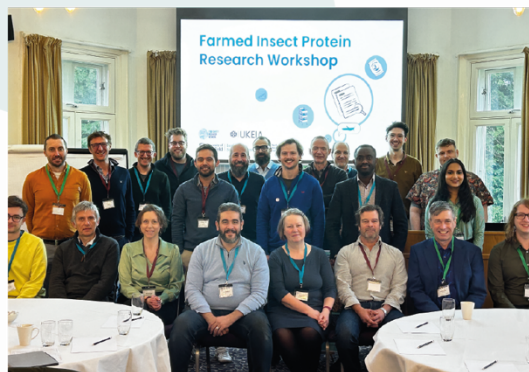


Farmed Insect Protein Research Workshop

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20th - 21st Feb 2024



Hosted by the UK Edible Insect Association in partnership with Northumbria University, the University of Sheffield and the Food Safety Research Network



1 Executive Summary

This report describes the process and results of a workshop led by the UK Edible Insect Association, in partnership with Northumbria University, and the University of Sheffield, which was funded by the UK Food Safety Research Network.

It aimed to identify the key areas where collaboration between industry and academia could support the growth of the UK's farmed insect protein sector. There is widespread recognition of the huge potential for farmed insect protein to make a significant contribution to the human, pet and livestock feed markets, bringing in very large income for farmers and product companies. However, this sector faces several challenges, even as it seeks to operate in ways that harness insects' potential to be waste valorisers and provide a means of creating protein that has much lower environmental impacts than mainstream livestock.

The two-day workshop was attended by 44 delegates divided evenly between industry and academia, and with all of the main farmed insect species and market segments represented. It comprised a combination of case study presentations by a selection of companies working with farmed insect protein, and facilitated discussion sessions that drew out the key challenges, how research could help to develop solutions and started to prioritise these.

The workshop is very timely just as the sector in the UK is seeing substantial growth and Research Funding bodies are investing more in support for the associated investigations and have supported the creation of diverse specialist research facilities. UKEIA and Northumbria University had previously invited self-nominations to identify potential research/development partners for the sector and created a Directory of 43 individuals/organisations showing the wealth of expertise that exists in the UK, for the use of UKEIA members.

The discussion about challenge areas focused on the following:

- **Substrate access and suitability:** Industry want to make effective use of insects' potential to convert organic materials into valuable protein. However, the issues are with managing the potentially wide variety of options restricted by legislation, lack of understanding of conversion of substrate into product composition and concerns that seasonal or other variation in input will lead to unacceptably inconsistent product.
- **Environmental impact:** Again, companies see the comparatively low environmental impact of farmed insect protein as a major focus, while lacking sufficient support to manage this in terms of their individual operations. There is a lack of baseline data and tools to support environmental impact assessment, comparison and improvement for full scale insect farms in the UK combined with uncertainty about how consumers take account of this in their purchase decisions.
- **Product safety risk mitigation:** While farmers implement HACCP plans informed by research into risks, there is a need for greater understanding of the risks in order to provide baselines against which to assess monitoring results and to determine the relative importance of mitigation procedures such as purging.
- **Cost reduction:** The high production costs of farmed insect protein represent a substantial challenge in the market and the discussion highlighted a range of input

costs that could be investigated. Again, there would be value in developing some case studies of typical set-up and operational costs that could support new entrants.

- Welfare management: The best way to assess and optimise the welfare of the “herd” is currently poorly understood. Developments in this would enable operational decisions to be better informed (setting cost and harm/disease reduction implications within a clear framework) and communicated to customers (eg where emphasis could be on “high welfare” farming).
- Regulations: The current Regulatory landscape in the UK is either disproportionately (in the views of industry) restrictive or else blind to the particularities of farmed insect protein leading to inconsistency interpretation and real barriers to trade.
- Consumer acceptance: While there has been a lot of research into factors affecting consumer reactions to eating insects these lack the granularity to understand variation between groups, the appreciation of how context and culture can impact and recognition of the current wide range of products that exist for which the insect ingredient can take a low profile.
- Product development for different market segments and manufacturing: These did not get significant focus at the workshop.

We identified and prioritised a wide range of specific and general issues that face industry practitioners. Some of the highest prioritised areas for investigation were:

- Is freezing an acceptable means of slaughter from a welfare perspective?
- How does the public rate environmental impact vs welfare/harm?
- How can we reduce the restrictions imposed by Legislation limiting insect farmers to animal grade substrates and preventing use of non-plant-based food waste from restaurants, eateries etc?
- What is the value/impact of purging prior to dispatch?
- What would be the impact of using novel feeds such as agricultural crop residues?
- Feed trials comparing impact of different approaches on insect growth/productivity and insect composition
- Shelf stability and microbial safety of insect-enriched foods
- Frass anaerobic digestion to avoid methane emission

The next step will be to continue to dialogue between industry and academia to develop the ideas and topics into concrete project concepts and seek funding for those deemed the highest priority.

Those interested in getting involved in this work or joining the Directory can express interest to Dr Nick Rousseau, UAEIA – nick.rousseau@unconventionalconnections.co.uk.