

BLUE ECONOMY AQUACULTURE FORUM





Circa Biotech

**Food Waste Management:
A Circular Economy Approach By
Industrial Insect Farming**



Inefficient organic waste management










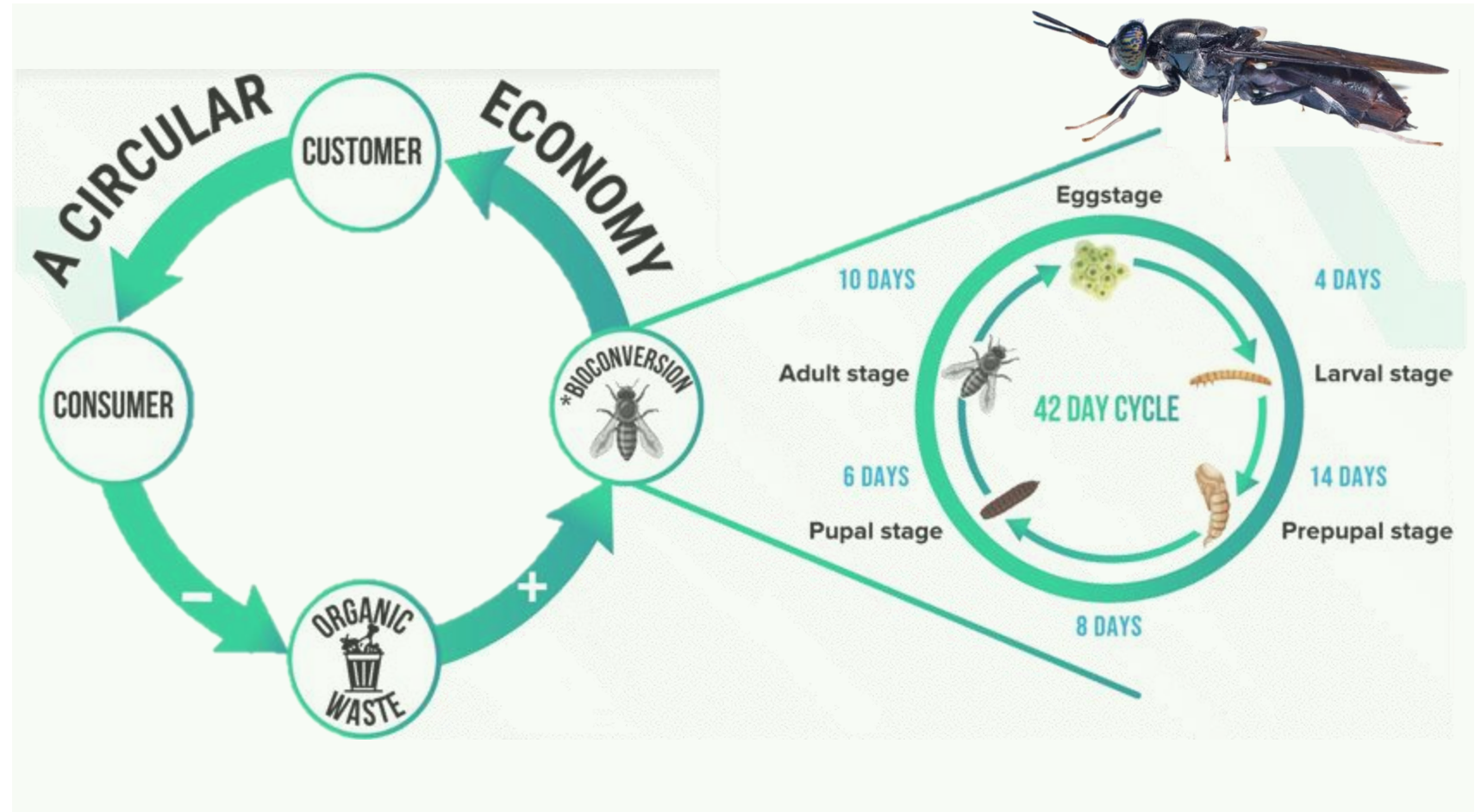
Source: UNEP Food Waste Index Report 2021

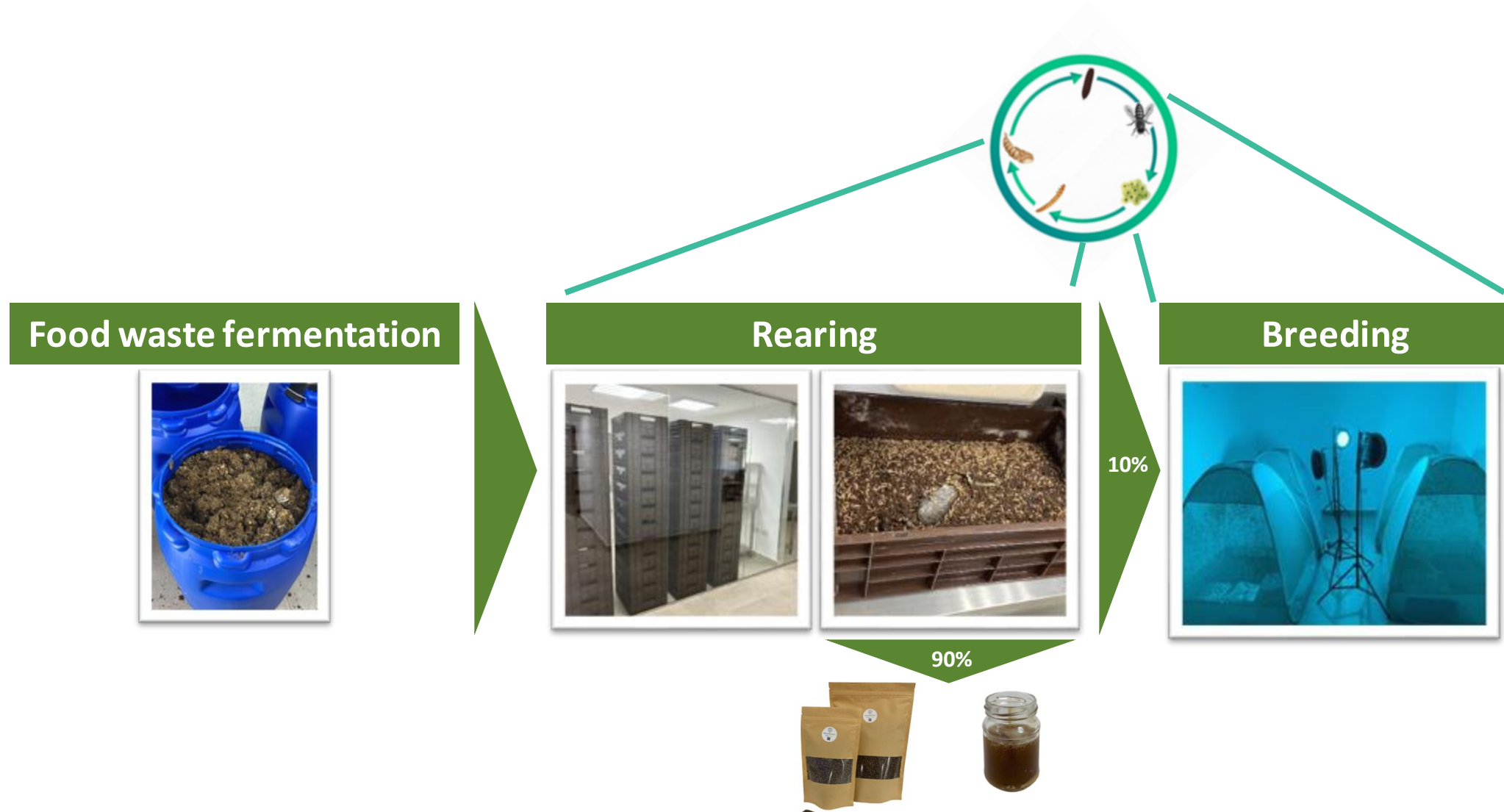
Animal feed protein demand crisis





-  **High nutritional profile proteins and lipids**
-  **Non-invasive species not carrier of any diseases**
-  **Non-pest species do not pose any harm**
-  **Indiscriminate eater food waste to animal waste**
-  **Short life cycle 45 days**
-  **High resistance natural antibiotics production**
-  **Fast growth Larvae could be harvested every 14 days**

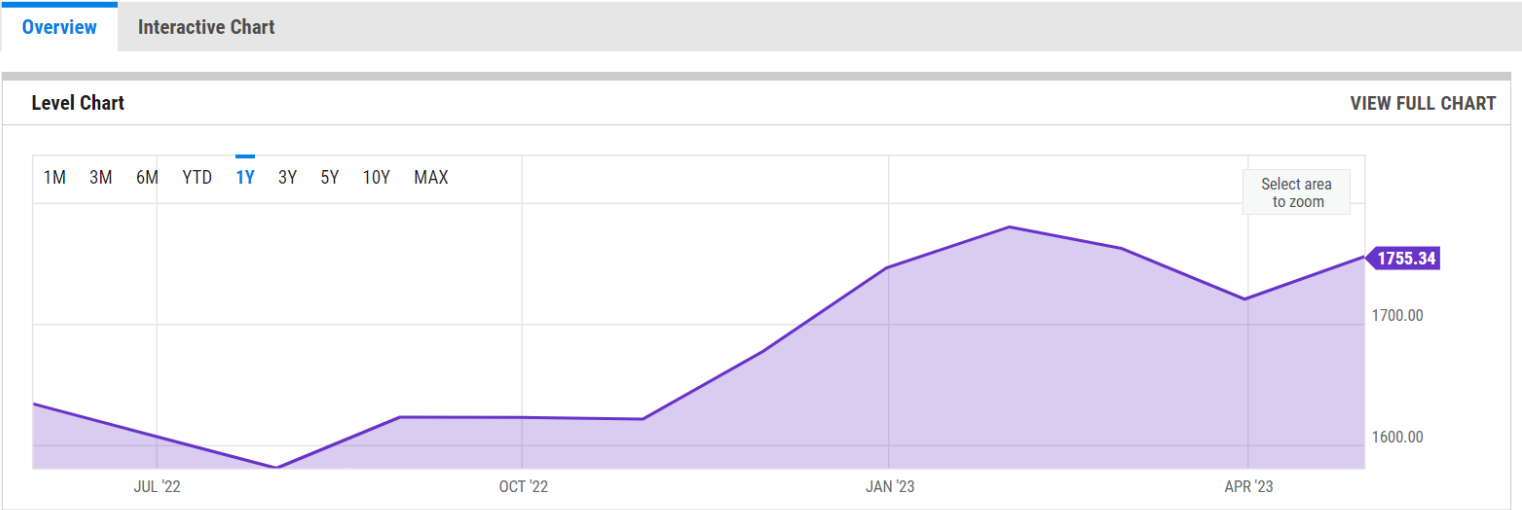




Fishmeal prices, 2022-2023, USD/t

Fish Meal Price (Any Origin) (I:FMPA0)

1755.34 USD for Apr 2023



Description: Fishmeal, Peru fishmeal/pallets 65% protein, CIF

Unsustainable fishmeal acquired by dredging the ocean floor has a negative influence on the marine ecosystem and depletes the wild fish stock.

Fish feed accounts for 70% of fish farming operational expenditures.



Feed & services for aquaculture ▾

Transparency & trust ▾

Sustainability ▾

Innovation ▾

This is Skretting ▾



20 June 2019 | Sustainability

Skretting commits to insect meal volume from Protix at grand opening event



12 December 2018 | Sustainability

Insect-fed trout now available to French consumers



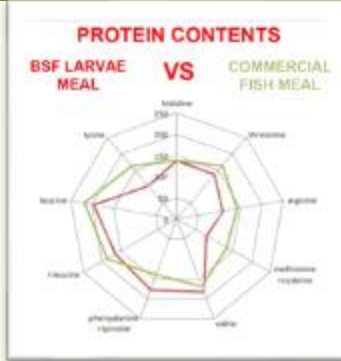
19 October 2018 | Sustainability

Insect meal now in commercial Skretting feed

01

Locally produced protein feed for animals

- 22,000 tons* of animal feed protein produced per year in the UAE
- Higher nutritive values compared to commercial fish meal



02

Unique waste processing technology

- Proprietary fermentation process which allows 23% cost reduction
- Reduced time for larvae processing from 14 to 9 days



03

Modular approach for waste management

- Modular approach for decentralized waste processing facilities to tackle solid waste regulations in the UAE
- Reduction in food waste by 17.2% in 5 years



04

Developing local capabilities

- Collaboration with UAE Universities to develop local professionals in insect farming



05

R&D Projects on larvae oil application

- Collaboration with ADNOC for larvae oil application in oil & gas industry to develop sustainable solutions



06

Climate change tangible impact

- Reducing methane emissions by diverting food waste from the landfill (18,200 tons/year of CO2 equivalent²)

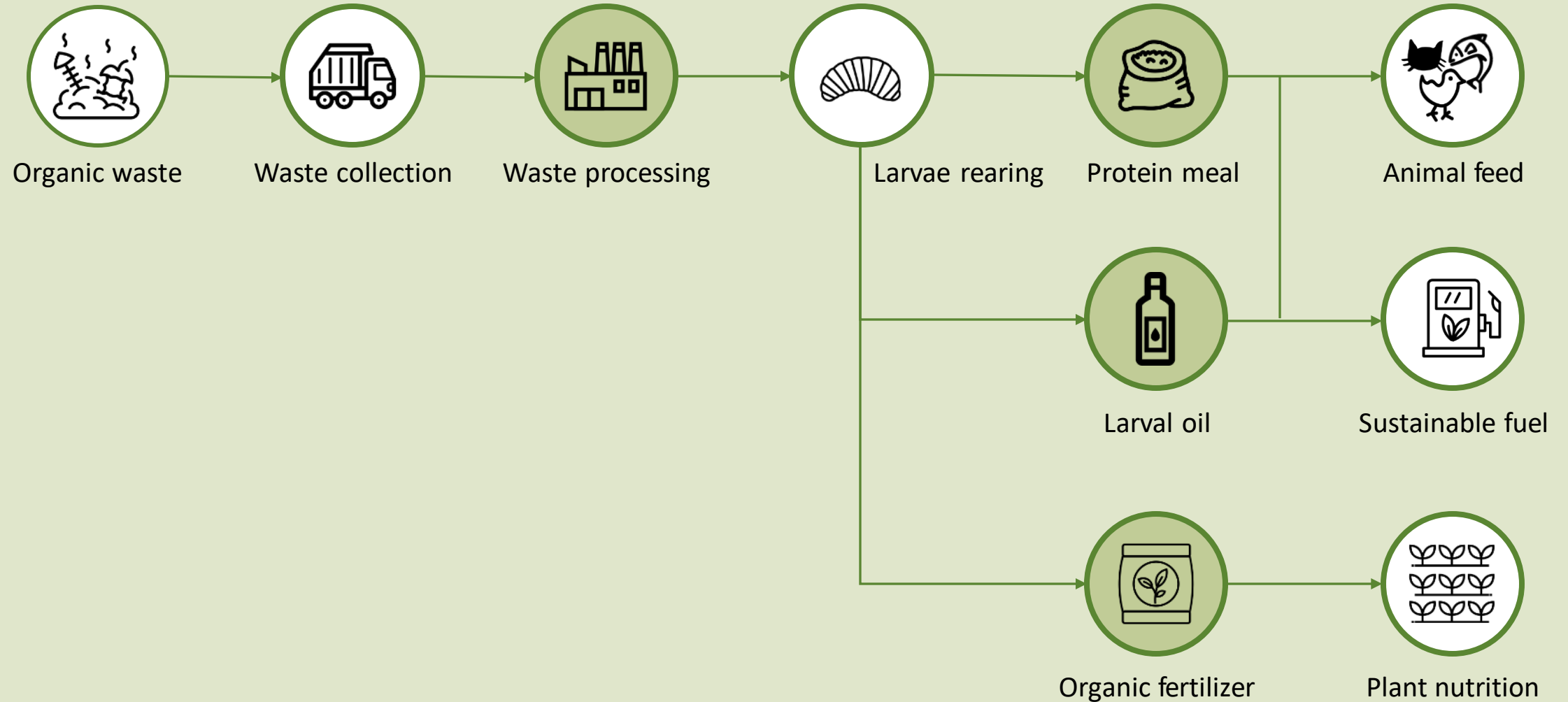


* Based on 200 tons/day processing facility

Source: 1 - https://www.researchgate.net/publication/313460908_Sustainable_production_of_housefly_Musca_domestica_larvae_as_a_protein-rich_feed_ingredient_by_utilizing_cattle_manure

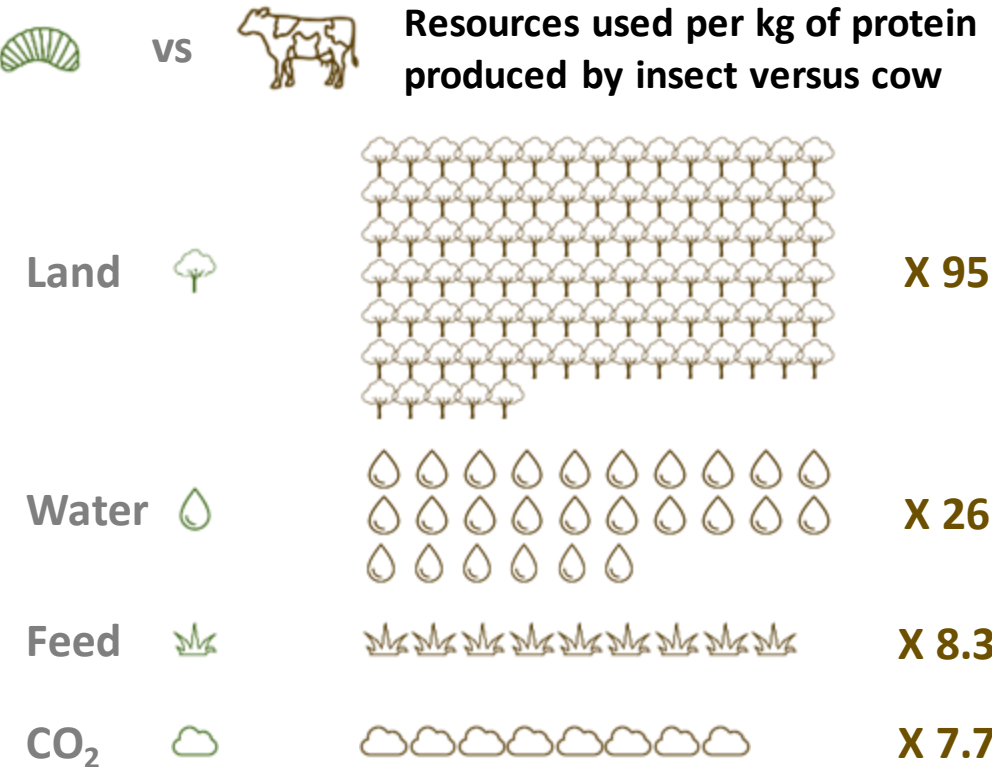
2 - <https://knoema.com/atlas/United-Arab-Emirates/topics/Environment/Emissions/Methane-emissions>

Our business model is commercially viable and includes four revenue streams

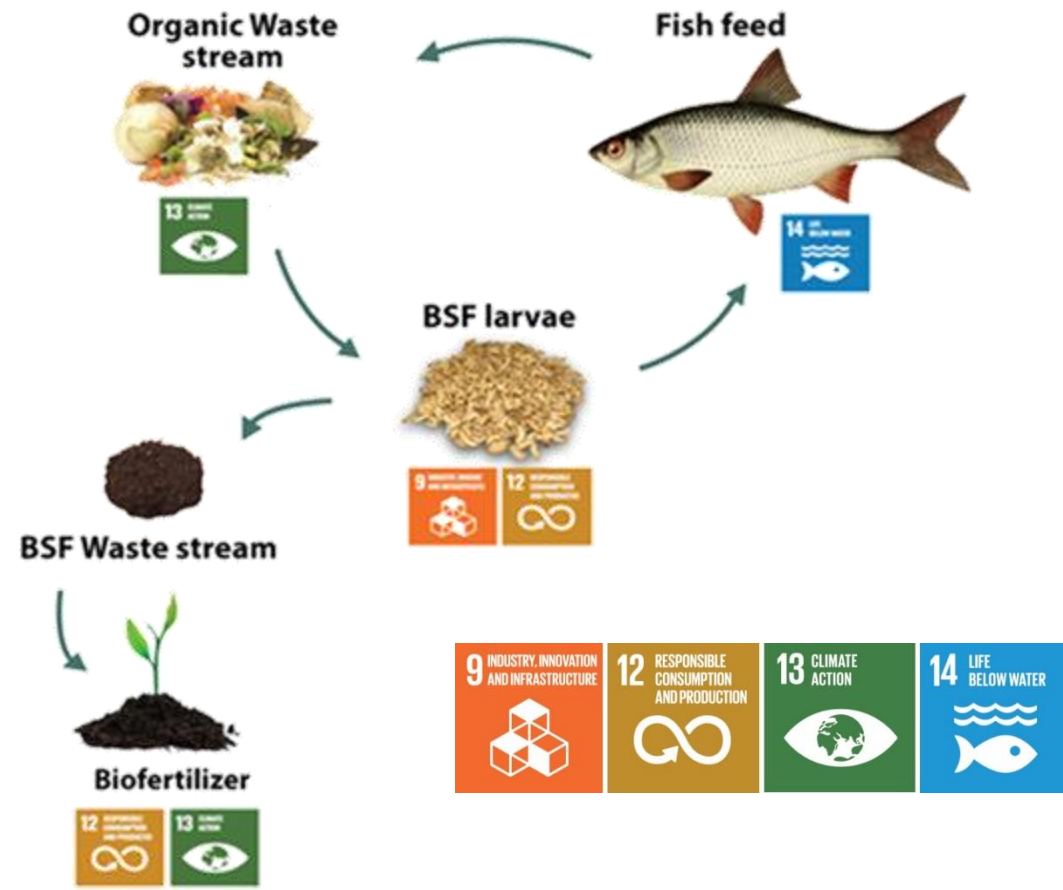


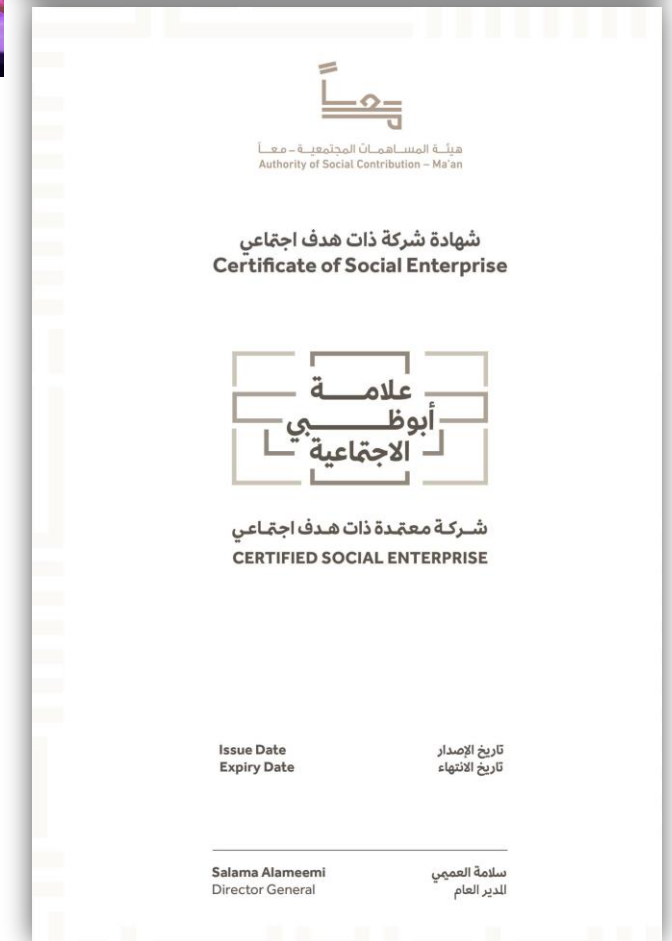
Service and products generating revenues for Circa Biotech

Environmental Benefit of Insect Farming



Alignment with 4 SDGs





Thank You!

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