



The main responsibility is to monitor the irrigation system and troubleshoot issues as they arise. This includes helping prepare the system in the spring; performing twice-per-month tests of the system; helping diagnose problems and making light repairs; responding to gardener concerns; and educating gardeners on the proper use and maintenance of the drip system on their plot. If you are unable to complete your responsibilities, please contact the WCG Garden Manager for assistance.

## How Drip Irrigation Works

Drip irrigation efficiently applies water where you want it – the deep root zone of your vegetables – instead of watering soil surfaces that readily evaporate, encourage shallow root systems, and germinate more weed seeds. As the drip system slowly saturates the soil, the moisture fans out beneath the surface. While the surface may appear dry, the subsurface receives a good deal of moisture. The system operates under low pressure through a pressure reducer and filter, and the fittings are conveniently hand-fitted without any adhesives (and only a few simple tools).

## Preparing the System in the Spring

The main water line is turned on in the spring – usually late April – and the automatic drip system is expected to be operational by mid-May. Your WCG Garden Manager will train you on how to prepare the drip system. This includes an understanding of the main irrigation shut-off, the valve boxes and which sections of the garden they control (or “zones”), how to flush the filters and drip tape of debris, how to do a pressure-test, and how to make minor repairs.

To prepare the system, usually a work day is often held in the garden to which gardeners are encouraged to attend. Drip tape should be connected to the flexible black polyvinyl “submain” via threaded T-fittings, with plot shut-off valves turned ‘on’ and each drip line’s end caps removed. The system is then run for a few minutes to remove any debris in the lines. Then the ends are re-capped, and the system is pressure tested for leaks. Leaks are marked with a green/blue flag for repair.

## Seasonal Watering Schedules

The WCG Garden Manager will establish watering schedules and set each valve timer. Each zone is watered automatically, with the schedule depending on the soil composition (sand, silt or clay), climactic conditions (shade, slope, exposure) and seasonal needs of your site. Generally speaking, the WCG Garden Manager will handle the timer - you should adjust timer settings only with their permission.

### Early Spring (March-May): Hand watering as necessary

Cool temperatures and abundant spring rains provide most watering needs. Proper planting practices, including using furrows and mulch, soaking large seeds like peas overnight before planting, and not tilling can reduce or eliminate the need for hand watering during this period.

### May: 2-3 times daily, 5-10 minutes per cycle

Initial watering schedules will be brief in the early morning and evening, in order to concentrate water near the surface where seeds and seedlings need it. Noontime watering should only be necessary in soils that drain rapidly (such as raised garden boxes or sandy soils).

### June: 1 time per day, 20-30 minutes per cycle

As seedlings establish themselves, frequency is reduced while duration increases, to encourage deep root growth and allow the soil to dry out more between watering cycles. For soils that drain rapidly, it may still be necessary to have multiple watering cycles with shorter durations.

### **July-September: 3-4 times per week, 40-75 minutes per cycle**

Plants have established themselves and watering frequency should be reduced even further to 3-4 times per week, but with an increased duration. For soils that drain rapidly, it still may be necessary to water everyday, albeit with a shorter duration.

### **September-October 3-4 times per week, 15-45 minutes per cycle**

Declining temperatures, seasonal rains, and the end of the growing season require a reduction of watering duration. Towards October, supplemental water becomes unnecessary and the system can be shut off. Hand watering may be necessary for gardeners who are seeding a fall garden.

### **Twice per Month Pressure Tests**

You should regularly check the subsurface moisture in random garden plots in your zone, just before the system is set to start its next watering cycle. Is the soil still heavily saturated below the surface? If so, the water from the next cycle about to come on will be wasted and may even cause root rot, fruit splitting, or encourage other plant diseases. If this is the case, let the WCG Garden Manager know, because cutting back on the watering duration and/or frequency may be warranted.

If, on the other hand, the subsurface soil is excessively dry, there may be leaks, malfunctioning components, or – least likely – the watering schedules are inadequate. Manually turning on the system for a few minutes twice per month will allow you to examine the drip rate on the full length of drip tapes. While the system is running, look (and hear) for water leaks in the drip tape and submains, and observe pooling water where large holes or underground leaks are present.

### **Trouble-Shooting the Irrigation System**

Plant distress symptoms can occur for a variety of reasons, and may have nothing to do with the proper functioning of the irrigation system. For example, gardeners often do not understand that subsurface soils can be wet while the surface is dry. Always verify adequate moisture by checking the subsurface soil. You can also visually check indicator plants, such as cool weather crops like lettuce. If it's thriving in June, water is not likely a problem. Some pests and diseases like curly top virus, overwatering, and plot specific issues like tree root infiltration can all create symptoms of water stress.

However, if you suspect the irrigation system is a problem, here is what you should check:

- Do the drip lines drip at an equal rate per minute up and down the lines, or not drip at all (you can also look at water marks in the soil after operation to determine this)? If not, there may be leaks in the drip lines or submains; disconnected parts such as end caps; the plot's shut-off valve may not be fully 'on'; or the zone itself may have flow issues due to clogged filters or other malfunctioning components like timers. Drip tape can also clog over time, and needs to be replaced if it fills up but doesn't drip. If these issues can be ruled out, the WCG Garden Manager may increase the watering frequency/duration.
- Is there evidence of too much water (muddy subsurfaces, soggy pathways, "bathtub" mineral deposit rings on plots, moss growth on soil surfaces, flooded valve boxes, fruit splitting, wilting plants similar to etc)? If so, it could be attributed to leaks in the system; an excessive watering schedule (or gardeners are heavily hand watering); and/or the area has poor drainage. If the subsurface is compacted, irrigated soils may easily become waterlogged, and the compaction may need to be addressed. Broken pipes/valves may also exist below the surface.
- All repairs require the approval and guidance of the WCG Garden Manager, and they will handle any repairs that require a lot of time, labor, or expertise.