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ORGANIC MULCH

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The use of mulches in gardening should be standard practice. Researchers from many agricultural experiment stations, private industry, and the U.S. Department of Agriculture have shown striking benefits from mulch applications. Some of these benefits are listed below.

- Mulches conserve moisture by reducing the amount of soil water lost through evaporation.
- Mulches help maintain a uniform soil temperature. They act as insulators, keeping the soil warmer during cool weather and cooler during the warm months of the year.
- Mulches minimize soil erosion and compaction from heavy rains and aid in water penetration.
- Mulches help with weed problems. If the mulch material is weed-free to begin with, and if it is applied correctly, weed seeds in the soil won't germinate. Or if the mulch layer is deep, seedlings that do germinate can't push up through it. Perennial broadleaf weeds and grasses however will grow through most mulches (except through inorganic mulches such as polyethylene or aluminum foil).
- Mulches often give a neater and more finished appearance to a flower bed, evergreen or shrub plantings, or the vegetable garden.

Both organic and inorganic mulches have merit. It should be pointed out that mulches do not reduce weed infestations if weeds are already present and established. Nor do mulches eliminate plant diseases or reduce insect attacks.

What to Expect from Organic Mulches

Since organic mulches are derived from plant material, decomposition does occur, and several important effects on the soil and on plant growth will be apparent to gardeners.

Physical Effects

Mulches alter the structure of the soil which usually increases root growth. The addition of such mulches as leaves, sphagnum peat moss, or shredded bark to the soil brings an almost immediate effect. Aeration is improved in clay soils, and the water-holding capacity is increased in sandy soils.

If not already decomposed, the mulch will promote granulation, or the clinging together of soil particles. During decomposition of organic material, soil microorganisms secrete a sticky substance that plays an important role in soil granulation. This process is particularly important in heavy soil types.

Cultivating the soil when it is too wet destroys good structure. When mulches are used, cultivation is reduced or eliminated. Soil structure is also harmed by walking through the garden when the soil is wet. Mulches, however, serve as a cushion and thus minimize the damage. In addition, soil structure is not disturbed by pelting rains.

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Chemical Effects

Soil pH (acidity or alkalinity) may be somewhat affected by the use of organic mulches. Acid sphagnum peat usually lowers the pH. Most other organic mulches raise the pH slightly, making the soil reaction more alkaline. Oak leaves may be acid when fresh, but as decomposition progresses, the net result is an alkaline reaction.

Since organic mulches are composed of plant materials, they add small amounts of nutrients to the soil through decomposition. These amounts have little effect on the nutrient level in the soil and should not be considered a substitute for fertilizer.

If quickly decaying organic mulches such as fresh leaves, wood chips, and straw, are used, a considerable amount of nitrogen is taken from the soil by the microorganisms decomposing the organic matter. This reduces the nitrogen reserves in the root zone of the growing plant. If additions of nitrogenous fertilizer aren't made regularly, a nitrogen deficiency may result.

Biological Effects

Organic mulches serve as food for many microorganisms in the soil. As previously mentioned, these organisms are necessary for maintaining and promoting soil granulation. A mulch also helps keep the soil temperature constant so that the activity of the microorganisms can continue at an even rate.

Undesirable organisms (disease-causing fungi, bacteria, nematodes, etc.) can sometimes find their way into the soil through organic mulches. Molds often develop on organic mulches if they are kept too wet. Stirring organic mulches occasionally will allow the surface to dry faster and thus reduce molds. Insects and rodents can overwinter in some organic mulches and precautions should be taken to avoid these problem organisms.

Weed seeds can be introduced into your garden with hay, straw, or strawy manure mulches. If corncobs or grain hulls are used, make sure they are free of grain or seeds.

Applying Mulches

Apply mulch around established plants in the garden in mid-spring, when the soil has warmed up sufficiently for active root growth. If a mulch is applied before this time, it will keep the ground cool and root development will be delayed. With newly planted material, apply a mulch after the plants are set in place and watered in well. If you are planting in the late summer or early fall, apply the mulch immediately after watering the plants so that the soil temperature will be kept warm during the cool nights. It is important for fall-planted stock to have sufficient root growth so that the plants don't heave out of the ground during the winter months because of alternate freezing and thawing. Organic mulches such as leaves, sawdust, or shredded bark should be moist when applied to the soil. Extremely dry mulches act as a blotter and remove moisture from the soil.

Mulch Materials

Bark (Hardwood): Shredded hardwood bark is one of the most popular mulches used in landscape plantings. It is a by-product of the paper and lumber industries that can be recycled as a mulch. Its pH is slightly alkaline but this problem can be managed by adding 3 lbs of elemental sulfur per cubic yard of bulk bark or per 100 square feet of bed area.

Bark (Softwood): Chunk pine, fir, and redwood barks are the most popular types. This material is acidic in its reaction and does not require any additives to modify the pH. Softwood barks are more resistant to decay than hardwood bark. It is available in a variety of sizes that fit many landscape needs.

Buckwheat hulls: This material is fine textured and may blow around if used in windy places. It is long-lived and has a neutral color making it satisfactory in landscape plantings. Occasionally, there is a slight odor problem during hot, humid weather.

Cocoa-bean hulls: A by-product of the chocolate industry that can often be found in garden centers. This material has good color for use in the landscape. This mulch should be stirred occasionally since it tends to pack down.

Compost: An excellent mulch and soil conditioner that you can make at home by composting various types of yard wastes such as grass clippings, leaves, and plant tops from vegetables and flowers. This partially decomposed material rates as one of the best organic mulches. For instructions on how to make compost, refer to *A Homeowners Guide to Composting.*

Corncobs (crushed): Another excellent and inexpensive mulch. This material can be colored and used for special purposes in the landscape. Many consumers prefer the weathered dark appearance of aged cobs to the light color of fresh ones.

Hay (leguminous): Used mostly in farm gardens since the material is more likely to be available. No additional nitrogen is required.

Hops (spent): These may be available from local breweries. They have excellent color and are nonflammable. The odor of fresh material may be offensive but it subsides in a few weeks.

Lawn clippings: Grass clippings are best used when dry. If applied fresh, it should be spread loosely; otherwise, it mats down, produces heat during decomposition,

and gives off an offensive odor. Do not use grass clippings from the first mowing after the lawn has been treated with pesticides.

Leafmold: This mulch can be obtained by home composting of leaves or from a municipal composting facility. Leaves composted in the fall of the year will be ready for use by spring. This is a good mulch that provides some nutritional value to landscape plantings.

Leaves: Used extensively in natural woodland areas and in areas where trees are abundant. Leaves are the least expensive mulch available but make a better mulch if composted.

Manure (strawy): Makes an excellent mulch for use in gardens if partially decomposed. Aerate this mulch before using to reduce the heat of decomposition.

Mushroom compost (spent): This material is available in garden centers and in areas where commercial mushrooms are grown. It is inexpensive and has good color for use in the landscape.

Peanut hulls: An excellent attractive mulch that can be obtained in garden centers located near peanut processing areas.

Peat moss: This is one of the most commonly used mulches. It has a classy look when used properly, but the cost of the material is often prohibitive when large areas need to be covered. Various particle sizes are available on the market. The coarse grade is recommended for use as a mulch. When dry, peat sheds water rather than allowing it to soak in.

Pecan shells: A good long-lasting mulch with pleasing color and texture.

Pine needles: This material makes a light, airy, attractive mulch. It is recommended to leave pine needles beneath pine trees rather than remove them. Pine needles are recommended for use around acid-loving plants.

Sawdust: A very common mulch in areas where readily available. Its decomposition will cause a nitrogen deficiency unless fertilizer is applied regularly. When available, aged sawdust is preferable to fresh sawdust.

Straw: Used for winter protection and as a summer mulch in vegetable gardens. It is highly inflammable and should not be used in high traffic areas.

Wood chips: This material is available from garden centers, arborists, power companies, and municipal yard waste facilities. It is very durable and makes an excellent material for covering paths and walkways. If used on landscape beds, nitrogen deficiencies will develop if fertilizer is not periodically applied.

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