

BSF frass: a natural superfertilizer for better yields



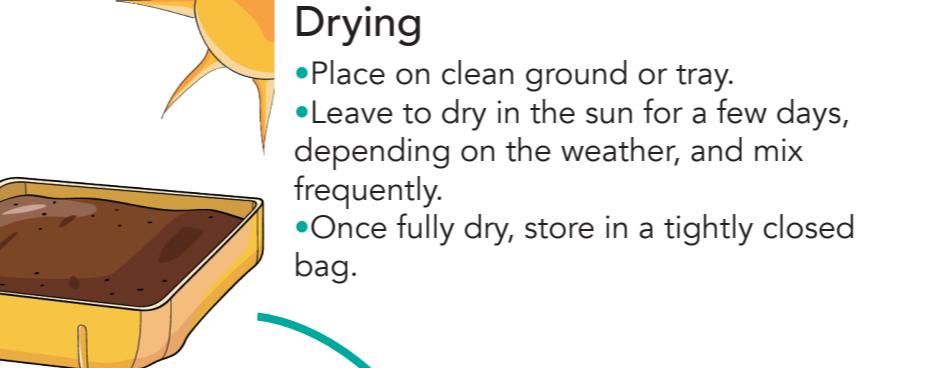
Manure
Exuviae
Uneaten feed
Dead BSF

Nutrients	BSF frass fertilizer (%)	Cattle manure (%)	Chicken manure (%)
Nitrogen (N)	0,6 - 5,1	0,3 - 1,6	0,6 - 1,6
Phosphorus (P)	0,2 - 5,2	0,1 - 0,3	0,1 - 0,7
Potassium (K)	0,2 - 4,5	0,2 - 1,1	0,1 - 0,7

(FAO, 2005; Lomonaco *et al.*, 2024)

- **Nitrogen (N):**
 - Helps leaves grow and stay green.
 - Increases plant height.
- **Phosphorus (P):**
 - Strengthens roots.
 - Improves stem growth.
 - Increases yield (fruits and vegetables).
- **K (Potassium):**
 - Improves plant health.
 - Protects against diseases.
 - Enhances quality of fruits and vegetables.

When the waste is fully decomposed, it can be used immediately.



Drying

- Place on clean ground or tray.
- Leave to dry in the sun for a few days, depending on the weather, and mix frequently.
- Once fully dry, store in a tightly closed bag.



Usage

- Smaller amounts needed because it is richer in nutrients.
- Can be used on all crops: maize, rice, vegetables,...

Crops	BSF fertilizer amount (kg/are)	Cattle manure amount (kg/are)
Rice	35	100
Vegetables	50	150

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Harvesting

- If there is still a lot of rice bran or leftover waste that hasn't been decomposed, it should be turned into compost.



How to process BSF frass



Composting

- Layer the different elements alternately.
- Water every 7 days.
- Turn every 15 days.
- After 5-8 weeks, compost is ready when it has no bad smell, dark in color, and soft.



Benefits for livestock farming

- Reduces spending on animal feed.
- Supports faster growth and healthy weight gain in animals.
- Improves animal growth, health, and product quality (meat, milk, eggs).
- Leads to better food for people due to higher-quality products.
- Increases overall production, improving livelihoods.



Benefits for agriculture

- High-quality natural fertilizer.
- Improves soil and increases crop yield.
- Saves money; reduces fertilizer costs for farmers.
- Strengthens natural defenses: helps plants protect themselves against diseases and pests.