

Bocashi-type organic fermented fertiliser

Bocashi-type fermented organic compost **is the result of an aerobic semi-decomposition of organic waste**, it is carried out by microorganisms that produce a partially stable material with slow decomposition. This product can **fertilise plants and, at the same time, improve the soil**. The word Bocashi comes from Japanese and means to cook the compost materials taking advantage of the heat that is generated with its aerobic fermentation.

■ Ingredients and preparation of Bocashi-type fermented organic compost

The main ingredients used to make Bocashi-type fermented organic compost are:

- **Vegetable carbon:** improves the physical characteristics of the soil, which facilitates the best distribution of the roots, aeration and absorption of humidity.
- **Manure:** the main source of nitrogen in the production of fermented organic fertilisers.
- **Rice husk:** improves the physical characteristics of the soil by facilitating aeration, moisture absorption and nutrient filtering.
- **Rice bran:** encourages the fermentation of organic fertilisers and is very rich in nutrients such as phosphorus, potassium, calcium and magnesium.
- **Cane molasses:** the main energy source for the fermentation of organic fertilisers and encourages the multiplicity of microbiological activity.
- **Forest humus:** the main source of microbiological inoculation for the production of fermented organic fertilisers.
- **Common soil:** has the function of giving greater physical homogeneity to the compost and distributing its humidity.
- **Dust from rocks and ashes:** they provide minerals.
- **Water:** ensures the homogenisation of the humidity of all the ingredients that the compost comprises.

The ingredients are mixed by placing different layers of the different dry components and, at the end, the entire mass is turned over until a balanced mixture is obtained (**Figure 1**). Then water is added to achieve the desired humidity. Once the mixture of all the ingredients of the compost is finished, the dough is left on the ground with a height of one and a half meters **for three days to start fermenting**. During these first three days the mixture is turned 2 times a day



Figure 1. Mix of the different ingredients to prepare Bocashi-type organic compost.

to prevent the temperature from rising excessively. After the first three days, the mixture spreads to form a covering about 30 cm thick. In the first few days it is turned once a day using a rototiller. Over the days, the turning time is spaced out. After 15 days, the fermented organic compost has already matured and its temperature is equal to room temperature. At this time its colour is light grey, with a sandy powdery appearance (**Figure 2**).



Figure 2. Final appearance of Bocashi-type organic fertiliser.

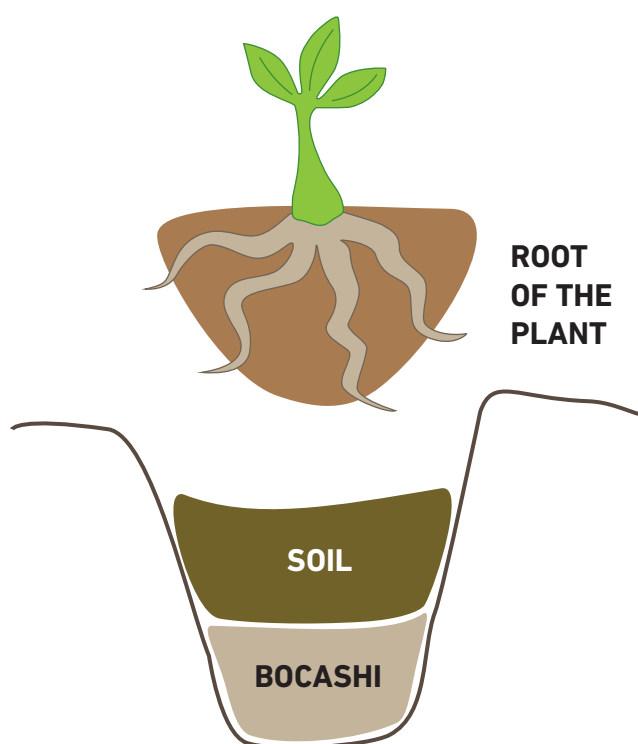


Figure 3 . Application of Bocashi-type organic fertiliser.

■ Application of Bocashi-type fermented organic compost

There are different ways of applying Bocashi organic fertiliser. For its use in the orchard we propose **placing the fertiliser directly at the base of the hole where the plant will be placed** during transplantation. The compost is applied directly and **covered with a little soil** so that it does not directly contact the root of the plants (Figure 3).

The amount of fertiliser applied to crops is conditioned by different factors, such as the fertility of the farmland, the climate and the nutritional needs of the plants to be cultivated. **Fertiliser doses vary depending on the crop** (Table 1). Regardless of the quantity, **once the organic compost has been applied, it must be covered with soil** so that it is not easily lost and thus obtain better results.

Table 1. Bocashi-type fertiliser doses recommended for some crops.

Crop	Suggested dose
Tomato	125 g in the base
Onion	25 g in the base
Betroot	100 g in the base
Lettuce	50 g in the base
Cucumber	50 g in the base

■ Storage of Bocashi-type compost

Concerning its storage, normally farmers prepare organic fertilisers according to the immediate needs of their crops. For this reason, **it is not very common to keep them for more than two months** before applying it in the field. If it is stored for a longer time, it is advisable to store it under a cover to protect it from sun and rain.

■ Benefits of Bocashi-type fermented organic compost for farms and the environment

- **It can be made in most environments and climates** where agricultural activities are carried out.
- **The materials with which it is made are well known** by farmers and easily available locally.
- **It does not require a very high financial investment** in infrastructure.
- Plant growth is stimulated by a series of **natural phytohormones and phyto regulators** that are activated through these fermented fertilisers.
- Through the inoculation and reproduction of native micro-organisms present in the soil, **the materials are gradually transformed into excellent quality nutrients** available to plants.