

# COMPOST THERMOMETER INSTRUCTIONS

## Directions for using a Tel-Tru dial type bimetal thermometer for compost or soil testing:

- Insert thermometer stem into compost or soil to the desired depth. The groove on the stem of Tel-Tru thermometer indicates the minimum insertion depth for most accurate readings.
- Caution:
  - Do not use the dial head to push the thermometer into dense material as this may cause the head or stem to bend.
  - Bending the stem or head of the thermometer will damage internal parts and either decrease accuracy or make the thermometer inoperable. You can tell the thermometer is damaged if the pointer is “jumpy” or not moving at all when it should be indicating a change in temperature.
  - Use of the optional handle is recommended to eliminate the risk of damage to the stem or head.
- Hold the thermometer in position in the compost or soil for at least 1 minute. Typically when the pointer stops moving around the dial the reading has stabilized.
- Tel-Tru bimetal thermometers are rugged, hermetically sealed, heavy duty precision instruments. Even so, careful handling and storage is recommended for maximum life.



## Measuring Compost Temperature:

- Tel-Tru thermometers work equally well in compost piles, bins, or tumblers.
- Armed with accurate compost temperature at various depths, you'll know the most effective time in the process to add material or water, and when it's time to turn the pile.
- For maximum effectiveness you'll need to monitor the process and record the daily temperature of the pile.
  - The change in temperature will depend on moisture levels, the composition of your organic matter, and the size of your pile.
  - Between one and five days, the temperature should rise to between 120 and 170 degrees Fahrenheit (49 and 77 degrees Celsius).
  - Usually between four and seven days, and once the temperature cools to below 110 degrees Fahrenheit (43 degrees Celsius), you'll need to introduce oxygen by turning over the pile. This will then cause the pile to heat back up.
- Every time you turn the compost, make sure you bring the pile's exterior material to the interior. This enables all material to be evenly broken down. Water should be added to maintain a slightly moist but not wet consistency. Be careful not to add too much water, which will cool the pile.
- Continue monitoring and recording temperatures every day, and to turn the compost every four to seven days, once the temperature has dropped below 110 degrees Fahrenheit.
- After approximately one month, you should have turned the pile four times and the temperature will slowly decrease to below 85 degrees Fahrenheit (29 degrees Celsius). The pile should be a dark, crumbly compost.



## Measuring Soil Temperature:

- When using a Tel-Tru thermometer, you'll know when your soil has reached the ideal range each type of seed requires for germination, as well as when it's time to transplant.
- Measuring the temperature of soil should be done by averaging the low point (early morning) and high point (mid-afternoon). Alternatively, one measurement can be taken mid-morning. Generally, if the temperature measures within the correct range for the seeds to be planted for three days in a row, it will be safe to plant.

# FAQs

## Where in the compost pile should I measure the temperature?

The hottest part of the pile is generally the center, so that is the best place to test.

## Does the entire stem need to be inserted into the compost pile?

For an accurate reading, the stem should be inserted only far enough to reach the center of the compost.

## Can this thermometer be left in the compost pile?

Yes, the thermometer is sealed and can be left in the compost pile. However long term exposure to the elements is not recommended.

## How long does composting take?

The answer to this question ranges widely, depending on the process used, the compost ingredients, and how the system is managed. Under optimum conditions, thermophilic composting with frequent mixing or turning can produce useable compost within a month or two. In general, it is best to let compost “cure” for several months even after it appears finished. <sup>1</sup>

## Will it smell badly?

As long as your compost has enough airflow so that it remains aerobic, there may be some odor but it shouldn't be objectionable. If you do get foul-smelling odors, you should add more wood chips or other bulking agent, and mix the system to re-aerate it. Ammonia odors may develop if you compost materials such as fresh grass clippings which are high in nitrogen. <sup>2</sup>

## What if the compost pile doesn't heat up?

Only a freshly built or freshly turned pile will get hot; unmaintained piles will not heat up. There are two ways to heat up an inactive pile: add new material on top; or turn it, which will add needed oxygen. In addition, if the pile is too wet or too dry, or if it lacks nitrogen throughout, it may not heat up.

## What should finished compost look like?

All of the original ingredients should be unidentifiable. It should have an earthy smell with a dark finish and it should crumble easily. Finished compost will no longer heat up, even after mixing.

## What can I do with my finished compost?

It can be used for landscaping and gardening around your home. When added to your soil, it will help to retain water and nutrients.

**Did you know that all organic matter has a ratio of Carbon to Nitrogen (C:N) in their tissues?** For microorganisms, carbon is the basic building block of life and is a source of energy, but nitrogen is also necessary for such things as proteins, genetic material, and cell structure. Decomposition of organic materials in your compost pile is greatly increased when you create the proper balance between the carbonaceous materials (called BROWN because they are dry) and the nitrogen-rich materials (called GREEN because they are more fresh and moist). In compost lingo, this balance is referred to as the Carbon-Nitrogen ratio, and shown as C:N. <sup>4</sup>

## Why is the C:N Ratio Important?

Composting is a process whereby microbes degrade the organic matter added to the compost pile. These microbes have basic requirements for food. It turns out they grow best when there is a ratio of carbon to nitrogen of about 30:1. The right amount of carbon and nitrogen makes the microbes happy, and they grow fast. Fast growing microbes means that the composting process happens quickly and the pile heats up to desirable temperatures. However, you do not need the exact C:N ratio to make compost. You only need the right ratio if you want to make it quickly! <sup>5</sup>

## What Happens if the C:N Ratio is Wrong?

Composting takes longer and takes place at lower temperatures. The microbes will not be as happy, and they won't decompose the organic material as fast, however, it does happen.



TIP

### Storing Compost in the Kitchen

To store kitchen waste until you're ready to transfer it to your composter, keep a container with a lid and a handle under the sink. A stainless steel compost pail with an air filter or a ceramic model will cut down on odors. Chop up any large chunks before you toss them in. <sup>3</sup>

<sup>1,2</sup> Trautmann, Nancy, and Tom Richard. "Frequently Asked Questions - Cornell Composting." *Composting*, [compost.css.cornell.edu/faq.html](http://compost.css.cornell.edu/faq.html).

<sup>3</sup> <https://www.thespruce.com/storing-kitchen-scraps-for-composting-2539506>

<sup>4</sup> <http://www.homecompostingmadeeasy.com/carbonnitrogenratio.html>

<sup>5</sup> <https://www.gardenmyths.com/how-to-compost-browns-greens/>

# WHAT CAN I COMPOST?

Material	Rich in...	Information
Wood chips / pellets	Carbon	High carbon levels; use sparingly
Wood ash	Carbon	Only use ash from clean materials; sprinkle lightly
Tea leaves	Nitrogen	Loose or in bags
Table Scraps	Nitrogen	Add with dry carbon items
Straw or hay	Carbon	Straw is best; hay (with seeds) is less ideal
Shrub prunings	Carbon	Woody prunings are slow to break down
Shredded paper	Carbon	Avoid using glossy paper and colored inks
Seaweed and kelp	Nitrogen	Apply in thin layers; good source for trace minerals
Sawdust pellets	Carbon	High carbon levels; add in layers to avoid clumping
Pine needles	Carbon	Acidic; use in moderate amounts
Newspaper	Carbon	Avoid using glossy paper and colored inks
Leaves	Carbon	Leaves break down faster when shredded
Lawn and garden weeds	Nitrogen	Only use weeds which have not gone to seed
Green comfrey leaves	Nitrogen	Excellent compost 'activator'
Grass clippings	Nitrogen	Add in thin layers so they don't mat into clumps
Garden plants	--	Use disease-free plants only
Fruit and vegetable scraps	Nitrogen	Add with dry carbon items
Flowers, cuttings	Nitrogen	Chop up any long woody stems
Eggshells	Neutral	Best when crushed
Dryer lint	Carbon	Best if from natural fibers
Corn cobs, stalks	Carbon	Slow to decompose; best if chopped up
Coffee grounds	Nitrogen	Filters may also be included
Chicken manure	Nitrogen	Excellent compost 'activator'
Cardboard	Carbon	Shred material to avoid matting

# WHAT SHOULDN'T I PUT IN MY COMPOST?

- Do not compost meat, bones, or fish scraps (they will attract pests) unless you are using a composter designed specifically for this purpose.
- Avoid composting perennial weeds or diseased plants, since once added to your soil, the compost may transfer unwanted weeds or disease to your garden.
- Don't include pet manures in compost that will be used on food crops.
- Banana peels, peach peels, and orange rinds may contain pesticide residues and should be kept out of the compost.
- Coffee grounds and tea leaves should only be added to compost if they have been removed from their bags. The bags that some coffee and tea products come in contain synthetic fibers that do not break down in a compost pile, and may contain chemicals you don't want in your soil.
- Sawdust may be added to the compost, but should be mixed or scattered thinly to avoid clumping. Be sure sawdust is clean, with no machine oil or chain oil residues from cutting equipment.

# How to Make COMPOST

1



## Choose a place

Ideal compost area is a dry, shady spot near a water source, with dimensions of 3 x 3 x 3 feet.

2



Check the temp!

## Add the ingredients

The ingredients are those rich in carbon (brown materials) and those rich in nitrogen (green materials). Make sure large materials are chopped or shredded.

3



Check the temp!

## Add water as needed

Make sure the pile stays moist, but not too wet (it should feel like a damp sponge).

4



Check the temp!

## Keep things moving

Turn your compost mixture to add air to the mix. This helps speed up the composting process.

5



Check the temp!

## Wait a while

When the compost no longer gives off heat and becomes dry, brown and crumbly, it's fully cooked and ready to be fed to the garden.



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