pressurized air to blow out. Most emitters store well outdoors over winter, and only occasional replacement is necessary.

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## Resources:

- Brouwer, C., Prins, K., Kay, M., Heibloem.  
"Irrigation Water Management." *Training Manual No. 5*. 1988.  
<http://www.fao.org/docrep/S8684E/S8684E00.htm>
- Broner, I. *Drip Irrigation for Home Gardens*. Colorado State University Cooperative Extension.  
<http://www.ext.colostate.edu/pubs/garden/04702.html>
- Stryker, J. *Drip Irrigation Design Guidelines*.  
<http://www.irrigationtutorials.com/dripguide.htm>

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