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USING COMPOST IN UTAH GARDENS

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Compost is a wonderful soil amendment with some fertilizer value. It is derived from the natural decomposition of leaves, plants, and animal manures by microorganisms. The end result of this process is a dark, crumbly, earthy-smelling material called compost. When applied to soil, compost increases organic matter content, improves soil structure, and provides nutrients for plant growth.

Not all composts are alike. Composts originate from a variety of sources including yard and garden trimmings, biosolids, and animal manures. Because the raw materials that go into a compost pile are varied, the quality of the resulting compost varies. Generally, if compost resembles soil, it can be used in potting mixes, as a garden soil amendment, and in turf applications. If the compost is light colored and composed of larger amounts of wood chips, bark, or straw, it should be used as a mulch.

BENEFITS OF USING COMPOST

Compost improves the aeration and drainage of heavy clay soils, improves the water-holding capacity of sandy soils, and increases the ability of all soils to retain nutrients. Composts also contain organic forms of plant nutrients which are released as microorganisms break down the material. Compost nutrients become available to plant roots slowly and are less likely to be lost by leaching.

Some composts could be used as a mulch. Composts with a large proportion of woody materials work well because they are heavier and won't blow away from the site, tend to be lower in soluble salts, and are more porous, allowing some air and water to pass through the layer. For more information on using composts as a mulch, refer to the fact sheet ***Using Mulches in Utah Landscapes and Gardens***.

COMPOST QUALITY

Finished compost should look and smell earthy—even when wet. It's recommended that green, or unfinished compost not be used in large quantities around actively growing plants. During composting, several gases (e.g., ammonia) may build up to levels that are toxic to plants. These will dissipate by the time the organic material has completed the composting process.

Compost quality is generally based on particle size, carbon-to-nitrogen ratio, concentration of soluble salts, pH, and presence of weed seeds, heavy metals, and foreign objects. Although Utah has not mandated standards for compost quality, Table 1 provides

general guidelines for various uses of compost. Compost can be analyzed at most soil testing labs (e.g., Utah State University Soil Testing Lab, 435-797-2217).

Using Compost In and Around the Home

The nutrient content of compost is very low when compared to commercial fertilizers. However, compost does contain many of the nutrients plants need, in favorable proportions. Fresh compost continues to biodegrade for a year or more, releasing nutrients during that time. For fast growing, high nutrient demanding plants, supplemental fertilizers may be needed at the beginning of the growing season.

Potting Mixes: For potting mixes, obtain compost from a reliable source which tests for pH, soluble salts, and carbon-to-nitrogen ratios. The amount of compost used in potting mixes ranges from 20% to 33%, depending on the species and other potting additives. Avoid using 100% compost for potting mixes because it may be too porous and frequently the soluble salt level is too high. A basic blend for potted herbaceous and woody ornamental plants is equal parts by volume of compost, coarse sand, and peat moss.

There is no need to add trace elements to the blend because most composts supply all the trace elements needed by plants during their growth in the container. Do not add liquid fertilizer during the first two to three weeks of growth. There is adequate nitrogen, phosphorus, and potassium in compost to supply the needs of the plants during that time. Resin-coated, slow-release fertilizers can be blended with any compost-amended potting mix when plants will be containerized for long periods.

Flower Potting Mixes: A popular blend used for growing a wide variety of bedding plants contains 1 part compost, 2 parts peat moss, and 1 part perlite or vermiculite.

Vegetable Potting Mixes: For growing vegetable transplants, use equal parts by volume of compost, peat moss, and perlite or vermiculite.

Soil Amendments for Gardens and Beds: Well-decomposed, earthy composts are good soil amendments. Apply and incorporate compost just prior to seeding or transplanting. Mix approximately 1 inch of compost (~ 3 cubic yards per 1000 sq feet) into the soil before planting a garden, lawn, perennial bed, or cover crop. A good rule of thumb for adding compost to a garden is for every inch of compost added, double the tilling depth. For example, after adding 1 inch of compost, till the garden at least 2 inches deep. Supplemental nitrogen may be necessary for plants such as corn and potatoes that need extra nitrogen. If the compost is animal manure-derived, be sure that the final product has been analyzed for electrical conductivity (a test for salinity). The soluble salt concentration should not exceed 20 mmhos/cm (see Table 1).

***Note*:** Don't use straight compost in seed beds or potting mixes if the electrical conductivity exceeds 2.5 mmhos/cm unless it is diluted with sand, soil, vermiculite, or other amendments. If you are uncertain about the soluble salt level in the compost, you can have it tested by a lab (e.g., Utah State University Soil Testing Lab, 435-797-2217).

Remember: when using compost in a garden, the nutrients that were once discarded are now recycled. It's the ultimate recycling action!

Table 1. Compost quality guidelines based on use.

Characteristics	Potting Mixes	Soil Amendment	Mulch
Color	Dark brown to black	Dark brown to black	Light to dark brown—resembles shredded bark
Odor	Should have good earthy odor	Should have no objectionable odor	Should have no objectionable odor
Particle Size	Less than ½ inch	Less than ½ inch	Greater than ½ inch
pH	5.0–7.6	5.0–8.5	5.0–8.0
Soluble Salt Concentration, mmhos/cm or dS/m	Less than 2.5	Less than 20	Less than 6
Carbon-to-Nitrogen Ratio	Less than 25:1	Less than 50:1	Greater than 50:1

Other Related Fact Sheets:

- Backyard Composting in Utah
- Using Compost in Utah Turf Applications
- Using Mulches in Utah Landscapes & Gardens

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