University of California
Agriculture and Natural Resources | UCCE Master Gardener Program

Drip Irrigation in the Food Garden

Drip irrigation is the most efficient way to deliver water to your food garden. There are many possible combinations and configurations but the number one rule is: keep it simple! As you transition your garden from spring to summer to fall/winter crops and when you weed and add compost to feed the soil, you donôt want to deal with a tangle of tubing (or tubing that is buried from sight).

You need to consider both the water source and the drip supplies needed in your bed.

1. **Water source**: If you donôt have an existing drip system with a free station to use for your veggie bed, you can connect to the hose spigot. If you are sharing the hose spigot in a community garden, you can install a Y connector/splitter with individual valves so that you donôt have to disconnect every time you finish irrigating or to allow another gardener to water at the same time. Be sure to check your community garden rules before purchasing supplies and installing your drip system. An existing drip system should have the essential components at the water source/main assembly: a backflow preventer, a filter and a pressure regulator. Youôll need these at the hose spigot connection as well. Components can be recommended by your irrigation supplier based on your particular situation. Sometimes one or all of these components are available with a drip tubing kit, but not always. Ask the irrigation vendor what you are getting when you buy a kit.

2. **Drip supplies**: There are a number of options to irrigate a food garden. But we discourage the use of drip tape and soaker hoses as they are notorious for breaking and leak more water than drip emitters. Micro-sprinklers are not water-efficient. The most common and reliable vegetable bed drip system uses either 1/2-inch drip tubing with in-line emitters spaced every 9- or 12 inches or 1/4-inch drip tubing with in-line emitters spaced every 6 or 12 inches. These perform very well in a vegetable bed and last a long time. Note that 1/4ò drip tubing is not meant to run more than 17 feet; limit its use to smaller vegetable beds.

Some thoughts when planning your food gardening bed system and purchasing components:

- Donôt bury the drip line. It will be easier to observe its operation and make repairs if the drip is on top of the soil.
- Cover the drip line with mulch to protect it from direct sun light and extend its life.
- Use pressure-compensating emitters ï whether they are in-line emitters (emitters built into the tubing) or external emitters that you plug into the tubing. Water flow will be consistent throughout the system. This will ensure that plants at the end of the drip line receive their share of water. Also, if there is elevation, the pressure-compensating emitters will compensate for water moving up- or downhill.
- Place a shut-off valve on each drip line connected to the supply line. This will allow you to turn off lines to areas that are fallow.
- The savings for residential products at big box stores are not that significant and you will have better and longer-lasting performance if you shop at a local irrigation supply store for commercial products. And, you will have free and friendly expert advice when you shop for parts. Some local hardware/garden stores and nurseries also carry commercial products; itôs best to ask before purchasing.

Note that temporary hand-watering may be required with drip tubing. For example, the water spread from the emitters may not be wide enough to keep the soil moist enough for small seeds to germinate when planted closely in a long line or broadcast over a wide area. But, once the seeds sprout and grow to several inches high, their roots will be able to access the soil moisture.

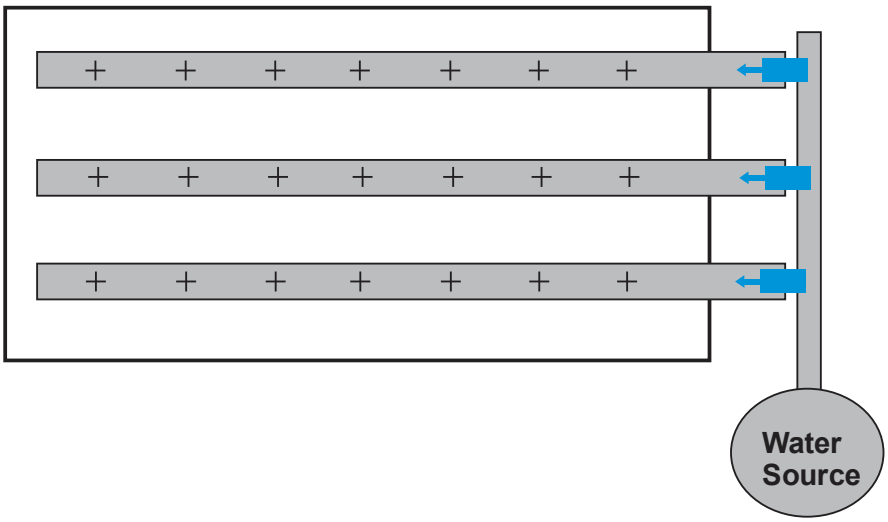
If you played with tinker toys, Lincoln logs or Legos, you can do this. Don't worry. Anything can be fixed or adjusted. Buy a bag of goof plugs and go for it! Also see ñInstructions and Shopping List for Installing Drip Irrigationò on the SCMG website. On occasion, local irrigation suppliers conduct free workshops.

Drip Irrigation in a 4’ x 8’ Vegetable Bed

There are endless drip irrigation configurations for a food garden. This illustrates just one example of a simple system. A 1/2" supply line runs from the water source along one side of the vegetable bed. The end of the supply line is capped. Three 1/2ò drip tubing lines with in-line emitters on 1 foot centers (i.e., emitters are 12ò apart) run over the top of the soil. Pressure-compensating inline emitters will apply water uniformly. The emitters are 1/2 GPH (gallons per hour). These lines are capped and connected to the supply line using either slip-lock tees or compression tees.

Add-ons may include: 1) shut-off valves on the individual drip lines; 2) a shut-off valve and slip-lock connection along the supply line that allows the entire assembly to be removed from the bed; and/or 3) a battery-operated timer if the water source is a hose spigot vs. an irrigation system station.

Small beds can utilize 1/4" drip tubing with hollow transfer barbs punched into the supply line. But note that 1/4" drip tubing is not meant to run more than 17 feet. Both 1/2ò and 1/4" drip tubing have in-line emitters with different spacing. The emitter spacing selection is determined by the crop spacing.



References: 1) *Drip Irrigation in the Home Landscape*, University of California, Agriculture and Natural Resources, Publication 21579. 2) *Drip Irrigation for Every Landscape and All Climates*, Robert Kourik.

For help with your garden problems, call the Master Gardener hotline at 565-2608 or visit the Master Gardener information desk in the University of California Cooperative Extension office (133 Aviation Blvd., # 109, Santa Rosa), or ask a Master Gardener at your local farmers market or the Sonoma County Fair or other event. See our website at http://ucanr.edu/sites/scmg/ for additional publications.