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Seaweed I - First General Recommendation

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1. Definition and limitations

Definition

Seaweed, also referred to as macroalgae, comprises several species of macroscopic and multicellular marine algae. It includes some types of Rhodophyta (red), Phaeophyta (brown) and Chlorophyta (green) macroalgae. The term 'seaweed' lacks a formal scientific definition as well as a common multicellular ancestor, rendering it a polyphyletic group. Seaweed has no root and extracts all nutrients from the body of water in which it grows. It can attach itself to a surface and remain in the same location despite sea currents and waves. Seaweed grows in marine and brackish waters.

Limitations

This paper focuses on the cultivation of seaweed and not on wild harvest or gathering stranded biomass on beaches.

2. Brief overview

Consumers

Seaweed's product narrative portrays it as a healthy food product or good medicine. This narrative has reached consumers and the demand for seaweed products has been increasing, evidenced by their presence in supermarkets. These products originate from wild harvest and cultivation. However, almost all cultivated algae found in EU markets is imported.

Industry

The raw materials that seaweed's biomass can provide to the food, chemical and cosmetic industries have been explored for decades; seaweed products are already on the market. The industry demands raw biomass of constant quantity and quality for its processing factories. This is something that current

primary producers of seaweed in the EU have difficulty delivering. Therefore, the industry mainly uses wild harvests from different locations around the world as an adjustment variable.

Primary production

Primary producers of seaweed in the EU struggle with a long payback period for investments. This is because they lack experience in seaweed cultivation, coastal planning is insufficient to allow for farming areas and weather can impact harvest, the same way as for agriculture. It will take several decades of cultivation to be able to accurately estimate the yield and the constant quality reachable at each location.

3. Arguments

Seaweed cultivation has a high potential along the EU's coastal waters.

Increased seaweed cultivation in EU waters gives substantial potential for a new source of biomass for food, feed and industrial uses. In addition, the production process provides relevant ecosystem services, such as nutrient and carbon sinks and habitats for marine microlife and fish reproduction. Clever distribution of areas for farming with buoys, ropes and chains can also protect Natura 2000 areas and sensitive shorelines from unwanted vessel traffic. Natura 2000 areas can also benefit from neighbouring seaweed production because it ensures the presence of professional employees to keep an eye on things and report possible infringements. Birds also benefit from buoys and increased fish reproduction, and local commercial and recreational fishermen benefit from increased wild fish populations.

Licensed production areas should be situated in water deep enough to not shadow present ecosystems found on the sea floor. Not only the surface of the farmed Seaweed itself introduces new areas and hiding places for small sea animals, but by introducing new types of production gear, designed to promote biodiversity (e.g. with extra large surface area, like a coral reef), increased sitting space for numerous species is provided in an otherwise empty water column. This means that seaweed farming can yield net-positive biodiversity.

Innovative seaweed farm designs can attract tourists, inviting them to visit and "dive in", which can benefit the local tourism industry. In contrast to aquatic animal farms, there are no animal welfare issues involved. Finfish and shellfish farmers can actually benefit from sending tourists to neighbouring seaweed farms.

For the last century, agriculture production in the EU has used, and continues to use, artificial nutrients in fertilisers in surplus compared to nutrients in harvested crops. This surplus undoubtedly ends up in our water bodies. EU citizens are concerned about the environment and are willing to correct past mistakes. Therefore, the more knowledge can prove that seaweed cultivation can correct the nutrient status in EU water bodies, the more citizens support it. This is also in line with the EU Water Framework Directive, which strives to restore the nutrient status in watersheds to levels before the use of artificial fertiliser. Seaweed farming could be considered as the best way for EU member states to achieve good water quality and environmental status.

Since consumers have reacted positively to seaweed's product narrative and the industry already produces products from wild algae, the focus must be given to primary production in seaweed cultivation.

For a primary producer to yield sufficient amount of seaweed and predict turnover rates that can support their business, they need production areas of relevant size and leases that give them enough time to pay back their investments. For example, in wheat farming, farmers need several hundred hectares to support employees. There is also a lot of information about wheat farming because it has a long history. Similarly, seaweed production licences need several square kilometres to give farmers an opportunity to build their businesses. The licence duration should be long enough to motivate an investment in this emerging industry and account for difficulty in predicting weather.

The EU research community should be rallied to support seaweed farmers.

4. Recommendation

4.1. Licence to operate

To expand seaweed production, the most important issue to address is the legal framework. The EU Commission could develop guidelines for member states on how to establish a legal framework for granting licences to establish new and expand existing seaweed farms. This would also include allocating space and ensuring social acceptance.

4.2. Production

We need a solid and ongoing R&D plan to develop protocols for identifying optimal sites, optimising farming technologies and farm management to ensure predictable quantity and quality at a predictable cost.

4.3. Placing on the market

The EU Commission needs to analyse current legislation (e.g. food safety) to ensure that issues related to seaweed (e.g. labeling) are properly addressed. An EU certification standard could properly accelerate market development, build confidence in the novel food/ingredient and support a level playing field with imported products. The Commission might need to introduce new combined nomenclature codes to keep track of EU and imported products.

5. Future work

The Aquaculture Advisory Council (AAC) will oversee the possibility of producing a second recommendation on seaweed, including a list of species of interest that can be farmed in Europe, a list of market opportunities for this kind of production and the identification of the ecosystem services provided.



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