

## Proper Mulching

### SHOW ME YOUR ROOT FLARE!

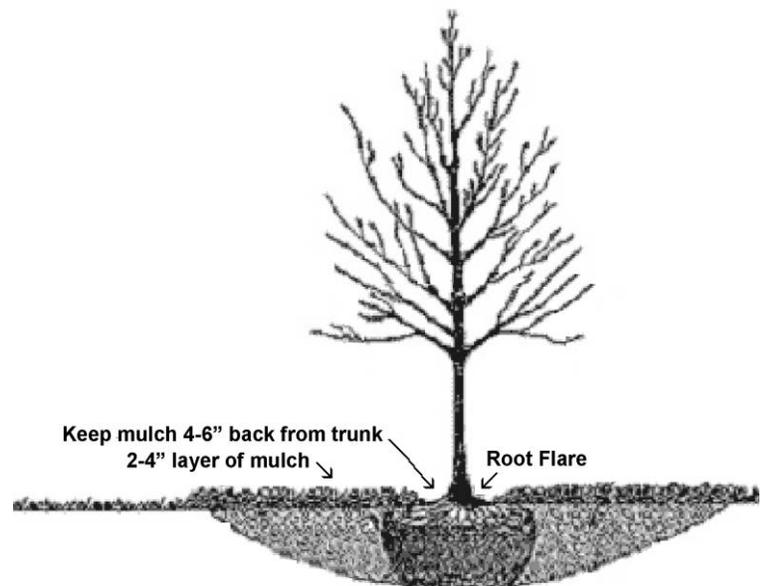
Problems will arise if the tree is planted too deep or if mulch is used incorrectly. Too much mulch will be harmful.

#### Prior to Planting:

- Locate the Root Flare. This is where the first main roots attach to the tree's trunk. Remove any excess soil to expose the Root Flare and across the top of the root ball.
- Each tree must be planted so that the Root Flare is visible at the top of the root ball.

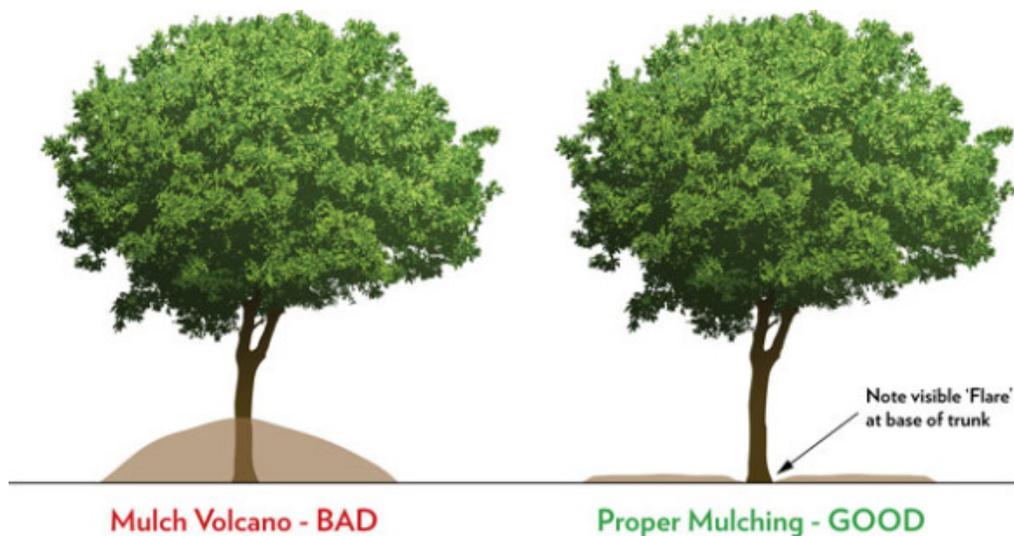
#### After Planting:

- Spread mulch throughout planting beds to a depth of 2-4 inches. For trees located in turf areas, extend the mulch to a 4-5 foot diameter area around the trunk.
- Pull mulch 4-6 inches away from the bases of tree and shrub trunks. Do not pile mulch up against the trunk. Excessive mulch on the trunk causes moisture to build up, creating ideal conditions for insect pests, diseases, and decay.
- Trees where the Root Flare is not visible will be rejected.



## Problems Associated with Improper Mulching

- **Root collar rot.** Excessive mulch mounded around the base of a tree can cause decay of the vital tissue at the root collar. Once decayed, serious disease organisms may more readily enter the plant.
- **Roots need to “breath” and exchange gases.** Respiration takes place within a few inches of the soil surface-where oxygen from the atmosphere can diffuse down to the roots. Roots are injured or killed when the exchange of oxygen and carbon dioxide is restricted or when soil moisture levels are so high that oxygen levels are reduced.
- **Creates a barrier.** Thick blankets of fine mulch can become matted and may reduce the penetration of water and air. Plastic mulch or weed barriers prevent oxygen and water from penetrating the soil and should not be used unless they are porous.
- **Excessive moisture.** On wet soils, deep mulch can lead to excess moisture in the root zone, which can stress the plant and cause root rot. Fine-textured mulch, such as peat moss, grass clippings, and sawdust, holds a lot of moisture and should be used only in mixtures with other coarser materials.
- **Girdling root development.** Excess mulch can cause root girdling leading to death.
- **Heat injury.** Dark-colored mulches absorb heat during the day and lose heat at night as surrounding air temperatures fall. This heat may sometimes injure succulent plant tissue.
- **Soil temperatures.** If applying mulch as winter protection, avoid applying it too early in the fall, since mulch can delay the soil freezing process by retaining heat in the soil. Furthermore, if applied too early in the spring, mulch can inhibit soil warming and delay root growth. As a general rule: wait until after a hard frost in the fall to apply winter mulch, and after the last frost in spring to apply summer mulch.
- **Soil pH.** Some mulches, especially those containing fresh grass clippings, can affect soil pH and may eventually lead to nutrient deficiencies or toxic buildups.



# Benefits of Proper Mulching

- **Conserves soil moisture, reduces surface evaporation.** Prevents the soil from crusting over, allowing water to penetrate and percolate. A layer of mulch reduces moisture loss by preventing sunlight from reaching and heating the soil. Mulch also insulates the soil moisture from evaporation by wind. Less watering is required during high summer temperatures.
- **Prevents erosion and water runoff.** Mulch provides a “sponge” surface that absorbs water and slows it down.
- **Helps control weeds.**
- **Reduces root competition.** Most of a tree’s fine roots are in the upper 12- 18 inches of soil. Applying mulch under trees and shrubs eliminates competition from other plants for water and nutrients. Turf roots are especially aggressive and pose the largest threat of competition to trees and shrubs. Create a “living” mulch by using plants that are more compatible with tree roots: bulbs, ground covers, and other herbaceous perennials.
- **Provides an insulation layer.** Mulched soils are warmer in winter and cooler in summer than bare soils. Roots are protected from temperature extremes, creating less freezing and thawing of the soil in winter, which can heave and injure plants.
- **Reduces the likelihood of tree damage from weed whackers or lawn mowers.**
- **Gives the landscape a uniform, well-cared-for look.**
- **Improve the soil’s physical structure and fertility.** As mulch breaks down it adds humus to the soil, increasing organic matter in the surface of heavy clay soils and improves the water holding capacity of light, sandy soils, and slowly releasing nitrogen and phosphorous into the soil.



## Resources:

- The Morton Arboretum  
<http://www.mortonarb.org/trees-plants/tree-and-plant-advice/horticulture-care/mulching-trees-and-shrubs>
- International Society of Arboriculture  
<http://www.treesaregood.com/treecare/resources/propermulching.pdf>