



How to Plant Trees - A Homeowner's Guide

Tree planting and establishment guidelines have changed considerably over the past 20 years. Following proper practices when planting trees can lead to long term benefits from well established plants.

Tree Growth Requirements

Trees require sunlight, moderate temperatures, sufficient soil moisture, well drained soils, and adequate nutrients to become established.

Sunlight – Some tree species grow naturally in full sun while others prefer shade. This characteristic is known as a tree's shade tolerance. Trying to establish a shade-loving tree in full sunlight is stressful to the tree, increases the need for maintenance, and may predispose the tree to pests and disease. Prior to selecting a tree, measure the total number of hours of direct summer sunlight the tree would receive during the day. Then select a species suited to the light conditions and published shade tolerance standards.

Water – All plants need water to survive, but the amount of water needed varies by site, species and size. Without sufficient water, trees cannot take up enough nutrients to produce the food they need to support life. Likewise, too much water can also be detrimental. In general, **mature** trees require about one inch of rainfall over their entire root zone every seven to 10 days through the growing season (March through October). Trees in the establishment phase may require more. Before planting, determine how much water a planting site receives each week from irrigation, flooding, etc., and determine if supplemental watering will be required. Adjust watering regimes accordingly. Remember that tree roots under turf get very little water from normal turf irrigation.

Soil – While some trees will grow in dry or wet sites, most require well drained soils with some moisture holding capabilities to minimize stress. To determine if the selected planting site is acceptable, dig a 12 inch diameter hole about 12 inches deep. Fill it with water. If the water remains after eight hours, pick another spot. Do not add sand or organic matter to only the planting hole. This is not a long term solution for improving poor soil quality. Backfill the planting hole with un-compacted native soil. If additional soil amendments are required, they must be incorporated into the entire area. Improperly amending the planting area alters the soil hydrology, contributes to root stress and slows tree growth.

Nutrients – With the exception of very poor soils, nutrient additions are seldom required during a tree's early establishment period. Conduct a soil test after the site is selected to determine the existing balance of nitrogen, potassium, phosphorus, and organic matter. Should fertilization be required, proceed cautiously, and usually only after the first year of establishment has passed. Nutrient applications should take place at three intervals during the year - spring, summer and fall. Additionally, the incorporation of

mycorrhizae into the soil can be beneficial during the establishment period in situations where soil quality is very poor.

Site Selection

Selection of a proper planting location depends upon a number of factors:

- Placement of overhead and below ground utilities,
- Proximity of structures, roads, walks and drives,
- Availability and location of water for irrigation,
- Energy conservation opportunities,
- Aesthetic concerns,
- Available soil surface area for root colonization.

Large trees require a minimum of 200 to 400 square feet of rooting area to reach maturity and should not be placed within 25 feet of a structure, 30 feet of an overhead utility, or within 15 feet of an underground utility, road, drive, or walk. Smaller trees, growing to a mature height of under 30 feet, require a minimum of 200 square feet of rooting area, depending on the species, and should not be placed within 15 feet of a structure, 20 feet of an overhead utility, or 10 feet of an underground utility, road, drive, or walk. Watering will be required for all trees through the first two growing seasons. Placement of trees for energy conservation can generate significant savings by shading windows, air conditioners and south and west facing walls. Aesthetic concerns should not override any of the above recommendations.

Tree Selection

The successful growth of a tree to maturity depends upon a number of factors, particularly the quality of the tree itself. Assuming you have selected the right space, use the following guidelines to select a quality specimen:

Don'ts:

- Do not pick a tree that has been topped or had the central leader cut back.
- Do not pick a tree with damaged bark or old wounds on the trunk or branches.
- Do not pick a containerized tree that is pot-bound or has girdling roots. Remove the container and inspect the root system if possible.
- Do not pick a tree that has been planted too deep in the container, (trunk root flare should be obvious).
- Do not pick a tree that has too small a root ball for the diameter of trunk. Root ball diameter should be 10 to 12 inches for every inch of trunk diameter measured at six inches above the soil (tree caliper).
- Do not pick a tree with broken branches, diseased or discolored leaves or cracked bark.
- Don't pick a tree just because it is a bargain.
- Don't expect a substandard tree to do well in the landscape simply because it is properly planted and maintained.

Do's

- Do pick a tree that conforms to the American Standard for Nursery Stock for landscape trees.
- Do pick a tree that is the correct species for the selected planting site.
- Do continue maintenance practices throughout the life of the tree.
- Do plant the tree properly.

After following the directions for site selection and soil area determination, proceed as follows:

1. The planting area should be tilled to a depth of 6-8 inches (deeper if the soil is compacted) for an area of 10 times the diameter of the root ball.
2. Excavate a hole three times the diameter of the root ball and no deeper than the ball or container. Leave the soil at the base of the hole compacted.
3. Remove the container, cut girdling roots and place the tree in the hole. For Ball and Burlap trees (B&B) remove all ties, strapping, wire basket and burlap. The top of the root ball should rest no more than one inch above existing soil line for every 10 inches of root ball depth and never lower than the existing soil line (ex. a 15 inch deep root ball should rest 1.5 inches above existing soil line).
4. Backfill the hole with the uncompacted native soil previously removed to make the hole. Lightly pack the soil and water as you go to eliminate any air pockets. Construct mulch ring at outer edge of planting hole and mulch planting area to a depth of 2-3 inches with composted wood chips. Do not mulch within 6 inches of the trunk. This will allow air to circulate around the trunk root flares and top of the root ball.
5. Stake the tree only if wind throw is a significant issue and allow for at least three inches "slack" in tie wires. Never allow bare wires to contact bark. Remove stakes, and all wires, hoses and ties after first growing season.

