

Watering trees and other garden plants



Actual water needs vary with:

- Soil type—most of Claremont has a sandy loam soil. Water drains relatively quickly and doesn't spread out much as it sinks down.
- Location—sunny or windy areas lose water faster than shady or calm areas.
- Weather—more water is lost on warm, dry days. More frequent watering may be needed in long, hot spells.
- Species—many local natives and plants from other dry climates need little water especially in summer (mature oaks only need summer water once or twice), but other plants can need much more. Check books, look online, or ask at a nursery about particular species.
- Mulch—this can slow down evaporation from the soil but some forms can prevent air from getting into the soil; others absorb or reflect excess heat, increasing water loss.

Rules of thumb: (remember that these are general rules; alter methods if plants aren't doing well)

- **Signs of distress:** Look for wilting, yellowing, graying, browning, curling leaves (note that on hot days, healthy plants may lose water faster than they can absorb it--they look wilted but are actually fine, so check again in the evening to see if they have recovered before watering. Soggy soil can cause wilting too.)
- **Deeper, less frequent watering is generally best.** This allows time for the soil to dry out a bit to allow air to enter the soil spaces, and to encourage roots to grow deeper.
- **Watering depth** (*University of Arizona*):
 - 6-12" for lawn, groundcovers, perennials, annuals, including most vegetables
 - 12-24" for most shrubs
 - 18-36" for trees
- **Give ornamental trees 10 gal/inch of trunk diameter.** Example: If trunk is 12 " wide at knee level, give 120 gal distributed over the whole area 6" from the trunk to the edge of the canopy (*Colorado State University*). Most mature trees are OK with deep watering once or twice a month. At 4gal/min, this would take 30 min with a hose; one or more hours with drip depending on number of emitters.
Fruit trees about 20 gal/ft of canopy every 2 weeks. They need regular water when flowering and fruiting (April-Sept), For tree with canopy 8 ft wide, this would be 160 gal each time.
- **Vegetables need about 6 gal per square yard each week (the equivalent of about 1" of rain);** giving 3gal/sq yd twice a week is better in fast-draining soil. Amount needed varies with weather, species, age, etc. Some specific info at <http://www.almanac.com/content/when-water-vegetables> (*Burpee*).
- **Most mature trees** do fine with deep watering once or twice a month; young trees, every week.
- **Shrubs, groundcovers, perennials** usually do well watered deeply once a week.
- **Containers** may be fine with once or twice a week depending on size, plant type, and location.

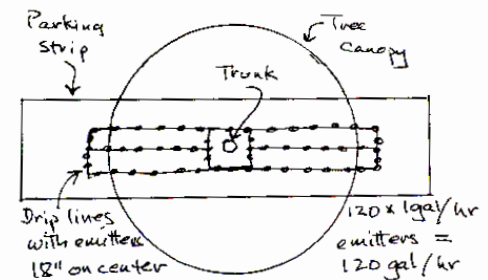
How to tell if the water went deep enough:

- Stick your finger in the soil to assess the top 3-4 inches.
- Stick a skewer or thin metal rod in the soil. It will stop going in as easily when it hits dry soil.
- Use a soil moisture meter.
- Irrigate the garden bed or raised bed and then dig down after the water has been absorbed to see how deep it went. Adjust time as needed to get to the depth you want.
- Keep an eye on your plants for signs of stress.

How to water efficiently:

- **Delivery methods**—by hand, sprinklers, various forms of drip. See links at www.sustainableclaremont.org
- **Use automatic timers**—these make watering a lot easier and ensure that water is delivered on the day you want, for the time you want, and that only the amount you want is delivered.

- **Avoid runoff**--with any method, make sure that the water is delivered slowly enough so that it sinks in and doesn't run off onto the pavement or street.
 - This may mean breaking up the total time you want to water into several shorter periods separated with enough time for the water to soak into the soil. This is often needed when watering with a hose or sprinklers.
 - You can build a raised ring of soil (a berm) around a plant and use a hose or bucket to fill the inside with water several times until the ground has absorbed as much water as the plant needs.
- **Avoid watering more than you need.** Water that goes below the root zone won't be used. Check depth.
- **Lawn**—if you have a small area, hand water twice a week, set up drip with microsprays around the edges, or install a replacement lawn over the new underground drip irrigation that is available.
- **Vegetables and garden beds**—hand water, use microsprays or bubblers, set up drip irrigation, use hose with inline emitters, or a soaker hose. Most established garden plants do fine with watering once a week. Many shrubs are fine with less frequent watering. Vegetables and new plants may need more.
- **Trees**—see Rules of Thumb above. Trees need to be watered over as much of the area under the canopy as possible, starting about 6" from the trunk and continuing at least to the dripline (the canopy edge).
 - Young and newly planted trees need watering every week or two. This can be by hand watering, setting up some form of drip irrigation, or creating a berm around the tree to fill with water.
 - Older trees can do fine with hand watering if you have the time. They also do well with drip or soaker hoses. If there is no rule against it, you can leave a hose dripping slowly for an hour or so in each of a number of places until you have delivered enough water over the desired area.
 - Established oaks only need water once or twice a summer; keep water 6-10ft from the trunk.
 - If you have a tree in a parking strip, you can set up drip irrigation along the lines of the rough sketch at right. Run time depends on amount you need to deliver and on number and type of emitters.
 - Note: Claremont code requires you to water your street trees or face fines.



How to tell how much water you are delivering:

- **Hose**—turn the hose on so the water flows out at the speed you intend using it. Get a bucket that you know the volume of and see how long it takes for you to fill it up. For example, if it takes 30 seconds to fill a 2 gal bucket then the rate is 4 gal/min or 240 gal/hr. If a tree needs 120 gal, that will take half an hour.
- **Drip**—most emitters are 1 or 2 gal/hr. If a tree needs 120 gal, then it would take 1 hr for sixty 2 gal emitters to deliver that amount.
- **Soaker**—these often deliver roughly 2 gal/min for a 50 ft length of hose. This means a 50 ft length of the soaker hose would give the area it covers about 120 gal in an hour.
- **Sprinklers**— place four identical, straight-sided cans between irrigation heads in a zone. Operate zone 15 minutes. Combine water into one can and measure depth. This estimates the sprinkler precipitation rate in inches per hour for that zone (1" is about 6 gal/sq. yd).

Be careful about:

- **Overwatering**--plants will drown if water fills all the soil air spaces. Symptoms are yellow leaves and wilting as the roots die. If plants wilt when it's hot, stick a finger in the soil to check for moisture; wait until evening before you water to see if they recover as it cools off.
- **Watering at night**--wet foliage overnight increases the chance of fungal infections.
- **Letting mulch touch the base of a plant**—wet mulch can promote rot.
- **Gravel as mulch**—in sunny areas, it can heat up the soil and air and speed evaporation.
- **Plastic as mulch**—it prevents normal movement of air and water into and out of the soil.
- **Tree water bags**—they only cover a small root area and only are useful on new trees or ones with limited watering area.