

Watering Trees

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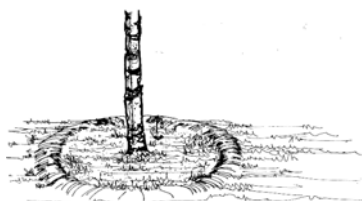
Trees constantly lose water to the atmosphere. Water is the single most limiting essential resource for tree survival and growth. Water deficits severely damage young and old trees alike, and set-up healthy trees for other problems. Drought conditions can lead to tree decline, pest problems, and permanent damage. Supplemental watering can greatly assist in maintaining tree health during drought – both during the growing season and during the dormant season. Please emphasize watering trees during drought.

How should I water?

The most satisfactory means of supplying and uniformly distributing an adequate amount of water to a tree is with a garden hose – open-ended for newly planted trees and equipped with an oscillating lawn sprinkler for established trees. Perforated soaker hoses and root-watering needles can also be used but the results are less satisfactory.

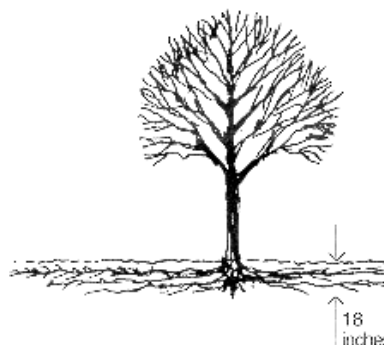
Where should I water?

Young, newly planted trees need additional watering care. Water does not move sideways in a soil. You must apply water directly over where you need water in a soil. For new trees, concentrate water over the root ball, as well as the planting area, to assure survival. This is most easily accomplished by creating a circular mound of earth 3 to 4 inches high around the plant at the edge of the planting area.



The mound of earth serves as the dike of a reservoir. When filled, the reservoir will contain enough water to soak the soil of the backfill and the soil contained in the ball containing the plant roots.

Large established trees can be watered by wetting the soil surrounding the plants roots. This area is known as the “root zone” and it serves as a storage tank from which the tree draws moisture. Most roots of trees spread 1½ to 3 times as wide as the tree’s canopy but not very deep – usually in the upper 6 to 12 inches of soil – depending upon the size of the plant and the type of soil. Shallow or compacted soils can cause shorter and wider root zones. Water the complete root zone each time you irrigate.



How much should I water?

Avoid frequent light watering. This promotes the development of shallow root systems that are susceptible to summer heat stress and winter injury. Water infrequently but deeply (at least 6 to 8 inches into the soil) and allow the soil to dry out between applications. Be careful not to overwater. Overwatering forces oxygen out of the soil and results in oxygen starvation of roots. This causes root death and leads to the decline of the tree.

Depending upon soil texture, bulk density, daily temperatures, and rainfall amounts, 1 to 3 inches of water per week should keep an established tree healthy. Five gallons of water per square yard of surface area is about 1 inch of water. Newly planted trees will benefit from daily watering for the first one or two weeks, applying approximately 1 to 1½ gallons per-stem-caliper inch per watering. Thereafter, water trees every two to three days for the next two to three months and then weekly at the same rate until established.

How long should I water?

The amount of time needed to sufficiently water your trees depends upon the type of watering method used, size of the root(s), and type of soil. Monitor how quickly the water soaks in, using the rod method – stick a thin metal rod into the ground soon after you irrigate; the rod should slide easily through the wet soil and become difficult to push further when reaching dry soil. Once you have determined how long it takes to fill the root zone(s), try to irrigate the same amount of time whenever you water.

How often should I water?

How often your trees need water depends upon the weather, the type and maturity of the plant, the root depth and the soil type. In general, trees should be watered once or twice a week during the growing season if there is no rainfall that particular week. Once you begin watering you should continue on a regular basis until rain comes. Remember, plants use three to five times as much water during the hot, dry summer as they do during the dormant season. Adjust your watering schedule with the season and when there are significant changes in the weather.

To prevent wilting, young plants should be watered more often than older plants. After they become established, in one or two years, allow a slight drought between watering. The plants will adapt to the stress and become more drought tolerant.

Water consumption rates vary greatly among plant species. High water use plants need to be watered about twice as often as established plants that are more drought tolerant.

Root depth also has a major impact on how often trees need water. The deeper the roots, the less frequently you will need to water. Create a deep, drought-resistant root zone by watering deeply. A good rule of thumb is to irrigate when the top ½ of the root zone is dry.

Finally, if your soil is shallow, compacted or sandy you will have to water more frequently.

When should I water?

The best time to water is at night from 10 pm to 8 am. Trees relieve water deficits (refill) over the night time hours. Watering at night allows effective use of applied water and less loss from evaporation, assuring more water moves into the soil and tree. Nighttime application hours, when dew is already present, does not expand the foliage-wetting period and consequently this watering cycle minimizes pest problems.

The next best time to water is when foliage is dry and evaporation potential is not at its daily peak. This watering period is late afternoon. Be sure to allow applied water to dry-off of foliage surfaces before the evening dew appears. This dry gap between watering and atmospheric condensation helps minimize pests, which require longer wetting periods. This is especially critical where turf surrounds a tree.

Other considerations

Many plants in a small area can effectively compete within the soil root zone to use available water. This water competition can be severe. Remove excess plant competition from around any tree to decrease water stress. Use mulch to conserve water and prevent weed competition. Wood chips, shredded bark, grass clippings or pine needles all can be used for mulch. Cover the area with mulch about 3 to 4 inches deep. Avoid mounding mulch next to the tree's trunk.

