



Mulching In The Landscape

Trees growing in a natural forest environment have their roots anchored in a rich, well-aerated soil full of essential nutrients. The soil is blanketed by leaves and organic materials that replenish nutrients and provide an optimal environment for root growth and mineral uptake. Urban landscapes, however, are typically a much harsher environment with poor soils, little organic matter, and large fluctuations in temperature and moisture. Applying a 2- to 4-inch layer of organic mulch can mimic a more natural environment and improve plant health.

Mulching is one of the best things you can do for the health of trees or shrubs.

Benefits of Mulching

- Retains moisture around the plant.
- Protects the plant from injury by equipment.
- Maintains stable soil temperature around the plant.
- Smother weed growth.
- Provides the plant with nutrients through decay of the mulch material.
- Is aesthetically pleasing.



Proper Mulching

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Apply mulch starting 6 inches from the base of the tree working out to the desired diameter. Depth should start at 1 inch at the inner circle, increasing to no more than 4 inches (2 inches for clay soils) at the outer edge of the circle. Final depth may be reduced if landscape fabric is placed under the mulch. Also consider using groundcover plants, such as Vinca or Pachysandra, as a mulch alternative.

Dangers of Improper Mulching

Excessive mulch material piled up against the base of a tree or shrub, a mulch “volcano,” keeps moisture in direct contact with the bark. The moisture penetrates the bark and suffocates the cells of the phloem, which is the layer of living tissue that transfers food up and down the plant. When this supply of food from the leaves is limited, the roots die back, which leads to less water being taken up, and the tree or shrub goes into general decline, leaf drop, and premature death.

Secondary problems, like borers and fungi, move into plants weakened by improper mulching. In sugar maples, the fungal pathogen *Phytophthora* will move in because of the high moisture around the trunk, creating a canker that girdles the trunk at the base and accelerates the decline of the tree.

Although mulch volcanoes often keep the area near the trunk too moist, sometimes the opposite happens, and thickly applied mulch keeps the soil underneath too dry. If the mulch layer is too thick, light irrigation or rainfall won't penetrate through to the soil, and feeder and secondary roots may migrate up into the mulch looking for moisture. These adventitious roots grow just above the main roots, and when they reach the drier edge of the mulch volcano, they begin to circle the trunk and may press against the primary roots that spread just under the surface of the ground, eventually cutting off their feeding and anchoring functions and destabilizing the plant. When the upper layer of mulch dries out, these roots become stressed. Water may also have a hard time reaching roots because an impenetrable layer of fungus sometimes forms in a large, deep mulch

volcano. In this case, water is shed onto the surrounding ground and won't reach the plant if its roots have not grown out beyond the circumference of the volcano.

Not Too Much!

As beneficial as mulch is, too much can be harmful. The generally recommended mulching depth is 2 to 4 inches. Unfortunately, many landscapes are falling victim to a plague of overmulching. A new term, "mulch volcanoes," has emerged to describe mulch that has been piled up around the base of trees. Most organic mulches must be replenished, but the rate of decomposition varies. Some mulches, such as cypress mulch, remain intact for many years. Top dressing with new mulch annually (often for the sake of refreshing the color) creates a buildup to depths that can be unhealthy. Deep mulch can be effective in suppressing weeds and reducing maintenance, but it often causes additional problems.

Mulching depths less than two inches may not satisfy the principal objectives. However, mulch applied 3 to 6 inches or more, still recommended by some, can lead to serious problems for landscape plants. A mulch that is too thick may severely reduce or eliminate drying and lead to water-logged soil, particularly during wet seasons or in heavy clay loam soils. Extended periods of wet soils in spring are most damaging to a number of perennials, azalea, rhododendron, conifers in general, and taxus or yew in particular.

Excess mulch, particularly if applied right against the stem or trunk of landscape plants, also leads to constantly wet bark and conditions favorable for disease development.



Improper mulching- "mulch volcano"

Extra heavy mulch layers in autumn are often a haven for rodents to nest, which may lead to girdling (destruction of the food conducting vessel in the stem) of selected plants when wildlife food sources are covered with snow. In autumn, pull the mulch back approximately six inches or more from the stem or trunk of all woody plants to avoid rodent feeding.

What to Do with Improperly Mulched Trees and Shrubs

Remove excess mulch using a shovel, trowel, or whiskbroom while taking care not to injure the trunk. A hard stream of water may be used to remove excess mulch and soil from the trunk and flare. Cut off secondary roots that may have grown into the mulch. Trunk and flare should be visible. New mulch can then be applied to the proper depth and distance from trunk.

Information through the International Society of Arboriculture & University of Vermont Extension Office.



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