

Developing the (UK) roadmap for industrial applications of algae for food and novel food ingredients

To maintain current consumption trends the world needs to produce 50-70% more food by 2050. Algae as the primary producers of the marine food web and at the bottom of the food chain are an underexploited resource. There are 80,000 to 100,000 different algae species but only around 200 species of algae are used worldwide, of which only 37 aquatic plants are reported worldwide by the FAO as farmed. Algae are nevertheless becoming increasingly popular in Europe, with a number of companies harvesting, cultivating, or processing them to create a wide range of high-value products. The sector has excellent growth prospects and could make an invaluable contribution to a cleaner and healthier environment.

Previously Algae-UK and ValgOrize held a scoping workshop with a wide range of stakeholders (see Appendix 1).

As a result, we are now seeking information and analysis that will enable us to assess more accurately the current position of algae in food/feed products and algae supply systems, both nationally and internationally. In addition, we require recommendations that will assist us in developing our future strategy.

Specifically, we seek to understand:

1. The nature and size of demand for algae (macroalgae, microalgae) in food products in the UK. This should include a realistic assessment of gaps in the algae-to-food value chain,
2. Opportunities and requirements for increasing the amounts of algae-based materials in food products,
3. Scope for industrial biotech applications with algae to deliver future foods,
4. Policy developments required to increase the use of algae in food products.
5. Training requirements to support an algal food supply chain.
6. Recommendations for a Roadmap for the UK, including priorities and timelines and plans for dissemination.

The successful applicant will be able to provide evidence of previous business with the food sector and knowledge of requirements in food/feed production within the UK, Europe and internationally.

It is expected that the successful applicant will carry out an interrogation of existing information and consult with key and relevant members of the food sector and algae community in order to provide a report which will encompass and address the points for understanding listed above. This report will provide answers to these points and will be used to feedback key information and advice to a number of different audiences in an appropriate manner: government; policy and funding drivers and also investment specialists.

If the project requires meetings to be organised please provide details. Algae-UK will help with the organisation and cover any additional costs required to run them provided these meetings are relevant and involve Algae-UK members. It is expected that the successful applicant will be in regular contact with Algae-UK over the course of the work through online meetings and emails to ensure work remains on track particularly as milestones are hit/ being reviewed in response to risk mitigation, and the work remains relevant or is revised as necessary based in the findings of the team, with any changes agreed between the parties.

We anticipate that the work is likely to take 3-4 months and to cost £30,000. Algae-UK will consider extensions to the work timeframe, but this would need to be discussed and formally agreed at the earliest opportunity with the Algae-UK executive group. Any extensions to the project would need to be justified, briefly on paper, but also on video conference before approval given.

How to apply

Please adapt, as appropriate, the Roadmap Proposal Form which can be accessed on the Algae-UK website: <https://www.algae-uk.org.uk/funding/>

Please ensure the proposal is concise but includes the following:

- A demonstration of relevant background experience in the project team
- Project plan: outlining the steps you would undertake to deliver information into the report.
- A series of milestones that clearly lead the investigation forward to conclude in the desired report
- A risk assessment and mitigation plan
- The appropriate resourcing implemented and project undertaken with progress measured and checked via a progress monitoring plan.

Submit the proposal to info@algae-uk.org.uk no later than **January 21st 2022**.

Appendix 1

1. The October 2020 Workshop Brief:

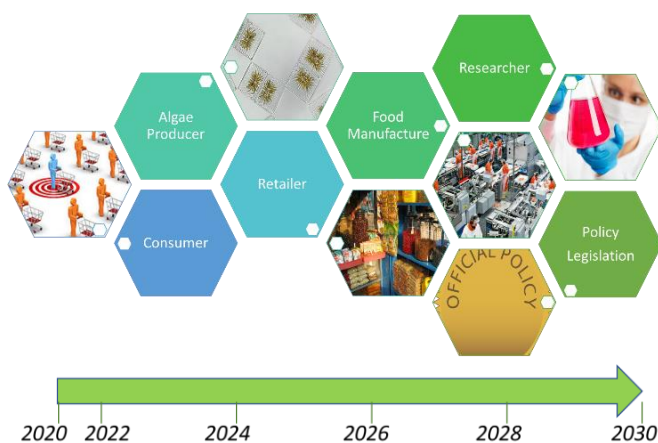
Algae in UK diets

The UK government's National Food Strategy July 2020¹ has highlighted the need to review how we secure the food of the future, and in 'Food 2030' launched by the European Commission², we are urged to "explore what is needed to transform and future-proof our food systems to be sustainable, resilient, competitive, diverse, responsible and performant in their provision of accessible, healthy and sustainable food and diets for all". Algae hold enormous potential (>100,000 species) and could make an invaluable contribution as sources of novel food/food ingredients but are still perceived to be newcomers to the European diet.

The purpose of these discussions is to understand the type of role that algae will be playing in our future food systems by 2030, and what we would need to do to achieve this vision. The outcomes will be collated to inform the construction of a Roadmap, which will be circulated to inform and guide the UK Research and Innovation Councils as part of their delivery plans aimed at the National Food Strategy, and inform the future strategy of Algae-UK.

Below are questions that we will be addressing in our discussions with you. Please consider each of these in advance of the event:

- | |
|---|
| 1. <u>Consumers:</u> What drives consumer demand for 'liking' algae-based products – is it based on (a) taste; (b) nutritional value; (c) cost; (d) other, compared to related products already in the market? |
| 2. <u>Food manufacturers:</u> Are food manufacturers reluctant or eager to develop food products with algae/extracts? If so, why? What is needed? |
| 3. <u>Microalgae producers:</u> In order of priority, what are the problems that must be solved to increase production output? |
| 4. <u>Macroalgae producers:</u> In order of priority, what are the problems that must be solved to increase production output? |
| 5. <u>A transformational change:</u> In the algae-to-food supply chain, what is needed and where to achieve transformational change? |



THE VISION

By 2030, algae and/or extracts are widely adopted in our diets, serving as sources of natural, sustainable nutrients in food products.

¹ National Food Strategy July 2020: <https://www.gov.uk/government/publications/developing-a-national-food-strategy-independent-review-2019/developing-a-national-food-strategy-independent-review-2019-terms-of-reference>

² EU Food2030: <https://ec.europa.eu/research/bioeconomy/index.cfm?pg=policy&lib=food2030>

2. Workshop Outcomes

- “Hero” products – the story, nutrition, health benefits – will need appropriate amounts of algae, and cost, labelling, information back up
- Collaboration is needed – UK cannot do it alone – between stakeholders, and also world-wide
- Big data – insights needed about what is going on world-wide
- Investment – missing – too risky to scale up
- Regulation – hindering investment in particular; education of policy players
- Social license to operate – needed for farmers/production/align to sustainability
- Sustainable utilisation – not exploitation; chime with current consumer ‘mood’/priorities
- Evolution not revolution – incremental steps already in process via niche products