

Bokashi Composting

WHAT IS BOKASHI COMPOSTING?

Bokashi composting is a two-step process that starts by fermenting food waste in a sealed container before composting it. Bokashi allows a greater variety of food waste to be composted, speeds up the composting process, and can be done indoors.

Bokashi composting developed out of traditional farming practices in East Asia. The particular mix of microbes used in modern bokashi composting were invented in Japan in the 1980s and are called Effective Microorganisms (EM).

HOW IS IT DIFFERENT THAN REGULAR BACKYARD COMPOSTING?

Backyard composting relies on aerobic microbes (which need oxygen) to break down organic matter. Bokashi composting starts by fermenting waste using anaerobic microbes (which don't need oxygen) before switching to the usual aerobic microbes for the second step.

Pros of bokashi composting:

- It can safely include a greater variety of food waste than backyard composting, including meat, bones, dairy and cooked foods.
- It can be done mostly or entirely inside, making it a good method for offices, schools, or apartments. The fermenting step is always done inside, and the composting step can happen inside or outside.
- Because the buckets are kept sealed, it reduces the risk of odours and pests, such as rodents and flies.
- Waste breaks down more rapidly than with most backyard composting. Food waste can be reliably broken down into finished compost in 1-2 months.

Cons of bokashi composting:

- It requires regular additions of bokashi bran or another EM inoculant to work. This bran will have to be purchased or mixed at home.
- It is meant primarily for food waste. It does not have enough room to deal with grass clippings, leaves, or other yard waste.
- It has a strong smell that some people find unpleasant.

Accepted in your bokashi compost:



Vegetable scraps

Fruit peels and pits



Grain products



Coffee grounds and tea bags



Eggs and eggshells



Dairy products



Bones



Meat



Cooked food

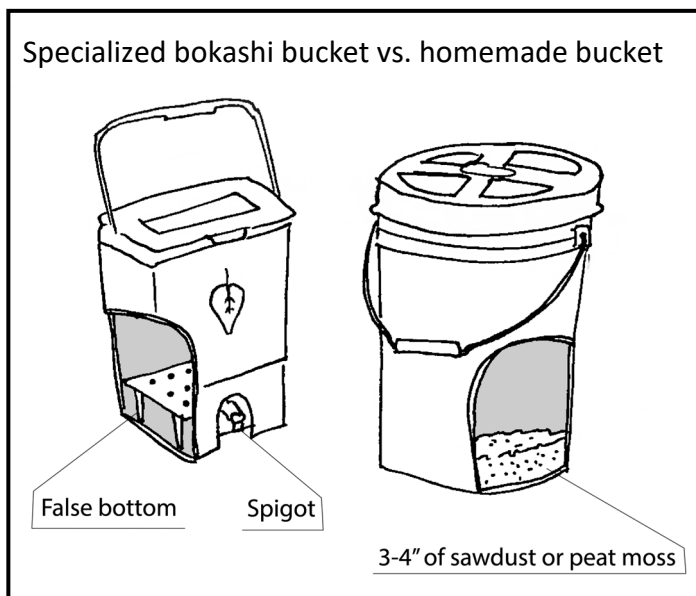
GETTING SET UP

Buckets

You will need at least two airtight buckets to ferment your food waste in. Although it is possible to buy specialized 'bokashi buckets' from online vendors, any 3.5 or 5 gallon food-safe pail will do. Plain buckets can be bought from most hardware stores. Some ice cream or smoothie shops may also have emptied food pails available.

While the food waste is fermenting, it will release some liquid that will settle to the bottom of the bucket. The

amount depends on how 'juicy' the food scraps are. Because the fermentation step works better when the materials aren't soaking in juice, it is important to deal with this liquid somehow. Specialized bokashi buckets and homemade bokashi buckets do this in different ways.



Specialized bokashi buckets typically include a false bottom and a small spigot, which should be used to drain the liquid out of the bucket every few days while the food waste is fermenting. While this liquid contains some nutrients and beneficial microbes, it is also quite acidic. It can either be significantly diluted with water (between 1:20 and 1:100) and used to water houseplants, or poured down the sink as a biological drain cleaner.

This liquid has a strong ammonia smell, which some home composters object to. Luckily for them, it is also possible to ferment the food waste without interacting with the liquid at all. Homemade bokashi buckets typically deal with the excess liquid by adding 3-4" of dry, absorbent material to the bottom of the bucket to soak it up. The most common material for this is sawdust (from untreated wood), but you can also use shredded newspaper, shredded cardboard, or crunched-up dry leaves.

Bran

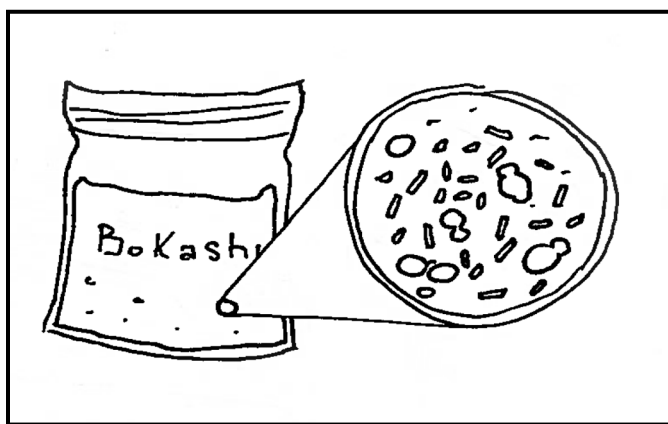
Bokashi bran is regular grain bran that has been inoculated with EM (if you are allergic to wheat bran, some bokashi suppliers can make batches from rice bran upon request). The microbes in it – a mix of lactic acid bacteria, photosynthetic bacteria, and yeast - are essential to ferment the food waste quickly and safely. These microbes give bokashi bran a light, yeasty smell similar to beer mash. Bokashi bran is safe to touch and even ingest.

Unlike many home fermentation processes, such as making sauerkraut, the microbes in bokashi bran are also able to ferment food waste without giving off gases. This is why pressure does not build up inside the pails.

In dried bokashi bran, the microbes are in a dormant state. If it is kept in a cool, dry place out of direct sunlight, it will stay effective for many years.

You may choose to make your own large batch of bokashi bran using a mixture of EM, water, molasses, and untreated bran. We will not cover the whole process here, but there are recipes available online.

Most bokashi composters find it is simpler to buy ready-made bokashi bran. You can check local gardening stores, or find companies selling bokashi bran online.



STEP 1: FERMENTING

Start with an airtight bucket with either 3-4" of absorbent material in the base or a false bottom and spigot.

Gather your kitchen scraps in a medium-sized bowl or container and empty it into your Bokashi bucket every couple of days (preferably before they begin to mold). Chop bulky items, such as watermelon rinds, into smaller pieces to avoid making large air spaces in your Bokashi bucket.

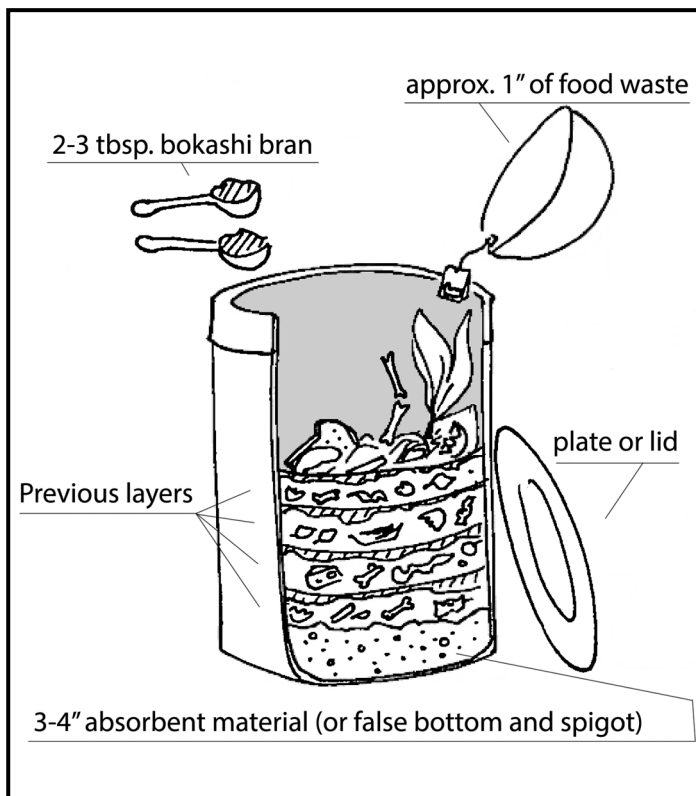
Add a small handful (about 2-3 tbsp.) of bokashi bran to the bucket after every 1-2" layer of food waste. Pack the food waste and bran down firmly to minimize air spaces. Although the bokashi bran and fermenting food waste are safe to touch with your hands, you will probably prefer to use rubber gloves or as a round plate to compress them. (To get the plate out again, simply press down on one edge to pop the other edge up). Other options include squashing the food down with a potato masher or a plastic grocery bag. Close the bucket tightly when you are done.

As the older layers of food waste begin to ferment, you will notice a vinegary or beery smell in the open bucket. This smell should not be noticeable when the bucket is closed. You may also notice white mold growing on the contents; this is a sign that the bokashi bran is working. Mold of another colour, such as green, blue, or black, is a sign that a different fungus is taking over in the bucket. If this is the case, try adding an extra big handful of bokashi bran for the next couple of days to give it a boost.

If you are using a bucket with a false bottom and spigot, remember to drain the liquid every few days.

Begin using your second bucket after your first one is full. If you find that it takes you less than two weeks to fill up a bucket, you will need to have more than two buckets in your rotation.

After two weeks fermenting, the buckets are ready for the second step. There is also no rush. As long as the buckets remain sealed, they are safe to store for several months or longer. It is also fine to let fermented waste freeze, if you want to put your bucket(s) outside in winter.

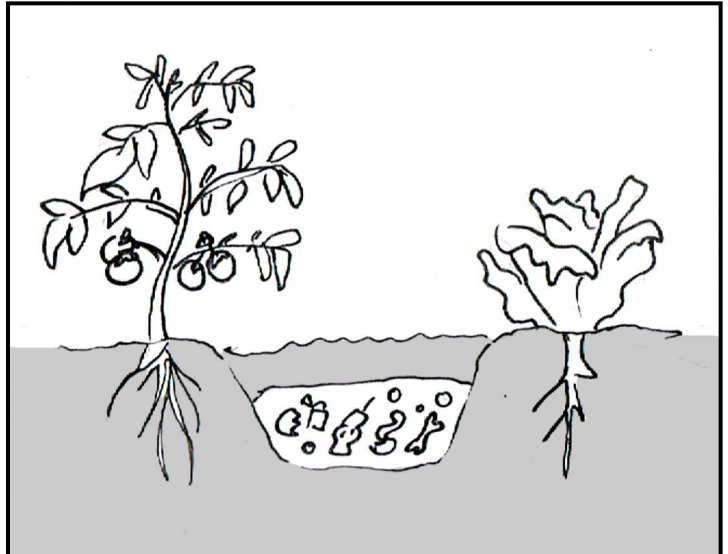


STEP 2: COMPOSTING

After fermenting for at least two weeks, your bokashi compost is ready for its second step: composting.

Although the fermented food will still resemble the original food, the cellular structure will have been changed and softened, which will allow it to break down quickly when composted using one of the following methods:

1. Bury it in a garden

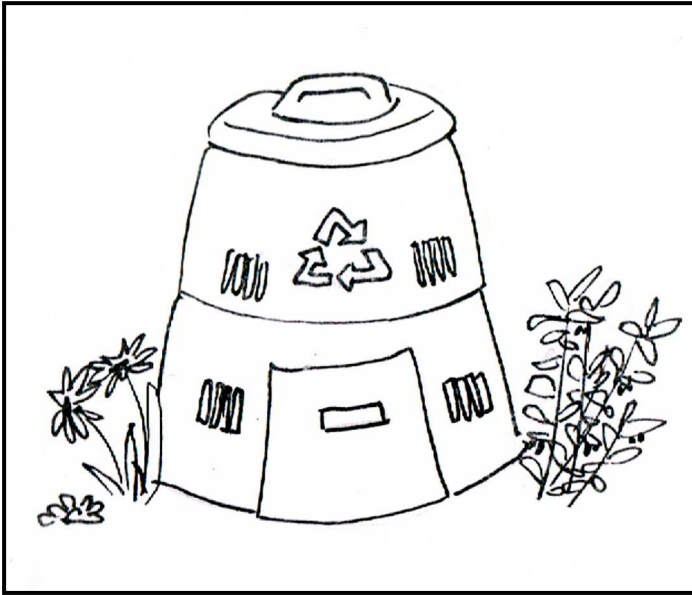


This method works well if you have at least occasional access to a garden space. If you do not have your own space, try asking a gardening friend or family member if they would like to use your bokashi material to enrich their soil.

Dig a 12-18" deep hole or trench in your garden and empty the fermented food waste into it. The food will be acidic for about one week, so make sure to bury it at least a few inches away from nearby plants. Stir a bit of soil in with the food waste and then cover it over with 5-6" of earth.

If you are worried about attracting rodents, inquisitive pets, or other animals, make sure to bury the waste under at least 8" of soil.

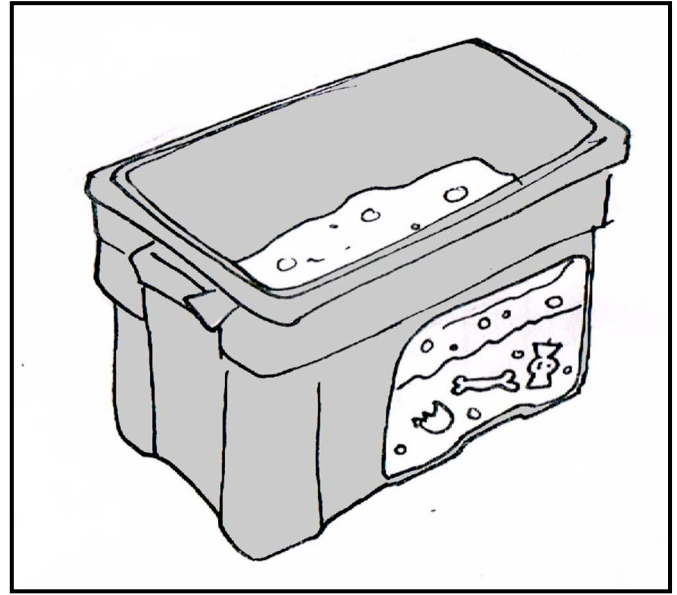
Aerobic soil microbes and other tiny critters will rapidly colonize and finish breaking down the fermented waste. Everything but the large bones should be totally dissolved within two to six weeks. After six weeks the area is safe to plant into. If you choose, you can also reuse the same spot in the garden to bury your bokashi waste over and over again. The finished compost will enrich the soil with moisture, nutrients, and humus.



2. Add it to a compost bin

Alternatively, you can add the fermented waste to an outdoor compost bin. Again, if you do not have your own bin, try asking someone you know who composts.

Because the fermented waste has a sour smell, try to blend it in with the material already present in the compost bin, or cover it with an armful of leaves. The smell will rapidly dissipate. Meanwhile, the wet, nitrogen-rich waste will act as an accelerator and help the whole compost bin break down more rapidly.



3. Use an indoor 'soil factory'

A 'soil factory' is the indoor variation of the burying method. You just need a large tub and some garden soil to get started. Do not use sterile potting soil for this; you are looking for earth that is full of microbes and other soil critters. Spread a couple inches of soil in the bottom of the tub. Pour in the contents of one bokashi bucket and blend it thoroughly with this soil. Then cover the mix with a couple more inches of soil.

Keep the tub somewhere out of the way indoors. You can put a lid on it loosely if you desire. After two weeks, you can check how the decomposition is going. After four to six weeks, the waste should be totally broken down and you can repeat the process with another bucket. As the soil and compost mix starts to fill up the tub, scoop some out to use as potting mix or scatter outside.

For more information about bokashi composting contact:

Saskatchewan Waste Reduction Council

#208—220 20th St. W.

Saskatoon, SK S7M 0W9

(306) 931-3242

compost@swrc.ca

www.swrc.ca/compost

One last note – what to do with a 'bad batch':

If you follow the steps, it is unusual for something to go wrong in a bokashi bucket. However, you can recognize a bad batch by a strong putrid smell and/or a lot of green, blue, or black mold. The best way to deal with this is to bury the waste a few inches deeper than usual, with more space left between the waste and any nearby garden plants. You can also throw a couple handfuls of bokashi bran into the hole. Soil microbes will even out the bad batch in a few weeks.