

# Drip Irrigation Systems for Gardeners

There are four common techniques for irrigating gardens. Sprinklers are very inefficient because wind blows much of the water away. Flooding is good for large irrigated pastures or alfalfa fields, but it's a waste in small vegetable gardens. And furrow irrigation loses a lot of water that seeps into soil away from roots.



In contrast, drip irrigation waters the base of the plant, where it filters down to roots. This reduces water loss between plants and denies water to weeds. Drip irrigation systems often intimidate home gardeners because some require elaborate electrical timers and plumbing. Expense is also a major deterrent. However, relatively simple, inexpensive drip systems are now available at most hardware stores and can be self-installed in a few hours.

Simple systems use battery timers connected to the nearest garden faucet. Wrap Teflon tape around faucet threads to keep it from leaking. Analog timers are inexpensive and have easy-to-use, adjustable dials to determine the days and lengths of time the system turns on and off. However, most analog timers are only good for one growing season.

More expensive digital timers last longer and are more accurate, but they're a little harder to program. Programming instructions come with all timers. Connect an antisiphon device to the bottom of timers to keep water from being sucked back into the house. Brass antisiphons are better than plastic, which become brittle and often break down in sunlight. Place the antisiphon device at least six inches above the highest emitter in the garden. When the system shuts off, water will squirt out through the device.

Place a pressure regulator below the antisiphon device. Most drip irrigation systems cooperate best at pressures of 12 to 15 pounds per square inch. Water pressure in most houses is generally much higher. Place a screen or filter below the pressure regulator, especially if the house has a well for drinking water. Clean the screen periodically to remove sand or other matter that can clog emitters.

Connect the header line to the filter and roll it out like a hose at the top of the garden. Most header lines are half-inch diameter polypropylene tubing. Cut tubing to fit the garden's shape and put it back together with compression fittings. Buy all supplies from the same manufacturer to make sure fittings hold properly. Place a drain plug at the end of the header line to hold in water. In the fall, remove the plug and blow the water out of the tube to prevent freezing.

Drip lines are normally quarter-inch diameter tubing. To connect them to the header line, punch a hole in the header, place a barb in the hole and connect the other end of the barb to the drip line. Place a plug at the far end of the drip line to keep water from running out of there. Drip lines have periodic laser holes or imbedded pressure-compensated emitters where the water comes out. The imbedded emitters tend to distribute water more uniformly, and they plug up less. The distance between emitters varies from 6 to 18 inches. Six-inch spacing is better for most row crops because the water pattern is more uniform. That's particularly good for sandy soils.

Bury the header line in the soil to keep it from breaking down in sunlight. Use coupling compression fittings to repair broken header lines and barbs to fix drip lines.

This article adapted from Cooperative State Research, Education and Extension Service, USDA. Please contact Ken Churches at [cdcalaveras@ucdavis.edu](mailto:cdcalaveras@ucdavis.edu) or (209) 754-6475 with your agricultural questions. To speak with a Certified Master Gardener: Calaveras (209) 754-2880, Tuolumne (209) 533-5696, Amador (209) 223-6837, El Dorado (530) 621-5543.