

Mulch This Over!

It seems as if mulching has developed into the American way of gardening. Refreshing the mulch has become the first ritual that celebrates the onset of spring. For some homeowners, I regretfully say, it is the *defining* gardening experience of the entire year!

TEXT AND DRAWINGS BY DR. RICHARD L. BITNER

Mulch is simply a layer of any material – organic or inorganic – placed on the surface of the soil around trees and in landscape borders. Organic mulches include wood chips, pine needles, hardwood and softwood bark, cocoa hulls, leaves, compost mixes, shredded leaves and a variety of other products usually derived from plants. These substances decompose in the landscape at various rates and need to be replenished as often as annually. This is a positive outcome because the decomposition process improves soil quality and fertility.

A WALK IN THE WOODS

I must admit that in my garden I mulch with gravel or overplant in order to suppress weeds and retain moisture. The gravel is more costly but doesn't need annual replacement. However, organic mulches are generally recommended over stones or other inorganic products. After all, go for a walk in the woods and you'll see that nature's mulch is leaf litter. The fallen leaves contain nutrients that are a perfect soil amendment. You should also take note that the mulch layer is rarely more than 2 inches thick.

Urban landscapes and new developments, however, are quite different environments, often with poor soil and little organic matter. Thus, the advice to apply a layer of organic mulch to mimic a more natural environment and improve plant health is sound.

ADDITIONAL REASONS FOR MULCHING

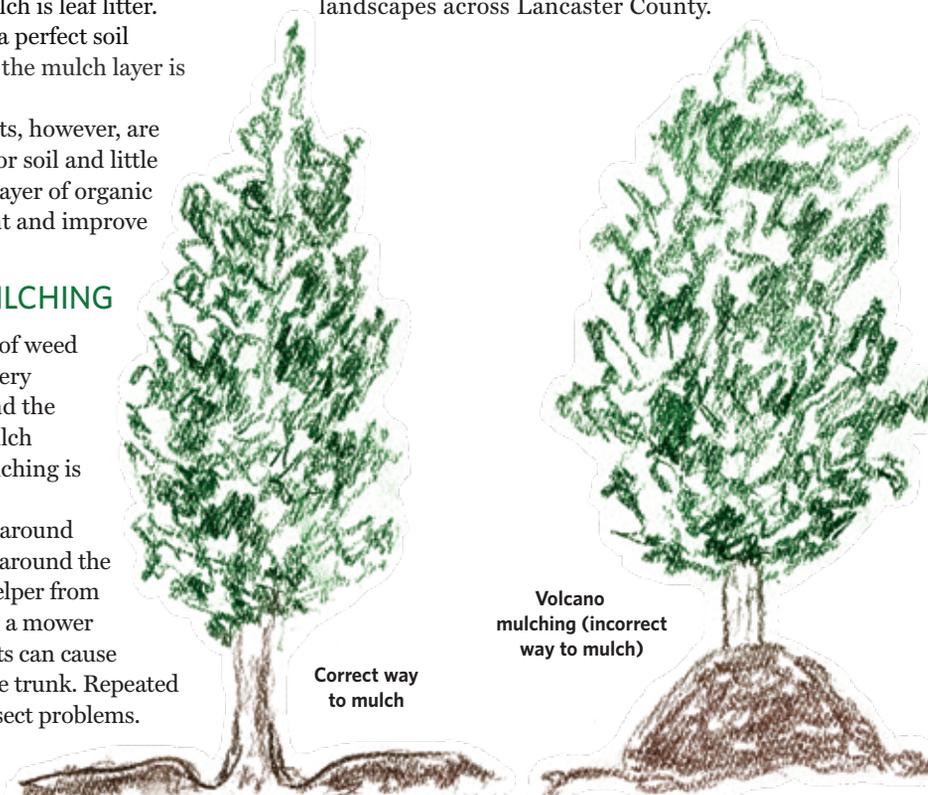
Reduction of soil moisture loss, control of weed germination, moderation of very high and very low soil temperatures, control of erosion, and the improvement of soil fertility when some mulch types decompose are more reasons why mulching is necessary.

A further benefit of mulching, especially around trees, is that mulch creates a protective zone around the base of the trunk and keeps your teenaged helper from getting too close to the tree trunk with either a mower or a string trimmer. Both of those implements can cause substantial damage when they scrape the tree trunk. Repeated damage to the bark promotes disease and insect problems.

Many suburban gardeners are proud that their mulch stabilizes the appearance of their landscape and presents a uniform, well-cared-for look to the community. A good neighbor.

THE DARK SIDE

There is little doubt that proper mulching is beneficial to trees, but there is a dark side to the practice. Everywhere I drive these days, and particularly in public areas like malls and commercial sites, I see mulch that is piled 12 inches high in a 2-to-3-foot diameter against the trunks of trees. One can only wonder where or how this practice started, but it seems to have become commonplace. A descriptive term for this routine has entered into gardening jargon: volcano mulching. I find this practice to be appalling. This trend makes no sense and needs to be reversed. If it continues, it will cause the decline and eventual death of trees in landscapes across Lancaster County.



MULCH AND TREE BARK SHOULD NEVER MEET

Tree bark should not be exposed to constant moisture. That is essentially what happens when volcano mulching is used. The moisture from the mulch penetrates the bark and smothers the cells of a tree's "vascular" system. Therefore, water cannot be efficiently transferred from the roots, and nutrients cannot reach them. Eventually the roots die back.

Naturally, any stressed plant is more likely to be attacked by insects, fungi and bacterial diseases. Mice and other rodents find the deep mulch a perfect place to set up winter housekeeping. The tree's bark becomes a handy food source. Their chewing can girdle the tree and cut off the flow of food and energy up and down the tree.

DEFEATING THE PURPOSE

Thick mulch can actually keep needed moisture from reaching the soil under a tree. If there is any doubt about this, set up a sprinkler and test how long it takes for water to saturate that excessive mulch depth. This situation – where only the top layers of the mulch are moist – causes the tree's main roots to send out secondary roots that migrate *up*, seeking the water. Often these secondary roots within the mulch volcano begin to encircle the tree. These roots will then grow *around* the trunk in the mulch. As they grow in size, they strangle the trunk and cause decline and death of the tree.

Mulch volcanoes can actually act as an umbrella, shedding water to the surrounding soil. This is often caused by fungal growth on the surface of the mulch causing it to repel water. This is common in wood chip and bark mulches. Thus, the tree will experience drought stress in the presence of apparently adequate rain.

In cases where abundant rain or irrigation has kept the mulch constantly moist, the tree will be stressed because the cells in the bark of the tree cannot get enough oxygen. This leads to decay of the bark and, again, easy attack by insects and rodents. Once the bark and trunk are damaged, there is little that can be done to reverse it.



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UNDOING POTENTIAL DAMAGE

Now that you are aware of this unwise mulching practice, you must be vigilant and get all of the mulch away from the trunks of your trees. Be careful that your tools do not damage the trunk in any way. (Sometimes a jet of water from a garden hose helps the process.) Once the mulch has been removed, examine the bases of the trees for any secondary roots that have grown in the mulch and cut them off. Both the trunk of the tree and the flare of the trunk (the portion of the tree that widens as it enters the soil) should always remain exposed.

Related to this: When you're planting containerized trees (just home from the nursery), be sure to scratch around the top layer of soil or growing medium and expose the flare of the trunk, making sure it remains above ground level. Often, nursery-grown trees are transplanted from container to container as they grow during production, and the tree base ends up deeper in the soil than appropriate.

PROPER MULCHING SHOULD BE DONUT-SHAPED

Mulch should be no more than 3 inches thick. There should be several uncovered inches *between* the flare of the trunk and the inner circle of mulch. This leaves room for the essential free flow of water and air immediately around the trunk. Of course, you can mulch as far out around the tree as seems appropriate for controlling weeds or for mowing purposes. One arborist suggests a "3x3x3" rule: Three inches of mulch, 3 inches from the trunk, in a circle 3 feet wide.

A good source for sound advice on all aspects of tree care is the International Society of Arboriculture (ISA), a nonprofit organization supporting tree care research around the world and dedicated to the care and preservation of shade and ornamental trees. For further information, contact ISA (which is based in Champaign, Illinois), at isa-arbor.com or treesaregood.org.

DR. RICHARD L. BITNER is a horticultural lecturer and photographer. He is the author of three books on conifers, most recently *Designing with Conifers: The Best Choices for Year-Round Interest in Your Garden*. He also teaches a conifers course at the Barnes Foundation's Arboretum School in Merion. His website is ConifersForGardens.com.