

FARMYNG

Flagship demonstration of industrial scale production of nutrient Resources from Mealworms to develop a bioeconomy New Generation



Summary

The world's population is increasing rapidly and is set to reach 10 billion people by 2050 – almost one-third higher than it is currently. At the same time, the increasing demand for protein from animal and fish is putting tremendous strain on our ability to increase feedstock demand. Currently, the preferred source of protein for animal food is fish meal. However, meeting growing demand is unsustainable and likely to generate economic, social, environmental and health issues.

A potential alternative solution lies in replacing fish meal with insect sources, specifically mealworm. Insects multiply rapidly and are highly effective in converting organic matter from vegetal by-products. The FARMYNG project seeks to develop insect breeding and transformation to produce animal nutrition on an industrial and automated scale. It will demonstrate the first-of-its-kind bio-based value chain capable of producing sustainable, safe and premium feed products from mealworms, and doing so on a large-scale.

The FARMYNG approach can convert mealworms into sustainable proteins and lipids for fish feed and pet food end markets. This approach is environmentally friendly, producing no waste. Insects also emit less greenhouse gases and ammonia and use less water and land than other animal protein value chains. The FARMYNG project will set a new level of production for insect protein production.

<https://www.farmyng.eu>

Type of Action:

Innovation Action – Flagship

Value Chain: VC4 – organic waste

Start date: 01 June 2019

End date: 30 June 2023

BBI JU contribution: € 19,630,412

Objectives

The overall objective of the FARMYNG project is to create the world's first industrial process for producing safe proteins from breeding insects and transforming them into animal nutrition sources. In addition, it will deliver the following:

- Create immediate employment opportunities. The construction and running of the FARMYING flagship plant itself will create a number of jobs, including a number of high-value technical management roles linked to running the facilities.
- It will aid rural solidarity; bringing bio-industries to an area of France currently facing depopulation due to high unemployment.

Expected impacts

The FARMYING project seeks to deliver the following impacts. It will:

- Establish at least six new cross-sector interconnections in the bio-based economy. It will also stimulate advances in process engineering implementation in related sectors, such as paper and packaging, developing further new partnerships and business models.
- Create three new value chains; converting the by-products of wheat, corn and barley primary processing to fish feed; converting the same by-products to pet food and valorising insect manure, recovered during insect breeding, for organic fertiliser production.

- Assuming the FARMYNG flagship proves successful, other factories based on the same model will be set up in other parts of Europe. A further six factories in the next ten years will deliver more than 300 direct and almost 1,000 indirect employment opportunities.
 - FARMYING will also open up new markets, ranging from feedstock production and processing to supply chain logistics and side-stream valorisation, all of which will require employees.
 - Generate more than € 0.85 Bn in revenues from this new industry as well as significant direct and indirect taxes for EU Member States.
 - From an environmental perspective - assuming a further six factories – the FARMYNG process will produce sufficient proteins to avoid the catch of 800,000 tonnes of fresh fish, reducing pressure on ocean stocks.
- Develop two new products, in the form of pet food and fish feed. Both products have already been successfully trialled.
 - Reduce the current carbon footprint of animal protein production. Mealworms are massively more efficient than cows or pigs in terms of lower greenhouse gas production. Preliminary results suggest that FARMYNG value chains will be beyond the BBI JU benchmark of a minimum five percent carbon footprint reduction, while it will avoid methane emission almost completely.

Project coordination

- Ynsect (France)
- Chamtor (France)
- Star Food Holland BV (Netherlands)
- Centre Walloon de Recherches Agronomiques (Belgium)
- Eurofins Analytics France SAS (France)
- Ajinomoto Animal Nutrition Europe (France)
- Quantis (Switzerland)
- PNO Consultants (France)
- Skretting Aquaculture Research Centre AS (Norway)
- Virbac Nutrition (France)
- Compo France (France)
- Cluster Industrielle Biotechnologie 2021 EV (Germany)
- Stowarzyszenie Zachodniopomorski Klaster Chemiczny Zielona Chemia (Poland)
- Association Industries et Agroressources (France)
- Commissariat à l'Énergie Atomique et aux Énergies Alternatives (France)
- Ulma Manutención S. COOP. (Spain)
- Miguel Torres SA (Spain)
- Clextral (France)
- TGC Extrusion (France)
- MG 2 MIX (France)

Organisation name: Ynsect (France)