



Colorado MASTER GARDENER

Mulching with Wood/Bark Chips, Grass Clippings, and Rock

no. 7.760

by D. Whiting, R. Tolan, B. Mecham, and M. Bauer¹

Outline. . .

- Terms: Mulch and Soil Amendments, page 1
- Benefits of Mulching, page 1
- Edging and Soil Grade, page 1
- Wood/Bark Chip Mulch, page 2
 - Benefits, page 2
 - Selection, page 2
 - Cedar Mulch, page 2
- General Use, page 3
 - Depth, page 3
 - Around Trees, page 3
 - Windy Areas, page 3
 - Chips Over Landscape Fabric or Newspapers, page 3
 - Converting Lawn to a Mulch Area, page 3
- Grass Clipping Mulch, page 3
- Newspaper Under Chips or Grass, page 4
- Rock Mulch, page 4

Terms: Mulch and Soil Amendment

The term **mulch** refers to a material placed on the soil surface. By contrast, a **soil amendment** refers to any material mixed into a soil.

Benefits of Mulching

Depending on materials used, mulches have many benefits, including the following:

- Reduces evaporation from soil surface, cutting water use by 25 to 50 percent;
- Organic mulches promote soil microorganism activity, which in turn, improves soil tilth and helps lessen soil compaction. For additional details refer the fact sheet 7.720, *The Living Soil*;
- Stabilizes soil moisture;
- Prevents soil compaction;
- Controls weeds, which rob soil moisture;
- Moderates soil temperature extremes;
- Controls erosion; and
- Gives a finished look, improving aesthetic quality.

Edging and Grade

It's a standard practice to add mulching materials above grade level. Without a defined edge, the mulch may readily spread off the bed onto lawns or sidewalks, creating a mowing or trip hazard.

An effective alternative is to drop the soil level on the mulch bed 3 inches so the top of the mulch is at grade level. However, ensure that the mulched bed doesn't fill with water draining from higher areas.

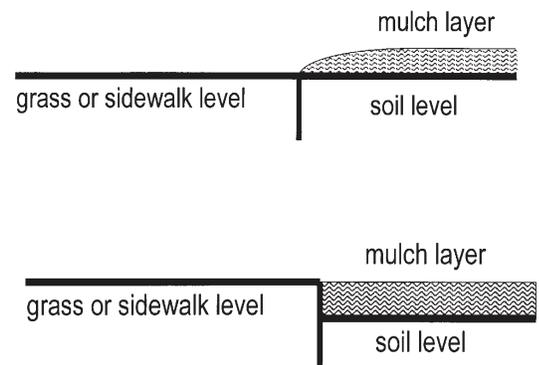


Figure 1. Add mulch above the grade level or even with the grade.



Putting Knowledge to Work

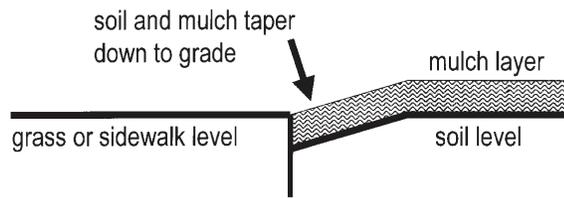


Figure 2. Another alternative is to round down the soil level along the edge of the bed.

An effective alternative is to round down the soil level along the edge of the bed. This gives a nice finished edge at grade level and creates a raised bed effect for the flowerbed.

Wood/Bark Chip Mulch

Benefits

Wood or bark chip mulch is great around trees, shrubs, perennials, and small fruits. A wood/bark chip mulch creates a favorable environment for earthworms and soil microorganisms. Over time, this helps reduce soil compaction. For additional details, refer to fact sheets 7.720, *The Living Soil* and 7.721, *Earthworms*.

In a perennial or shrub bed, wood/bark chips can reduce the need for irrigation by as much as 50 percent. Mulching materials that mesh together are more effective at reducing water evaporation from the soil. Under acute water restrictions, gardeners with wood/bark chip mulch have been incorrectly accused of illegally irrigating because their plants are still lush, compared to the neighbors!

When placed on the soil surface as a mulch, wood/bark chips do not tie-up soil nitrogen. However, incorporating wood/bark chips into a soil can create a nitrogen deficiency due to a carbon-to-nitrogen imbalance, and can interfere with seedbed preparation. It takes ten or more years for chips to decompose in a typical soil. The use of fine chips or sawdust as a mulch can tie-up soil nitrogen and can decrease soil oxygen levels.

Wood/bark chips are not recommended in vegetable or annual flower beds where the soil is routinely cultivated to prepare a seedbed.

Selection

There is a wide variety of wood and bark chip products available for mulching. Wood chips have the advantage that they decompose faster, enriching the soil. Bark chips decompose slower, requiring less frequent replenishment. Primary selection is based on desired appearance and cost. Some can be colored to match the paint color of the home or landscape features.

Cedar Mulch

A number of references discuss the phytotoxicity of cedar when used as a mulch around young plants. Most of the information, however, refers to the use of cedar sawdust (smaller particles with more exposure to the surrounding plants and their roots) rather than chips that are typically used as a mulch.

The other issue, and probably the more relevant question, is what plant is actually referred to as cedar. In Colorado, we have very few true cedar (the genus of true cedar is *Cedrus*). What most people call red cedar is either a juniper (i.e., Eastern Red Cedar, *Juniperus virginiana*) or arborvitae, *Thuja* spp. (i.e., Western Red Cedar). Neither of these have toxic qualities for young plants when used as a mulch.

Most cedar mulch in Colorado (unless they are bagged and shipped from another part of the country) will not be the true cedar. They will most likely be either the juniper or arborvitae, which are not toxic when used as a mulch.

For additional information on mulches, refer to fact sheet 7.214, *Mulches for Home Grounds*.

General Use

Depth

Place wood/bark chips to a depth of 1 to 4 inches. Smaller size chips should not exceed a 1 to 2 inch depth. Larger chips are typically applied at 3 to 4 inches deep. Deeper layers may reduce soil oxygen. Additional mulch needs to be added every few years to bring the mulch depth back to the desired amount.

Three to four inches of wood/bark chips effectively controls most weeds and eliminates the compaction forces of foot traffic.

On compacted or clayey soil, three to four inches of wood/bark chips may reduce water evaporation from the soil surface so much that susceptible plants develop root rots in wet years or under frequent irrigation. In this situation, one to two inches would be a better depth.

Around Trees

Wood/bark chip mulch is great for trees and shrubs because it protects trees from lawnmower damage. However, do not make *mulch volcanoes* around tree trunks by applying chips up against a tree's trunk. Wet chips piled up against the trunk can cause bark problems and interfere with the natural trunk taper making the tree more prone to wind throw. Keep the mulch back about 6 inches from the trunk. Do not apply wood/bark chips directly over the root ball of newly planted trees. Apply chips to the area just outside the root ball.

Windy Areas

Wood/bark chips move in strong winds. It is reported that the shredded type chips are more wind resistant. But, basically wood/bark chips don't work in windy areas. Wood/bark chips also float, and are not suited to areas with standing water or heavy surface runoff during heavy rainfalls.

Chips Over Landscape Fabric or Newspapers

It's a standard procedure to apply wood/bark chips over a landscape fabric to reduce weed growth. However, the chips will give a greater improvement on soil tilth where they can breakdown into the soil without the fabric layer in between. Weed seeds that germinate above the fabric layer will be difficult to pull. An alternative for the home gardener is to use a couple of sheets of newspaper under the chips.

Converting Lawn to a Mulch Area

In the situations where a lawn is being converted to mulched beds, spray the lawn first with Round-Up® (glyphosate). Apply the mulch after the lawn has died. Do not put mulch over a growing lawn.

Grass Clipping Mulch

Grass clippings make a good mulch when applied in thin layers and allowed to dry between applications. Add additional layers each week as the lawn is mowed. With a few layers, weed seed germination will be checked. Grass clippings decompose rapidly, requiring additional layers during the growing season. A grass clipping mulch recycles its nutrients into the garden bed.

Do not apply fresh grass in thick layers as it will mat, produce foul odors, reduce air and water infiltration, and even become hydrophobic.

Do not use clippings from lawns that have been treated with herbicides, or other pesticides, for at least 4 weeks after application.

Grass clippings are a good choice in vegetable and annual flower beds that receive annual cultivation to prepare a seedbed. Around leafy vegetables (such as lettuce, spinach, chard) carefully place the mulch at the base of the plant.

Newspaper Under Chips or Grass

Newspapers make a good underlay for a wood/bark chips or grass mulch. The newspaper shuts out light, putting a quick stop to germinating weeds that were brought to the soil surface during cultivation for seedbed preparation. Newspaper shades out many, but not all, growing weeds.

Apply newspapers only a few sheets thick and top with wood/bark chips or grass to hold it in place. Since it quickly blows away with the slightest breeze, apply it just before covering with chips or grass. Do not use thick layers of newspaper; the high carbon content can tie-up soil nitrogen.

In situations where the newspaper is wet from rains or sprinkler irrigation, it rapidly decomposes. Where it remains dry (like over a drip irrigation system) it may still be intact at the end of the growing season.

Newspapers are printed with soy-based inks and are safe for use. Do not use glossy magazines as their inks may contain heavy metals or other soil contaminants.

Rock Mulch

Rock over landscape fabric is a very common mulching material often considered as low maintenance. It is the preferred material for non-plant areas. Rock mulch has the advantage over wood/bark chips that it doesn't blow, float, or require additional amounts every few years as it decomposes.

Pea gravel over a weed mat helps reduce evaporation from the soil surface. The use of small size rock, such as pea gravel, has been reported to encourage plant growth due to warmer soil temperatures in the springtime.

Rock mulch can become a heat sink, creating a significantly warmer afternoon, evening, and nighttime microclimate. In planting beds, rock mulch increases temperatures and may increase water requirements.

A rock mulch may interfere with shrub rejuvenation. Refer to fact sheet 7.826, *Pruning Flowering Shrubs*, for details on shrub pruning. Since shrubs in rock mulch can't be effectively renewed by rejuvenation pruning, they are replaced when the shrubs become overgrown and woody. In this situation, it would be better to consider the rock mulch as *deferred maintenance* rather than *low maintenance*.

Avoid using rock mulch beds adjacent to lawn areas. Rocks in the lawn are safety issue with lawn mowers and ruin mower blades. Avoid using rock mulch in children areas. Children enjoy throwing rocks creating a safety issue.

Rock over **black plastic** is very undesirable for planting areas. The plastic will reduce air infiltration into the soil and create soil moisture problems. The soil is often very dry or very wet under plastic.

Colorado Master Gardener training is made possible, in part, by a grant from the Colorado Garden Show, Inc.

'D. Whiting, Colorado State University, Cooperative Extension consumer horticulture specialist and Colorado Master Gardener coordinator; R. Tolan, Extension horticulture agent, Larimer County; B. Mecham, Northern Colorado Water Conservancy District; and M. Bauer, Eagle River Water and Sanitation District.

Colorado State University, U.S. Department of Agriculture and Colorado counties cooperating. Cooperative Extension programs are available to all without discrimination. No endorsement of products mentioned is intended nor is criticism implied of products not mentioned.