

Mulch – Are There Alternatives to Bark?

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Nature shows us the importance of mulch. We observe that trees drop leaves and needles to form an organic layer that serves to retain water and reduce soil erosion. As leaves degrade, they add organic materials and nutrients, like nitrogen, phosphorus, sulfur, calcium and trace elements, to the root zone. Additionally, the organic layer warms the soil, suppresses growth of other vegetation, reduces rot and soil-borne diseases and improves landscape appearance.

Following nature's lead, gardeners add mulch around our planted environment: trees, shrubs, perennials, annuals, vegetables — just about anything we plant.

So, with all the benefits of mulching, what are the options? How do we choose the mulch for our location? To start, consider that all mulches have differing characteristics, advantages and disadvantages. And some mulches are better for some applications than others.

Mulches are grouped into organic, inorganic and cover crops considered as green manure. Organic mulches are from plant materials, contributing nutrients as they become part of the soil. All organic mulches need replenishment periodically as they degrade.

Bark mulch is made from byproducts of pine, cypress or hardwood logs. Aged wood chips, especially the larger chip sizes, reduce the formation of a dense, compacted layer that prevents water movement. Freshly cut wood chips form organic acids as the wood decays, which can kill or harm plants. Some trees, like black walnut (*Juglans nigra*), contain a chemical that inhibits growth of many plants. Sawdust is helpful in acidifying soil around acid-loving plants like rhododendrons.

Straw (not hay) is a good winter mulch for the vegetable garden, but it is flammable and may contain seeds. Pine needles (also known as pine straw) decompose slowly, resist compaction and are easy to use. Shredded leaves are free if you have trees and can use a lawn mower to break up whole leaves into smaller pieces. Grass clippings can serve as mulch. But wait three lawn mowings after an herbicide or fertilizer application prior to using clippings. Grass clippings can pack down preventing water movement unless mixed with other materials like shredded leaves.

Newspaper can effectively control weeds if placed three or four layers deep and covered with some other mulch as a weight. Shredded newspaper works well, too.



Extreme example of mulch volcano

photo: by author

Mulch 3-3-3

Whatever organic mulch is chosen, proper application is important for the health of your plants, especially trees and shrubs. Virginia Tech recommends that mulch be at least 3 inches away from the base of the tree, 3 inches deep and at least 3 feet in diameter around the trunk, preferably to the drip line.

As we drive around our neighborhoods, we often see many mulch applications that are too deep. This is called 'volcano mulching,' named to describe the cone-shaped mulch application. Instead of helping the tree or shrub, volcano mulch can stress the tree and lead to its death. Deep mulch can suffocate tree roots and cause inner bark death. Even worse, deep mulch against a tree tricks it into sending out fibrous roots that can girdle (strangle) the tree over time. Deep mulch provides a warm, moist place for munching insects and rodents to penetrate the tree's bark. And lastly, instead of assisting moisture retention, deep mulch can create a waterproof layer. If you have volcano mulch, pull back the mulch to the recommended 3-3-3 application.

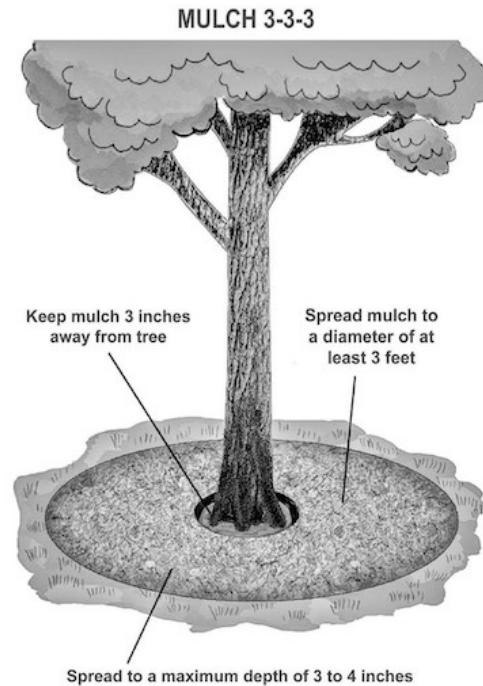
photo: University of Florida



Improper mulching causes girdling roots growing into mulch instead of the ground

and irrigation from reaching the soil. Plastics are used in rows in vegetable gardens with irrigation systems placed under the plastic and bare spaces between rows. Geotextiles are woven fabrics usually of polypropylene or polyester that allow water and fertilizer to enter the soil. Weeds that enter the soil through the fabric become difficult to pull.

Cover crops and green manures, like clover, rye or legumes, protect and enrich the soil usually in gardens planted annually. These cover crops are planted after harvest in the fall and turned over before the cover crop flowers and seeds in the spring.



Proper mulch with 3-3-3 technique

image: Virginia Cooperative Extension

Inorganic mulches are stone or plastic and do not harbor weed seeds. But none contribute organic matter and nutrients to the soil. Crushed stone, gravel and volcanic rock are available in a wide variety of colors. Depending on the stone, some like limestone negatively impact acid-loving plants, such as rhododendrons and mountain laurels. Stones tend to move down into the soil making future digging difficult. It is best to underlay stones with a landscape fabric to reduce integration with the soil. Plastics come in black, clear and red. Plastics will keep weeds down and retain soil moisture, but each will increase the soil temperature and prevent rain

Whatever type of mulch a gardener chooses, proper application and maintenance is needed to ensure the beneficial attributes are achieved. And replenishment is needed every year, or two, or three. Happy gardening.

Resources

- [Selection and Use of Mulches and Landscape Fabrics.](#), Bonnie Appleton and Kathy Kauffman, Virginia Cooperative Extension
- [Simple Guide to Plastic Mulch and Alternatives](#), Penn State Extension
- [Mulches for the Home Vegetable Garden](#), D. Relf and McDaniel, Virginia Cooperative Extension
- [Mulch Out, Not Up, Proper Mulching Techniques and Problems Caused by Over Mulching](#), Virginia Cooperative Extension Service, Virginia Tech.
- [Proper Mulching](#), Virginia Cooperative Extension, Loudoun County Master Gardeners
- [Mulching for a Healthy Landscape](#), Virginia Cooperative Extension, VCE publication 426-724
- [Soil Amendments](#), Washington State University, WSU Publication C130