

VPPSA Compost Facility Products, how we make it, how you can use it.

Finished Compost

How can you tell when your compost is finished and ready to use? For beginner composters this is a common question.

Compost is ready to use when it is dark, brown, and crumbly with an earthy odor. It would not be moldy and rotten. Crumbly compost will be sort of fluffy; it does not need to be decomposed to a point of being powdery. The original materials that went into the compost pile should no longer be recognizable in finished compost, except for some woody pieces. The temperature of the finished compost should be the same as the outside air temperature, and the material should not reheat. You will see earthworms and other insects now that the temperature is lower. If your compost is still hot, smells like ammonia, or you can still recognize much of the original material which went into the pile, then it is not ready to use yet. Once the compost appears finished, let it sit for at least 3 weeks to make sure the decomposition process has stabilized.

You may be tempted to use compost before it is ready. However, if incompletely decomposed material is added to the garden compost, bacteria may compete with plants for nitrogen in the soil. Plants will look stunted and yellow. Unfinished compost has been found to also retard germination and growth of seedlings.

Benefits of Compost

Whether a compost pile is quick and hot or slow and cool, when the decomposers have completed their work the contents of the pile have been transformed to an entirely new material. The volume of the finished compost has been reduced because of biochemical breakdown and water respiration to about 30 to 50 percent of what went into the pile. This finished product offers numerous benefits to our garden soil.

Compost will improve the quality of almost any soil, and for this reason it is most often considered a soil conditioner. Compost improves the structure and texture of the soil enabling it to better retain nutrients, moisture, and air for the betterment of plants.

Incorporating compost into soil dramatically improves soil structure. Soil structure refers to how inorganic particles (sand, silt, clay) combine with decayed organic particles (compost, humus). Soil with good structure has a crumbly texture, drains well, retains some moisture, and is easy to turn over. "Crumbly" is a rather vague descriptor referring to how it is held together. A soil amended with compost shows that it is made up of many round, irregular aggregates. Aggregates are groups of particles loosely bound together by secretions of worms and compost bacteria giving it this crumbly appearance. If you lightly crush one of these aggregates, it breaks down into smaller aggregates. Crumbly soil allows air to penetrate and holds moisture well but allows excess water to drain away. Tender young roots also have an easier time penetrating into the soil.

A well-structured soil with lots of small aggregates stays loose and is easy to cultivate. Compost helps improve all soil types, especially sandy and heavy clay soils.

A garden with sandy soil has very little water and nutrient retention. Sandy soil feels loose and has coarse particles that won't hold their shape when squeezed in your hand. Water and nutrients pass through quickly since there is nothing to hold them there. In loose, sandy soil

compost helps to bind these particles together and increase the soil's ability to retain moisture and nutrients. In other words, there is now something to hold onto. Plant roots penetrate easily, finding moisture where there was none before.

Clay soils appear heavy and dense. The soil particles are small and tightly bound together. When wet, clay is sticky and easily holds together when squeezed in your hand. When compost is mixed with clay soils, it binds to the clay particles forming larger particles that now have larger air spaces between them. These spaces allow better surface water drainage and air penetration.

Compost also adds nutrients to your soil. Compost contains a variety of the basic nutrients that plants require for healthy growth. In addition to the main three; nitrogen, phosphorous, and potassium, of special importance are the micronutrients found in compost such as manganese, copper, iron, and zinc. Micronutrients are only needed in small doses, like vitamins in our diet, but they play an important role in the plant's ability to extract nutrients from other foods. In a commercial fertilizer, such as 10-10-10, micronutrients are often missing. Compost is basically a free nutrient boost for your plants.

Compost is made up of different ingredients, some of which rot more rapidly than others. As a result, nutrients are released over a long period of time. Call it a slow-release fertilizer. Actually, if everything decomposed at the same rate, compost would not be so valuable. The nutrient content of each batch of compost is impossible to predict because it depends on so many variables. What was the carbon:nitrogen ratio of the pile? Were any amendments added in the way of activators? We do know that the greater the variety of materials used in making compost, the greater the variety of nutrients in the finished product.

Adding compost to your soil breaks down over time and provides Nitrogen to your garden and landscape plants. Sufficiently aged compost releases organic nitrogen after soils warm in the spring. It has been shown that the breakdown of this organic material provides 25% of its Nitrogen the first year, 10% the second and third year, and declines to 5% the fourth and fifth year.

Compost attracts earthworms and provides them with a healthy diet. The presence of earthworms, redworms, centipedes, sow bugs, and other soil critters shows that compost is a healthy living material. The presence of these decomposers means that there is still some organic material being slowly broken-down releasing nutrients as foods pass through their digestive tracts. They also represent a balanced soil ecology.

Research is showing us that soil treated with compost tends to produce plants with fewer pest problems. Compost helps to control diseases and insects that might otherwise overrun a more sterile soil lacking natural checks against their spread. Leaf based compost is showing promise suppressing nematodes. Compost application to turf has suppressed many fungal diseases.

Soil pH also benefits with the addition of compost. This is a measure of soil acidity or alkalinity. Finished compost has a neutral pH. For the majority of ornamental plants, nutrients are available to them at a pH range of 5.5 to 7.5. When mixed into the soil, compost helps keep the pH at optimum levels for nutrient availability. Organic matter also has a high capacity to fix soil toxins. According to Dr. Selman Waksman in his book *Humus: Origin, Chemical Composition, and Importance in Nature*, high salt concentrations are less injurious, and high aluminum solubility and its specific injurious action are markedly decreased.

How we make our Compost:

We take the leaves and grass and process them through a tub grinder for size reduction and blending. Once we blend the correct mixture together, we place it into windrows. That is when

the decomposition process begins, the material will stay in that row for at least 6 months. During this time, staff will record the temperature at multiple places to ensure a proper climate for maximum decomposition. We use a machine that straddles the rows, called a windrow turner, to perform aeration, size reduction and to adjust the temperature of the rows. Once we are satisfied that the row has completed the decomposition, we screen it through a trommel screen to remove any material larger than ½". The material is ready for sale after screening.

Compost has many uses; it can be used as a soil amendment by incorporating it into your soil or as a top dressing; it can be used in gardens as a soil additive; it can be used when creating new or updating your landscaping. Adding compost to the hole where you place new plantings will aid in the root growth and provide nutrients for their new surroundings. Compost is a recommended addition when potting plants. Compost is great way to kick start new or existing lawns, after plugging distribute the desired type of seed and top dress with ½" of compost. If you have a project or a troubled area, speak with our staff about how compost could help.

Mulch

In nature we see plants and trees drop leaves that accumulate at their bases. Every year, a new layer is added while the old layers start to decompose. This is leaf mold, and it is a form of compost. What nature is doing is providing a protective layer over the roots of plants. This layer of vegetative material protects the bare soil during the summer months by reducing soil temperature, suppressing weed growth and reducing soil moisture loss. Our compost can do the same thing in our gardens and landscapes.

To prepare any area for mulching, first clear away grass or weeds that might grow up through the mulch. Make sure to remove the roots of tough perennial weeds such as ground ivy. When using compost as a mulch in flower beds, vegetable gardens, landscape beds, or lawns, screen the finished compost. A simple screen can be made using ½-inch mesh hardware cloth and attaching it to a wooden frame. Place the screen over a wheel barrow or other container and sift the compost into it. The large pieces left behind can go into your next compost pile as an activator, introducing the necessary microorganisms. Cover the garden or bed area with screened compost to a depth of one to two inches. If you apply compost on a lawn, be sure it is finely ground or sifted. You have less of a chance of smothering the lawn. You may want to use ¼-inch mesh hardware cloth. One way to incorporate the compost is to aerate the sod, then apply a 1/8-inch to ¼-inch covering of fine compost. Use a rake to distribute the compost into the crevices. When mulching around trees and shrubs, screening may not be necessary. This is really a matter of aesthetic desire on your part.

How we make our Mulch:

We accept brush, limbs and tree trunks up to 10' in length and 24" in diameter. We run the material through a tub grinder for volume reduction. The brush, limbs and tree trunks are reduced by two thirds and the material, also known as once ground mulch, is then placed into long rows to cure for three months. During the curing process, the mulch will reach temperatures of up to 180 degrees. This three-month period with temperatures of up to 180 degrees will allow the mulch to cook off any weed seed and larva that survived the grinding process.

Once the mulch has cured, it is ready for the next process, where we will process it for sale. To make our Fines and Regrinds, we run the once ground mulch through the tub grinder again, then place the material through a trommel screen that separates the material into two sizes. The smaller of the particle sizes flow through the ½" screen and become our Mulch Fines. The larger particle sizes become our Regrinds or Reground Mulch as they have now been ground twice. The

materials are placed in another large pile to cure for an additional period of time to ensure that it is ready for sale to the public.

Mulch is used to: maintain moisture; when placed at the right depth it will aid with weed control; it keeps the roots of plants and small trees insulated when the weather turns cold; it is used for erosion control; and used for beautification.

Colored Mulch:

To prepare the mulch for coloring, we screen the once ground mulch to remove any of the smaller particles. We then run the screened mulch through the tub grinder to reduce the size and color the material. Coloring is done as the mulch mixes with the colorant during the regrinding process. The process sounds easy, finding the right mixture of water and colorant and allowing the material to absorb the color to minimize fading is key.

Blended Compost:

We have added the benefits of Compost and combined that with our Mulch Fines. We believe that this Compost Blend will provide you the much-needed nutrients of our compost and the slower decomposition of our mulch fines. This product will provide the roots aeration or room to grow, while feeding them. Over time as the mulch fines continue to decompose it will continue to feed those roots.

Soil Amendment

We have already talked about how compost helps soil, especially sandy and clay soils. When starting a new garden soil amending is recommended before you plant. It is so much easier to add compost now than it is after the garden is planted. Cover the garden area with 3 to 4 inches of compost and till it into the upper six inches of the soil. If your garden is already established and you want to incorporate compost deeply into the soil, your options are limited.

With perennials, every time you add a new plant to the garden or divide an existing one, add compost. With annuals, you can add compost every spring. Loosen up the entire area where annuals will be planted and work in compost. Around trees and shrubs add at planting time, mixing no more than 25 percent of soil volume. Some references say not to use any at all for fear that the roots will remain in the planting hole area and not grow out into the surrounding soil. Keeping the compost level at one-quarter of the total soil volume will not lead to this problem. If you're concerned, use the compost as a mulch only.

Around existing trees, it may be difficult to incorporate into the upper six inches of the soil. You can add compost by injecting nutrients the way professional arborists do. Drill 1-to 2-inch diameter holes 12 inches deep in the soil throughout the tree canopy and beyond at 18-inch spacing. Fill the bottom of each hole with recommended rates of dry fertilizer and then top off the holes with compost. For shrubs, the holes only need to be drilled 8 to 10 inches deep. This treatment should supply nutrients for two to three years.

Using Compost in Potting Mixes

You can also blend fine-textured compost in potting mixtures. However, make sure the compost does not make up more than one quarter to one half of the potting mixture's volume. Plants growing in containers are entirely reliant on the water and nutrients provided in the potting mix. Compost is excellent for container growing mixes, because it stores moisture effectively and

provides a variety of nutrients not typically supplied in commercial fertilizers or soil-free potting mixes. You still need to fertilize containers on a regular basis to provide the high volume of nutrients they need. Finely sifted compost can also be used in seed starting mixtures.

Compost Tea

An old fashioned way of providing liquid fertilizer for plants is to brew compost tea. Similar to manure tea, compost tea gives your plants a good dose of nutrients. Compost tea works especially well for providing nutrients to new transplants and young seedlings. To make compost tea fill a burlap sack or an old pillow case with finished compost and secure the open end. Place in a tub, barrel, or watering can filled with water. Agitate for a few minutes and then let it steep for a few days. Water will leach out nutrients from the compost and the mixture will take on the color of tea. Spray or pour compost tea on and around plants. You can use the bag of compost for several batches. Afterwards, simply empty the bag's contents onto the garden.

SOIL BLENDS

We use a combination of compost, (as a soil amendment), mulch fines, (to aid with aeration) and sand (to help with drainage). This product is blended through a process that we have developed to ensure a consistent product that can be used for a variety of projects such as filling holes after a tree has fallen, potting soil, and soil for a raised bed.