

# Selection and Use of Mulches and Landscape Fabrics

by Bonnie Appleton and Kathy Kauffman\*

## Why Mulch?

The term “mulch” refers to materials spread or left on the soil surface as protective layers, whether organic or inorganic, loose particles or sheets. Mulches are used primarily to

- Suppress competing vegetation (weeds, grass).
- Warm the soil to promote earlier spring growth.
- Delay soil freezing and prevent frost heaving in winter.
- Protect plants from damage by equipment.
- Reduce soil erosion and loss.
- Hold moisture.
- Reduce evaporation and runoff.
- Reduce rot and other soil-borne diseases.
- Enhance garden and landscape appearance.
- Make garden and landscape maintenance easier.

Organic mulches also

- Improve the soil’s condition through decomposition.

- Add nutrients such as nitrogen, phosphorus, sulfur, calcium, and trace elements.

## Mulch Selection and Types

Consider individual mulch characteristics when making a selection. Durability and aesthetics are important, as well as availability and cost.

### Sizes

The smaller the mulch particle size and the thicker the mulch layer, the greater the possibility of weed growth in the mulch layer. Aim for 2”-4” of settled depth (more for larger particles, less for smaller), replenishing when needed (Figure 1.). Weed growth is more likely in organic than in inorganic mulches.

### Loose Mulches

**Bark** is readily available in bags or bulk. Usually made from pine, cypress, or hardwood trees, it is resistant to decomposition. Research indicates that pine chips last longer than hardwood, but most bark mulches must be reapplied annually. Wind-blown seeds often germinate in bark mulches and necessitate cultivation or herbicide application.

**Wood chips** are often available from local sources. Chips larger than 3” are least likely to compact. **Caution must be used, as chips that have not been composted or “aged” can be toxic to tender plants during the decomposition process.** Wood shavings can also be used for mulching.

*Chip and sawdust mulches from some woods, such as walnut and cedar, produce phytotoxic (plant-killing) chemicals and should be avoided.*



Figure 1. Loose mulch materials can be organic and inorganic, and of small or large particle size. Match the mulch type and size to the landscape situation.

\* Extension Horticulturist; Graduate Student, Hampton Roads AREC

*This toxicity phenomenon is called allelopathy.*

**Pine straw** is available in bales or bulk. Pine needles do not compact and add a natural look to gardens. Pine needles do, however, decrease soil pH by adding acidity, and can induce nitrogen deficiency which shows up as poor growth and light-colored or yellowish-green foliage that appears on the older leaves first.

**Sawdust** is attractive and readily available. It decomposes slowly and can improve the quality of clayey and sandy soils. Sawdust does crust and form a mat, however, and must be broken up frequently to prevent water shed. Fresh sawdust temporarily ties up nitrogen as it decomposes, and therefore nitrogen fertilizer should be incorporated before mulch application. Some rotted sawdusts are very acidic and may need liming. A 3"-6" layer of sawdust is useful for mulching pathways.

**Hulls** from cocoa, buckwheat, and cottonseed are useful around shrub borders, flower beds, and rose gardens. Decorative, with a richly textured appearance, hulls are expensive and blow or wash away easily necessitating frequent replenishment. Cocoa hulls are high in phosphorus and may be toxic to certain plants.

**Lawn clippings** can be used as mulch, but a mulching mower is generally preferred so that grass clippings are recycled directly back onto the lawn. Applied as a thin mulch layer or mixed with other materials, lawn clippings add some nutrients to the soil without heavy compacting or excessive heat. Do not use grass clippings if herbicides have recently been applied.

**Leaves** should be partially rotted and dried before using because large wet leaves can form mats that shed water. Leaves may harbor diseases, insects, rodents and weed seeds. Oak leaves are acidic while maple leaves are alkaline. Walnut leaves are toxic and should not be used. Composted leaves are effective as a soil amendment, alone or mixed with grass clippings.

**Straw** can be used as loose mulch in a 6"-8" layer for temporary protection, such as for grass seed germination. Straw decomposes slowly and is a good source of humus, but there are several problems with straw. Straw has a low nitrogen content, and can harbor insects, diseases and weed seed. If tree beds are mulched with straw, rodents are attracted to the seeds and may feed on the bark when the seed is gone. In addition, straw is a potential fire hazard. Do not confuse straw with hay, which

should never be used as a mulch because of its high weed seed content.

**Peat moss** is expensive, and when used as mulch the surface dries out quickly making it easily wind blown. Once dry, peat moss is very difficult to rewet and tends to shed water. Peat moss also encourages shallow rooting into the mulch layer which reduces drought tolerance. Peat moss is a better choice for amending the soil of large planting areas than for mulching.

**Crushed stone** and **Gravel** (types of inorganic mulches) are best used over black plastic or landscape fabric in permanent locations, such as walks or driveways, or in areas where no additional planting is anticipated. Some limestone-based rock mulches may add alkalinity and/or trace elements to the soil, making monitoring for possible pH changes necessary.

## Sheet Mulches

**Plastics** are recommended for use only around annual flowers. Plastics should not be used in permanent landscape installations because they restrict air and water movement. In addition, plastics should not be used on steep slopes or in areas with poor drainage. Clear or black plastic should be at least 4 ml. thick and anchored in some way. Plastics are inexpensive and readily available, but become brittle and break up with age and should therefore be covered by loose mulch.

**Geotextiles**, often called landscape fabrics or weed barriers, are more durable than plastics (Figure 2.). Unlike plastics, geotextiles permit air and water movement into the soil. Perforated, woven or spunbonded, they are usually made of polypropylene. They help control weeds and maintain even soil temperatures. For better appearance

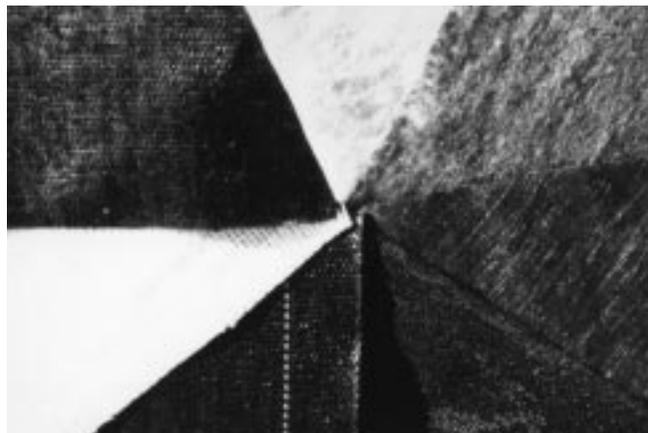


Figure 2. Various types of geotextiles can be used as sheet mulches to enhance the weed suppression of loose mulches.

and to prevent UV light degradation, a shallow layer of organic or inorganic mulch should be placed atop all geotextiles. When covering geotextiles with mulch, immediately remove any weeds that germinate in the mulch to keep the weed roots from penetrating the fabrics. Quality landscape fabrics should last at least 5 years.

## Mulch Management

Apply loose and sheet mulches at planting time. To prepare an area to be mulched, remove perennial weeds and level the area. Soil should be moist but not wet. Around young trees, extend the mulch from near the trunk out at least to the drip line (the ground area below the tree canopy (Figure 3.)). Established lawn trees will benefit from a mulched area extending 2'-3' out from the trunk. In all cases, keep the area adjacent to the trunk free of mulch to help prevent damage to the tree trunk from excess moisture, insects and diseases, and

voles and other pests. Excessive mulching can also stimulate undesirable shallow rooting (Figure 4.). If herbicides will be used in combination with mulches for enhanced weed control, apply the mulch first, then the herbicide over the mulch.

If allergic reactions may occur, wear a pollen mask while handling organic mulches to avoid inhaling fungal spores that may be present in the mulch.

## Common Mulching Mistakes

- Mulch layer too thick. (Figures 5. and 6.)
- Mulch layer too thin.
- Mulch applied too close to plant stems.
- Mulch not extended out to plant dripline.
- Mulch materials not properly composted.
- Weeds not eradicated prior to mulch application.
- Plastics used under mulch around trees and shrubs.



Figure 3. A mulch well can be constructed at planting time to help hold water over the rootball of the tree, but the height of this well is excessive.



Figure 4. Piling excessive mulch against plant stems can stimulate undesirable shallow rooting in the mulch layer.



Figure 5. A properly mulched landscape tree.



Figure 6. An improperly mulched tree. Bark layer too thick and piled up against the stem.

