How to Make a Hot Compost Pile

WHAT IS IT?

A compost pile is a heap of organic material that is left to decompose into compost. The basic ingredients for good compost are:

- Two-thirds brown materials
- One-third green materials
- Air
- Water
- Up to 10% soil

There are many ways to make compost. What is described here is one way that is designed to ensure the compost heats up enough to speed up the decomposition process.

WHY DO WE DO IT?

Adding compost to soils has numerous benefits. Compost builds soil organic matter, improves soil structure and ability to retain water, moderates soil pH levels, and adds macro and micronutrients to soils. Decomposition is the natural process of the soil food web slowly breaking down organic materials into microscopic particles; composting speeds up this process by ensuring there is the right ratio of water, air, green material, and brown material in a compost pile or a compost pit so that soil organisms can function properly and decompose materials quickly.

TERMS USED

Brown compost material: Brown material used for composting is high in carbon and low in nitrogen. It is generally dry and brittle. It includes maize cobs, straw, dry leaves, crop residues and other organic material that has dried out.

Green compost material: Green material is moist, flexible, and high in nitrogen. Green materials can include vegetable scraps, fresh crop residues, manure, leaves and freshly pulled weeds that have not gone to seed.

Soil macronutrients: Elements found in relatively large amounts in soil, including nitrogen, phosphorus, potassium, calcium, magnesium and sulfur. Plants need relatively large amounts of macronutrients to grow well. Farmers can increase the amount of macronutrients in soils by adding organic material.

Soil micronutrients: Elements found in relatively small amounts in soil, including iron, manganese, boron, copper and zinc. Plants require small, but essential, amounts of micronutrients to grow well and avoid yield losses due to micronutrient deficiencies. Farmers can increase the amount of micronutrients in soils by adding organic material.

Soil organic matter: Plant and animal residues, soil organisms, and other substances found within the soil that help support healthy and productive plants.

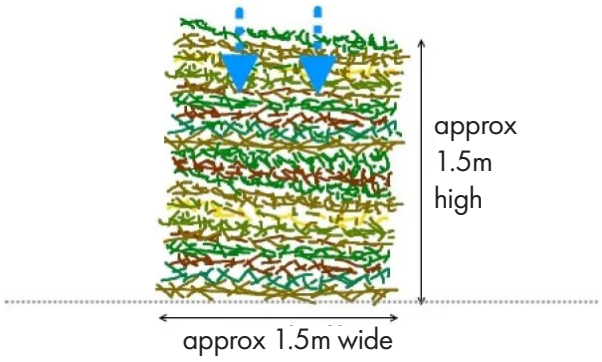
HOW TO

Make a Hot Compost Pile

METHOD

STEP 1
Select a place in the shade. Too much sun dries out the compost pile and slows down the decomposition process.

STEP 2
Gather brown and green organic materials. A properly made compost pile contains one-third green materials and two-thirds brown materials arranged in layers. Large pieces should be chopped into smaller pieces to speed the decomposition process and release moisture and minerals.



STEP 3
Put down an initial 5-15 cm layer of coarse sticks. This helps aerate the pile from below, enabling air movement through the pile during the initial stage of decomposition.

STEP 4
Put down a 20 cm layer of brown material to form the first layer of brown.

STEP 5
Add a 10 cm layer of green on top of the brown.

STEP 6
Add a 2 cm of topsoil, manure, or finished compost (approximately 6 large handfuls) on top of the brown.

STEP 7
Sprinkle the pile with water to moisten well.

STEP 8
Repeat Steps 4 through 6 until the pile is 1.5 m wide by 1.5 m deep by 1.5 m high.

STEP 9
Cap the pile with soil and then protect from moisture loss or excessive rain with materials like grasses, banana leaves, or a plastic sheet. Do not add more material to the pile after this.

STEP 10
Poke a stick that is 2-3 cm in diameter and at least a meter long into the pile in multiple locations to create pathways for air to enter and exit the pile. When finished aerating, leave the stick inserted in the center of the pile to use as a temperature gauge.

STEP 11
After two days, pull the stick out and check to see if the pile is hot in its center. If the stick is hot to touch, this means that the bacteria are working to break down the materials. DO NOT MIX. A well-made compost pile heats to 49-60° Celsius (120–140° Fahrenheit) after just two days.

STEP 12
Wait one week and then uncover the pile. Turn it into a new pile by mixing the layers and adding more water to keep moist if needed. To test the moisture level, squeeze a handful of the compost; ideally only one drop of water will drip out. Then cover the pile well.

STEP 13
Wait another week and then mix and apply water again. Cover well.

STEP 14
Allow the pile to rest for at least two weeks before mixing again. Cover well.

STEP 15
Continue to mix every second week, watering and covering until the inside of the pile is brown, crumbly, and cool to the touch. At this point, the compost is ready to be mixed into the garden soil.

This document is made possible by the generous support of the American people through the United States Agency for International Development (USAID).
The contents are the responsibility of the SCALE Award and do not necessarily reflect the views of USAID or the United States Government.