

Mulching Your Trees

Introduction

Trees are not naturally found in the urban environment. They evolved in a forest setting where conditions are more favorable to tree growth. Forest soils are loose, high in organic matter, and relatively well-drained and aerated. Forest trees are also adapted to the soils on which they are growing. Urban soils have little organic matter, are often tightly compacted, and poorly drained/aerated.

These urban conditions often produce an environment which results in shallow, less extensive tree root systems. Mulching along with soil aeration promotes healthier root growth. Urban trees are like pets: they must be properly cared for to ensure good health and growth.

Two key terms to understand when working with trees are **dripline** and **root zone**. The dripline is an imaginary circle that encompasses the tree (Fig 1.) The radius (r) of the circle is equal to the tree's longest branch. The root zone is the area within the dripline of a tree extending to about two feet below the soil surface (Fig 2.) Most urban trees have 75% of their root system in this area.

Trees growing in the urban environment encounter many problems that are less frequent in a forest setting. The first is competition with grass/turf growing over the root zone. Turf competes with tree roots for oxygen, water, and nutrients. This competition reduces tree vigor by as much as 30%.

Mowing turf over the root zone often causes damage by compacting - crushing - the soil. Soil compaction is the result of soil particles being crushed together, thus reducing the amount of air (pores) between soil particles and destroying soil structure. These pores are where roots grow and get necessary water and nutrients.

Further problems arise when mechanical damage is caused by lawnmower or weed eater contact with tree trunks. Mechanical damage destroying the tree's vascular system is one of the leading causes of small tree death. Wounding also creates an open pathway for wood decaying fungi and diseases like oak wilt.

Fig 1. Dripline

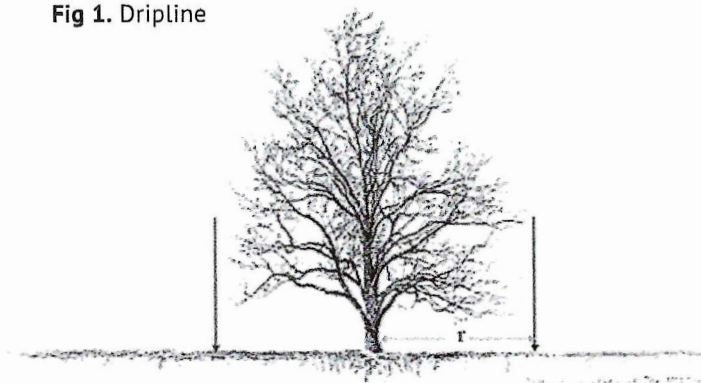
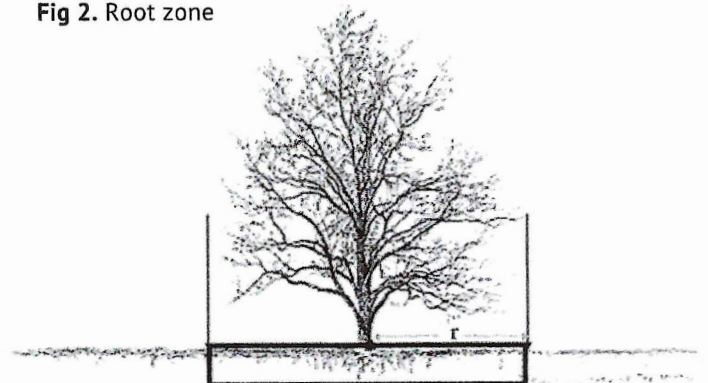


Fig 2. Root zone



Why Mulch?

Proper mulching offers many benefits.

- Soil moisture is preserved during dry spells
- Reduced soil compaction within root zone
- Soil temperature moderation protects roots in weather extremes
- Organic matter is added to the soil
 - Reduces pH
 - Nutrients become available to the tree
- Tree protection from lawnmower and weed whips
- Healthier, happier trees!

Trees in mulch beds have 4 times as many roots and 3 times the trunk caliper of their counterparts in grass after 2 years.

How to Mulch

Trees should be mulched 2-4 inches deep as wide as you can get away with. Ideally every tree should be mulched to the dripline, but this is often an infeasible option. For newly planted trees, aim for a 3-4 foot mulch radius which is often to the dripline. For street trees of all sizes, square the mulch up with the curb and sidewalk to avoid that annoying sliver of turf homeowners hate to mow between the mulch and the curb or sidewalk (Fig 3.) Square mulch beds cover more soil area, dresses the street up, and deters "Volcano" mulching we often see with round mulch rings. Mulching should be done by way of the "Doughnut" method instead of the "Volcano" method (Fig 4.)



Fig 3. Square mulch beds 2-4 inches deep

It is important that no mulch, compost, or soil be placed against tree trunks. Trunk tissue is terrestrial and should be exposed to the air. When buried, it promotes decay and the growth of fungi and other damaging organisms in the trunk. It can also cook the tissue or promote secondary root growth which often become stem girdling roots (if the tree survives that long.)

What to Use

The ideal mulch is one that has various sized pieces of wood and bark to allow air and water flow through it. Chippings from local arborists or the utility company are perfect after sitting for 6-12 months. Avoid finely ground or dyed mulches. Stay away from ground pallets and processed wood as well.

If your soils are especially damaged, couple mulching with soil aeration (find an arborist at www.treesaregood.org) or the last step in The Recipe which is laying an inch of compost on the ground before placing the mulch on top. Arborists who specialize in soil restoration often have the tools to mitigate volcano mulch around trees and expose the valuable root collar - the flared transition zone between the trunk and roots.



Fig 4. Volcano mulching will cause big problems