

WATERING TREES AND SHRUBS

Simple techniques for efficient landscape watering

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Plants don't waste water—people do!

How much water do trees and shrubs really need? How often should they be watered? Where should it be applied

Most people over water plants. Over-watering can damage or even kill plants, leaving you with high water bills.

Learning to water efficiently and effectively is easy. This brochure provides some basic guidelines on how to properly water trees and shrubs.

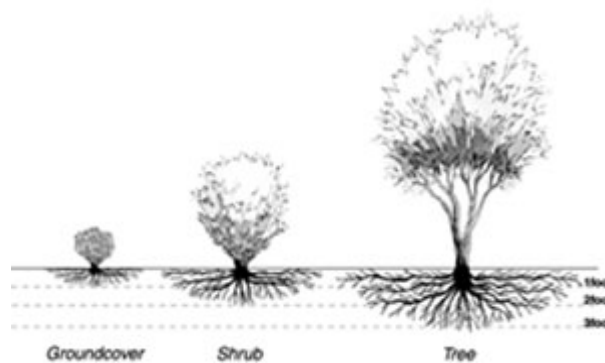
Where should I water?

The soil surrounding the plant's roots, called the "root zone," serves as a storage tank from

which the plant draws moisture and nutrients. Most trees and shrubs shed rain water to the “drip line,” much like an umbrella. The most active water absorption area is at the drip line and beyond, not close to the trunk. This is where you should water. Most of the roots spread 1 1/2 to 4 times as wide as the plant’s canopy.

If trees are in a lawn, water the trees separately from the grass. Deep watering promotes deep rooting of trees and shrubs. If not, tree roots may grow on the soil surface.

Suggested Watering Depth for Different Types of Plants



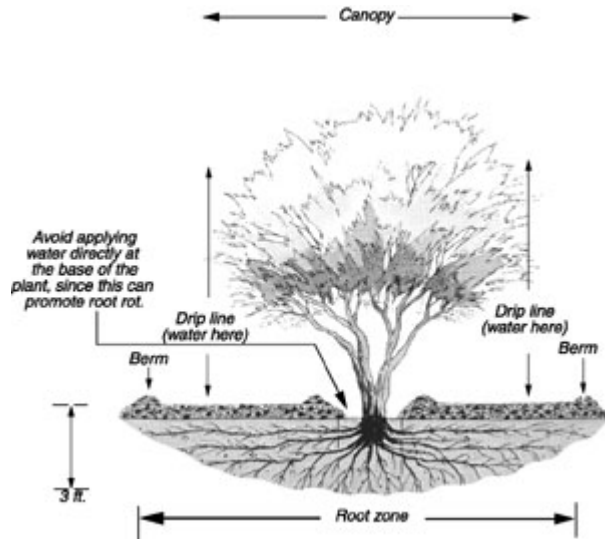
How should I water?

Drip Systems — Most drip systems do not have enough well placed and spaced emitters. Add emitters and increase the area watered as the plants grow.

Bubblers — Be sure the basins are level and extend beyond the edge of the canopy. Avoid watering near the trunk.

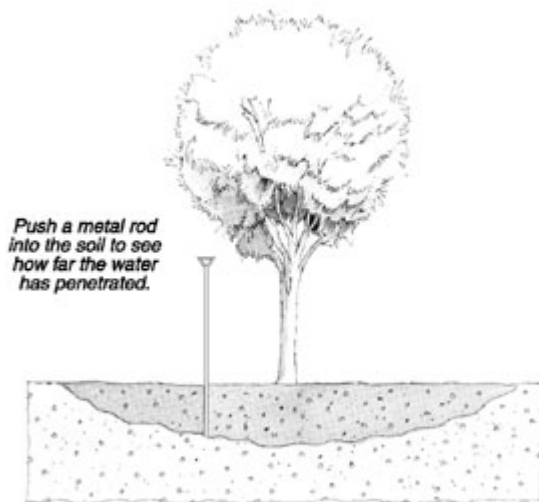
Soaker Hoses — A perforated hose made from recycled tires is a good device for watering, but can emit water in a random pattern.

Sprinklers — Cover a large area but can be inefficient because of wind and evaporation.



How much should I water?

Be sure to water the root zone to the indicated root depth every time you water (see table below). How will you know this? Push a "soil probe," a smooth rod (1/4 to 3/8 " diameter), into the ground soon after you irrigate. The soil probe should easily slide through the wet soil and become difficult to push when reaching dry soil. Watering deeper than the root zone only means you are wasting water.



Typical Root Zone Depth for Mature Plants

| | |
|------------------------|-----------------|
| Lawn and Garden | 6 - 12" |
| Shrubs | 12 - 24" |
| Trees | 18 - 36" |

How often should I water?

Water consumption rates vary greatly among plant species. High water use plants like cottonwood and willow trees that grow naturally along water ways, need much more water than established arid region plants. A good rule of thumb is to water when your soil probe won't penetrate the ground more than 3 - 4".

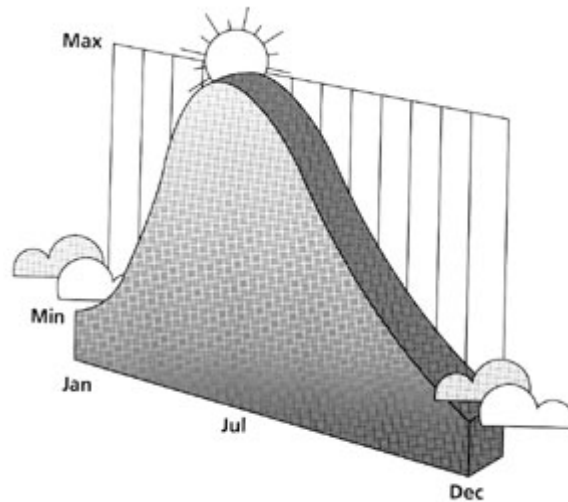
Root depth

Root depth has a major impact on how often plants need water. Deeper rooted plants need less frequent watering. Encourage a deep, drought-resistant root zone by watering deeply and infrequently.

How long should I water?

The amount of time needed to sufficiently water your plants depends on how much water your irrigation system delivers, root zone depth, weather, and type of soil. Monitor how quickly the water soaks into the soil using a soil probe. Remember, you want water to reach the full depth of your plant's root zone, but no deeper. Once you have determined how long it takes to fill the root zone, try to irrigate the same amount of time when watering.

Seasonal plant water use



Weather

Plants use 3 to 5 times as much water during the hot, dry, windy summer as they do during the winter. Adjust your watering schedule with the season and when there are significant changes in the weather.

Summer—Generally you should water mature trees and shrubs no more than once a week. Water arid adapted plants less often, if at all.

Winter—If there has not been any precipitation for four to six weeks, water deciduous and evergreen trees and shrubs to keep the root zone moist.

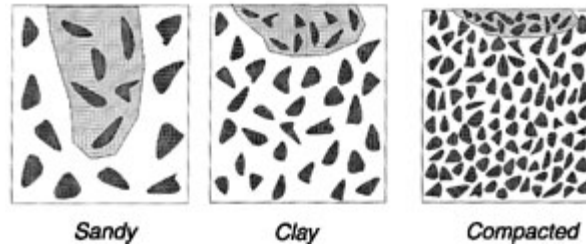
Plant Maturity and Type

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 waterings. The plants will adapt to the stress and become more drought tolerant.

Soil Type

If your soil is shallow, compacted or sandy, irrigate more often but for less time. Clay soil can hold water more tightly.

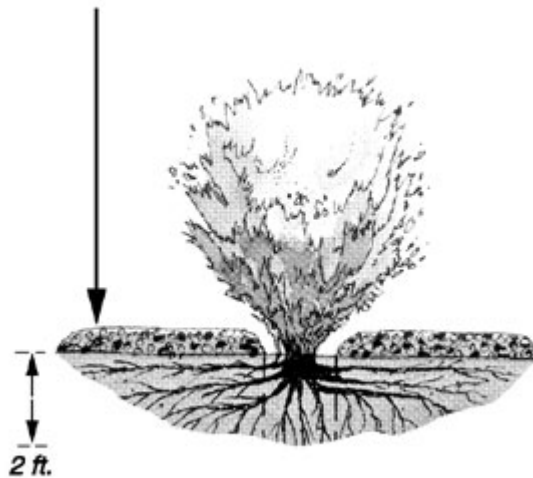
Water penetration after 1 hour.



Mulch

Keeping water from evaporating is key to keeping water in the ground for plant use. A 3 to 4” layer of an organic or inorganic (rock) mulch on top of a plant’s root zone will significantly reduce the frequency of watering.

Apply a layer of mulch 3 to 4 inches deep on top of soil.



Signs of under- and over-watering

Under-watering

- Soil is dry.
- Older leaves turn yellow or brown and may even drop off.
- Leaves are wilted and/or curled.

Over-watering

- Soil is constantly damp.
- Young leaves become light green or yellow.
- Young shoots are wilted.
- Leaves are green yet brittle.
- Algae and mushrooms are growing.

Tips for efficient watering

- Control weeds. Do not lay black or clear plastic over the soil. Use mulch or landscaping fabric instead to allow water and air to circulate in the root zone.
- Avoid sprinkling tree and shrub leaves with water. Salts in the water can damage the foliage.
- If trees or shrubs are planted in turf, water them separately at the drip line.
- If you water by hand, install a faucet timer and use a soaker hose.
- Once or twice a year water three times longer than normal to help leach salts out of the root zone.
- Expand the watering area as the plants grow.
- Prevent runoff by retaining water in a basin around the plant or water at a slower rate.
- Watering in the early morning will be most efficient because of less wind and heat.
- Use rainwater when possible.

For more information

Visit cals.arizona.edu/pubs to view additional publications on:

- Low Water Use, Low-maintenance Landscaping
- Improving Irrigation Efficiency
- Plant Selection
- Water Harvesting
- Erosion Control
- Composting
- Backyard Wildlife Habitat
- Water Conservation
- Other topics

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