

Vetik

Vetik is an Estonian-based start-up founded in 2017. The company focuses on discovering innovative ways to valorise a local wild red seaweed *Furcellaria lumbricalis*. This unique stock of wild seaweed is growing between the two biggest islands of Estonia - Saaremaa and Hiiumaa, in the West Estonian Archipelago. The company aims to utilise its full potential by developing the production of high value products, e.g., a new plant growth promoting bio-stimulant and a red colourant for food and cosmetic applications. While Vetik is only a young startup, it has high ambitions of establishing new value chains in Saaremaa Island to create new job opportunities and even start a large-scale seaweed cultivation in the Baltic sea.



Regional Context

Estonia's marine strategy and regulatory framework are evolving to support emerging marine industries, with a focus on eco-friendly and economically sustainable practices, as outlined in a recent study of shellfish and algae farming business plan issued by the Estonian Climate Ministry. The regional context of Estonia, particularly in relation to the blue bioeconomy and commercial activities in the macroalgae value chain, is marked by growing interests and investments in seaweed, as well as shellfish farming. Estonia's coastal areas, notably the West Estonian Archipelago,

offer a conducive environment, particularly for seaweed farming, given the presence of several native seaweed species like the red seaweed *Furcellaria lumbricalis*. The sector is gaining traction due to its multiple food, biotechnology, and environmental applications. Moreover, the potential of aquaculture as nitrogen and phosphorus removers from seawater is particularly relevant for Estonia due to the high levels of eutrophication that characterise the Baltic Sea.¹

¹ Riigi Tugiteenuste Keskus, Kliimaministeerium, [Karbi- ja vetikakasvatuse äriplaani uuring tegevuse majandusliku otstarbekuse väljaselgitamiseks](#). Accessed 31 January 2023.

Value Chain

Vetik operates in the Baltic Red Seaweed value chain. This local seaweed has been harvested in Estonia since the 1960s, and the harvesting process has not appeared to harm the raw stock. This algae's estimated wild stock resource is 150,000 tonnes, and the company's shareholders have access to 640 tonnes per year. So far, this red seaweed has been commercially used only for the production of furcellaran, a polysaccharide gelling agent used predominantly in the food industry as a vegetarian- and vegan-friendly alternative to gelatine. While the *Furcellaria lumbricalis* seaweed is also found in Denmark, Poland, Latvia, and Canada, today, only the Estonian company Est-Agar produces furcellaran from this red seaweed.² However, as demand for this product has fallen in recent years due to market shifts and the price of alternative seaweeds have lowered significantly, it has become less economically viable to harvest and use this specific seaweed for only carrageenan production.

Hence, Vetik is exploring additional high-value product, namely the red pigment for food and cosmetic applications and the bio-stimulant for agriculture.

Finding and securing customers for these new applications requires substantial production development, samples with consistent quality and demonstration of large-scale production capability. This requires large investments and a leap of faith for both Vetik and potential buyers. Vetik's approach to solving this challenge is leveraging public funding opportunities. One such is a BlueBio Cofund project, TACO Algae, and other grants, which is a collaborative research initiative funded

² Invest in Estonia, [Estonia's unique red algae finds its way into sweets and pharmaceuticals](#). Accessed 31 January 2023..



under the European Research Area Network (ERA-NET), which amounted to €100,000.³

At this stage, Vetik's involvement in the value chain involves not only processing seaweed but also finding the right partners for further stages of product development. However, finding suitable partners is challenging due to Vetik's small size and the high-risk investment that is involved in product development. For example, their collaboration with a Finnish company on bio-stimulants has been ongoing for three years without reaching a sales stage, illustrating the lengthy process of building trust and forging partnerships.

Additionally, the company recognises the need to transition from wild-harvested seaweed to cultivation to ensure sustainable resource management and consistent supply for their biorefinery processes. However, as seaweed cultivation involves additional licensing and higher costs compared to harvesting, this step cannot be taken at the current stage. Nevertheless, Vetik sees the current situation as a starting point for growth. With their access to wild seaweed, they can begin operations and, over time, transition to a more sustainable cultivation model. This approach might attract more interest and investment as they provide proof of concept for their business model.

³ Vetik, [Funding](#). Accessed 31 January 2024.

Regional and Local Enabling Conditions

Vetik's operations in Kuressaare on Saaremaa Island benefit from its unique geographical setting. Besides providing access to substantial quantities of *Furcellaria lumbricalis*, Saaremaa's lower salary scales compared to mainland Estonia, its higher quality of life, as well as fewer alternative employment opportunities make it an attractive location for Vetik's business operations.

Moreover, Vetik's presence in Saaremaa also involves participation in a local Community of Practice (CoP), a collaborative group focusing on bio-systems and their governance. These CoPs are regional co-creation labs that bring together stakeholders from various sectors, including research, industry, policy-making, and the local community. They work together to increase awareness, provide feedback on business concepts, and support social innovation in bio-systems.



As one of the most innovative blue biotech startups in Estonia, Vetik has gained visibility in the sector, enhancing opportunities for collaboration and funding. The company's active involvement in projects like the [AlgaeProBANOS](#), a project seeking to accelerate the development of sustainable and innovative algae-based products in the Baltic and North Sea, has been instrumental in its efforts to establish a value chain for this particular biomass.

Impact on Regional Development

Vetik's work in seaweed cultivation and processing has the potential to significantly impact the environment, economy, and society in its region. From an environmental standpoint, cultivating seaweed in the Baltic Sea can help absorb excess nutrients and address eutrophication issues. The company's products, such as bio-stimulants, aim to reduce the use of harmful fertilisers and pesticides in agriculture, while pigments extracted from seaweed offer healthy and eco-friendly alternatives to synthetic colourants.

Vetik's operational strategy is based on a localised approach. The cultivation and processing of seaweed near their base ensures streamlined operations, reducing transportation and logistical costs, and preserves active ingredients. As these critical value chain activities are to be carried out on the island, Vetik's operations can stimulate job creation in seaweed farming, logistics, and processing sectors, fostering local economic growth, introducing new skills and knowledge, diversifying the local economy, and offering a blueprint for regional development that balances commercial success with ecological sensitivity.