A 2- to 3-inch layer of arborist mulch helps suppress weeds in this water-wise demonstration bed. Photo by Jennifer Thompson.

Mulch much? Here's how to get started

Mulching landscape beds, trees, and shrubs can have many benefits. Mulch can improve soil moisture, suppress weeds, keep soil temperatures more even, add nutrients to the soil, be aesthetically pleasing, and more!

Common mulches

Mulch is a layer of material placed on the top of the ground or another surface such as a raised bed. Many different types of mulch are used in landscaping, though not all are available in all communities in our state.

Organic (as in from a living source, not organically certified) mulches include wood chips and other materials that were once living organisms. Arborist wood chips are made from chopped-up trees and shrubs; chips can also be made from chopped-up wooden pallets. They are sometimes dyed before they are sold. Wood shavings or pole peelings (debris left over from the creation of fence poles), in varying degrees of coarseness, can also be used as mulch.

Other organic mulches include bark, sawdust, straw, dried grass clippings, alfalfa hay, dried tree leaves, compost, and other types of dead plant material.

Inorganic and **synthetic** materials can also be used as mulch. Rocks, gravel, and pebbles, including "pea gravel," are common types of inorganic mulch. Synthetic options include shredded rubber, landscape fabric, and various kinds of plastic mulch (often used in food production to warm the soil or suppress weeds).

Key considerations

Considering the pros and cons of each type of mulch can help you select the best one to fit your situation. Before making a decision, consider the following questions.

- What is available in my community and where does it come from? Some sources may have weed or herbicide residues.
- What does it cost? Do I have the equipment to haul it?
- How wind resistant is the mulch?
- Is it important for the mulch to suppress weeds? If so, how well will it serve this purpose?
- All mulches require some level of maintenance, but different types may require different levels. How much effort am I willing to put in?
- Do I want the mulch to add nutrients to the soil over time?
- Do I need it to be fire resistant?

Organic mulches

One of the biggest benefits of organic mulches is that they eventually break down and add nutrients to the soil. Since they are often by-products of another activity, these mulches can also put a potential waste product to use.

When applied in the right amount, organic mulches can effectively suppress weed seed germination and/or growth. They can potentially help prevent soil erosion and you may even enjoy their aesthetic effects.

Unfortunately, organic mulches may also blow away—a big concern for Wyoming residents. For this reason, and because they break down in the soil, organic mulches need to be "topped off" every couple of years. If layered too deeply, or if their texture is too fine (e.g., sawdust, some compost), they can prevent water from penetrating down to the soil unless irrigation water is placed below the mulch.

Some organic mulches can provide cover for rodents such as voles. Organic mulches can also provide habitat for overwintering bumblebees and other insects. Some don't allow for native plants to re-seed as well as others. Lastly, some kinds of organic mulch can carry a flame more than others.

Worried about Wyoming wind?

General recommendations are to use mulches that are heavy (e.g., rock) or that "knit together" to form mats (e.g., shredded tree materials). However, irrigation water may have a harder time penetrating these mats. In a study conducted in Laramie, the city mulch (in this case, arborist wood chips) performed equally well in wind resistance as some of the shredded mulches.

Inorganic and synthetic mulches

The benefit of a mulch like rock is that it is typically heavy enough that it doesn't blow away (without crazy winds). Because rock doesn't decompose, it doesn't need to be "topped off." Rock is more fire-resistant than other options and some people prefer the aesthetics.

The downside is that, due to their weight, rocks may be more difficult to place or require special equipment to move. Removing them if you change your mind is just as difficult—if not more—than installing them.

If layered thickly enough, rock can suppress weed seed germination. However, if light gets through the rock to the soil surface, it will not suppress weeds. Soil and seed will also blow in on top of the rocks over time, allowing weeds to germinate. Removing weeds from in between large rocks by hand can be a challenge.

If using smaller rocks, keep in mind that moist pea gravel (or similar) can be a good medium for seed germination—of both weeds and some native plants.

High-quality landscape fabric can last a considerable time, especially if protected from UV with a layer of organic mulch. It can be useful for control of perennial weed populations where herbicide use is not desired. Landscape fabric can also be used in windbreak

The weed fabric is exposed and grassy weeds are growing on top of it in this poorly maintained rock-mulched bed. Photo by Jennifer Thompson.

rows of trees and shrubs to reduce competition from grass and weeds in places where organic mulches are not practical.

However, fabric that is not protected will eventually break down, tear, and be difficult to remove from existing plantings (fabric can become enmeshed with the roots of desirable plants). If used near trees, the fabric must be cut or removed over time so that it does not girdle growing tree trunks.

Soil and seeds can blow on top of the fabric, which can lead to weed populations despite the fabric. Some very sharp perennial weeds (including some grasses) can push through some weed fabrics and then are hard to remove. If sunlight gets through the fabric, weeds can grow underneath and push the fabric up.

Keep in mind that water and air may not move well through the fabric into the soil below. Fabric can also provide cover for some rodents.

Mulching tips

No matter what type of mulch you use, control tough perennial weeds before mulching. Organic, and some inorganic, mulch has to be applied in a very deep layer to suppress some established, very vigorous perennial

Mitigating fire risk

In a 2003 study,[1] researchers reported, "Some materials ignited more frequently when exposed to a lit propane torch for 15 seconds. The most to least commonly ignited materials were ground rubber, pine straw, oat straw, shredded hardwood bark, shredded cypress bark, recycled pallets, 2.5 to 5 cm pine bark nuggets, 1.3 to 2.5 cm pine bark nuggets, shredded pine bark, cocoa shells, composted yard waste, bluegrass sod, and brick chips." However, such studies do not cover all possible fire scenarios.

1 The Ease of Ignition of 13 Landscape Mulches by Larry G. Steward, T. Davis Sydnor, and Bert Bishop. Journal of Arboriculture 29(6): November 2003.

Insufficient maintenance is allowing grass and other weeds to invade this rock-mulched ornamental bed. Photo by Jennifer Thompson.

weeds. In some studies, up to 12 inches (or more) of arborist wood chips have been used. However, irrigation water applied for desired plants may not reach the soil layer through such deep layers of mulch. Water and oxygen have a better chance of penetrating coarse mulches such as arborist chips than finer-textured or more absorbent materials.

Thoughtful herbicide use, longer-term (possibly multiple years) smothering, or hand removal may be needed to control tough perennial weeds before mulching. If you plan to grow plants in the treated area, remove smothering materials if they have not decomposed after smothering is complete.

Annual or less vigorous perennial weeds may be controlled if mulch is applied before they start growing in spring or if mulched sufficiently after mowing as short as possible.

A layer of 3–4 inches of mulch is generally recommended for mulches such as wood chips and pea gravel. Finer-textured or more easily compacting mulches should be applied less deeply.

If possible, apply mulch when the soil is moist. After mulch application, periodically check under the mulch to make sure irrigation water is reaching the soil. Don't water areas you don't need to water—overwatering promotes weeds.

Irrigation systems placed under mulch make it more likely that irrigation water will reach the soil and can also be more water efficient. However, it is harder to spot damage to lines when they are covered and it may make them more susceptible to rodent damage.

Watering fresh wood chips and pole peelings after application can help them settle and start weathering so that they become less brightly colored more quickly.

If possible, keep mulch from piling against tree or shrub trunks. The moist conditions can promote disease and rodents will have more cover to chew on trunks.

Whatever kind of mulch you decide to use, maintenance is key. Control weeds before they have a chance to multiply and "top off" organic mulches over time.

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