

BOKASHI COMPOSTING

STEP BY STEP GUIDE

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Topics Covered

- * Brief Intro and Overview
- * **STEP BY STEP INSTRUCTIONS AND EXAMPLES.**

Goal: You will be able to do this at home!

- * Resources
- * Questions/Contact Info

My Story...It all started with a green organics bin mishap.

- * Green organics bin just wasn't working out for our small household. We have no yard waste - only food waste. Amount of food waste was so small compared to the bin. Bin was smelly in the summer and needed extra cleaning. The bin wasn't getting picked up as scheduled. Seemed like a lot of hassle to process the small amount of food waste we had.
- * Ditched the organics bin and started worm composting and bokashi composting in 2021 and continue to do both forms of composting.
- * Graduated from Clark County Master Composter/Recycler program in 2023.



What is Bokashi Composting?

- * Bokashi - Japanese term for fermented organic matter.
- * Method of transforming food waste into organic matter (compost) that is rich in nutrients and microbes. Perfect for improving soil health.



No yard? No soil? No problem! There are options for you! :)

How does it work?

IT'S ALL ABOUT THE MICROBES!

Lactic acid fermentation

Acidic fermentation. Similar process for cheese, yogurt, kimchi.

Bokashi Bran

Mix of dried carbon material (wheat bran) and sugar (molasses). Inoculated with a beneficial bacterial culture called Effective Microorganisms (EM). Mixture is fermented to allow bacteria to multiply, then dried for storage.

Phase 1: Anaerobic Process - Fermentation



MICROBES IN THE BOKASHI BRAN consume food waste and turn the waste into pre-compost.

Microbes require an **anaerobic environment** - one that is free of or has little oxygen.

AIRTIGHT SEAL IS REQUIRED! NO AIR.

Phase 2: Aerobic Process - Composting



MICROBES IN THE SOIL consume the pre-compost and break it down into organic matter (compost).

Microbes require an **aerobic environment** - one that has oxygen.

AIR IS REQUIRED!

WILL IT SMELL?!?

This method ferments food waste under anaerobic conditions. **The fermentation process keeps the materials from rotting and becoming putrid**, as would occur under normal aerobic conditions. Think of pickles and kimchi. Bokashi pre-compost has a vinegar type smell - think of brewery or winery.

The answer is: NO. It will not smell like your stinky garbage can! :)

Why I love Bokashi Composting!

- * Very forgiving, flexible, and easy type of composting. Perfect for people with busy lives - doesn't require a lot of time.
- * **Great option for apartment/condo dwellers, houses with tiny yards.** Can be done without a yard. Deck/patio is sufficient.
- * **You can compost food waste that you can't typically put into a worm bin or compost pile.**
- * Great alternative to other types of composting:
 - * Worm composting. I love my worm bins, but they do require regular care and maintenance. Bokashi is much easier and less problematic.
 - * Backyard composting. I don't have to worry about carbon:nitrogen ratios, turning or heating up the piles, keeping consistent temps.
- * The lactic acid, anaerobic fermentation process **provides the benefits of hot composting** such as pathogen reduction, weed and seed suppression. Studies show that e. coli and salmonella cannot survive in this fermentation environment.
- * Instead of processing the waste far away, **I can process the waste in my own home and have my yard or container plants get the benefits.** Natural fertilizer, soil amendment benefits. Has benefits of other types of composting - helps restore depleted soils, improve plant growth, improve water retention, suppress pest and weed pressure, suppress plant disease.
- * Environmentally friendly method of processing food waste. Sequesters carbon in the soil. Greenhouse gases like carbon dioxide and methane are not emitted. Bokashi doesn't produce heat or gases. Keeps nitrogen in the final organic matter.

MY OPINION: END RESULT IS BETTER THAN ANYTHING I CAN BUY!

Step by Step Overview

1. Prepare the bin.
(1st time only).



2. Add food waste and bran to the bin.



3. Drain liquid from the bin.



4. Repeat 2 & 3 until bin is full.



5. Leave bin cure.



6. Process the fermented waste.



Road Map

STEP 1. PREPARE THE BIN. (FIRST TIME ONLY)

STEP 2. ADD FOOD WASTE.

STEP 3. DRAIN LIQUID.

STEP 4. REPEAT STEPS 2 & 3 UNTIL BIN IS FULL.

STEP 5. LEAVE BIN UNDISTURBED.

STEP 6. PROCESS THE PRE-COMPOST.

Before You Begin

Required

- * Bokashi bin
- * Bokashi bran



Optional

- * Device to press down food waste and remove air pockets such as potato masher.
- * Paper to line the bottom of bin.
- * Cover for top of food to keep air off the top level. (Saran Wrap, foil, plastic bag, etc.)



Step 1. Start the bin.

Required first time starting bin only. Assemble the bin if required. Ex. Might have to add spigot.

1. Make sure spigot is on tight & closed.



2. Add strainer plate.



3. Add paper liner to the bottom of bin.



4. Add 1-2 tbsps bokashi bran.



TIP: Paper liner is optional for the strainer plate. Helps to prevent small particles from settling at the bottom of the bin and clogging the spigot. One layer of paper is sufficient.

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Step 2: Add Food Waste.

1. Set out equipment before opening bin.



2. Add 1-2 inches of food waste.



3. Lightly press down the food waste to remove air pockets.



TIPS:

Limit amount of time lid is off as this is anaerobic process!

If adding a lot of waste at once, repeat this process for every 1-2 layer of waste.

If you don't cover the top of the waste, white mold will form.

4. Add layer of bokashi bran. ~2 tbsps.



5. Cover top of waste and SEAL BIN.



IMPORTANT!
Airtight seal is critical. If air gets in the bin, the bin may fail.

What to Add in Bin

- * **COOKED FOOD** including **MEAT** and **BONES**. (Including food cooked in oils/grease.)
- * Non-liquid dairy products such as cheese, yogurt.
- * **Citrus**.
- * **Breads, grains, pasta, desserts**.
- * Coffee. Egg shells.
- * Fruits and veggies.
- * Anything that can go into a worm bin or outdoor compost pile.

FOOD ONLY!

Microbes in the bokashi bran feed off of sugars and carbs in food waste.



What NOT to Add in Bin

In most cases, “if you can eat it, it can go in the bin”. However there are a few exceptions:

- * Liquids. (Milk, smoothies, dressings, sauces, *soup)
- * Green moldy food or rotted food.
- * Grease, oils. (Liquid). Ex: Oil used to cook fries - NO. Fries cooked in oil - YES.
- * Carbon or paper waste such as paper napkins, paper towels, shredded newspaper, shredded paper. Add to soil mix later.

TIP: For soups or stews, drain excess liquid. Crush pumpkin seeds or other hard shell seeds.



Important! Too much liquid can cause the bin to fail.

Tips and Tricks

- * Frequency of loading. Try to load only once per day or longer if possible. Ex. Every other day or once per week.
- * **Keep lid on at all times.** Only remove lid while loading bin. Load the bin and then seal it right away. Do not keep lid off for prolonged periods of time. Minimize the amount of oxygen that the bin is exposed to.
- * **Chop food waste into smaller pieces.** Provides more surface area for the microbes in the bran to work on. Avoid adding larger pieces of waste as they take longer to ferment.
- * **White mold is OK.** Beneficial fungi that is part of fermentation process. However, sign that air is getting in bin or on sections. Keep white mold sections - make sure to cover top layer of food completely.
- * **Dark-colored mold (Black, Blue, Green) IS NOT OK.** Sign of rotting or putrefaction. (Too much air/liquid, not enough bran, large sizes of food, temperature, etc) Remove dark moldy sections.



Tip: Too much bran is never a problem, too little bran can be!



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Step 3: Drain Liquid.

Liquid is coming from moisture in the food. If there is too much liquid, the bin can fail.

- * May take a few weeks to have enough liquid to drain.
- * Drain on a regular basis, ex weekly. Consider usage of extract.

TIP: Tilt the bin to drain more of the excess liquid. Leave cup below at all times in case of drips.



Average amount of liquid. If you are getting more than this, drain the liquid more often.

Liquid Usages

Bokashi liquid makes a terrific fertilizer as it is full of nutrients and alive with beneficial micro-organisms. It also helps to prevent algae build-up in drains.

Examples:

- * Drains (sinks, showers, toilets)
- * Septic tanks
- * Plants, shrubs, garden, lawns.
IMPORTANT: DILUTE! DILUTE! DILUTE!
- * Best if used within a few hours of draining. Can keep liquid in a sealed bottle and use within 24 hours.

Dilution Ratio

To use as a fertilizer in the garden, dilute with water first. The liquid will be higher in acidity due to the lactic acid fermentation process.

Dilution rate is 100 parts water to 1 part bokashi liquid.

Ex. 100 cups water to 1 cup bokashi liquid.

For a standard 2 US gallon watering can:
Add 4 fluid ounces (or about 1/2 cup) of bokashi liquid.



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Step 4: Repeat Last Two Steps

- * Fill, Drain, Repeat until bin is Full.
- * Depending on how much food waste you have, it can take a few weeks or few months to fill.

TIP: Not necessary to fill to the top if you want to use the pre-compost earlier. For example, if going out of town for extended period or wanting to add pre-compost to new plantings.

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Step 5: Cure the Bin

Microbes in the bran continue to break down the organic waste.

- * Do not open bin for minimum of 14 days or 2-3 weeks. Anaerobic process.
- * Store at room temperature out of direct sunlight. Extreme outdoor temps may impact bin.
- * Optionally, start 2nd bokashi bin while this 1st bin cures. Or, save food waste until you process this bin.

Important: Continue to drain the liquid.

TIP: You can leave bin for months as long as you do not open the lid and expose it to oxygen. Once open, you should process all of the pre-compost.



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Step 6: Process the Pre-Compost

Visual appearance does not look very different. However, on a microscopic level, the food is changed a lot.

Examples of what the pre-compost looks like after the fermentation period.



Step 6: Options to Process the Pre-Compost

Mix the pre-compost with soil. The microbes in the soil will transform the waste into the final compost.

Option 1:

Process in or above ground.



Option 2: Process in a container.



Option for apartments/condos.
Houses with small yards.

Tip: Mix Pre-Compost and Soil

Not required, but the pre-compost will break down faster if you mix it with soil first. Mixing allows more surface area of the pre-compost to be in contact with the soil microbes.



Time to break down depends on outside temps. The microbes work faster in warmer weather versus cold weather. Pre-compost breaks down faster in the ground than in containers.

Option 1: Process in the Ground

Weeks after adding pre-compost into ground, the pre-compost will become soil-like, providing both organic matter and plant nutrients to the soil. Plant 6-8" in ground and cover with soil.

Examples:

- * Plant all in one location.
- * Divide and plant in multiple areas.
- * Select small area in yard and rotate plantings in that area. (Like square foot gardening.)
- * Add to raised garden beds.
- * Add to compost bins, compost piles, or compost lasagna garden.



YouTube “Sara at Skillnaden’s” - Fertilize with leaves and bokashi in my polytunnel”

<https://youtu.be/ffEtjndtNqs?si=aFHD1SoaeXAJvN-v>

Option 2: Process in Container(s)

AKA “Soil Factory”

Container such as a planter pot, compost tumbler, rubber mate tote, plastic bin, garbage can. For example, you can process in one container such as 20 gallon garbage can or multiple containers such as several 5 gallon planters.



“Soil Alternatives” for Soil Factories

If you don't have a backyard or you don't have enough soil. **Even just one or two handfuls of soil are helpful!**

- * Old potting soil from container plants or raised garden beds. (Soil can be any condition, including roots and dead materials)
- * Bagged soil/compost. (No added fertilizers/amendments)
- * Top soil or dirt from external source. (Free listings on marketplace/craigslist)
- * Unfinished or finished compost.
- * Leaves or leaf mold.
- * Composted manure.
- * Worm castings. (Handful)
- * Coffee grounds
- * Carbon sources. (Shredded newspaper, paper, or cardboard. Paper napkins, paper towels.)

TIPS:

- When you start your bokashi bin, you can simultaneously start your soil factory! Ex. Add coffee grounds and shredded paper in a container and add 1-2 tbsps of bokashi bran. This gives you several weeks to accumulate materials. (Bran is also a compost starter.)
- After you create the first soil factory, use the results for the next soil factory.

Soil Factory Tips

Mixing Ratios

- * Soil: Mix 1 part bokashi to 2 parts soil.
- * “Soil alternative”: 1 part bokashi; 1 part soil; 1 part “soil alternative”.

Layering

- * Bottom layer = soil.
- * Middle layer = pre-compost.
- * Top layer = soil.

(Bonus during fall is to top off this layer with handful of leaves!)

Planting

- * Optionally, you can plant directly into the container after **two weeks**. (Time it takes for acidity levels in pre-compost to return to neutral.)

Other Tips

- * Ideally, have holes at bottom of container and put directly on soil. This allows beneficial microorganisms and natural decomposers to enter bin. You will get lots of worms this way!
- * Keep protected from excess rain. Make sure to have drainage holes if exposed to weather.
- * For closed containers, add ventilation as this is an aerobic process that requires oxygen. For ex. garbage can with lid - add ventilation holes at the top and on sides for air. Mix on a regular basis to ensure there are no anaerobic pockets at bottom of bin.



SOIL FACTORY EXAMPLE (COMPOST, OLD POTTING SOIL, AND LEAVES)

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Cost / Benefit Analysis

SHOP AROUND!
Look out for holiday sales and other promotions.

Initial Costs

- Bokashi bin, bokashi bran.

Sample Costs - Starter Bins

- Teraganix. \$42 for 2 bins and 5 lb bran.
- SCD Probiotics. \$68 for 1 bin and 2 lb bran.
- Bokashi Living. \$88 for 1 bin and 2.2 lb bran.

*Regular prices. Does not include sales, promotions, subscriptions.

Alternatives

- Purchase used bokashi bin.
- Make your own bokashi bin.

Ongoing Costs

- Bokashi bran

Sample Costs - Bran

- SCD Probiotics. \$15 for 2 lb bag.
- Teraganix. \$15 for 2 lb bag.
- Bokashi Living. \$19 for 2.2 lb bag.
(Each 2.2 lb bag of bran is enough to ferment 5 bins.)

*Regular prices. Does not include sales, promotions, subscriptions. Bulk pricing is less than individual bags.

Alternatives

- Buy in bulk/share with others.
- Make your own.

Benefits/Cost Savings

- Organics bin (if food waste only)
- Compost
- Soil amendments and fertilizers
- Potting soil
- Environmental benefits of processing waste at home versus offsite and improving your soil health.

My experience

Before I started composting, I paid for organic waste removal, paid for compost, and paid for potting soil. Now I only pay for bran and I get additional bonus of the liquid extract.

Resources - Vendors

(Not official endorsements - examples only.)

- * Bokashi Living.

<https://bokashiliving.com/>

- * Teraganix

<https://www.teraganix.com/collections/bokashi-composting-supplies/products/bokashi-food-waste-recycling-system>

- * SCD Probiotics

https://www.scdprobiotics.com/products/all-seasons-indoor-composter?srsItid=AfmBOopxrbw7kC_8IHegdU-thjMZEL-9WSrrDQaTPfbsIBUQqttoWm7i

Resources - Educational

- * **In Person Bokashi Composting Demo:** Good Year Farms, Washougal. Date: Sat Nov 30, 2024. Times TBD. *Bring food waste to the event to use as part of the demo!

- * **Solana Center for Environmental Innovation** - Great overview of bokashi. (5 minute read.)

<https://solanacenter.org/bokashi-method/>

[#:~:text=The%20process%20uses%20lactobacillus%20bacteria,from%20going%20to%20the%20landfill](https://solanacenter.org/bokashi-method/#:~:text=The%20process%20uses%20lactobacillus%20bacteria,from%20going%20to%20the%20landfill)

- * **“Sara at Skillnaden’s” YouTube** playlist on Bokashi. (Favorite source of bokashi videos.)

[https://youtube.com/playlist?](https://youtube.com/playlist?list=PLNCaNgeXTd0HhjF1joavbwhcl6u7zS_Ky&si=mSFp2nRZf_ICdMpG)

[list=PLNCaNgeXTd0HhjF1joavbwhcl6u7zS_Ky&si=mSFp2nRZf_ICdMpG](https://youtube.com/playlist?list=PLNCaNgeXTd0HhjF1joavbwhcl6u7zS_Ky&si=mSFp2nRZf_ICdMpG)

- * **Bokashi Living.** (Good instructions and community forum.)

<https://bokashiliving.com/composting-meat-bones-and-cooked-food/>

<https://bokashiliving.com/make-simple-soil-factory/>

Questions? Problems?

- * Email: bokashijen@gmail.com
- * Social: @bokashijen. Facebook, Instagram.

(New accounts - content coming soon!)