



Original thinking... applied

Insect Biomass Conversion Task & Finish Group FAQ

What is insect biomass conversion?

Insect biomass conversion is where organic residue is fed directly to insects, in a process which converts low value biomass into higher value insect mass, rich in protein content, fats and chitin. These can, in turn, be used as sustainable inputs for a variety of sectors, most notably animal feeds such as in aquaculture, poultry and premium pet food markets. The insects are fed on a range of substrates including: plant-based (e.g. Brewery residues), unprocessed former foodstuffs (no meat) and agricultural residues.

Why is insect biomass conversion important?

The global demand for protein vastly outweighs supply, an issue that will only become more acute as those from emerging economies switch to higher protein diets. Introducing insect protein to supplement common alternatives like fishmeal or soya in animal feed provides a more sustainable way to narrow the global protein gap, reduce deforestation and assist sustainable aquaculture growth amid limited global supplies of marine feed ingredients.

Why are insects a good alternative to other sources of protein like soya and fishmeal?

Key advantages of insects include:

- Highly efficient in the rapid conversion of organic “wastes” into ‘valorised’ biomass
- A natural component of the diets of avian and carnivorous fish
- Insect protein can offer higher digestibility than vegetable-based proteins
- Land use requirements vastly lower as compared to crop sourced protein
- The insects deployed do not carry human or livestock diseases and do not present an invasive species risk

What potential does the insect biomass conversion industry have for the UK?

Insect biomass conversion, at scale, for the production of protein for animal feed and associated bi-products for UK agriculture and other industries has the potential to establish a new sustainable and ‘clean growth’ industry with total annual revenues approaching £1.0bn within 5 years plus substantial additional growth from the export of new, internationally traded, commodities by the establishment and operation of Insect Bio-Reactors (IBRs) nationwide.

Additionally, it will:

- Enhance value of Agrifood residues and other waste streams
- Reduce heavy reliance upon protein imports (fishmeal & soya meal)- £1.9 billion p.a. (2015) and therefore increase UK food production security by providing some protection against future volatility in commodity feed prices
- Provide a new and more sustainable source of protein to the compound feed sector (annual production 15.7 million tonnes; a £3.63 billion market value)
- Provide a new and more sustainable source of protein for the pet food sector
- Reduce UK aquaculture industry’s reliance on fishmeal and existing use of plant-based alternatives (fishmeal currently represents c. 20% of salmon diet composition); insect/BSF meal can replace >50% of fishmeal in farmed fish diets
- Potentially produce sustainably sourced new feedstock materials (e.g. Chitosan for biodegradable packaging) and superior quality soil nutrients

What is the significance of the UK food industry to the country’s economy

The UK food industry from farm to fork is of fundamental importance to the UK economy, the sustainability of the food system and the health of the nation.

- The food and drink sector generates £121 billion of value for the economy each year
- Employs 4 million people



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- In 2017, food and drink exports were worth more than £22 billion of UK exports
- Farmers have 10,000 football pitches worth of wild flowers, creating homes for bees and food for birds and insects.
- British farms produce 61% of the nation's food
- There are around 270,000 hectares managed voluntarily under the Campaign for the Farmed Environment

What is the Insect Biomass Conversion Task & Finish Group (IBCTFG)?

The IBCTFG is committed to helping deliver insect production at scale in the UK. It is one of the Task & Finish Groups set up under the Agricultural Productivity Working Group (APWG) to tackle priority issues that address transforming UK agri-food productivity.

The APWG acted under the direction of the Food and Drink Sector Council (FDSC) whose remit is to recommend how the UK can improve the productivity and sustainability for the entire farm to fork food chain, covering farming, manufacturing, retail, hospitality and logistics and to respond on behalf of the UK Agri-Food sector to the UK's Industrial Strategy published by BEIS in January 2018.

Which organisations are in the IBCTFG?

The Insect Biomass Task & Finish Group represents key stakeholders across the Insect Biomass value chain and are committed to collaborating in order to deliver insect production at scale in the UK. The group members are: Fera Science Limited (lead), Durham University, Entomics, Anpario, AgriProtein, UK FPPA, Zero Waste Scotland, (York, North Yorks, East Riding) LEP, British Poultry Council, Tesco, McDonalds, PFMA, NFU, Entocycle, CIEL, Humphrey Feeds & Pullets, AIC, NPA, Minerva, Multibox, Scottish Aquaculture Innovation Centre and Beta Bugs.

What are the recommendations of the IBCTFG?

1. The UK Government to issue a national statement of support for this innovative and emerging technology with significant potential impact for the UK economy and its sustainable agricultural productivity.
2. Government and industry to support a central body to bring all stakeholders together to achieve aligned, rapid development of the sector for the UK and render it world leading inside the requisite national infrastructure.
3. Government to collaborate with private industry to secure dedicated funds to help insect producers reach the market, achieve cost competitiveness, respond to the identified research and process development gaps (for example in livestock welfare) and to open up new lines of commercial opportunity (for example for soil health).
4. For the Government to lead on delivering insect biomass legislation and regulation in line with latest science, global market developments and which acknowledges the sustainable, natural and local credentials of insect protein for the food and feed chain and waste valorisation as a critical 'clean growth' dimension of a circular economy.
5. Government to devise and provide short term fiscal incentives for discounting domestically produced insect protein costs for early adopters/ innovators to incentivise the UK animal feed industry to introduce insect-based protein as part of its feed strategies so as to help insect producers achieve cost competitiveness during the period of ramp up of scale.

Any recommendations presented herein are of the Group to the APWG and not of the FDSC itself.