How to take a Compost Sample

Compost is a dark, earthy mixture of decayed organic material, such as livestock manure, plant remains, or food waste. The waste decomposes by the activity of micro-organisms. Using compost is a good way to enrich soil with nutrients and reuse organic waste.

The composting process can use a variety of organic materials, methods, and equipment. It can range from small backyard compost bins to large-scale operations. For farm operations, common organic materials include animal manures, bedding, and crop materials such as hay, straw, and crop wastes.

Good composting means mixing the organic material at different ratios, and placing it into piles, rows, or bins. The process needs air to encourage healthy microbial activity that will break down material into a stable, finished product. Material must be mixed and turned regularly to make sure it's properly aerated. Leaving a pile of organic material to sit for a period of time isn't proper composting because the mixture lacks air. This can lead to odour problems.

Benefits of compost

Compost provides many benefits, which include the following:

- It provides organic matter.
- It encourages the growth of beneficial micro-organisms, such as insects and worms.
- It improves the structure of heavy soils by reducing its bulk density. This makes soil easier to handle and increases porosity and water movement.
- Compost improves sandy soils by increasing the soil's capacity to retain water. It also binds soil together, which reduces soil erosion.
- It encourages the growth of healthy root systems by improving the root environment.

Where can compost be used?

Mature compost

Mature compost has finished breaking down and is mostly odourless. Raw material is no longer visible and nutrients are in a stable form. Mature compost is typically used for container plant mixes, topsoil blends, topdressing, flower gardens, and field applications.

Immature compost

Immature compost isn't fully broken down and can have odours. Nitrogen can be tied up because the micro-organisms are still using nitrogen during the breakdown process. If applied to soils, the compost will continue to decompose. It's often used on fallow fields or fields that require more organic matter before planting crops.

What's in your compost?

It's important to know what's in compost before using it as a nutrient source. The nutrient content is very different from the original organic material source. As carbon breaks down and water evaporates from the pile, the volume of the material can decrease by up to 60 per cent and some nutrients can become more concentrated.

For example, ammonium nitrogen is lost during the compost process while organic nitrogen converts to a more slowly released form. In the first year, nitrogen in compost can be in a form that's only 15-20 per cent available to the crop.

How to sample compost

Equipment required

- Clean, residue-free plastic container
- Spade or pitchfork
- Plastic bags or containers
- Permanent marking pen
- Front-end loader or compost turner if compost piles are large
- General sample submission form

*Submission forms can be obtained from the NSDA Laboratory, the Agriculture Regional Offices, or online at www.gov.ns.ca/agri/qe/labserv and click Analytical Lab.

Taking a compost sample

- Collect 10–15 subsamples throughout the compost pile.
- Use a bucket loader for large quantities of compost. This will help cut the compost into sections for easier sampling.
- Take samples from different depths within the pile.
- Don't take samples from areas that are wet or from the surface of the pile.
- Use a large plastic container to mix the subsamples together thoroughly into one final sample. The final mixed sample should be about one litre in size. This is the sample that is sent to Laboratory Services.
- Don't use glass containers that can break during the freezing process or during transportation to Laboratory Services.

Taking samples from different composting operations

Depending on how compost is stored and processed, follow these additional tips to take the best sample possible.

Compost Bin

- Remove the cover and sides of the bin.
- Mix the compost well before taking subsamples. You can use a spade or a pitchfork.

Fig. 1 Compost bins

Windrows

- Turn the windrow with a loader or compost turner until the compost is well-mixed.
- Dig cross-sections throughout the windrow and take the samples about 30 centimetres deep.

Fig. 2 Compost in Windrows

Compost pile

- Remove any covers.
- Mix the pile if possible.
- Dig samples from several depths and from the sides and top if the pile can't be mixed.

Fig. 3 Compost pile ready to sample

Enclosed container

- Take the container apart to take samples if possible.
- Take samples from the door openings or discharge end if the container can't be taken apart.
- Take samples from several depths.

Bagged

- Take subsamples from several different bags.
- Mix samples together to make a single final sample.

A good compost sample

- has the container lid taped closed
- has a label on each container identifying your name or the farm name
- comes from a compost pile that is well-mixed the same day it's sampled
- is taken from several depths within the pile, not at the surface
- isn't stored in a glass container
- is sent fresh to Laboratory Services as soon as possible, or is frozen if there's a delay

Fig. 4 Bags of compost

TIP

REMEMBER, the quality of the compost test report is only as good as the sample that you send to Laboratory Services.