Watering Newly Planted Trees and Shrubs

University of MN Extension

Newly planted trees and shrubs need regular and consistent watering until root systems establish. Root systems of bare root, containerized, and balled and burlapped trees and shrubs have been severely reduced or restricted by nursery management practices. After planting, root systems will grow and establish until they are much wider than the above ground portion of the plant. During this establishment time, newly planted trees and shrubs need consistent watering to prevent water stress.

When to water

Newly planted trees or shrubs require more frequent watering than established trees and shrubs. They should be watered at planting time followed by watering at the following intervals:

Table 1. Watering schedule for newly planted trees and shrubs

Weeks after planting:	Watering frequency:
1-2	Daily
3-12	Every 2-3 days
Until established*	Weekly

* See Table 2 for tree establishment time. Shrubs establish in 1-2 years.

How long does it take for tree and shrub roots to establish?

Newly planted shrubs are considered established when their root spread equals the spread of the above-ground canopy. In Minnesota, this will take 1-2 years.

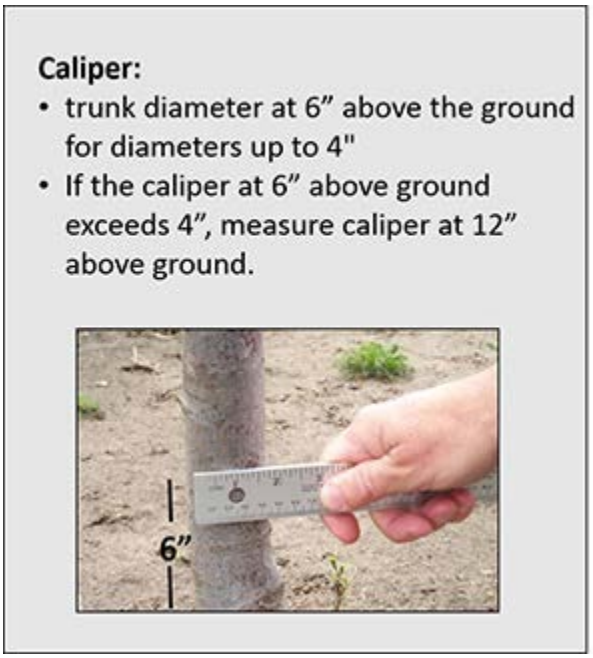
Establishment times for trees increases with tree size. Trunk caliper at planting time can be used to determine the time it takes for roots to establish (Table 2).

Table 2. Establishment time and watering volume for newly planted trees.

Caliper (inches)	Root establishment time for trees (years)	Water applied during each irrigation (gallons)
1	1.5	1-1.5

Table 2. Establishment time and watering volume for newly planted trees.

Caliper (inches)	Root establishment time for trees (years)	Water applied during each irrigation (gallons)
2	3	2-3
3	4.5	3-4.5
4	6	4-6
5	7.5	5-7.5
6	9	6-9



How to measure tree caliper.

Where to water

Apply water directly over the root ball. Also be sure to keep the backfill soil in the planting hole moist. This encourages the roots to expand beyond the root ball into the backfill soil. Tree roots grow approximately 18 inches per year in Minnesota so remember to expand the area being watered over time.

Initial watering of a newly planted tree or shrub is easily accomplished by creating a circular mound of earth 3 to 4 inches high around the plant at the edge of the root ball to create a reservoir for irrigation water. A slow trickle of water can be used to fill this reservoir, which

allows water to slowly infiltrate into and around the root ball. Treegator® bags can also be used to provide a slow delivery of water over the root balls of establishing trees and shrubs.

Mulching trees and shrubs maximizes water uptake

When trees and shrubs are planted into turf, competition for nutrients, water, and space occurs below ground between turf roots and woody plant roots. Turf wins because its dense fibrous root system prevents woody plants from producing water- and nutrient-absorbing roots in the top few inches of soil. As a result, woody plant establishment and growth is slower in turf areas than in mulched or bare soil areas.

To optimize root production, water uptake, and establishment of newly planted trees and shrubs:

1. Eliminate turf and weeds from the base of the plant out to several feet beyond the plant canopy.
2. Leave the top of the root ball bare and start the mulch application at the outer edge of the root ball.
3. Apply a three inch layer of organic mulch around newly planted trees and shrubs in a circle that extends several feet beyond the tree or shrub canopy.

Mulching around newly planted trees and shrubs with organic materials (wood chips, pine needles, etc.) has several advantages over bare soil cultivation. Mulch:

- decreases water evaporation from soil.
- serves as a sponge that prevents runoff around plants growing in heavy clay soils or on sloped sites.
- helps to control seed germination and growth of weeds.
- insulates soil and buffers extreme summer and winter soil temperatures.
- reduces soil compaction from mowing equipment.
- prevents damage to stems and trunks by lawn mowers and weed cutters.
- improves soil health (increases microbial activity, nutrient- and water-holding capacity, soil pore spaces, and air penetration) as it decomposes.

Deep mulch applications can be problematic because they may:

- prevent movement of rain or irrigation water into the root ball of newly planted trees and shrubs. This can result in root desiccation and plant stress.
- lead to root production and growth in the mulch. This often results in circling and stem-girdling roots.
- reduce oxygen levels around roots and cause root suffocation.
- keep poorly drained soils too wet, which favors root rot development.
- keep bark excessively wet when piled around trunks and stems. This may lead to bark decay.
- create habitat for rodents that chew bark and girdle trunks and stems.

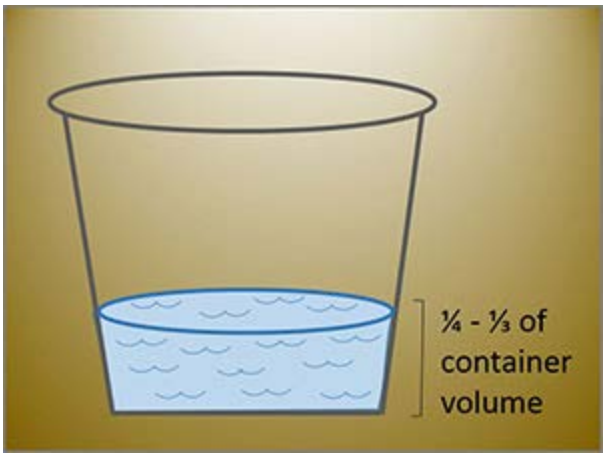
  Other images:

Kathy Zuzek, UMN Extension

Create a reservoir over the root ball for watering

Kathy Zuzek, UMN Extension

Treegator® bags hold 14-15 gallons of water and release a slow trickle of water over 5-9 hours



Kathy Zuzek, UMN Extension

Water newly planted shrubs with a volume of water that is 1/4-1/3 of the volume of the shrub container

Kathy Zuzek, UMN Extension

Apply a 3" layer of mulch from the outer edge of the root ball to several feet beyond the plant canopy

Kathy Zuzek, UMN Extension

This tree's root system was 12-13' wide before it was balled and burlapped