Mulch is any material applied to the soil surface to protect or improve the soil of the area covered. Mulching is really Mother Nature’s idea. In a natural setting, mulch is constantly added to the forest floor by fallen leaves, needles, twigs, pieces of bark, spent flower blossoms, fallen fruit and other organic material. Insects, microorganisms, and fungi break down this material, creating a biologically diverse and nutrient rich soil environment. By adding a layer of organic material, we can encourage the development of similar conditions in our gardens and landscape beds.

Benefits of Mulch

- Retains soil moisture
- Regulates soil temperature keeping roots warm in winter and cooler in summer
- Reduces weeds and competition
- Prevents soil compaction
- Improves soil structure by feeding microorganisms in the soil and adding nutrients as it decomposes

The dense root system of turf grass absorbs most water and nutrients before it reaches tree roots (competition). The figure to the right shows the benefits of mulch in the development of tree roots. Note the dense root mass growing under the mulch compared to under turf. Mulch must be applied properly; if it is too deep or if the wrong material is used, it can actually cause significant harm to trees and other landscape plants.

The root system of a tree is not a mirror image of the top. The roots of most trees can extend out a significant distance from
the tree trunk. Although the guideline for many maintenance practices is the drip line—the outermost extension of the canopy—the roots can grow many times that distance. In addition, most of the fine absorbing roots are located within inches of the soil surface. These roots, which are essential for taking up water and minerals, require oxygen to survive. A thin layer of mulch, applied as broadly as practical, can improve the soil structure, oxygen levels, temperature, and moisture availability where these roots grow. Mulch should be applied at a depth of two to four inches. Do not pile mulch against the trunk or woody tissue of trees and shrubs.

The two major types of mulch are inorganic and organic. Inorganic mulches include various types of gravel, pulverized rubber, and other materials. Inorganic mulches do not decompose and do not need to be replenished often. On the other hand, they do not improve soil structure, add organic materials, or provide nutrients. For these reasons, most horticulturists and arborists prefer organic mulches.

Organic mulches include wood chips, pine needles, hardwood and softwood bark, leaves, compost mixes, and a variety of other products usually derived from plants. Organic mulches decompose in the landscape at different rates depending on the material and climate. Those that decompose faster must be replenished more often. Because the decomposition process improves soil quality and fertility, many arborists and other landscape professionals consider that characteristic a positive one, despite the added maintenance.

**Not Too Much!**

As beneficial as mulch is, too much can be harmful. Unfortunately, many landscapes are falling victim to a plague of over mulching. A new term, “mulch volcano,” has emerged to describe mulch that has been piled up around the base of trees.

Most organic mulches must be replenished, but the rate of decomposition varies. Some mulch, such as cypress, remains intact for many years. Top dressing with new mulch annually (often for the sake of refreshing the color) creates a buildup to depths that can be unhealthy. Deep mulch can be effective in suppressing weeds and reducing maintenance, but it often causes additional problems. Keep mulch two to three inches from the trunk and always leave the root flare exposed. In many cases, fresh mulch can be applied only once annually. If you want to refresh your sun scorched mulch, try turning it over with a rake or by hand. This will also facilitate decomposition. Before adding a fresh layer of mulch, lightly rake your beds to remove excess leaves and debris. This will also remove a small amount of the existing mulch and help maintain a healthy mulch depth.

For more information about caring for your trees, trees in general, or the MUSC Arboretum, please contact us:

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