

Bio4HUMAN – Identifying bio-based solutions for waste management applicable to the humanitarian sector

Bio-Based Solution Info Sheet

BLACK SOLDIER FLIES (BSF)



Baseline alternative

Traditional waste management methods.



General description

The Black Soldier Fly (BSF) helps turn organic waste into high-protein and fat-rich animal feed for livestock, fish, and pets. Its larvae eat the waste, reducing it by 50–80%, and can be harvested after about 14 days. Up to 20% of the waste is converted into useful biomass. The larvae are processed into feed, and the leftover material (frass) can be used as compost or soil conditioner.

A BSF facility includes steps like waste preparation, feeding larvae, separating them from residue, and turning both into useful products.



Cost

Smallest units start at a few hundred EUR .



Environmental aspects - added value

- **Waste Reduction:** BSF larvae consume large amounts of organic waste, significantly reducing waste volume by 50–80% and easing pressure on landfills.
- **Lower GHG Emissions:** BSF farming produces far fewer greenhouse gases than traditional livestock and minimizes emissions from waste transport and decomposition.
- **BSF production** requires little land and water, making it ideal for space- and resource-constrained settings.
- The leftover frass can be used as an organic fertilizer, improving soil health, and reducing reliance on chemical inputs.
- **Fishmeal Alternative:** BSF protein replaces fishmeal in animal feed, helping reduce overfishing and protect marine biodiversity.



Additional comments

- BSF larvae require a warm, stable climate and thrive in temperatures between 24 and 30°C. Consistent humidity is also crucial, with optimal levels above 60%.
- The technology is already widespread across the African continent – present in Ghana, Namibia, Mozambique, South Africa, Uganda, Ethiopia, Ivory Coast and Botswana.



SCAN FOR BIO-BASED SOLUTIONS PORTFOLIO OF ALL SOLUTIONS

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