

Blue Bioeconomy: Towards a strong and sustainable EU algae sector

EIT Food contribution to the Commission's Consultation on the EU Algae Strategy

The potential for microalgae and macroalgae to play a significant role as alternative protein and other nutrient sources in Europe is huge. This could reduce pressure on land-based agriculture, alleviate the environmental impact of the sector and directly contribute to the transformation of EU food systems.

EIT Food welcomes the opportunity to contribute to the public consultation on the EU Algae Strategy.

In line with the Farm to Fork and Bioeconomy Strategies, we share the Commission's ambition to provide well-targeted support for the EU algae industry, particularly in the food and feed sector. This resonates with our approach of fostering sustainable aquaculture, alternative proteins and circular food systems in the EU.

However, to increase algae production and consumption for food and feed in the EU, we are currently faced with multiple challenges. Many potential technological and business streams for scaling up sustainable algae production and consumption are yet to be investigated. **The EU Algae Strategy needs to ensure continuous support throughout the different steps of the path to innovation**, from closing knowledge and technological gaps by leveraging R&I as well as education, to providing support to build a stronger industrial ecosystem, all the way to fostering consumer awareness, trust this novel concept and acceptance of algae-based products.

In order to address these challenges, we believe that focussing EU support for algae on initiatives which fall within three key areas will maximise the impact of the Algae Strategy.

1. Leverage R&I and education to exploit the full potential of algae

Research and innovation are crucial to improve our understanding of algae and unleash their full potential as future-fit solutions for sustainable food and feed in Europe. At the production level, one of the major challenges faced by the algae industry is the optimisation of growth conditions to ensure that algae production can be scaled up in a sustainable fashion. At the processing and consumption level, research is needed to deepen knowledge about the nutritional properties of algae, as well as to enhance consumer acceptance by improving the sensory, taste and flavour properties of algae, and design products which meet consumers' requirements. Contributions from the food processing, flavour and ingredient industries will play an important role in this.

To leverage R&I and education to exploit the full potential of algae, we propose the following initiatives:

- **Construct a regulatory framework that encourages innovation and minimises red tape, especially for pioneering projects.**

To support this emerging sector, we need to ensure that the regulatory frameworks surrounding it are clear and easily navigable by those who pioneer research and innovation within it. This will enable the EU to keep up with the competition of non-EU countries which are currently seeing the benefits of investment in algae technology.

- **Provide Education and training to aid the development and uptake of innovative solutions**

This will ensure we are able to equip all stakeholders with the necessary knowledge and skills to exploit the full potential of algae, and the product formulation skills necessary to ensure marketability. Training and professional development programmes in algae cultivation and processing technology will facilitate their exploitation and will increase the attractiveness of the sector.

- **Develop a package of vocational education, training and incentives for farmers**

Providing this specialist support will facilitate a just transition of existing producers from land-based agriculture towards production of algae-based feed. With this in mind, the set-up of adequate testing and demonstration facilities will also be crucial to ensuring the uptake of innovative solutions.

2. Build a strong and well-connected industrial ecosystem at EU level

Algae is an emerging sector in the EU, and therefore both financial support and community support will be crucial to it becoming an established part of our food system. We propose the following initiatives to directly support this:

- **Provide targeted financial support and incentives to investment**

Due to the risks associated with innovation and entrepreneurship in a relatively new and underdeveloped market, financial support and incentives to investment will play a crucial role in the launch of new technologies and products, and the creation of new ventures. Innovators should therefore be supported through earmarked funding, with particular attention paid to innovative start-ups and SMEs, which largely dominate the EU algae sector. As algae remains an emerging sector within the EU, risk premiums and other investment incentives, such as financing infrastructures, should be encouraged. To ensure the affordability of the final product for consumers, additional measures should be aimed at cutting production and processing costs, including the transformation of raw materials into functional ingredients.

- **Build an inclusive and innovative EU algae community to facilitate knowledge exchange and collaboration**

We believe that building an inclusive and innovative EU algae community by bringing together diverse actors will help drive innovation and entrepreneurship to turn the EU's algae ambitions into reality. Providing actors across the value chain with networking and match-making opportunities will be essential to promote collaborative processes that enable knowledge transfer and best practices sharing across Europe, particularly addressing SMEs' needs. It will also help to bring innovative ideas from the lab to the marketplace with the support of the right industry partners and investors and, where necessary, the local authorities and communities who might have a stake in the development of aquaculture projects. To foster synergies and design policies needed for systemic change, this ecosystem should additionally actively involve consumers in innovation processes, most notably in activities such as collaborative near-market research.

EIT Food stands ready to proactively contribute to the creation of a stronger EU algae community, by leveraging its pan-European ecosystem of industries, universities, research organisations, startups and investors, promoting the development of innovative solutions, providing education and skills, and involving consumers in the process.

3. Raise social awareness and consumer acceptance of algae-based food

As key drivers for change, consumers have an important role to play in shifting towards more sustainable food systems. In order to engage consumers, we propose the following initiatives:

- **Raise awareness and trust through public education and communication campaigns**

Education and communication campaigns are necessary to raise societal awareness about the nutritional and environmental benefits as well as the safety of algae in food products. On the food side, such campaigns will empower consumers to make healthier and more sustainable food choices, for instance by raising awareness of the potential of algae as alternative protein source.

- **Involve consumers in the co-creation of new products**

To increase consumer trust and ultimately acceptance of algae-based food products, a consumer-centric approach to the development of such products will be key: appealing taste, smell and texture as well as affordability and convenience will influence consumers' interest in algae-based products. The participation of consumers in R&I projects will stimulate efforts to meet their needs and expectations and, together with information, labelling and measures fostering the digitalisation of the food system to ensure traceability, it will increase their trust in novel food solutions based on algae. Robust quality standards will likewise play an important role in increasing consumer acceptance by certifying the sustainability and safety of algae-based products.

Conclusions

The many interlinked challenges faced by the algae industry require ambitious measures to shift towards a strong and sustainable EU algae sector. Ensuring continuous support to actors across the food value chain will be fundamental to the successful development and implementation of the EU Algae Strategy. Specifically, boosting innovation and public acceptance while creating a strong industrial ecosystem will serve as a catalyst towards this ambition. The EU Algae Strategy should provide the impetus to foster synergies between policymakers, innovators, producers and consumers, and co-create the innovations and policies needed for systemic transformative change.

About EIT Food

EIT Food is the world's largest and most dynamic food innovation community. We accelerate innovation to build a future-fit food system that produces healthy and sustainable food for all.

Supported by the European Institute of Innovation and Technology (EIT), a body of the European Union, we invest in projects, organisations and individuals that share our goals for a healthy and sustainable food system. We unlock innovation potential in businesses and universities, and create and scale agrifood startups to bring new technologies and products to market. We equip entrepreneurs and professionals with the skills needed to transform the food system and put consumers at the heart of our work, helping build trust by reconnecting them to the origins of their food.

We are one of eight innovation communities established by the European Institute for Innovation & Technology (EIT), an independent EU body set up in 2008 to drive innovation and entrepreneurship across Europe.

Alongside our partners, we have supported and continue to champion various projects which aim to advance the development of the EU algae sector through innovative processing methods and education programmes. Among others, our INSPIRE organic milk project is investigating the potential of fortification of organic milk through seaweed, whereas our SeaCH4NGE and SEAFEED projects are exploring the benefits of using seaweed as feed supplements for cattle. Furthermore, our Energy-to-Feed (E2F) project focuses on developing a sustainable source of protein & lipid from omega-3 rich microalgae cultivated using clean power sources and natural CO₂. Additionally, our Seedbed Incubator Programme supported the start-up

Algacraft in building a service that focuses on defining optimal cultivation conditions for algae. Finally, we successfully ran online professional development courses targeting postgraduates, post-doctoral and industry researchers on algal biology, culturing, growth and biotechnology, and trained graduate students in leading European universities in methods for processing, fractionation and characterisation of algal components, with emphasis on proteins.

Find out more at www.eitfood.eu