

# Watering New Trees:

## Some answers to FAQs for successful establishment

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### Why is water so important to your tree?

Water is an essential part of tree metabolism. It aids in the transport of substances throughout



the tree, serves as a medium for chemical reactions, and is necessary for photosynthesis. Most water use by plants, however, is due to transpiration. Transpiration is the loss of water through small openings in the leaf surface called stomates. Stomates also take in the carbon dioxide necessary for photosynthesis. Transpiration creates a pull or suction that draws water up through the stem and roots from the soil. This also helps to cool the plant. Most water loss through transpiration is unavoidable, though some drought tolerant trees are good at minimizing

this loss. Unless the roots have a continuous supply of water the plant will eventually wilt. Ultimately, if moisture is not added to reverse wilting, the plant will decline and die.

### What's the best watering method to use?

You'll need to choose a method that's easy, so that you'll stick to your irrigation program, and one that's efficient to help conserve water. A hose or a watering can works well as long as you apply the water slowly enough to be absorbed into the soil. Soaker hoses or rings are inexpensive and apply water efficiently, but they're probably better suited to flower beds than for individual trees scattered around the yard. Automated drip irrigation systems are very efficient and pretty much hands-free once installed. Cycle time, water pressure, and emitter flow rate are calibrated to apply the appropriate amount of water at the appropriate frequency. The downside is digging in all the supply lines to the target trees. There are several types of self-contained watering systems that rely on a 5 to 20 gallon reservoir of water at the tree location that slowly drips out to moisten the soil. Good efficiency, but remember that you need a way to fill the reservoir when it's empty and that water is quite heavy ( $\approx 8$  lbs. per gallon).

### How much water should I apply?

During the establishment period, trees should be irrigated 2 to 3 times per week with 1 to 2 gallons per inch of stem caliper. All this water should be applied directly to the top of the root ball. A raised 3-4 inch berm of soil around the edge of the planting hole will keep water from running off before it percolates into the soil. Research has shown that the frequency of the application has a much greater effect on tree growth than the quantity you apply. Don't overwater: roots need oxygen and saturated soils can lead to tree decline and death. Never apply irrigation if the soil is saturated. Turn off automatic systems if it's raining. You may have

to adjust your application to accommodate poor natural drainage or heavy clay soils. One symptom of too much water is the yellowing of leaves when it is not expected.

### **How often should I water, and how long do I need to continue?**

For the first few weeks immediately following planting, water your tree daily to reduce transplanting stress. Then begin applying irrigation on a 2 to 3 times per week schedule. Remember that you can't make up for infrequent watering by adding large volumes of water less frequently. The establishment period is the time it takes for a tree to regenerate enough roots to stay alive without irrigation. Your tree needs to redevelop a root system that was severely and repeatedly pruned back during nursery production. Establishment is largely a function of the length of the growing season, and in our area it takes 4 to 6 months per inch of trunk caliper. So, a 2" caliper tree might take a full year to get settled into its new home.

### **What about mulch?**

Mulch is a must for soil moisture management around young trees. Besides reducing evaporative losses from the soil surface it eliminates competition for moisture from weeds and turf grass in the tree root zone. A layer of organic mulch also reduces soil compaction, keeps lawn maintenance equipment away from the tree, and it's attractive in your landscape. How much mulch; is another matter. Cover the rooting zone around the tree with a 3" layer, no deeper than the width of your palm. Apply a 1" cover directly over the root ball, and never pile mulch directly around the stem. You can enlarge the area covered as tree roots expand into competition with turf roots. Too much mulch can lead to serious problems: rot in the covered portion of the stem, formation of stem girdling roots, root growth up into the mulch layer, and the inability of rainfall or irrigation to penetrate the "thatched roof" created by too thick a covering. There's even a name for this over-zealous application of mulch around young trees: The Mulch 'Volcano'.



**Mulch Volcano**