

# Irrigation

## Community and School Gardens

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Irrigating a community or school garden can be a challenge. The layout of the garden and the way in which the garden area is allotted can make a big difference in deciding what type of irrigation system to use. The water source is equally important, as it will determine the method of watering and how much plants will be watered. Community and school gardens can be watered by hand with a watering wand and hose, overhead with a portable sprinkler or by drip irrigation. Each has its advantages and disadvantages.

### Water Needs

Georgia generally receives an adequate total amount of rainfall for plants; however, it is not always evenly distributed throughout the year. To set fruit and vegetables, plants need water all summer. Planting a garden, especially a summer garden, makes little sense unless there is some provision to supplement the natural rainfall.

Water needs will vary depending on the season, the weather in a particular year, soil type, crops being grown and cropping practices. In general, a garden needs about 1 inch of water per week during the spring and fall and as much as 1.5 inches per week in the peak of the summer heat. This translates to about 1 gallon of water for every square foot of garden space. A small 10' x 20' garden plot would require 200 gallons of water per week to continue growing at a healthy rate.

### Types of Irrigation Systems

#### Overhead Sprinkler

Overhead sprinklers are the easiest and cheapest irrigation system to install, but also the most wasteful and therefore most expensive to operate. One big advantage of an overhead sprinkler system is that, in a community or school garden, it is very fast and easy to set up. While a lot of water could be wasted by watering non-garden areas, at least the entire garden will be watered. Impact, rotary and micro-sprinklers are three common options for overhead watering.

Depending on the water pressure, a basic **impact sprinkler** positioned in the middle of the garden area can water a 50' diameter circle. One \$15 sprinkler set on a tripod sprinkler stand connected to a garden hose may cover an entire community garden. The sprinkler can be moved around as needed and be adjusted to throw water at various distances and to water half-, quarter- or any partial-circle pattern. Overhead watering with impact sprinklers is great from the point of view of installation cost and ease of use. Unfortunately, water is truly “thrown” into the air -- some lands on plants, some lands on pavement or walkways and some simply evaporates. Since water is landing on top of the plants instead of directly on the roots where it is taken up by the plant, there is additional potential for evaporation. Also, when leaves remain wet for an extended period of time there is an increased likelihood of disease problems.

**Rotary sprinklers** like those used for lawns are about the same price as impact sprinklers, require less water pressure and water flow, and tend to be less “sloppy” in the application of water. Rotary sprinklers



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move by an internal mechanism, creating less movement and more stability of the sprinkler stand. They are just as easy to adjust for the area to be watered as impact sprinklers. Manufacturers even make rotary sprinklers that run on very low pressure with nozzles that keep the angle of the water stream closer to the ground, thus reducing loss from evaporation.

A third type of overhead sprinkler is called a **micro-sprinkler**. There are many different styles of micro-sprinklers, some of which are more like misters and are not recommended for gardens. They are very inexpensive and can be installed on special plastic stakes or steel rods. Some styles spread water in a similar pattern to impact and rotary sprinklers, but the water droplet size is large and the rate of water delivery is slow. This allows time for water to soak in, making the best use of the water and reducing runoff. Some micro-sprinklers water only a 6-foot circle, making it easier to be more precise in watering small garden areas and avoid wasting water on non-crop areas. Micro-sprinklers are perfect for areas of the garden planted in leafy greens where there are no rows.

## Hand Watering

Hand watering can be very efficient if it is done properly. Each plant can be watered based on its needs, and water can be applied directly to the ground rather than solely overtop as with the overhead sprinklers. Kink-free hoses are commonly available and most garden centers sell a good quality wand and “water breaker” to create a rain-like shower. In a community or school garden, where many different people might have small individual plots, hand watering allows each person to water their area to their liking. The big disadvantages to hand watering are the time required and inability to use a timer. Also, if someone is inexperienced, there is a good chance plants will either be over- or under-watered.

## Drip Irrigation

In the last 30 years, drip (sometimes referred to as “trickle”) irrigation systems have become popular among commercial fruit and vegetable growers, as well as landscapers. The principle is fairly simple: water travels through a pipe or tube close to or just underneath the soil surface and is released through tiny holes or emitters. Drip irrigation systems require low pressure and can run with very low flow, making them perfect for community gardens that are watered from a house spigot. Because the pressure is low, the system can be put together with unskilled labor and fittings that require no gluing or screwing. A drip system consists of a pressure regulator, filter (those holes in the tube are very tiny and can be clogged by soil particles) and tube connector. The rest is a series of elbow, tee and tubing running down the row, approximately 12 to 18 inches apart. Drip irrigation parts are available at most garden centers and discount hardware stores, in addition to irrigation supply companies.

The advantages of drip irrigation systems are the fairly low cost, ease of installation and being able to apply water directly to the soil where the plants will soak it up. Evaporation is not a problem and the plant leaves remain dry. A disadvantage is that in a community or school garden, those tubes running on top of the ground can get in the way, sometimes acting as a trip hazard. If the community or school garden has framed raised beds, extra work is required to route the tubing into and around the beds. Another fairly common problem with drip irrigation systems occurs when mice and rats chew holes in the tubing.

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