



Dig Hole

Dig a hole in the center of this circle that is 1-foot larger in diameter than the

root ball. Dig only as deep as the distance from the root collar to the bottom of the roots. Maintain undisturbed soil beneath the root ball to prevent the tree from settling.

Place Tree

Carefully place the tree in the center of the hole. Some trees require that a container or basket be removed (see *Planting B&B Trees* and *Planting Containerized Trees* for specific information on removing baskets and containers).

Backfill

Check that the tree is at the right depth and plumb. Fill the hole with the soil that was removed. As the backfill is added, lightly push the soil around the roots or water the soil to eliminate air pockets. Backfill to the height just below the root collar. To prevent compaction, do not pack soil after you water.

Mulch

Add 4 inches of organic mulch on top of the planting circle. Keep the mulch 4 inches away from the trunk to prevent fungus from growing on the tree trunk.

Prune and Stake?

At the time of planting, limit pruning to the removal of broken or dead branches and roots. Delay cosmetic pruning for a year. A tree should not be staked unless absolutely necessary due to extremely windy conditions or high risk of vandalism.

Water

The last, and one of the most important things to do is to water the tree. Thoroughly soak the soil around the tree. Water each day for the first week and less after that.

How to Plant Bare Root Trees

Bare root trees, trees with no soil on their roots, are an option for plantings of small to medium-size deciduous trees and shrubs in the spring. Bare root trees are planted following the steps outlined on page 112, with extra attention given to some areas.

Bare root trees must be kept cool and moist at all times. If the roots dry out for even a

short time, they can be damaged or killed. This is most important for the fine, hair-like feeder roots. Store bare root trees with organic mulch, such as wood chips, that completely covers the root system. Keep the roots damp. A shady location out of the wind is best.

When moving the trees to the hole or container, keep them covered with mulch or a wet burlap sack and move quickly. On a windy, sunny day, uncovered roots dry out and are damaged in as little as 30 seconds. The perfect tree planting day is cool, calm and damp.

- Take care to plant trees before the roots dry out. Have the planting site prepared before moving the tree so no time is wasted with the roots uncovered.
- The hole must be large enough to spread all of the roots out. Do not bend or curve them around, as this could cause root girdling, a potentially fatal condition.
- Prune any broken roots with a sharp pruner. Do not leave torn or rough ends.
- Identify the root collar. Keep the root collar right at grade level to maintain the proper depth.
- Keep the tree straight when backfilling. There is no root ball to hold the tree straight, so take extra care when packing in the soil.
- Occasionally, bare root trees need staking for the first growing season.

How to Plant Seedlings

Tree seedlings offer an attractive way to plant large numbers of trees affordably and easily. Seedlings are available from a variety of sources and can often be obtained for free. The small size of seedlings enables people of almost any age and ability to participate in planting.

Seedlings are planted essentially the same way as larger trees, but with much less effort. Dig a hole large enough to spread out the root system. Place the seedling in the hole, being sure to spread out all of the roots without bending them. Be careful to place the tree at the right depth when backfilling the hole. Mulch and water the seedling to finish the job.

Maintenance of seedlings is limited to watering and weeding. The smaller root systems of seedlings will dry out faster than larger trees so more frequent watering should occur with care being taken not to over water. Tree seedlings are more likely to be affected from the competition of weeds and grasses, so regular weeding of the planting areas and replenishment of the wood chips is recommended.

Tree tubes are helpful in increasing survival rates of deciduous seedlings. These tubes encourage growth and reduce damage by animals. In areas with high deer populations, they can be essential. Tubes can substantially increase the success of seedling plantings, but they will also

Water

When newly planted trees go without enough water, growth slows to a crawl. This delays establishment and may even lead to the death of leaves, branches, roots or the whole tree. Too often the canopy of the tree ends up smaller than it was at the time of planting. In this section we shed light on recent science-based prescriptions for watering newly planted trees.

For the most part, trees can only take up water from soil that is in direct contact with roots. Even in the best conditions, newly transplanted trees use water from a relatively small volume of soil. To make matters worse, roots of bare root, balled & burlaped, and spaded trees are cut during transplanting. Their ability to absorb water is compromised. Since container-grown trees grow in a small volume of soil, they need daily watering the first few weeks after planting just like other types of stock.

Within two to three days after spring or summer planting, the soil around the roots of trees dries enough to impede root growth. Newly transplanted trees in the Midwest benefit from daily watering for the first one to two weeks. Apply 1 to 1½ gallons of water for each inch of trunk diameter. After that, water trees every two to three days for the next two to three months and then weekly until established. The more closely you match your watering frequency to the optimum, the quicker trees become established.

Reduce watering in cool, cloudy, or wet weather if the soil is poorly drained (soil drains less than ¾ inches per hour). Eliminate daily irrigation in poorly drained soil.

For trees planted in the early spring or in the fall, delete daily irrigation. Water every two or three days for a few months. Do the same for trees planted where drainage is poor. After it rains, stop watering until the rainwater drains from the soil. Stop watering in the autumn once leaves fall from trees. Trees planted in winter need little irrigation.

There are two things you can do to reduce the water requirements of newly planted trees. This first is to plant smaller-sized trees. Small trees have less root loss and recover faster than large caliper trees. Secondly, put mulch over the soil after planting. Mulch reduces evaporation and conserves water. An investment in frequent watering helps insure against tree death and the cost of replanting trees.



Historically treewatering guidelines have suggested watering trees every 7 to 10 days with 1 to 1½ inches of water. While this frequency and amount of water may work in some situations, research within the last five years from the Morton Arboretum and the University of Florida at Gainesville suggests more frequent watering is necessary for optimal tree establishment.

Irrigation Guidelines for Establishing Trees

For well- drained sites during the growing season in the Midwest

Size of Nursery Stock	Watering Prescription
Less than 2-inch caliper	Water daily for 1 week; every other day for 1 to 2 months; weekly until established
2- to 4-inch caliper	Water daily for 1 to 2 weeks; every other day for 2 months; weekly until established
4-inch caliper	Water daily for 2 weeks; every other day for 3 months; weekly until established

This section contributed by Richard Hauer, Shade Tree Program, Coordinator, Minnesota Department of Agriculture.

add significantly to the cost.