BASICS

Mulches for home grounds no. 7.214

by J.R. Feucht[1]

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 upon the type, mulches:
• reduce surface evaporation,
• improve water penetration and air movement,
• control soil temperature fluctuations,
• protect shallow-rooted plants from freeze damage and frost-heave, and
• improve soil structure and nutrient availabilty.

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 polyethylene film, gravel and fiberglass.

The ideal mulch does not compact readily. It does not retard 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 upon its intended use (Table 2). If appearance is the main goal, inorganic or inert mulches may be the best choice.

If soil improvement is the major goal, consider an organic mulch that gradually breaks down.

Also consider the size of the area in relation to the cost of materials and availability (Table 1).

If the area is used primarily for annual flowers, it often is more practical to use a temporary organic mulch that can be turned under each fall.

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.

If the mulch is to be used 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 squill and crocus and to prevent early emergence.

Depth of Mulches

Except where polyethylene film is 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 at least 6 inches.

Some mulches, particularly straw and loose leaves, may harbor rodents. When using these mulches, do not place 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 will chew the bark of the plants, girdling and killing them.

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

Area	Depth of mulch
80 square feet	4 inches
100 square feet	3 inches
160 square feet	2 inches
325 square feet	1 inch

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 one-fourth pound of ammonium nitrate.

Never use a "weed-and-feed" type of fertilizer in mulched areas.

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 and forms a crusty surface. Expensive.	Molds may form on surface. Harmless if stirred to break crust.
Crushed corncobs	Uniform in color.	May retain too much moisture at surface. May compact if kept wet.	Cobs dyed various colors.
Grass clippings	Readily available.	Must be applied loosely and in thin layers to reduce matting.	Allow grass to dry before applying as a mulch.
Hops	Attractive color. Non-flammable.	Disagreeable odor until dry.	May be available from local brewery.
Leaves (composted)	Readily available.	Not very attractive. May become matted.	Good soil amendment.
Leaves (fresh dried)	Readily available.	Not very attractive. May blow. Fire hazard. Wet leaves compact into slimy mats.	Most appropriate in naturalized gardens or shrub masses.
Manure (strawy)	Usually available.	Unpleasant odor. Weed seeds.	Better soil amendment than mulch. Should be aged and/or heat treated.
Peat (mountain type)	Available in bulk amounts.	May crust on surface.	Used as a soil amendment, not a mulch.
Peat (sphagnum)	Usually available in bulk amounts.	May crust on surface or may blow away.	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.
Sawdust	Attractive. Usually available.	Fine sawdust may crust. Some sources (walnut) produce toxic substances.	Additions of nitrogen are usually necessary.
Shredded bark, bark chips, chunk bark	Long-lasting and attractive (chips more attractive than fine shreds).	Cost relatively high. Shredded bark may compact.	Use for informal walkways.
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 and shavings	Long lasting. Readily available. Rustic but usually attractive in appearance. Will not compact readily.	Texture and color not uniform.	
		Inorganic, inert mulches	
Clay aggregates (heat treated)	Gray/brown colors available. Lighter than gravel, easier to transport. Weed-free.	Expensive.	Brand names available (Turface, Terragreen).
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 mulch.	A good substitute for black plastics.
Gravel, stone.	Available in colors to match or complement the architecture. Inexpensive.	Will not prevent growth of some weedy grasses.	Use black polyethylene beneath to prevent weeds.

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