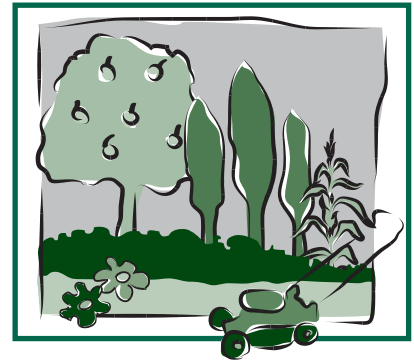


Mulches for Home Grounds

Fact Sheet No. 7.214

Gardening Series | Basics



by J.E. Klett*

There are two types of mulches, organic and inorganic. Organic mulches include wood and bark chips, straw, grass clippings and seed hulls. Inorganic or inert mulches include weed-barrier fabrics, gravel and rock.

The ideal mulch does not compact readily. It does not hinder water and air movement into the soil, it is not a fire hazard, and it breaks down slowly. In addition, the ideal mulch is uniform in color, weed-free, attractive and does not blow away.

Selection

The selection of a mulch depends on its intended use. Consider the size of the area in relation to the cost of materials and availability (Table 1). Table 2 lists advantages and disadvantages of organic and inorganic mulches.

If the main objective is soil improvement, consider an organic mulch that gradually breaks down. If the area is used primarily for annual flowers, it often is more practical to use a temporary organic mulch, such as composted leaves or grass clippings, that can be turned under each fall. Inorganic mulches such as gravel or stone are a good choice where there are permanent plants in a landscape such as trees, shrubs or perennials.

Mulches can be used to prevent soil erosion by wind and rain. In windy areas, gravel or rock mulch may be preferred over lightweight organic mulches. Any mulch that reduces the impact of raindrops will help reduce water erosion, just make sure the soil surface is entirely covered with mulch.

Black plastic (polyethylene) is not recommended as a mulch in landscape areas. Black plastic is impermeable therefore no oxygen exchange can occur in the soil. Lack of oxygen to the roots significantly reduces plant growth. Black plastic also prevents

water penetration. If a weed barrier is needed, use landscape fabrics instead to allow water and oxygen exchange.

When to Apply Mulches

Mulches used to enhance appearance and control weeds may be applied at any time. If the mulch will be used to protect fall transplants by keeping soil temperatures above freezing longer into the fall (permitting better root growth), apply soon after transplanting. Reapply or refresh organic mulches after they have begun to break down.

If the mulch is meant to reduce frost heave and delay spring growth, apply after the ground has frozen. This type of mulch often is used to protect small bulbs such as scilla and crocus and to prevent early emergence.

Depth of Mulches

Except where weed-barrier fabrics are used alone or in combination with chips, stones or other material, apply most mulches to a depth of 3 to 4 inches. Apply straw, dried leaves and similar materials to a depth of 4 to 6 inches.

Some mulches, particularly straw and loose leaves, may harbor rodents so do not place them closer than 6 inches to the base of woody plants. When these types of mulches are placed next to the plant, rodents living in the mulch may chew the bark of the plants, girdling and eventually killing them. Mulches in contact with bark of woody plants may keep it too moist.

Table 1: Area covered to a given depth by one cubic yard of mulch.

Area (sq. feet)	Depth of mulch (inches)
80	4
100	3
160	2
325	1

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Quick Facts

- A mulch is any material that provides protection and improves the soil when applied to the soil surface.
- There are two types of mulches: organic and inorganic.
- Depending on the type, mulches:

Reduce surface evaporation and conserve soil moisture.

Improve water penetration and air movement.

Control soil temperature fluctuations and possibly reduce soil temperature.

Protect shallow-rooted plants from freeze damage and frost-heave.

Improve soil structure and nutrient availability.

Help inhibit weed germination.

Table 2: Types of mulches and their advantages and disadvantages.

Mulch type	Advantages	Disadvantages	General Comments
Organic Mulches			
Cocoa-bean hulls	Long lasting, dark brown color.	Compact; forms a crusty surface. Expensive. Can cause sickness in dogs if ingested. Avoid if dogs present.	Molds may form on surface. Harmless if stirred to break crust.
Crushed corncobs	Uniform in color.	May retain too much moisture at surface or compact if kept wet.	Cobs dyed various colors. Availability limited in some areas.
Grass clippings	Readily available. Nutrient recycling.	Must be applied loosely, in thin layers to reduce matting. Herbicide residues may harm plants.	Allow grass to dry to prevent matting before applying as a mulch.
Hops	Attractive color. Nonflammable.	Disagreeable odor until dry. May blow away.	May be available from local brewery.
Leaves (composted)	Readily available. Nutrient recycling.	Not very attractive. May become matted.	Good soil amendment.
Leaves (fresh dried)	Readily available. Nutrient recycling.	Not very attractive. May blow away. Fire hazard. Wet leaves compact into slimy mats.	Most appropriate in naturalized gardens or shrub masses.
Manure (strawy)	Usually available. Adds nitrogen and other nutrients to the soil.	Unpleasant odor. Weed seeds. Not very attractive.	Better soil amendment than mulch. Should be aged and/or heat treated.
Newspaper	Readily available. Good for preventing soil splashing (disease) on lower leaves of vegetables.	Don't use color inserts or red ink. Not very attractive unless covered.	Use 3 to 6 sheets thick and cover with organic mulches.
Peat (sphagnum)	Usually available in bulk amounts. Can be incorporated into the soil to improve aeration.	May crust on surface. May blow away. When dried, it can cake and become impervious to water.	The only acid-forming peat, but even this is variable with source. Best used as a soil amendment, not as a mulch.
Pine needles	Attractive. Do not compact.	Difficult to obtain in quantity. Can be a fire hazard.	Best for winter protection of fall-transplanted material.
Shredded bark, bark chips, chunk bark	Long-lasting, attractive. Does not blow away easily.	Cost relatively high. Shredded bark may compact. Large bark chunks may impede spreading perennials.	Use for informal walkways. Chips are more attractive than fine shreds.
Straw	Readily available.	Blows easily. Highly flammable. Weed seeds often present.	Best used as a temporary mulch around plants needing protection in winter. Anchor with wire mesh.
Wood chips, shavings, pole peelings, recycled shingles	Long lasting. Readily available. Does not blow away. Popular in perennial gardens.	Texture and color not uniform. Can cause nitrogen deficiencies in plants if incorporated into the soil, especially with herbacious plants.	Rustic but usually attractive. Will not compact readily.
Weed-barrier fabrics	Reduces weeds Allows air and water penetration. Long lasting if covered with mulch. Easy to apply.	Some may be costly. Most deteriorate in sunlight unless covered with another mulch material such as wood chips.	A good substitute for black plastics.
Gravel, stone, pea gravel, pebbles	Available in colors to match or complement the architecture. Inexpensive.	Will not prevent growth of some weedy grasses. Heat can build up around homes with this type of mulch.	Use weed fabric beneath to prevent weeds.

Preventing Nitrogen Deficiency

As organic mulches decompose, some of the soil nitrogen in contact with the mulch is used by the breakdown organisms. Consequently, nitrogen deficiency may occur. A sign of nitrogen deficiency is a yellowing, primarily of the lower leaves. When this occurs, add nitrogen fertilizers. For every 100 square feet of mulched area, add 2 pounds of a complete fertilizer, such as 10-6-4, or ¼ pound of ammonium sulfate. Never use a “weed-and-feed” type of fertilizer in mulched areas.

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