



B-BOX

Treating organic waste with BSF in zero distance

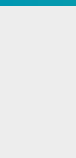


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MISSION & VISION

The global organic waste problem poses significant environmental, economic, and social challenges. Over 1.3 billion tons of organic waste are generated annually, much of which is inadequately managed. Traditional disposal methods, including landfilling and incineration, contribute to greenhouse gas (GHG) emissions, particularly methane—a potent climate pollutant. Moreover, these practices miss opportunities to recover valuable nutrients and energy, aggravating global resource scarcity. The need for innovative, scalable, and sustainable waste management solutions has never been more pressing.

A decentralized approach to managing organic waste, utilizing black soldier fly (BSF) farming, offers a transformative solution. BSF larvae efficiently convert organic waste into high-value products such as protein-rich feed and organic fertilizer. By integrating a one-stop BSF farming treatment device, communities and businesses can address waste at its source, significantly reducing logistical burdens and costs associated with centralized waste systems.

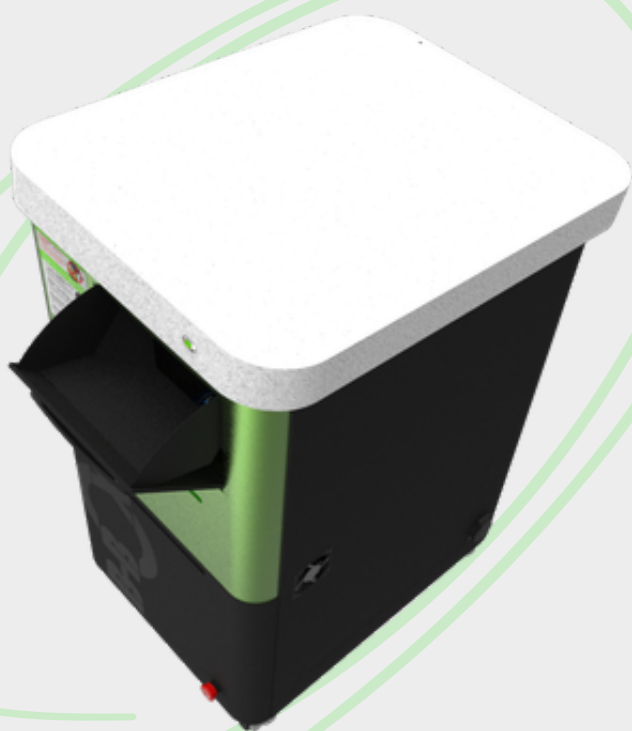
B-BOX mitigates the dependency on energy-intensive transportation and processing methods, further reducing the carbon footprint. This aligns with the principles of circular economy by transforming waste into reusable resources, creating a closed-loop system that minimizes environmental impact and maximizes utility.

A critical advantage of BSF farming in addressing climate change is its contribution to GHG emissions reduction. Methane emissions from landfills are avoided, and the device itself operates with minimal energy requirements. Moreover, by replacing conventional animal feed with insect-derived protein, the solution indirectly reduces deforestation and emissions from agricultural expansion.

B-BOX aligns with the Taskforce on Nature-related Financial Disclosures (TNFD) standards by promoting biodiversity, sustainable resource use, and ecosystem restoration. BSF farming converts organic waste into nutrient-rich products like animal feed and fertilizer, reducing dependency on environmentally harmful practices such as overfishing for fishmeal and the use of synthetic fertilizers that degrade soil health. This process helps mitigate habitat destruction, deforestation, and pollution—key drivers of biodiversity loss.

THE DESIGN

B-BOX is an innovative one-stop solution designed to address organic waste management through a sustainable, circular system powered by black soldier fly (BSF) farming. This compact device transforms organic waste into valuable byproducts, leveraging BSF larvae's efficiency in breaking down waste into high-protein biomass and nutrient-rich frass fertilizer. By integrating advanced technologies such as IoT sensors and automated control systems, the B-BOX ensures optimal farming conditions for BSF while minimizing environmental impact.



Central to B-BOX system is its IoT-driven capability, enabling precise monitoring and control of critical parameters such as temperature, humidity, and waste input levels. These sensors maintain the ideal environment for BSF larvae to thrive, ensuring high efficiency and consistency in the conversion process. Users benefit from the automation of farming conditions, allowing them to focus on maximizing output without the need for constant manual intervention.

The IoT dashboard, B-BOX DASH, is an intuitive platform that consolidates all sensor data into a single interface. Users can visualize real-time metrics, access historical trends, and gain insights into system performance. This centralized dashboard simplifies farm management, offering actionable data at a glance. Additionally, B-BOX DASH features an intelligent notification system that alerts users to abnormal conditions, such as temperature overheat or overfilled waste compartments, ensuring timely corrective actions.

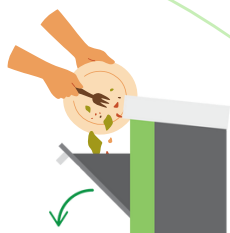


B-BOX system culminates in the extraction of frass, a nutrient-rich organic fertilizer. This fertilizer can be directly used in agriculture, completing the circular loop by returning nutrients back to the soil. By providing both waste disposal and fertilizer production, B-BOX eliminates the need for traditional waste management methods, reducing emissions and creating a self-sustaining cycle of resource utilization.

THE MECHANISM



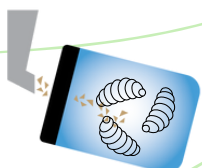
Food waste are collected and drained in the buckets to avoid excess liquid into B-BOX. The drained waste do not require to be totally dried.



Open the disposal tray door, dispose the drained food waste into B-BOX.



The shredder will turn on once the tray door is locked to ensure safety.



The shredded food waste will enter the BSF farming container.



The food waste disposed is weighed



The larvae will begin consuming the shredded food waste, and convert them into frass.



The temperature and humidity sensing devices monitor the limits of the farming environment, and triggers ventilation system to activate if necessary.



The contents inside the farming container will be replaced once per two weeks to ensure the larvae are not to the adult stage



The equivalent amount of frass fertilizers will be returned to our customer

SERVICES



ALL-IN-RENTAL

B-BOX rental package offers a comprehensive, all-in-one solution tailored to meet the needs of efficient and sustainable waste management. Subscribers benefit from twice-monthly exchanges of Black Soldier Fly (BSF) larvae, ensuring consistent waste processing and optimized performance. Additionally, users gain access to B-BOX DASH account, which provides insightful Key Performance Indicator (KPI) reports to monitor and improve operations effectively. The package also includes off-site software and sensors check-ups, guaranteeing seamless functionality and addressing any potential issues proactively.

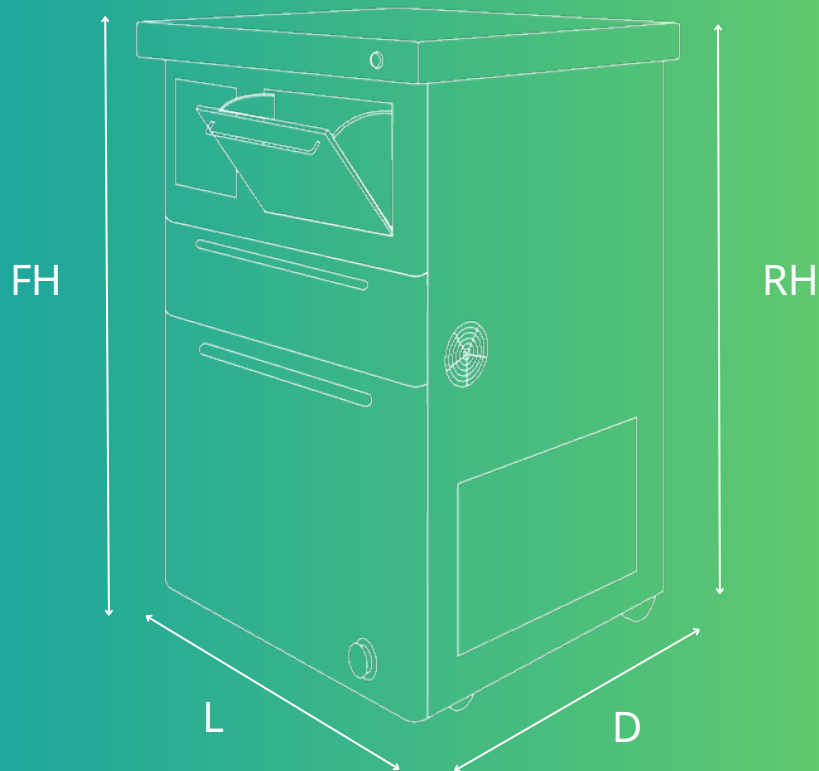
To maintain long-term efficiency, the rental plan features regular annual maintenance, ensuring the B-BOX remains in peak condition. With this fully integrated package, users can enjoy a hassle-free experience, combining cutting-edge technology, reliable service, and sustainable practices.

CIRCULAR BYPRODUCTS

The B-BOX system accurately quantifies the accumulated weight of frass and substrates, offering transparency and accountability in the waste conversion process. During each larvae exchange, our staff ensures that customers receive the same amount of preserved frass fertilizers, providing a valuable byproduct ready for use in agriculture or gardening.

This nutrient-rich fertilizer promotes sustainable practices and supports eco-friendly initiatives. Additionally, for customers who wish to contribute to environmental or community causes, we are happy to assist by donating the fertilizers on their behalf to local farms or relevant projects. With B-BOX, customers can transform waste into meaningful resources while making a positive environmental impact.

SPECIFICATIONS



Description(s)	Specification(s)
Dimension	(L) 740 x (D) 900 x (FH) 1670H x (RH) 1410 mm
Power Rating	110VAC / 220VAC
(Option) PV Solar Panel	36V, 120W (Mono-crystalline)
(Option) Inverter	36 to 24V, 3kW
(Option) Battery Storage	24V 30Ah
Waterproof Level	IPx4
IoT Protocol	NB-IoT, 4G (Regional protocol)
Cloud Server	Amazon Web Service (AWS)
IoT Sensors	6-axis accelerometer
	Weigh sensor (container): 60kg x 4 sets
	IAQ: CO ₂ , NH ₃
	Temperature and humidity sensor, 0-200°C (Temp), 0-99% (RH)
	AC Current sensor
Productivity	Food waste in*: up to 40kg (in 24 hours) *Drained organic waste from drain bucket provided
	Fertilizer generated: up to 100kg (monthly)
Shredder	0.75kWh, 110 / 220V AC motor 3-rows grinding gears
Ventilation system	Intake and exhaust: 24V 0.6A, 120 x 120mm
Certification(s)	CE, ISO-14067 carbon footprint certification (pending)



GET IN TOUCH

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