ENH103

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Mulches for the Landscape[1]

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A mulch is any material applied to the soil surface for protection or improvement of the area covered. Mulches are frequently applied around plants to modify the soil environment and enhance plant growth. The mulch material may be organic such as bark, wood chips, leaves, pine needles, grass clippings or similar material; or inorganic such as gravel, pebbles, polyethylene film or woven ground cloth.

BENEFITS OF MULCHING

Mulching has the following beneficial effects upon the soil and plants.

- Mulches can prevent loss of water from the soil by evaporation. Moisture moves by capillary action to the surface and evaporates if the soil is not covered by a mulch.
- Mulches suppress weeds when the mulch material itself is weed-free and applied deeply enough to prevent weed germination or to smother existing small weeds.
- A more uniform soil temperature can be maintained by mulching. The mulch acts as an insulator that keeps the soil cool under intense sunlight and warm during cold weather.
- Mulching will prevent crusting of the soil surface, thus improving absorption and percolation of water into the soil and, at the same time, reducing erosion.
- Organic materials used as a mulch can improve soil structure and tilth. As mulch decays, the material becomes topsoil. Decaying mulch may also add nutrients to the soil.
- Mulches also add to the beauty of the landscape by providing a cover of uniform color and interesting texture to the surface.

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- Mulched plants will produce roots in the mulch that surrounds them. These roots are produced in addition to the roots that a plant produces in the soil. As a result, mulched plants have more roots than unmulched plants.

ORGANIC MULCHING MATERIALS

Yard Trash

Florida law prohibits disposal of pine needles, leaves, grass clippings and plant trimmings in lined landfills. Instead, yard trash is usually placed at curbside and collected separately from the rest of our garbage for municipal disposal by burning, composting, or burial in an unlined landfill. Much of this yard trash can be recycled on-site as mulch. On-site use of yard trash offers the advantage of retaining in your landscape the nutrients found in yard trash. On-site is also more efficient and may help save tax dollars otherwise spent in transporting and disposing of the yard trash.

Pine needles, leaves and grass clippings can each be used alone as a mulch or in combination. Of the three, pine needles are the best mulching material. They are attractive, not easily removed from beds by wind or rain, and don't "mat down" excessively. However, they don't last more than 6 months due to rapid decomposition. Leaves can be used alone as a mulch but tend to blow away in windy locations and are easily washed from beds during heavy rain showers. Leaves do best as a mulching material when they are shredded. Grass clippings are the least desirable mulching material. They are easily transported by the wind, decompose very rapidly, and pack down to form a mat that can exclude air and water from the root zone. They should be spread thinly over the ground, mixed with other mulching materials or, better yet, composted with other yard waste. Plant trimmings such as twigs and small branches should be shredded before they are used as a mulch. A mechanical chipper/shredder is needed for this process.

Yard trash is readily available in many landscapes and thus is a very inexpensive source of mulch. However, there is some reluctance to use it because it is not as attractive as some commercial mulch materials. This problem can be overcome by adding a thin layer of a more uniform mulch over the yard trash. Some people also worry that weed seed may be gathered with yard trash and then distributed with the mulch. If this is a concern, yard trash may be partially composted. In the composting process, the compost pile heats and inactivates most weed seed. However, after partially composting yard trash, use only the particles larger than 1.5 inches for mulch. Yard trash breaks down during composting, and the use of smaller particles as mulch could smother roots of landscape plants by reducing soil aeration.

Cypress Mulch

In spite of being expensive, cypress mulch is a very popular mulching material. Much of its popularity is due to its rich brown color and longevity. Cypress mulch appears to have a high water-holding capacity that may reduce the amount of water reaching the plant root zone. However, once the mulch is thoroughly wet, it buffers the soil against soil-water evaporative losses. When dry, cypress mulch repels water, making it difficult to wet, particularly if it is on a mound or slope.

Pine Bark

Pine bark makes a very attractive, usually dark-colored landscape mulch. It can be purchased in various particle sizes, but the large-size particles 1.5 to 3 inches in diameter (called "nuggets" or "chunks)" are more attractive, last longer and are more effective for weed control than finely ground pine bark.

Wood Chips

Wood chips are obtained when the bark is removed from large logs. This material contains bark and pieces of wood of various sizes.

Straw

Straw can be used as a mulch but it is not attractive, decomposes rapidly, and may contain seed that will germinate and become weeds in the landscape.

Pecan Shells

Pecan shells make a long lasting, attractive, dark brown mulch. Their availability is usually limited to areas where pecans are processed.

Peanut Hulls

Peanut hulls can be obtained in areas where peanuts are processed. Because of their light color they are not as attractive as other mulching materials. They also may contain weed seed and lesion nematodes.

INORGANIC MULCHING MATERIALS

Gravel, Pebbles and Crushed Stone

These materials are permanent, fireproof and may be colored to blend in with the features of the home, patio or landscape. When used near a lawn, there is some danger that lawn mowers will pick up and throw the stones. These materials reflect solar radiation and can create a very hot landscape environment during the summer months.

Plastic Film

Black polyethylene film is very effective in preventing weed growth. However, clear or translucent plastic film will not suppress weed growth because light penetrates the film. Cover plastic film with a layer of mulch such as wood chips or pine needles to reduce heat absorption and to mask the artificial appearance of the plastic film. Plastic films are not recommended for poorly-drained areas. They may cause the soil to remain too wet, which could result in root disease problems. They are also not suited for steep slopes when an organic mulch is spread over the plastic, because rain water will wash the organic mulch away.

Woven Ground Cloth

Woven plastic and woven fabric materials are available in various lengths and widths. The fabric materials have been treated to resist decomposition. Unlike the plastic films, the woven materials allow water and air to move through them. They are very effective in controlling most weeds, but do little to prevent water loss from the soil and moderation of soil temperature. Sedges and some grasses grow up through the holes in the fabric.

Moisture, temperature and better weed control can by obtained by adding several inches of another mulching material on top of these mulching fabrics. They also should be fastened down to prevent being pushed up by perennial weeds.

WHERE TO USE MULCH

Mulch entire beds of shrubs, trees, annuals, perennials and/or ground covers. Mulching is an extremely important practice for establishing plantings. Mulch helps to conserve moisture in the root ball of the new plant until it establishes roots in the adjacent landscape soil. Mulch also helps discourage weeds that can compete with new plantings for water, nutrients and light.

Mulch can be used instead of grass around individual trees and shrubs in a lawn. This greatly reduces the competition for water and nutrients from the turf and increases the growth rate and health of trees and shrubs. When placed around plants in a vegetable garden, mulch can help to conserve water and control weeds.

In addition to being useful around plants, mulch can be used as a ground cover for walks, trails, driveways, and play and natural areas. It can be used temporarily to cover low-growing tender plants to protect them from frost injury. Mulch also can be composted and used as a soil amendment.

WHEN AND HOW OFTEN TO MULCH

Mulch can be applied around established plants at any time. Newly-set plants should be mulched after they are planted and thoroughly watered. Because of the abundance of leaves and pine needles, fall is an excellent time to collect leaves and other yard trash for mulching plants.

Organic mulches will gradually decompose and need replenishing to function effectively as a mulch. Shallow plant roots grow up and into moist mulch and they will die if the mulch is allowed to decay or wash

away. How often mulch needs to be replenished will depend on the mulching material. Grass clippings and leaves decompose very rapidly and need to be replenished frequently. Other organic mulches such as cypress mulch, pine bark and wood chips break down very slowly and need only be replenished every year or two. Once plants in a ground cover or shrub bed have formed a solid mass by touching one another, the mulching requirement is reduced. The plants create their own mulch by dropping leaves, flowers and fruit. Leaves from surrounding trees also may fall in the beds and provide additional "free mulch." Most organic mulches will change from their original colors to a weathered grey color with age. There are several ways of restoring color to mulches. One approach is to apply a thin (1 inch or less) layer of fresh mulch to the surface of the existing mulch. This approach is labor intensive, expensive and can result in an excessively thick mulch layer. Another approach is to shallow rake the existing mulch to restore a freshly mulched appearance. A third choice is to use a mulch colorant. Mulch colorants are dyes that are sprayed on the mulch to restore its color. Manufacturers claim they are harmless to both plants and animals, but applicators should use them cautiously as they can cause skin and eye irritation.

Inorganic mulches such as gravel, pebbles and stones are considered permanent mulches and rarely need replenishing. Still, small particles will eventually move down into the soil and a thin layer of gravel will need to be added to the existing layer of gravel. Leaves and other debris also need to be regularly removed from the top of these materials to maintain a neat appearance.

HOW TO APPLY MULCH

Mulch entire plant beds with a layer of mulching material. When mulching individual trees in lawns, create a circle of mulch about 2 feet in diameter for each inch of trunk diameter. Increase the size of the mulched area as the tree grows.

Pull mulch 1 to 2 inches away from the stems and trunks of plants. The high moisture environment created by mulch increases the chances of stem or trunk rot which can result in plant death.

HOW DEEP TO APPLY MULCH

The amount of mulch to apply will depend on the texture and density of the mulch. Many wood and bark mulches are composed of fine particles and should not be more than 2 to 3 inches deep after settling. Excessive amounts of these fine-textured mulches around shallow-rooted plants can suffocate their roots causing chlorosis and poor growth. Course-textured mulches such as pine needles and pine bark nuggets, which allow good air movement through them, can be maintained as deep as 4 inches.

Mulches composed solely of shredded leaves, small leaves (oak leaves), or grass clippings should never exceed a 2-inch depth. These materials have flat surfaces and tend to mat together, restricting the water and air supply to plant roots.

HOW MUCH TO BUY

If you are going to buy mulch, you need to calculate the area and the desired depth of coverage to determine how many cubic feet of mulch you should purchase. Bulk quantities of mulch are sold in cubic yard volumes.

First, determine the square foot measurement of your shrub or tree area(s) to be mulched. For instance, if you have a shrubbery border 4 feet wide and 25 feet long, the area to be mulched equals 100 square feet (4 feet x 25 feet = 100 square feet).

Next, if you are going to apply mulch 3 inches deep to this area, convert the 3 inches to a fraction of a foot. Three inches divided by 12 inches equals 1/4 foot, or .25 feet. Multiply this fraction by the square foot measurement of the area to be covered. For this example, you will need 25 cubic feet of mulch (.25 feet x 100 square feet = 25 cubic feet).

One cubic yard equals 27 cubic feet (a cubic yard measures 3 feet by 3 feet by 3 feet; 3 feet x 3 feet x 3 feet = 27 cubic feet). In the shrubbery example just given, you need 25 cubic feet of mulch, which is 2 cubic feet less than one cubic yard.

Before you purchase mulch in bulk (i.e., buy an entire cubic yard), compare the cost with purchasing your mulch in smaller units.

Bagged mulch is also available in amounts such as 1.25 cubic feet or 2.0 cubic feet. If you purchase the mulch needed for the shrubbery example given above in amounts of 1.25 cubic feet, you will need 20 bags (25 cubic feet r 1.25 cubic feet = 20 bags). If you purchase bags of 2.0 cubic feet, you will need 12.5 bags (25 cubic feet r 2 cubic feet = 12.5 bags). Therefore, you will purchase 13 bags.

However, as discussed above, always remember to pull mulch 1 to 2 inches away from the stems and trunks of plants to lessen the chances of stem or trunk rot. So, whether the shrubs are single or multi-stemmed, you will not need all of the mulch determined above; the calculations did not include either the area used by the stems and/or low branches, or the extra 1 to 2 inches around the stem(s). Therefore, you can purchase less mulch than the calculations indicate. If you are using an organic mulch and buy more bags than you need, return the extras for a refund, if possible (check store policy). Do not store organic mulches, because they will rapidly decompose in the bag. Inorganic mulches, however, may be stored.

REFERENCES

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