

# TECHNICAL FACTSHEET

## BOKASHI

Bokashi is an organic fertilizer that originates from Japan, created through the fermentation of organic materials. It serves as a nutrient-dense soil amendment, is simple to produce, and is especially beneficial for small-scale farmers.

Accessible and cost-effective, bokashi offers a compelling alternative to conventional composting and costly mineral fertilizers. It utilizes the power of effective microorganisms that expedite the breakdown of organic matter, resulting in a nutrient-rich fertilizer teeming with beneficial microbes in just 15 days, as opposed to the 2-3 months typically required for a standard compost pile or sloped surface.

This technique, easy to replicate and economical, is even suitable for small-scale producers in the arid and semi-arid regions of West Africa.

Bokashi provides several benefits, including:

- Affordable and straightforward technological procedure.
- Utilization of local organic waste, minimizing its buildup.
- Capacity to generate small or large quantities as required.
- Enhanced soil composition and nutrient content.
- Enhanced climate resilience by improving water retention and boosting productivity.

Ultimately, bokashi is a technology that is inclusive and sensitive to gender: its straightforward production can be undertaken by women and youth, enabling them to engage actively in sustainable fertilization and the management of natural resources.

### PHASE 1: NECESSARY TOOLS AND INGREDIENTS FOR PREPARING BOKASHI

Required tools include a wheelbarrow, a shovel, a bucket, and a watering can.

Bokashi components:

- Clay makes up one-third of the volume of bokashi, helping retain moisture, promoting homogeneity, and holding ammonia.
- Manure (from cow, sheep, or goat) is a source of nitrogen, phosphorus, and beneficial fungi.
- Rice hulls or rice straw enhance the volume of bokashi, improve soil structure, and retain moisture, thereby facilitating infiltration and root development.

- Rice bran, corn bran, millet bran, sorghum bran, peanut shells, or other grain bran offer vitamin B, minerals, and proteins.
- Charcoal powder retains moisture, captures minerals, enhances soil structure, supplies oxygen, supports root development, encourages microbial activity, and stabilizes humus, which holds micronutrients.
- Ash or bone meal aids in mineral variety.
- Yeast is a source of microorganisms and a catalyst for biological decomposition (fermentation).
- Brown sugar (molasses) is a source of energy for microorganisms and stimulates microbiological activity.
- Water, from sources such as a river, well, borehole, etc., is used for moistening when mixed with molasses and yeast.

#### Process:

- Layer the materials in the following sequence, moistening each layer with the mixture of sugar, yeast, and water: clay, rice hulls, manure, poultry droppings (optional), rice bran or other grains, charcoal powder, and ash or bone powder.
- Continue in the same manner for the second level, followed by a third level or beyond, until the total height reaches 1.2 m (three levels or more).
- Use the shovel to turn over the pile, ensuring that the various elements are mixed thoroughly. If dust is generated, add a small amount of water.
- Subsequently, cover the mixture with straw or dry grass, an old mat, or neem leaves, which should be kept in a shaded area.

### PHASE 2: BOKASHI PRODUCTION PROCESS

**Note: Bokashi should be prepared in a shaded area, protected from rain.**

- Prepare the brown sugar (molasses) by mixing it with water and baker's yeast in a separate container. If feasible, transfer this mixture into a watering can. This solution will serve to moisten the other ingredients as you proceed.
- Handle and hydrate the manure when it is dry. (Break apart the dry dung and lightly sprinkle it with water to stimulate microbial activity.)

## PHASE 3: MAINTENANCE AND MONITORING OF BOKASHI MATURITY

Turning the bokashi is essential, as this facilitates aeration, reduces heat, eliminates moisture, and ensures the microorganisms are evenly distributed.

- For the initial 3 days, Bokashi must be turned two times a day, once in the morning and once in the evening.

*Note, however, that if the pile is not turned over on the morning of the third day, a whitish layer rich in directly assimilable nitrogen will be visible by the evening. This layer can serve as a biofertilizer in the following manner: Combine 2kg of this powder with 15L of water, incorporate 200 ml of molasses, allow it to rest for 12 hours, and then filter. Dilute the solution in 100L of water for direct application to leaves.*

- At each turn, texture and moisture can be assessed by squeezing a small amount of the bokashi to observe the water content.
- Check the temperature of the bokashi by touching the pile. If you find that your palm cannot remain in contact with the material for 5 minutes, this indicates that the bokashi needs turning over again, without added water.
- Ensure that there are no flies, unpleasant odors, or excessive humidity. The optimal temperature should be approximately 47°C.
- Never add water after preparation. (This is extremely important.)
- Following the fourth day, the mixture should be turned once daily for a duration of 11 days.
- After 15 days, the bokashi is ready to be utilized.
- The bokashi can also be dehydrated and kept in bags for preservation for as long as 2 years.

## REFERENCES

- Abo-Sido, Nisreen. *Analysis of the nutrient composition, efficacy, and sustainability of bokashi fertilizers*. Diss. Wellesley College (2018).
- Houenou, A.C.E., et al. "Assessment of the effectiveness of bokashis, compost, and biopesticide solutions on the productivity of Amaranth (*Amaranthus hybridus*) in Southern Benin." *Journal of Horticultural Science and Research* 4.1 (2021): 161-70.
- Footer, Adam. *Bokashi Composting: Scraps to Soil in Weeks*. New Society Publishers (2013).
- Cascade training report for technical agents on Integrated Soil Fertility Management as part of the Soil Values program's field activities in Burkina Faso, Mali, Niger, and Nigeria (June 2025).

## TYPES OF BOKASHI

There are three types of bokashi:

- 15-day bokashi = mature.
- Bokashi spread and dried on the ninth day and utilized on the 10th day = semi-raw.
- Bokashi spread and dried starting from the fourth day, followed by usage = raw.

It is important to note that in specific situations, raw and semi-raw products may lead to burns on the roots of plants and seedlings.

Crop	Area	Quantity of ingredients	Estimated quantity of bokashi (metric tons)	Application rate* (g/m <sup>2</sup> )
Cereals	1 ha	20 bags (25 kg each) of clay, manure, and rice husks; 10 bags of charcoal powder or ash; 1 bag of rice bran; 1 kg of baker's yeast; 4 liters of molasses or 2 kg of sugar; and 60 liters of water	1.5	150-1000
Legumes				150-1000
Market gardening				300-3000
Cereals	0.5	10 bags (25 kg each) of clay, manure, and rice husks; 5 bags of charcoal powder or ash; 0.5 bag of rice bran; 0.5 kg of baker's yeast; 2 liters of molasses or 1 kg of sugar; and 30 liters of water	0.75	150-1000
Legumes				150-1000
Market gardening				300-3000
Cereals	0.25	5 bags (25 kg each) or 3 wheelbarrows of clay, manure, and rice husks; 2.5 bags of charcoal powder or ash; 2.5 bags of rice bran; 0.25 kg of baker's yeast; 1 liter of molasses or 0.5 kg of sugar; and 15 liters of water	0.375	150-1000
Legumes				150-1000
Market gardening				300-3000
Fruit tree nursery	-	-	-	Ratio of Bokashi to soil: 1/4
Fruit tree	-	-	-	3000-5000

\* Rates are calculated according to the latest guidelines for compost in the sub-region.

\*\* The quantity of water can be modified based on the moisture level of the materials. The blend must be adequately damp to initiate the decomposition process. (A small amount of the product in your hand should not result in water flowing through your fingers.)



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