

celitron

*WE THINK GREEN!*

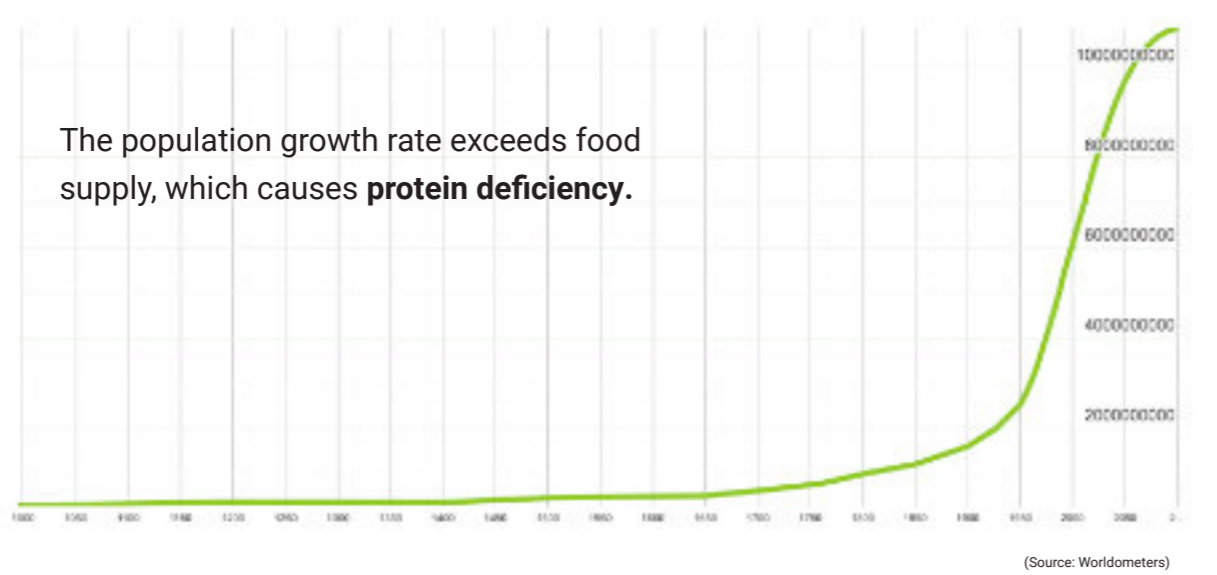
# Insect Protein Processing with ISS AGRI Facility

**Recovery of Protein and Oil from  
BSFL/crickets/mealworms or other edible insects**

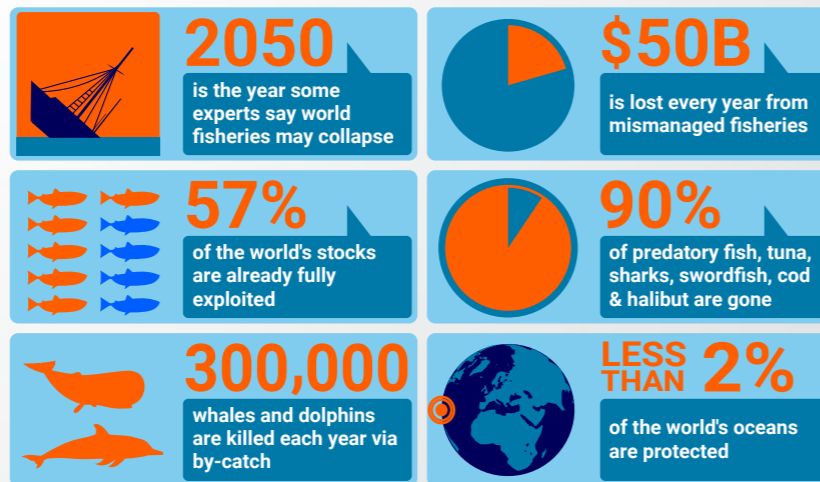


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# The Problem – Why do we need a protein alternative?



**Over-fishing:**  
If over-fishing is not stopped that fish populations will continue to severely decline and be practically extinct by the mid-century.

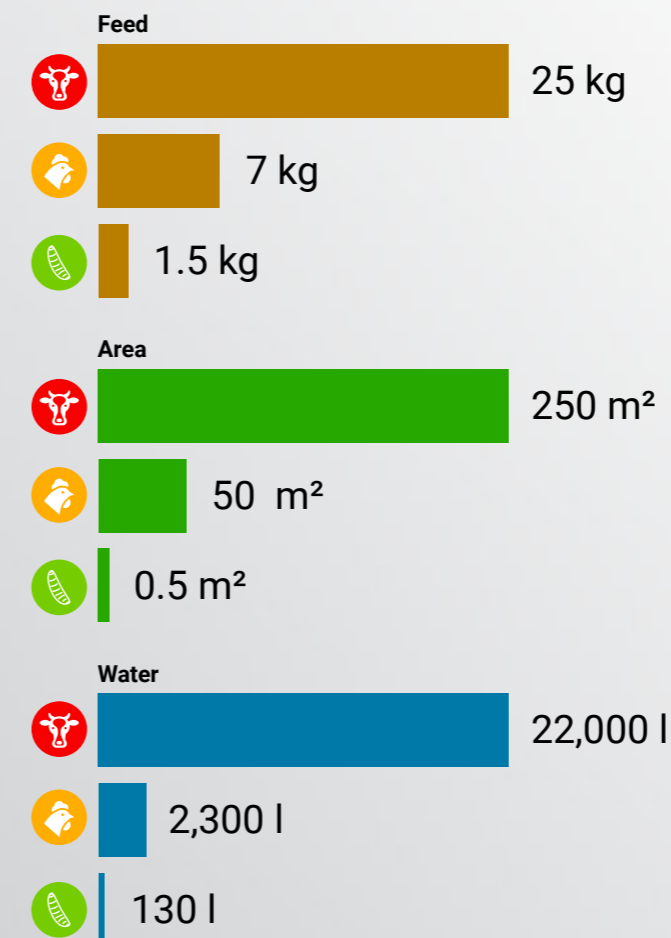


Global warming effects in agriculture: Plant and animal species may not be able to adapt and find new habitats quickly enough to survive. Climate changes are impacting marine life; sudden rises in temperature and acidification can lead to the loss of marine habitats and entire species.



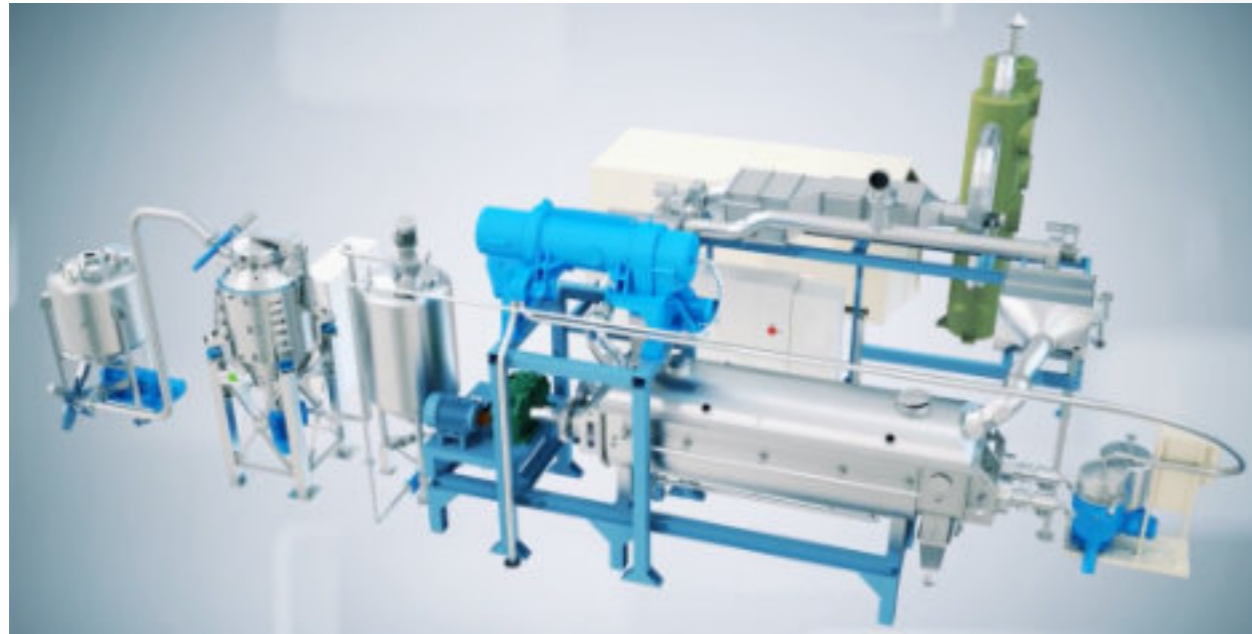
# The Solution: natural and nutritious Black Soldier Fly Larvae!

- Protein based on fly larvae is an ideal alternative to fish meal in the animal feed industry
- black soldier fly (*Hermetia Illucens*) for use as feed was registered in the 1990's
- accepted in most of the world as feed (EU, USA, SEA, etc.)
- most common as fish and pet feed
- eats almost all organic waste & by-products
- high tolerance and resistance to changing conditions
- one of the highest feed conversion ratios in the world – up to 30%
- short life cycle: full cycle – from egg to egg – 55 days
- optimal harvest time, 13 days – gain of 1000% body weight
- commercial BSF farming raised around 1 billion USD, in the last 20 years. Expected to go up to 30 billion by 2030.



- BSF is the sustainable solution:**
- Using organic waste & by-products as BSF feed reduces global warming
  - less water demand than any other animal protein
  - produce sustainable protein replacement to fishmeal & animal-based protein
  - requires less land per kg of protein.

Our System, the ISS AGRI Facility provides a new process to recover protein and oil from BSF.



The Celitron ISS AGRI provides a new process to recover solid proteins and oil from Black Soldier Fly larvae, and other edible insects too. The ISS AGRI Facility is a new, unique agriprotein technology, with continuous and automated process system.

All this is done with absolutely **zero harmful emissions** to the environment, and **no bad odors** whatsoever, so you won't even have to worry about your own comfort while using it! What's more, we're not even the only ones recommending this solution for insect protein processing: the ISS AGRI Facility is also conform with all EU and WHO recommendations in the subject!

In a nutshell, with **its ease of use**, eco-friendly operation, and undisputed efficiency, there is no doubt that this is one of the best pieces of equipment you can get for insect protein extraction!



## Why Celitron ISS Agri Facility?



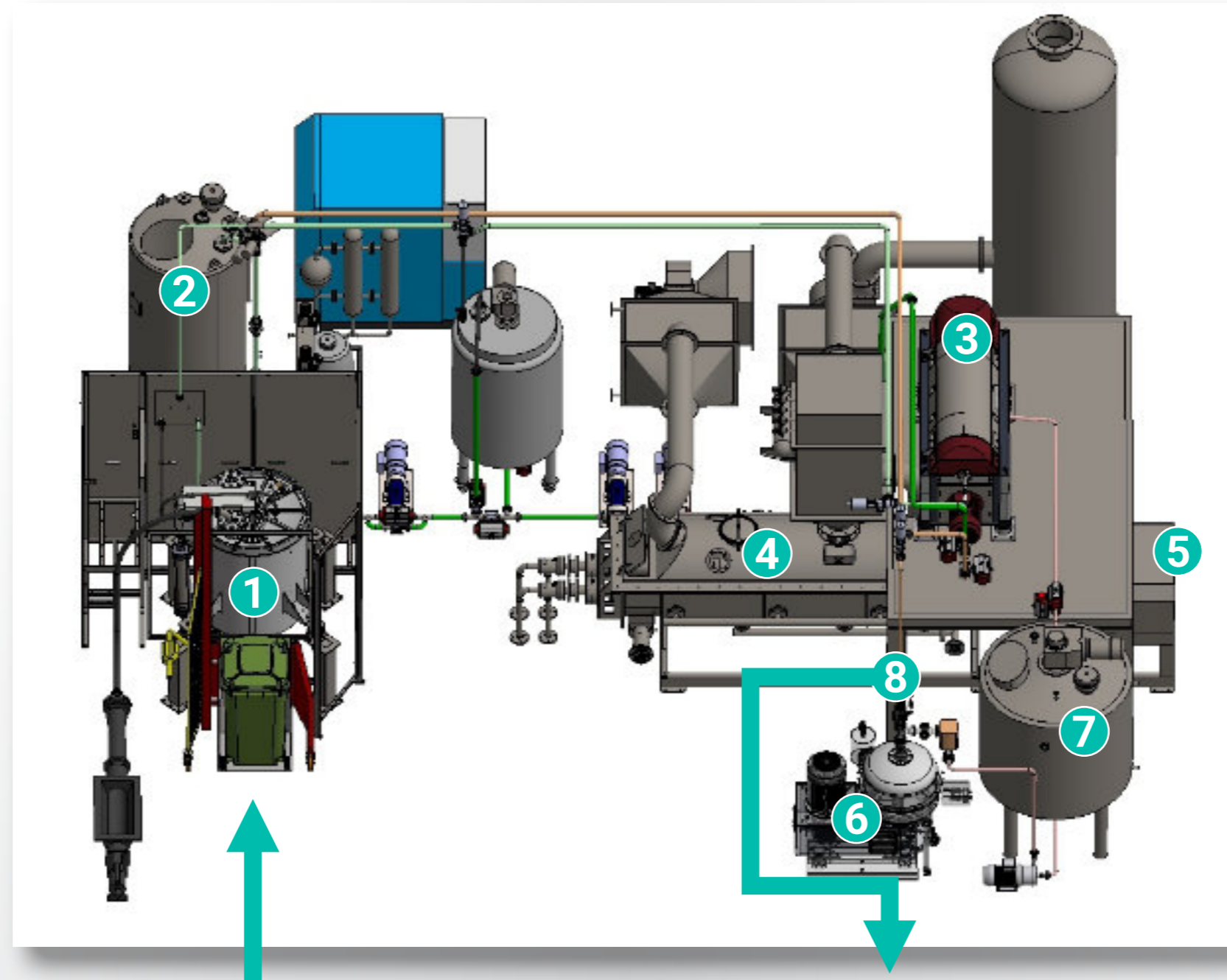
ISS AGRI Facility, the perfect rendering system for insect farming.

- Our system uses patented medical sterilization and shredding technology to prevent any possible contamination risk
  - local and immediate treatment of the insect
  - no transportation
  - scalable system from 1-100 tonne / day capacity
  - the system can be installed in a very limited space
  - small footprint
  - no production of organic, solid wastes
  - low operating costs and fast return on investment
  - no need for storage and transportation of raw materials
  - minimal manpower needed for control and operation of the line.
- Very high-quality protein and oil due to mild production process**
- the end-product is completely sterilized**
- high productivity, better quantity of output.**
- This natural, sustainable, and performant source of proteins and oil is the perfect base for animal feed, pet feed and aquafeed.**



## BSF rendering process with ISS Agri Facility

- 1** Insect larvae are cut and sterilized in the same pressure vessel, then the outcome is a 'sterilized homogenous soup'.
- 2** This soup is collected in the Buffer.
- 3** Then goes to the Decanter, it separates this to solid and oil with water.
- 4** The solids go to the Dryer to reduce the moisture level to 5-10%.



- 5** The solid end-product is cooled down and collected into the dust.
- 6** The oil with water is transferred to the Separator to improve the quality of the oil.
- 7** The oil end-product has a 97.5% oil content.
- 8** There is also a water end-product, that goes to the sewerage system.



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## Who are we?

**Celitron is a Hungarian (EU) manufacturing company** with R&D focus on sterilization and bio waste treatment systems. We have an international presence, with more than 400 deployed medical waste treatment units and over 4000 deployed steam sterilizers in over 80 countries worldwide.



Ref: OP-0190 v.01.0, 2021.09.22 Celitron Medical Technologies Kft. reserves the right to modify the products without any notice.

### Celitron Medical Technologies Kft.

**Address:**

Szent László út 36., 2600 Vác,  
Hungary

**Phone:** +36 70 643 8995

**Web:** [www.celitron.com](http://www.celitron.com)

**Email:** [info@celitron.com](mailto:info@celitron.com)

ISO 9001 and ISO 13485 certified company  
with CE certified products

