

COMPOSTING

Compost is a mixture of soil and decayed organic matter or humus that is used to improve garden and potting soil. Properly prepared compost is free from weed seeds and offensive odors and rich in nutrients that plants need. It may be applied as a mulch or mixed into the soil in vegetable gardens. Com-post is produced in piles or pits from organic waste such as leaves, grass clippings, manures, straw, hay, and garden refuse.

One of the greatest benefits of making compost is that it allows us to recycle garden and yard waste into a valuable, usable product, reducing the amount of solid waste going into landfills.

Chemistry of compost

The conversion of organic wastes to rich humus involves several types of bacteria and fungi. Fungi begin the process by breaking down cellulose and other complex molecules in the residue. Fungus populations increase rapidly in a new compost pile. The temperature inside the pile may rise to 150-160° F, inactivating weed seeds and harmful disease organisms. After several months, the temperature decreases, the fungi disappear, and millions of bacteria continue gradual breakdown of the organic materials into rich, dark, crumbly humus. In regions with acid soils, wood ashes or limestone may hasten decay and prevent excess acidity and sourness.

Getting started

Locate the compost heap in an area where water will not stand. Many gardeners use an out-of-the-way, accessible location near the garden or refuse disposal site for convenience.

The compost may be made using a below-ground pit or an above-ground method that does not require laborious digging. Although it is possible to simply accumulate the compost in a loose pile, an enclosure of some type is desirable. Several materials can be used for this purpose.

* Woven wire or wood slat fence--Various types of woven wire are available--from reinforcing wire to fencing wire. Heavy gauge wire that is self-supporting is preferable; however, finer wire supported by rods or posts could be used. Lining the fence with a layer of plastic will speed decomposition.

* Cement blocks or bricks--Mortar is not necessary because the weight of the blocks will hold the pile in place.

* Scrap lumber--Don't use good lumber because the damp compost may ruin the boards. If a permanent enclosure is desirable, use redwood or cypress. Old pallets frequently can be obtained free of charge, and strapping five of these together to form a cube makes an excellent compost bin.

The size of a compost pile varies, depending on the quantity of organic material available and the amount of compost needed. Rectangular or square shapes may be slightly easier to work with than round ones. Round enclosures made of wire bent into a cylinder have the least amount of surface area to dry out and work well. Either shape can be used successfully. For most households, a pile 5 feet wide by 5 feet long or a circular pile about 5 feet in diameter is sufficient. The height of the pile will fluctuate as organic material is added. A pile or bin could be divided into two parts or use two identical bins, one for accumulating this year's waste and one for compost made last year.

Several kinds of plant materials can be used in the compost pile. These include leaves, grass clippings, weeds, garden refuse, fine hedge clippings, straw, corn cobs, cold wood ashes, sawdust, old unusable hay, and mulch raked from around flower or vegetable gardens. Avoid using severely diseased vegetable or flower plants. Kitchen scraps such as egg shells, peelings, or plant residues can be added to the pile if covered to prevent flies, but avoid using meat scraps or bones that may attract dogs or other animals.

Making the compost pile

In slow composting, start with a layer of soil or sand 2-3 inches deep on the bottom. Then add a layer of organic materials. For fine materials such as thin grass clippings use only a 2- to 3-inch layer; for coarser materials such as straw, use 6- to 8-inch layers. To hasten decomposition, add a small quantity of commercial garden fertilizer--1-2 cups per square yard of area. You may substitute an inch or two of manure. The purpose of the fertilizer or manure is to provide a source of nutrients for microorganisms that must build up in the compost pile to ensure decomposition.

Repeat this sequence of soil or sand, organic materials, and fertilizer in layers as organic materials become available. Water each layer as it is added.

The top of the compost pile should be dish-shaped. This allows rainfall to soak into the pile rather than run off. Because of extremely high temperatures generated by the composting process, a dry compost pile oxidizes too rapidly and the overheated, feathery compost that results is of little value. In dry weather, a weekly soaking of the pile is desirable to keep it sufficiently moist.

The rate of decomposition can be hastened by turning the pile--slicing through the layers and turning them upside down. This action is similar to spading garden soil when it is turned over.

As your compost pile progresses, these signs will indicate whether all is going well.

* In 2-3 weeks, the pile should shrink or sink. If it has not, loosen the pile with a shovel or fork to provide more aeration or add moisture if the compost is dry.

* Check for a strong ammonia or offensive odor. This may be caused by overwatering, or an imbalance of materials. Aerate as above. Ammonia odors often come from composting fresh, green plant material, especially grass clippings.

* After 4-5 weeks, or less than a week for "quick composting," it should be hot deep within the pile. Push a wire or stick deep into the pile, pull it out and touch it to check temperature.

* In 3-4 months, the pile should be about half its original height. The compost will be dark, moist and crumbly. It should have the odor of moldy leaves or a rich earthy odor.

Using compost

Many gardeners follow the steps to make compost without understanding how compost can be used around the home. Compost can be beneficial in a variety of horticultural applications.

* Fertilization and soil improvement--Addition of organic material improves looseness and workability of soil. Heavy, tight clay soils benefit from the loosening effects of organic materials. But sandy soils benefit as well from the improved water-holding capacity and fertility that organic materials provide.

Compost also contains nutrients that plants require. While the specific nutrient content of compost varies with the types of materials composted and the amount of water in it, a general recommendation is to apply compost at the rate of 50-100 pounds per 100 square feet. This generally is translated to 1-2 bushels of material for every 10-foot by 10-foot area of the garden. The best time for applying compost is just prior to tillage--either in the spring or fall. Tilling incorporates the compost throughout the plant root zone.

* Compost at planting--A band of compost in the bottom of a row trench or several shovelful in the bottom of planting holes can be added and mixed with the soil. This is especially beneficial for tomato plants. The slow nutrient release of compost works through the early growth period. Compost can also be used as a top dressing over the row to prevent crusting of soil for seeded vegetables.

* Mulching--One of the most beneficial practices for summer gardening in Kansas is using mulch. Mulches hold moisture in the soil, prevent weed growth, and reduce soil crusting and splashing. Mulches also help to keep the soil cooler during hot weather. A layer of compost 2-3 inches thick along the row of garden vegetables and flowers or spread around perennial flowers, trees and shrubs reduces moisture fluctuations and evaporation of water from the soil surface. After the garden season, simply till the mulch into the soil as a source of organic material.

* Potting mix for seedlings--Compost that has been screened for large particles can be mixed with soil or sand--in about equal parts--and used as a plant growing medium. The compost must be well deteriorated and free of harmful disease organisms and insects to ensure healthy seedling plants.

Cautions in using compost

It is important to understand that compost is not a cure-all for garden soils or concerns. The benefits of composting certainly outweigh the limits, but it is possible to overdo applications of compost.

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