Keeping us a City of Trees

We all want to keep our street and garden trees alive during the drought, but how to do it? Some info would be helpful!

What affects the amount of water a tree needs?

- Where it evolved—streamside trees like sycamores need more than native oaks, and Japanese maples more than mesquites. Google your tree to get an idea of its water needs.
- Microclimate—water is lost more quickly in sunny, windy, or bare areas.
- Weather—more is needed in hot weather; less in winter.
- Soil type—water moves down faster and spreads out less in sandy loam than in clay.
- Groundcover—organic mulches help retain water; gravel can increase heat and evaporation; groundcover plants use water but their shade can cool the soil.
- Watering depth—constant shallow watering encourages roots to grow close to the surface where water is rapidly lost due to evaporation so more frequent watering is needed.
- Size of area available for watering—trees whose root area is largely covered by impermeable surfaces will need more frequent watering.

Where should you water?

- The majority of the roots on an established tree are in the top 2-3 ft in the area starting near the trunk and continuing at least to the edge of the canopy, and often well beyond that.
- Roots need to be given water down to about 18" in the area near the trunk all the way to the canopy edge even if that is now covered with dead grass or low-water plantings.

How much water does a tree need?

- For established ornamental trees, a rule of thumb is 10 gal/inch of trunk diameter at knee height each time you water, about 120 gallons for a 12" trunk. (Note: Trees with larger crowns may need more water than the rule calculates to soak the whole area to 18"—be sure to check depth.)
- Fruit trees need about 15-20 gal per foot of canopy spread, so for a 10 ft canopy that would be about 150-200 gallons.

How often does the tree need to get this amount of water? More rules of thumb:

- Well-established ornamental trees—most are OK with once or twice a month.
- New trees-- every week.
- Fruit trees--every two weeks April to September.
- Native oaks—no more than once or twice in the whole summer, keeping water at least 6 ft away from the trunk.
- Roots need access to air in the soil, so ➔less frequent but deeper watering which allows the top part of the soil to dry out a bit is what will keep them healthiest.
- If a tree looks stressed and the soil isn't wet, it probably needs water right away.

How can you water efficiently?

- For new trees, make a short wall about 6" tall with soil 2 feet away from the trunk. Use a bucket or hose to fill this basin several times until you've given the tree 15-20 gal. Water bags can be helpful here but only for new trees with a small root area and only if they are filled frequently enough.
- Use a hand-held hose with a shut-off nozzle until enough has been delivered. Move the spray back and forth over the root area to allow it to sink in and avoid runoff.
- Lay a soaker hose or one with inline emitters to cover the area and attach it to your garden hose when you plan to water. Cover the hose with mulch to reduce evaporation. Use a timer. Use quick couplers so you can move your garden hose easily to different soakers.
- Make sure any automatic sprinklers don't spray hardscape or run longer than needed.

How can you tell how much water you are giving?

- Garden hose—use a bucket to see how long it takes to deliver a certain amount of water. For example, if it takes 30 seconds to provide 2 gallons, then that is 4 gal/min or 240 gal/hr. If the tree needs 120 gal, 30 min should be sufficient.
- Soaker hose—check package for info. Many provide 2 gal/min over a 50 ft length, so in one hour that length of hose would deliver120 gal. Let the hose relax in the sun before trying to lay it out.
- Drip with inline emitters—amount is the number of emitters times the rate, so 60 one gal/hr emitters would take 2 hr to deliver 120 gallons.
- Automatic sprinklers—place four identical, straight-sided cans between irrigation heads in a zone. Operate zone 15 min. Combine into one can, measure depth--1" is about 6gal/sq yard/hr.

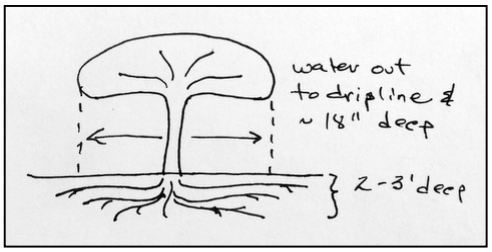
What should be avoided?

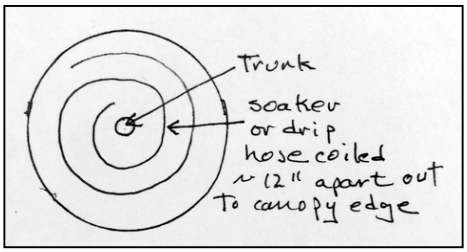
- Frequent, shallow watering—encourages shallow rooting and increases soil water loss.
- Runoff—break up watering period as needed to prevent this.
- Failing to check that the irrigation is working properly
- Watering too long—usually water that goes below 2 ft or so won't be available to the tree.
- Constantly soggy soil, which will cause roots to drown and rot.
- Watering only near trunk or only near canopy edge—misses most roots, won't do enough for tree.
- Mulch that absorbs too much heat, prevents air movement into the soil, or touches the trunk.
- Fertilizing or pruning (more than dead and diseased wood) a stressed tree.
- Water bags unless the tree is new, or small, or most root area is under hardscape. Water doesn't spread out more than a foot or so from the bag but roots extend at least to the edge of the canopy. Bags deliver limited amount, may need frequent filling. Use with caution and not on larger trees.

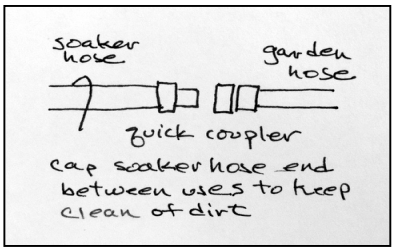
How can you tell if your trees are getting enough water?

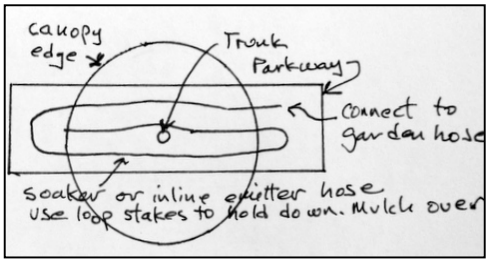
- Look for signs of stress: wilting, yellowing, graying, browning, curling leaves.
- On hot days, healthy plants may lose water faster than they can absorb it--they look wilted but are actually fine, so check in the evening to see if they have recovered before watering.
- Water and then, several hours later, dig down to see how far the water went. If not about 18", water longer. This will give you an idea of how long to water each time.
- Buy a soil moisture meter to check the upper foot of soil.
- ➔If your tree looks happy, then whatever you are doing is probably fine—situations differ, and, tho helpful, rules of thumb don't substitute entirely for keeping a close eye on a tree!

Helpful diagrams:









Remember: Aim to water as much of the root area as possible, from a foot or so from the trunk to canopy edge and down to 18"!

Giving a tree 120 gal costs under $1*, less than a cup of coffee!
(*1ccf = 748gal = $3.70 at Tier 2, so 120 gal costs 120/748 x 3.70 = $0.60)

More info in the Garden Club pages at www.sustainableclaremont.org