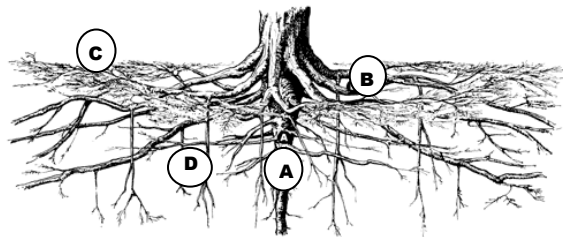


# ROOTS: WHY SHOULD YOU CARE?

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Keeping your trees healthy not only include giving it occasional water, admiring its beauty, and applying some fertilizer now and then. Trees need to thrive below ground as well as above. Understanding a tree's root system will help you take better care of your shade giving friends. A tree's roots serve four primary functions: anchorage, storage, absorption, and conduction. Roots grow near the surface when moisture and oxygen are available, usually in the top two feet of the soil profile. Roots extend outward horizontally from the tree a great distance out, often one or two times the height of the tree (B).



- (A) Tap Root — Provides main support of tree and anchors it firmly in the ground (it eventually dissolves over time)
- (B) Lateral Roots — Help support and anchor the trunk, and may extend far out, beyond crown spread.
- (C) Fibrous Roots — Masses of fine feeding roots close to ground surface.
- (D) Deeply Descending Roots ('Sinkers') — Grow downward from lateral roots.

Absorbing roots are smaller roots with microscopic root hairs which assist in the uptake of water and minerals. The downward growing tap root of young trees (A) is usually choked out by the expansion of roots around it (D) or it is diverted by unfavorable growing conditions. Its purpose is to anchor the tree when it is a seedling; over time the tap root dissolves after the other roots have grown out. Feeder roots (C) are competing directly with the roots of grass and other groundcovers, and provide the major portion of the absorption surface of a tree's root system.

Many trees have beneficial fungi called mycorrhizae growing on their roots. This fungi covers the root hairs and helps with the absorption process; in turn, the mycorrhizae is fed by the tree

roots, forming a symbiotic relationship. Dr. Earth fertilizers include mycorrhizae, which assist the plant in this symbiotic relationship.

Most trees need well-draining soil with deep infrequent applications of water. Clay soils take longer to wet but hold the moisture longer. Sandy soils drain the fastest and need frequent irrigation. A soil in between these two is ideal, often composed of loam. Young trees that have been established with proper irrigation practices will have deeper and more extensive roots. They are better able to stand-up to adverse weather conditions and do not disrupt water lines and septic systems as frequently due to their deep roots.

As tree roots grow the application of water must also be expanded. Most feeder roots are found halfway between the trunk and drip-line of the tree and beyond. So, as trees mature, they store more water. This requires less frequent watering, but more water per application. Come in for our water guide handout for specifics.

Some trees have notoriously disruptive roots, and should only be planted away from structures and hardscapes. Some examples include willows, liquid ambers, fruitless mulberries, and poplars. Typically, trees and lawns are not compatible because the trees cannot help but enjoy the twice weekly lawn watering. However this keeps their roots shallow instead of developing strong deep roots that look for the infrequent deep watering which they need. Planting a lawn under native oaks is not recommended for the health of the tree. They are not accustomed to frequent irrigation and thrive in our dry summers. When trees are planted in lawns, choose the tree wisely and keep the turf at least three feet away from the trunk. Plant the tree on a mound and mulch within an inch or two of the tree trunk. Some trees tolerant of lawns include Maples, flowering pears, London plane tree, and Magnolias. Trees that do well near hardscapes include a long list. Come into the Nursery and let us help you decide on your next tree purchase.

As Confucius said, "Take care of the roots, and the roots will take care of the tree."

