



University of Vermont Extension
Department of Plant and Soil Science

Proper Mulching

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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.
- Smothers weed growth.
- Provides the plant with nutrients through decay of the mulch material.
- Is aesthetically pleasing.

Proper Mulching

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. (See diagram below.) 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.

Annual Maintenance

- Additions should be made only to maintain proper depth.
- Removal defeats one of the purposes of mulch, which is to decay and mix with the soil.
- Fluffing the old mulch before adding more will prevent it from forming a hard surface that deflects water rather than retaining it.

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.

Greg Lowenberg provides the following caveat about mulch volcanoes:

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.

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. (See diagram above.)

Sources

- Campbell, Stu. Mulch It. Storey Communications, Inc. 2001. Lowenberg, Greg. "Mulch volcanoes endanger trees and shrubs." Fine Gardening, September-October 2003. Smiley, E. Thomas. "Improper Planting is Killing Trees." Arbor Age, December 1991.

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