

A Use The Right Mulch In The Right Place

By George Graine, Fairfax Master Gardener

Love of flowers and vegetables is not enough to make a good gardener. He must also hate weeds.

–Eugene P. Bertin

For years, the high panjandrums of horticulture have taught us that mulching garden beds, trees and shrubs is good because it simulates the natural conditions found in forested areas. Think leaves and pine needles that have fallen to the ground and form a protective layer over soil. As they break down and decay, they add nutrients to the soil. Scientific research has gradually confirmed the benefits that we have long assumed to be true. Among its benefits, mulch

- Suppresses weeds
- Conserves soil moisture
- Reduces harmful pathogen activity
- Creates a haven for earthworms
- Moderates temperatures to prevent frost heaving (which can force shallow roots to the surface and thus suffer cold injury)
- Helps warm the soil to promote earlier spring growth
- Reduces soil erosion and compaction
- Improves the aesthetic appearance of the landscape.

But have you ever stopped to think about whether you are using the right mulch? If so, have you thought about the right way to apply it? I will try to bring clarity to these questions.

Speaking of clarity, I want you to know at the outset that there is no single super-mulch for the universe of plant materials, seasons or even settings. It is up to the gardener to choose the best mulch for a particular site. For example, bark chunks and pine needles might be excellent around trees and shrubs, but black plastic or finely shredded leaves might be a better choice for the vegetable garden. Each type of mulch has a set of characteristics. Your understanding of these characteristics will help guide you to a more successful gardening experience.

The right way to mulch

For reasons unknown to me, landscapers and homeowners think the right way to mulch a tree is to create a little pile around the trunk, resembling a foot-high volcano. This is wrong! Mulch piled against the tree will promote rot of the trunk. If this piling is practiced for years, the tree may grow girdling roots under the mulch, which can eventually kill the tree. Never pile mulch in contact with the trunk of a tree or shrub. Always mulch a few inches from the trunk and limit the mulch thickness to 2 or 3 inches. You can help stop the madness!

Add mulch to new plantings in spring or fall, right after you have planted them. This will suppress weeds at the time when new plants suffer most from weed competition.

Wood mulches

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Mulch piled against a tree trunk poses a potentially serious threat to tree health

photo: North Carolina State University Extension Service

Wood mulches are byproducts of the timber industry. They are well suited for use around trees, shrubs, perennials and even some annuals. They also work well for paths and walkways. Pine bark mulch and shredded hardwood are applied to the ground as a 2-to-3-inch layer. Shredded mulch that is too thick may harden and resist water and air penetration, denying the roots water and air. (If this has happened to you, use a claw cultivator to break up the surface.) Although wood mulches are relatively slow to decompose, shredded wood mulches should generally be replenished annually in the landscape.

Cedar and cypress mulches can usually be found at larger garden centers. Because cedar and cypress are relatively resistant to decomposition, this mulch does not have to be replenished annually. Be advised, however, that conservationists in the Southeast warn that cypress logging is becoming an environmental problem in states such as Florida. Also, some gardeners object to the red color of cypress mulch.

Pine bark “nuggets” are composed of large chunks. They have the advantage of being attractive, and they may last for years before decomposing, thus saving money and effort. Because bark chunks decompose slowly, the soil improvement benefit of mulching is slow to occur. Do not use chunky mulch on inclined ground; heavy rain will float it away.

Wood mulches undergo some degree of composting before they are sold to the public. A potential hazard arising from the composting process is the mulch may be toxic to your plants. According to Cornell University research, mulch that smells like rotten eggs or vinegar likely contains compounds that are toxic to plants, particularly new transplants. This mulch should be spread on a driveway or tarp or any place away from plants for a few days. Exposure to air and water causes the toxic compounds to dissipate quickly, and then the mulch can be used. The mulch gets this “sour” condition when it is not aerated sufficiently in the composting process. If you ever wondered why there are holes in the plastic packaging for mulch, it is to keep air in contact with the mulch to prevent such anaerobic decomposition.

Utility companies and arborists sometimes offer fresh wood chips for free from recently pruned or cleared trees. Soil scientists have argued for years about whether wood chips that have not been composted at all should be used as mulch. New wood chips have a high-carbon-to-nitrogen ratio. As microbes decompose the wood, they take up nitrogen from the soil, thus reducing the nitrogen available to plants. The argument seems to be resolving in favor of fresh wood chips. Noted garden author, Linda Chalker-Scott, has written that the nitrogen deficit is limited to a very thin layer at the soil surface. She says this will have no effect on established plants with deep roots. She cautions that fresh wood chips should not be used with shallow-rooted annuals.

Finally, wood mulches are commonly thought to acidify the soil. Not true. As the mulch decomposes, the mulch layer may develop an acidic pH temporarily, but it has no effect on the underlying soil.

Pine needles

Pine needles are good for acid-loving plants, such as azaleas and rhododendrons. Pine needles decompose slowly and also provide an attractive appearance. Unlike other mulches, loose pine needles resist compaction; they are easy to spread and provide good protection for newly set-out plants and tender ornamentals. Another advantage of pine needles is that they work well on sloped ground where other mulches tend to float away in heavy rain. Pine mulch should be renewed every year to a depth of 2 inches.

Shredded leaves

When coarsely shredded (as by a lawnmower), leaves make great mulch. A 2-to-3-inch layer is enough to prevent weeds. Leaf mulch that is too finely shredded can become compacted and prevent air and water penetration. As leaves decompose, they improve the soil by adding humus. Beech and oak leaves will gradually acidify the soil.

Synthetic materials

Geotextiles, also known as landscape fabrics, are woven or non-woven porous fabrics made from polypropylene or polyester. They allow the ready passage of water and air to the soil and block the growth of weeds. If you put a light layer of wood mulch over the geotextile, you will further retard — but not completely eliminate — the growth of weeds. You will also improve the appearance of the surface and limit the deterioration of the landscape fabric caused by ultraviolet rays of the sun. Do not use landscape fabrics where natural plant growth will be inhibited. This applies to use around ground covers that spread by runners, clumping or rhizomatous perennials, and bulbous plants.

Impermeable plastic films are also used as mulch in some situations. Black plastic film is effective at suppressing weed growth, and it warms the soil early in the season. It is used in vegetable-gardening applications, where the gardener is trying to beat the season by a week or two. The drawback to black plastic is that it is impermeable to water and air. If you use it, make holes in the film to allow water and air to pass through. Colored films block weeds and enhance yields from some plants in the nightshade family. Red-colored film has been found by extension services to improve yields for tomatoes and eggplants. Silver colored films have been found to improve yields for peppers. If you try these films, make holes to promote the passage of water and air.

Mineral materials

These include gravel, pebbles, crushed stone, brick chips, volcanic rock and tailings from coal-fired furnaces. These are permanent additions to the landscape, so be sure you like the look. In 1-inch layers, they block weeds but allow passage of air and water. If you place landscape fabric underneath the mineral mulch, this will help prevent the stones from sinking into the earth. Do not use these materials around acid-loving plants because they often leach calcium that can raise soil pH. Mineral mulches also reflect light and heat to surrounding plants, a potential hazard to plant growth. If you apply mineral mulch in an area surrounded by trees, you will find that a leaf blower is indispensable for keeping the area clear of leaves and twigs. Mineral mulch is ideal for rock gardens. For a path, consider putting down a 3-inch layer of pea gravel with edging on both sides.

References

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Mulch, Clemson University Extension,
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