

*Unlocking the potential of  
macroalgae for a thriving  
European blue  
bioeconomy*



# Specification of flagship products and plan market strategy

SEAMARK DELIVERABLE 7.1  
NOFIMA



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# SEAMARK DELIVERABLE 7.1: SPECIFICATION OF FLAGSHIP PRODUCTS AND PLAN MARKET STRATEGY

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### **Abstract**

Seaweed cultivation is the fastest-growing form of aquaculture; however, it is still an underutilized resource. The main objective of SeaMark is to demonstrate how to scale up innovative seaweed cultivation and processing into price-competitive product applications making the entire supply chain attractive for commercial investments.

To be competitive, companies need to develop new products to meet consumers' ever-changing needs and wants. However, product development can be very risky. One way of reducing this risk is to combine new product development efforts with good business models and GTM strategies. An important project goal is to develop go-to-market (GTM) strategies that can serve as a basis for the successful production, sales, and delivery of SeaMark products. This report outlines the initial analysis of the flagship products and opportunities and constraints relating to their GTM strategies. The collated feedback of the initial GTM strategies of the different Seamark flagship product producers forms the basis for a SWOT analysis. This report provides the foundation for understanding the status of the GTM strategies and how these can be developed during this project.

## LIST OF ABBREVIATIONS

Abbreviation	Description
GTM	Go to market
SWOT	Strengths, weaknesses, opportunities and threats

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## EXECUTIVE SUMMARY

The main objective of the SeaMark project is to demonstrate how to scale up innovative seaweed cultivation and processing into price competitive product applications making the entire supply chain attractive for commercial investments. This report is the first outcome from SeaMark WP7 – ‘Go-To-Market (GTM) strategies for products. This report creates a foundation for the contribution of WP7 to the SeaMark objective “Analysis of markets and consumer preferences” (SO9). This initial report contains a preliminary analysis of the GTM strategies for the SeaMark flagship products which are:

- Bioactive beta-glucans, Oceanium, United Kingdom
- Pig feed supplement, Fermentationexperts, Denmark
- Green alginate, Algaia, France

The initial analysis of GTM strategy is based on semi-structured expert interviews with the companies in question based on a common interview guide agreed with the companies in advance. A SWOT analysis has been carried out to outline opportunities and constraints of the different GTM strategies.

A later report (D7.3) will expand on these recommendations, and also outline the market potential and recommend GTM strategies for the SeaMark innovation products.

The semi-structured interviews were carried out in parallel with the SeaMark WP8 process mapping and characterization which included all products. For more details on the flagship products and their supply chains, see D8.1 “Characterization of SeaMark Products” report.

# INTRODUCTION

## Background

Seaweed cultivation is the fastest-growing form of aquaculture; however, it is still an underutilized resource. SeaMark will demonstrate how to scale up innovative seaweed cultivation and processing into price competitive product applications making the entire supply chain attractive for commercial investments.

The main goal of WP7 is to develop GTM strategies for SeaMark flagship and innovation products. WP7 will identify the most relevant and promising seaweed products, establish a platform for market exploitation and investigate the market structure and potential for these products. SeaMark will demonstrate market applications through sales and deliveries, beginning with pilot-scale quantities and then moving into industrial-scale quantities. Finally, SeaMark will develop and implement a robust and proven GTM strategy for selected products.

To be competitive companies need to develop new products to meet consumers' ever-changing needs and wants. The consequence is that new product introductions are common in most markets, and for most product categories, including seaweed. The key challenge with new product development is the probability of achieving success. A common belief is that 80 % of new products fail (Castellion and Markham 2013), however recent studies suggest that this rate may be as low as 25 % (Victory et al., 2021). Regardless of the failure rate, the literature implies that new product development can be very risky. One way of reducing this risk is to combine new product development efforts with good business models and GTM strategies (Kuester et al., 2018). In this work package (WP7) one of the main goals is to develop GTM strategies that can serve as a basis for the successful production, sales, and delivery of selected Seamark products.

A GTM strategy is a comprehensive plan created by an organization to successfully launch a product or service to market. A GTM strategy generally includes the following elements:

- Product description
- Product strengths
- Product-market fit
- Target market
- Competition and demand
- Distribution
- Price

While each product and market will be different, a GTM strategy should identify a market problem and position the product as a solution.

To assess the different GTM strategies a SWOT (strengths, weaknesses, opportunities, and threats) analysis is used. The

intention of the SWOT analysis is to identify the internal strengths and external opportunities that a company can utilize to accomplish its objectives, while also pursuing to alleviate internal weaknesses and external threats (Lewis and Littler, 1997). The external analysis of the GTM strategies focuses on the environmental threats and opportunities facing the companies, while the internal analysis helps identify product and organizational strengths and weaknesses. It also helps to understand which resources and capabilities are likely to be sources of competitive advantage and which are less likely to be sources of such advantages. Based on the SWOT analysis, the initial GTM strategies of the different companies can be evaluated.

## Objective and scope of this deliverable

The first task in this work package is T7.1 "Frame ideas and identify products" which this deliverable (D7.1) is the main output. While T7.1 looked at all flagship and innovation products in conjunction with the product characterization undertaken in WP8 and described in D8.1, initial in-depth interviews focusing on market potential were only conducted for the flagship products. This is according to the project plan and the D7.1 description; in-depth interviews relating to the innovation products will be undertaken as part of T7.3 and the outcome of these will be detailed in D7.3 "Initial assessment of market potential".

This deliverable will outline the initial analysis of the flagship products and opportunities and constraints relating to their GTM strategies. The deliverable is based on feedback from the users (e.g., the partners producing the SeaMark products) obtained through semi-structured interviews. The collated feedback of the initial GTM strategies of the different users forms the basis for a SWOT analysis for the different customer segments. Findings will serve as input for T7.2 (platform for market exploitation), T7.3 (investigate market structure and potential for algae products), T7.4 (initial assessment of market application potential) and the industry purchasing group (IPG).

This deliverable supplements D8.1 "Characterization of SeaMark Products" where more detail on the flagship products and the associated processes and supply chains can be found.

The one common ingredient for the different flagship products is the use of seaweed. The 3 flagship products focus on different customer segments:

- Bioactive beta-glucans for nutraceutical and cosmeceutical application
- Pig feed supplement for pig feed
- Green alginate for food texture and cosmetic texture

An overview of the three flagship products can be found in table 1.

Table 1: SeaMark flagship products, producer, and origin

Product:	Product name:	Producer:	Origin:
P1	Bioactive beta-glucans	Oceanium	United Kingdom
P5	Pig feed supplement	Fermentation-experts	Denmark
P7	Green alginate	Algaia	France

### Structure of the document

The document describes the three Seamark flagship products. It contains the initial analysis of GTM strategies based on expert interviews. Findings are then summarised in a SWOT-analysis for each product. The guide that the semi-structured interviews was based on can be found in Appendix 1.

## METHODOLOGY

### Data collection

The information collected for the deliverable is based on expert interviews with key personnel among the industry partners involved in the production of the products. The industry partners are Oceanium, Fermentationexperts and Algaia. When feasible, the interviews were conducted at the production site. In other cases, the respondents filled out a survey followed by an online interview. To make the data collection more efficient, the data collection process was coordinated between WP7, WP8 and WP9 with representatives from the different WPs participating in the interviews. The interviews were made based on a semi-structured interview guide/survey (appendix 1) that covered the different elements of a GTM strategy:

- Product description
- Product-market fit
- Target market
- Competition and demand
- Distribution
- Price

The first partner with a seaweed flagship product in the project went through an expert interview lasting almost three hours, resulting in a transcription document of 43 pages. The CEO and Project Manager attended the interview, and in addition to the flagship product, one innovation product was covered.

The second and third partners got the interview guide/survey for T7.1 sent by e-mail. One of the partners participated in a follow up interview on Teams lasting about one hour. Both flagship product and two innovation products were covered. Business Development Director, Corporate affairs and Impact manager, R&D manager and corporate affairs/marketing associate attended the follow up meeting. The last partner has reported back in writing and will be followed up later in the project.

## RESULTS AND DISCUSSION

This chapter is based on feedback from the users (e.g., the partners producing the SeaMark products) obtained through semi-structured interviews. The respondents have answered questions about the description of the flagship products and their initial GTM strategy. The collated feedback of the initial GTM strategies of the different users forms the basis for a SWOT analysis for the different GTM strategies.

### P1: BIOACTIVE BETA-GLUCAN

#### Product description

Beta-glucan is a well-known bioactive polysaccharide that can be isolated from different sources such as cereal, yeasts and fungi. Beta-glucan from barley and oats have been used for a long time but beta-glucan extracted from cultivated seaweed is new. Several health benefits are documented for application of beta-glucan in food products (Kaur et al. 2020), while benefits as ingredient in cosmetic products are less established (Du et al. 2014). Depending on the source, the extracted beta-glucan varies in chemical and functional characteristics.

Oceanium Ltd is in the process of developing OCEAN ACTIVES® Beta-glucan, which is described as the “first and only” beta-glucan from seaweed that can be used in a range of nutritional and cosmeceutical applications.

Bioactive beta-glucan is extracted by biorefining sugar kelp from frozen or dry form, separating it from fibre, filtered, and dried. The powder is then packed and delivered in food-grade, air-tight containers to customers. Oceanium’s proprietary biorefinery technology is a 45-step process ‘trade secret’ extracting maximum value from farmed seaweed to produce a suite of high quality, in demand products:

- food ingredients - fibre and protein
- nutraceuticals for health and cosmetic applications – Beta-glucan and fucoidan
- innovative new materials – Bio-packaging materials

For more detail on this product, the processes, and the supply chain, see D8.1 “Characterization of SeaMark Products”.

#### Product strengths

The first stage of building a GTM strategy is to identify the strengths of the product. This is done by analysing which strengths or unique properties the product has compared to other solutions in the marketplace.

Oceanium defines the array of potential health benefits as strengths of the bioactive beta-glucan produced from seaweed, such as lowering cholesterol, boosting the immune system, and aiding in gut health and function. However, these

claims need to be validated. This will be investigated during the Seamark project and will be important for future market potential. Another product strength of beta-glucan produced from seaweed is that it is water-soluble and has lower molecular weight compared to other products in the market.

According to Oceanium, the use of cultivated seaweed is more sustainable than wild harvested seaweed regarding the negative impact on the environment and loss of biodiversity.

### **Product-market fit**

An important part of a GTM strategy is defining the product-market fit. This is done by analysing what specific problem(s) the product solves or the degree to which a product satisfies a strong market demand. Through conducting literature reviews, Oceanium has identified several specific problems that bioactive beta-glucan could solve. Most Beta-glucans currently in the marketplace are from yeast, so the additional sustainability story behind seaweed as the ingredient source is very powerful for consumers who are driven to natural and healthy-for-you products. Furthermore, using sustainably cultivated seaweed adds to the same trend of naturalness. Oceanium also believes that developing the sustainable seaweed industry will create local jobs in engineering and production across rural coastal regions, supporting a just transition through repurposing coastal infrastructure and skill sets from oil and gas to seaweed processing. Sustainably farmed seaweed also can mitigate eutrophication by absorbing nitrogen and phosphorus, which increases biodiversity and protecting nursery grounds and seabeds, strengthen their message. Finally, Oceanium believe that their biorefinery model ensures that infrastructure is in place for seaweed to play an important role in future food security and supply.

### **Target market**

The second part of a GTM strategy is to identify who is experiencing the problem your product solves. For the beta-glucan product, Oceanium is targeting the high-end nutraceuticals and the cosmetic industry markets. For nutraceuticals, they are targeting the high-end nutraceutical (health/supplements) market, and cosmeceuticals (skincare) businesses.

Oceanium will launch OCEAN ACTIVES® Beta-glucan in a staggered approach, focusing first on the US market which has a high demand and whose regulatory mechanisms are ready for this product. They are so in contact with buyers in the EU and UK, to deliver OCEAN ACTIVES® Beta-glucan to the European markets over the next years. Oceanium are focusing on science-driven and data-backed companies with an interest in plant-based sources of Beta-glucan within both nutraceuticals and cosmetics companies. Although still early in production phase, Oceanium has identified companies that are mission aligned with whom they can sample their product when it is available after SeaMark processing campaigns in 2023/2024.

### **Competition and demand**

Oceanium has identified the competition in the market for beta-glucan. The competitors are producers of beta-glucan from other raw materials than seaweed (i.e., cereal, yeasts and fungi). When asked who their competitors are, DSM, Lantmannen, and Caepro are mentioned. These competitors are targeting the same markets as Oceanium. The competitors are generally large multinational companies. Compared to the competitors Oceanium use sustainably farmed seaweed, rather than wild harvested seaweed, due to the negative impacts of wild harvest on the environment and loss of biodiversity. Furthermore, they produce a suite of high-value products through innovative biorefinery technology, which would be difficult to replicate and scale. They are also heavily involved in research projects to validate the potential health claims, which could give them a competitive advantage to their competitors.

Oceanium is targeting both the nutraceutical and cosmeceutical market with their beta-glucan products. The total nutraceutical ingredients market is expected to grow to \$75 bn by 2028 with a 7% CAGR. The total cosmetic industry is expected to grow to \$51.6 bn with a 5.6% CAGR by 2030. Although Oceanium isn't currently in the market with bioactive beta-glucan, the growth rate of the Beta-glucan market is 7,7% CAGR, so Oceanium are confident there will be demand for their product once launched. They are also heavily involved in research projects (in vitro and in vivo tests) to back up their health claims, which will be very important for future market potential. Oceanium plan to grow consumer and company awareness of beta-glucan as a product and potential solution through an integrated marketing strategy and will also be sharing the overall benefits of seaweed as an ingredient source.

### **Distribution**

Oceanium has identified a distribution channel for beta-glucan. When launched, the short-term distribution will be direct shipment from the production facilities to the customers. Further down the line, as the production scale and volumes rise, they will have to assess the necessity of a warehouse and a distribution partner. As of now, they have estimates for the distribution costs.

### **Price**

As the production of Beta-glucan still is in small scale, they are currently in the process of building out their pricing strategy. Because Beta-glucan is readily found in the marketplace, the foundation of Oceanium's pricing strategy is to match the pricing level of the competitive products. They are continuing to build out a cost structure and receiving feedback from potential customers.

## P5: PIG FEED SUPPLEMENT

### **Product description**

The product is a supplementary feed made from fermented seaweed and rapeseed, sold primarily to pig farmers. The fermentation is done by lactic acid bacteria which produce substantial lactic acid in the finished product. The company Fermentationexperts produces four different types of fermented complimentary feed for pigs: EP199, EP119, EP229 and EP299. The 100-series is based on fermented rapeseed, and the 200-series is based on fermented soy (EP is short for European Protein). EP199, a mix of fermented seaweed and rapeseed, is the flagship product in Seamark. The seaweed pig feed supplement (EP199) is mixed with feed ration, normally at a ratio from 0,1 to 20 percent, depending on whether it is intended for piglets or sows. Even with the contribution of seaweed, a major part of the product is rapeseed meal (canola oil by-product), constituting around 90 percent. It is not used for pigs ready for slaughter since they do not require the more costly feed supplement with health benefits. Depending on the problems at a farm, for instance, high bacterial pressure, different percentages of the mixture can be used. The exact dosage differs a lot from farm to farm how they are using it. If the dosage is too high, the pigs can get protein diarrhoea, in which case the dosage is lowered. It is very individual how the pigs respond to it, so it is a trial-and-error process.

This product is at Technological Readiness Level (TRL) 9, which is the highest TRL level. It means that the product is fully commercialised, thus, already on the market, contrary to the other flagship products in SeaMark.

For more detail on this product, the processes, and the supply chain, see D8.1 "Characterization of SeaMark Products".

### **Product strengths**

According to Fermentationexperts, fermented seaweed is added to the plant material in the fermentation process for multiple health benefits, such as increased animal productivity and well-being from the fermentation process. Improved feed conversion rates, lower feed usage, immune system boosts and improved gut health, no use of antibiotics, and no use of zinc were mentioned as the main product strengths. Besides, the fermentation process itself removes the bitter substances from both rapeseed and seaweed. Another product strength is that because of the fermentation process, the pig sows produce more liveborn piglets, and they produce more milk as well, so they can take care of their piglets. Adding fermented seaweed to the pig feed supplement adds other well-being benefits than feed supplements produced from fermented rapeseed meals without added seaweed.

A challenge with the health benefits mentioned is that legislation prohibits the use of these claims in Fermentationexperts' communication with their customers within the EU. The US market is a little bit more open to claims

but not totally open. In Asia, they can use health claims on their product.

### **Product-market fit**

The fermented seaweed pig feed supplement improves animal production rates, lower the protein usage, and has positive health and well-being effects on pigs. Having both health benefits and increased production rates is important, as farmers will not buy the product solely for the improved health or well-being of the pigs. There must also be an economic gain to compensate for the increased feed cost.

A specific problem this product solves is that fermented pig feed improves animal health without using antibiotics or zinc. New EU regulations (2019/6 and 2019/4) prohibit routinely use of antibiotics, prophylaxis use of antibiotics and allows for metaphylaxis use only when the risk of spreading infection or of an infectious disease in the group of animals is high and where no other appropriate alternatives are available. In practice, this means that for many farmed animals across the EU, their good health will need to be achieved by avoiding routine antibiotic use and using alternative approaches, such as fermented pig feed. However, as previously mentioned, the company cannot use health claims to sell their product within the EU.

When Fermentationexperts get pig farmers to try their product, 80 % of them keep buying it. This illustrates the importance of a close relationship with customers and getting farmers to test the product.

### **Target market**

Fermentationexperts sell mostly directly to pig farmers and feed mills in Denmark, and in addition, they have two distributors nationally. Outside Denmark, they have identified 30 markets with pig and poultry production that they are considering. Currently, they sell the product in the EU through distributors. Outside the EU, they have one factory in Ukraine that serves customers in the Middle East and Asia. They also have a factory in the US focused on the American market.

In addition to pig farmers, fermented feed supplement could be sold to farmers of fish, poultry, and horses. Furthermore, petfood and human consumption are mentioned as potential future target markets.

### **Competition and demand**

The competitors in the pig feed market are big companies like Cargill in the European market. Fermentationexperts does not have any big partners in the EU, while in the US they, have used several big partners to sell the product. Their fermented feed products are competing with antibiotics from the veterinary medicine industry. The competition depends on the target market, in Poland, where the company is blocked by the veterinary medicine industry. In other markets the big feed mills are their main competitors, especially when farmers buy directly from the feed mill, like in Germany. So, there is strong competition. Some of the competitors are big multinational

companies that are targeting markets worldwide. In the EU, it is difficult to be a small company in terms of marketing and personal selling (meeting potential buyers face-to-face).

Fermentationexperts is the only producer of fermented feed in the western world. The product is natural and can improve the health of animals without the use of antibiotics. However, not being able to use health claims is a major obstacle in terms of marketing the product, especially within the EU. Seamark has dedicated tasks to try to validate some of the health claims, which could give them a competitive advantage.

Furthermore, the low carbon footprint of the fermented products, is a competitive advantage that will be of more importance in time to come according to Fermentationexperts. Fermentationexperts has 15 patents that makes it difficult to copy the process of producing their product. They are therefore very restrictive in allowing people into their production facilities to avoid industrial espionage.

According to Danish Agriculture and Food Council ([agricultureandfood.dk](http://agricultureandfood.dk)), the Danish pig farming industry has an output on around 28 million pigs annually needing around 200 kg of feed each year, which means 5,600,000 tons of feed. Fermentationexperts manufactures 25,000 tons of feed in their Danish factory. Difficulties for the pig farmers in terms of increased feed costs, have decreased the market lately, but they are very optimistic for the US market where they expect growth next year

The revenue of the pig feed market targeted is difficult to estimate these days with surging prices for raw materials and production costs. Input factors are global and are changing from day to day.

### **Distribution**

Fermentationexperts sell mostly directly to farmers in Denmark and in addition they have two distributors nationally and some in other markets. Thus, they already have a working distribution channel for their product. Distribution cost differ from market to market, but around 25 % is normal. Distribution of competitors are better.

### **Price**

Their pricing strategy follows the global market for raw materials. The following quote illustrates this: "So, it's changing every day because the price of soy and rape is changing all the time, and you follow the ups and downs". Willingness to pay depends on the farmer's bottom line.

## **P7: GREEN ALGINATE**

### **Product description**

The flagship product green alginate is produced by Algaia. Alginates are natural polysaccharides, polymers consisting of copolymers of Mannuronic and Guluronic acids. Features such

as high viscosity, gelling properties, and high stability make alginate an important industrial polysaccharide (Angra et al., 2021).

Green alginate is an alginate that has been manufactured using eco-friendly processes and chemical-free extraction. Algaia alginates are naturally occurring polysaccharides produced from brown algae. They demonstrate versatile functionalities as a powerful thickening agent, gelling agent, emulsifier, stabilizer, or moisture retainer in a wide range of applications.

Alginate is used as gelling and thickening agents in many food applications and categories such as ice cream, snacks, dressings, puddings, creams, processed cheese and powdered products. It has also a unique property to create non-thermo-reversible gels useful for vegetable or meat chunks, casings and stuffings.

Other applications than food include cosmetics, supplements, medical devices, pet food and in textile, welding, paper and latex industries. Examples of applications are in biofilms, capsules, fibres for textiles and plasters, dental impressions, and to stabilize pigments and gels. Green alginates are used as an ingredient, either in secondary processing (e.g., encapsulation systems) or by end users (e.g., cosmetics producers).

For more detail on this product, the processes, and the supply chain, see D8.1 "Characterization of SeaMark Products".

### **Product strengths**

Algaia has identified several strengths of green alginate produced from seaweed. One strength of this product is that it is from a natural, plant-based origin. Furthermore, the fact that it is derived from marine sources could also be perceived as an added value. Seaweed alginate represents a dependable ingredient source with low volatility in supply.

Another important strength is that the production involves eco-friendly processes. One of the main goals of Algaia is to develop eco-friendly extraction technics limiting or, whenever possible, eliminating completely the use of chemicals while reducing CO2 emissions. This is also one of the goals of Seamark. If successful it will be possible to use the claim "solvent-free" and achieve organic certification.

Another strength is its high viscosity, gelling properties, and high stability, which makes it versatile through a wide range of applications. A potential strength of alginates is health claims such as dietary fibres. The product is also highly biodegradable,

### **Product-market fit**

The strength of the product is the lack of sustainable texturizers from marine sources in the market. The main natural sources of texturizers are animals (gelatines), and a

plant-based source may be more acceptable as this is more sustainable. Pectin is the main plant-based alternative, but it can be less available as the production depends on the availability of fruit by-products.

Many alternative products on the market are produced with heavy chemical usage and are not sustainable in the same way as Algaia's green alginate. The natural and sustainable origin makes the product quite unique when used as a food additive or in cosmetics.

### Target market

The target market for green alginate is the food ingredient market requiring sustainable sources of natural polymers and the same approach to the cosmetic market, which requires smaller volumes but is a higher value market. In the cosmetic market Algaia is targeting natural cosmetic manufacturers using the Cosmos standard. The Cosmos standard is an organic and natural certification covering all aspects of the sourcing, manufacture, marketing, and control of cosmetic products.

Algaia is predominantly focusing on the French and European markets as local sourcing, and low impact will be key in positioning the product to potential customers in order to justify costs. They are also positioning the product towards customers with an interest in marine, non-animal sources of ingredients.

Eventually, they believe there will be a global demand for more sustainable sources of alginates.

### Competition and demand

For green alginate, Algaia has identified only one competitor from Japan. The Japanese company produces low volumes of green alginates at very high selling prices. For alginate in general there are competitors. However, according to Algaia most of these competitors are producing alginates with the use of chemicals that should be removed from the manufacturing process. Algaia processes seaweed without the use of chemical preservation or drying.

Compared to the competitors, Algaia's strength is based on local production with short supply chains. Algaia's production plant is located next to the second-largest brown seaweed source in Europe, ensuring a short supply chain and a regular supply of fresh seaweed. This is also a considerable advantage for reducing transit time prior to processing, producing high-quality alginates, and fulfilling Algaia's sustainability objectives in terms of eco-friendly processing. Seaweed is also a sustainable source of raw material.

Algaia also provides high technical R&D support for their customers. As an example, Algaia can help customers establish adequate quality controls to measure functionality, stability, and bioactivity for algal extracts.

Small-scale sourcing and flexibility in production are appreciated by customers, a service many of the competitors can't deliver.

Algaia is aware of its weaknesses compared to competitors. One weakness is price competitiveness as their main customers are large multinational groups with great logistic capacities, which leads to a demand for large volumes. Big multinational companies also have the financial capability to purchase large quantities of seaweed if needed. However, Algaia believes that its production costs will decrease over time, which will help them become more competitive in the marketplace.

Algaia estimates the total market for regular alginate to be over 12,000 tons. Algaia's market share is less than 10 %. They do believe that a differentiated product of green alginate will help to grow this market share, especially for the cosmetic market. However, they point out that the potential supply of cultivated sugar kelp (*Saccharina latissima*), and the production costs mean they will focus on high value applications with smaller demand in terms of volume and higher willingness to pay. Some specific food and cosmetics applications could absorb several hundreds of tons of green alginates.

### Distribution

Algaia has identified distribution channels and is currently using direct sales and a global network of ingredients distributors. The direct sales are to large multinational companies such as Nestlé, Lactalis and Coca-Cola for food and L'Oréal for cosmetics.

They do not have any particular issues with distribution at this point. The distribution cost varies but is around 15% of the sale cost.

### Price

Green alginate will cost more to produce due to biomass price. The pricing strategy for Algaia is to add up production costs of green alginate and properly assess the possible mark up by discussions with a few long-term partners. As it initially will be based on small volumes, they will limit sales volumes to each of their customers at a known fixed price. Later they should be able to increase the production volume and thus allocate more to each customer.

At this stage, Algaia doesn't know their customers' exact willingness to pay, but they estimate a market value of €25-50 per kg. They are still working on key product elements, such as colour and odour, but they are confident that they will absorb extra production costs and slight markup on specific niche food and cosmetic applications.

## SWOT ANALYSIS

The SWOT analysis outlines the strengths, weaknesses, opportunities, and threats that must be taken into consideration for the respective GTM strategies for the Seamark flagship products. The SWOT analysis can be found in table form in appendix 2.

### *P1: Bioactive Beta-glucan*

#### **Strengths:**

Oceanium has the first mover advantage with bioactive beta-glucan of seaweed. The product has several potential health benefits, and it is based on all natural ingredients. Compared to competing products their product is water soluble and has a low molecular weight. This could be used to differentiate their products. Their production is based on new technology that is not easily copied and the extraction method can result in several new products. Potential customers for the product have been identified.

#### **Weaknesses:**

There are several potential weaknesses. Oceanium is not currently in the market with the product and needs to build a factory to scale up. They also need to validate their claims of positive health effects in order to differentiate their product from competitors. They also need to identify specific customers, which they can't do before they have developed product samples to be tested.

#### **Opportunities:**

Oceanium is targeting both the nutraceutical and the cosmeceutical market, which are both growing. They also focus on the growing global trend of natural and healthy products. They are involved in several research projects to validate health claims and to identify and validate positive health effects that are different from their competitors.

#### **Threats:**

Oceanium is going to enter an established market with many competing products (substitutes) produced from other sources than seaweed. To be a small-scale producer in a market containing large multinational companies (i.e., Sigma-Aldrich) can be challenging, as such customers can increase pressure on price and supply.

### *P5: Pig Feed supplement*

#### **Strengths:**

Fermentationexperts has the first mover advantage, and their supplementary pig feed based on seaweed is already sold in several markets. An important product strength is that it improves animal health without the use of antibiotics. In addition, it improves the feed conversion rate. Fermentationexperts has a very high rate of repurchase after testing the products, which indicates high product satisfaction.

They hold a lot of patents related to the production process, which makes it more difficult to copy their products.

#### **Weaknesses:**

As of now, EU legislation prevents the use of health claims in their communication. There are however possibilities in the US and Asian markets. Being a small player, the company has a disadvantage in term of distribution compares to bigger competitors. Price is always an issue and as the product is a supplement, the company must prove its worth to customers who are pressed on margins. A potential weakness is that bioactive beta-glucan of seaweed has a lot of potential applications and Oceanium is targeting different types of markets (i.e., nutraceuticals and cosmeceuticals). This could be challenging in terms of sales and marketing resources.

#### **Opportunities:**

One of the tasks of SeaMark is to validate positive health effects. As the only producer in the western world of fermented seaweed feed supplements, validating health effects (or if health claim legislation in the EU is changed) will represent a big opportunity for Fermentationexperts. Being able to use health claims would enable them to differentiate their products from competitors. Another opportunity is expansion into other market segments such as the fish feed industry, pet food industry and other types of animal farming industry. With their high rate of repurchase, increasing the number of farmers that can test the product, could further increase their sales.

#### **Threats:**

One threat for Fermentationexperts lies in the possibility of not being able to validate positive health effects. It is also challenging for a small company to do personal selling and marketing of a product within EU where claims are restricted. Industrial Espionage is very much in focus but nonetheless considered to be a threat. Price can also be a challenge if competitors get advantage of economy of scale.

### *P7: Green alginate*

#### **Strengths:**

Algaia has identified only one other producer of green alginate, thus not many competitors for green alginate exist. Green alginate has several strengths. Seaweed alginate has low volatility in supply compared to competing alternatives. Processing is eco-friendly with low usage of chemicals. Green alginates are versatile and can be used in a wide range of applications. The product is biodegradable and sustainable with a short supply chain. Fresh high-quality raw materials are used in processing. Health claims are also a potential strength of the product.

#### **Weaknesses:**

Being a small-scale producer with large multinational customers that want large product volumes can be difficult. Current production costs are high because of low production volumes. Low willingness to pay for green alginates might be a

possible weakness. Marketing and direct sales is expensive for a small company with a niche product. A potential weakness is that green alginates of seaweed has huge range of potential applications and Algaia is targeting both the food ingredient and cosmetics market. This could be challenging in terms of sales and marketing resources.

#### Opportunities:

One opportunity that Algaia is working on is to develop eco-friendly extraction technics to limit or eliminate the use of chemicals. This could also give an organic certification for the product. Their target market focus is on sustainability so this would be a good fit. This target market with low-volume customers has a high willingness to pay. Algaia is currently the only western producer of green alginate.

#### Threats:

The market for regular alginates has a lot of competitors, and Algaia is dependent on succeeding in the market for green alginate. Competitors of Algaia can produce high volumes of regular alginate.

## CONCLUSION

This report describes the Seamark flagship products and the Seamark producers initial GTM strategy. A SWOT analysis has been carried out to outline the opportunities and constraints of the different GTM strategies.

The report serves as input for T7.2 (platform for market exploitation), T7.3 (investigate market structure and potential for algae products), T7.4 (initial assessment of market application potential) and the industry purchasing group (IPG). The report intends to provide all Seamark partners and other interested stakeholders with the current status of flagship products and GTM strategies.

The results show that an initial GTM strategy has been developed for the Seamark flagship products bioactive beta-glucan (Oceanium) and green alginates (Algaia). Furthermore, a GTM strategy for pig feed supplements (Fermentationexperts) has been developed and implemented. What should be done with this flagship product in terms of further development of the GTM strategy will be discussed with Fermentationexperts and the project management group.

This report provides the foundation for understanding the status of the GTM strategies for the flagship products bioactive beta-glucan and green alginates in Seamark. The GTM strategy for both products is quite comprehensive, containing all the necessary elements of a GTM strategy. Even though some elements are not described in great detail, this is to be expected as both products are at TRL level 5 (see D8.1 for a further description of TRL levels). At this stage, it is very difficult to outline which of these two products or GTM strategies is

most promising, as the SWOT analysis shows that the products have different strengths, weaknesses, opportunities, and threats.

The SWOT analysis identifies many issues that can be further investigated in Seamark. Some issues, such as the validation of health claims for the flagship products are already a part of the Seamark project (T3.5 for bioactive beta-glucan, T4.2 for feed supplement and T6.6 for green alginates). Other issues, like identifying concrete customers, buyer preferences and potential for differentiation will be addressed in T7.3. Altogether this will provide a more comprehensive understanding of the potential opportunities and challenges facing the production of seaweed-derived products.

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# APPENDICES

## *Appendix 1 - Interview guide GTM strategies*

### **1. Product**

- 1.1 Could you please describe Product X? What is the product and what is the application?
- 1.2 Have you identified the strengths of your product (Yes: go to 1.4-1.5; No: go to 1.3)?
- 1.3 Optional: If not, have you identified potential strengths? What are the potential strengths?
- 1.4 What are the strengths?
- 1.5 Does your product have any unique selling points (attributes that can't be copied by competitors)?

### **2. Product-market fit**

- 2.1 Have you identified what specific problem/need the product solves? (Yes: go to 2.3-2.4; No: go to 2.2)
- 2.2 Optional: Have you identified potential problem/need does the product solve? (Yes: Go through 2.3-2.4 for potential problem/need)
- 2.3 What specific problem/need does the product solve?
- 2.4 Why or how does it solve the problems/needs better or differently from other solutions in the market?

### **3. Target market**

- 3.1 Who is experiencing the problem/need that your product solves?
- 3.2 Have you identified a specific target market? (Yes: go to 3.4-3.7; No: go to 3.3)?
- 3.3 Optional: Have you identified a potential target market(s)? Yes: go through 3.4-3.7 for potential market(s)
- 3.4 What is the specific industry/customer(s) you are targeting (number)?
- 3.5 Where is this industry/customer(s) situated?
- 3.6 What is the size of the target industry/customer(s) in terms of revenue and volume?
- 3.7 What factors influence whether the target customer decides to purchase your product? (Referrals, primary decision makers etc.)

### **4. Competition and demand**

- 4.1 Have you identified your competition? (Yes: go to 4.3-4.8; No: go to 4.2)?
- 4.2 Optional: Have you identified potential competitors? (Yes: go through 4.3-4.8 for potential competitors)
- 4.3 Does anyone else already offer a similar product? Who?
- 4.4 What customers and markets regions do your competitors target?
- 4.5 How does your product differ from the competition? What do you offer that others don't? (Description of your product vs. competitor, strengths and weaknesses, price, features, style/design, ease of use, quality, customer support, marketing etc.).
- 4.6 How does your company compare to the competitors (strengths and weaknesses)?
- 4.7 Have you identified the demand for your product? How large is the demand?

### **5. Distribution**

- 5.1 Have you identified a distribution channel for your product? (Yes: go to 5.3-4.8; No: go to 4.2)?
- 5.2 Have you identified potential distribution channels for your product? (Yes: go through 5.3-5.5 for potential distribution channels)
- 5.3 What is your distribution channel?
- 5.4 Do you anticipate any problems with distribution?
- 5.5 Do you know your distribution costs?

### **6. Price**

- 6.1 Do you have a pricing strategy?
- 6.2 Could you describe your pricing strategy?
- 6.3 Do you know how much is your customer willing to pay for your product (willingness to pay)?
- 6.4 Additional Comments:

## APPENDIX 2 - SWOT ANALYSIS

### P1: Bioactive Beta-glucan

<b>Strengths</b> <ul style="list-style-type: none"> <li>• First mover (seaweed)</li> <li>• Positive health effects</li> <li>• Natural product</li> <li>• Water soluble</li> <li>• Low molecular weight compared to competing products</li> <li>• Complex production process that is difficult to copy</li> <li>• Potential customers have been identified</li> <li>• New technology</li> </ul>	<b>Weaknesses</b> <ul style="list-style-type: none"> <li>• Not currently in the market</li> <li>• Needs to build a factory</li> <li>• Small-scale producer</li> <li>• Positive health effects need to be validated</li> <li>• Specific customers have not been identified (must develop product sample first)</li> <li>• Targeting different applications and markets, could be challenging in terms of sales and marketing resources</li> </ul>
<b>Opportunities</b> <ul style="list-style-type: none"> <li>• Growing market</li> <li>• Focus on the global trends natural and healthy products</li> <li>• Identify and validate positive health effects that are different from competitors</li> <li>• Involved in multiple research projects to validate health claims</li> </ul>	<b>Threats</b> <ul style="list-style-type: none"> <li>• Entering an established market with many competing products (produced from other sources than seaweed)</li> <li>• Competitors are large multinational companies (i.e., Sigma-Aldrich)</li> <li>• Small-scale producer</li> </ul>

### P5: Pig Feed supplement

<b>Strengths</b> <ul style="list-style-type: none"> <li>• First mover (seaweed)</li> <li>• Already sold in multiple markets</li> <li>• Improves animal health without the use of antibiotics</li> <li>• Improves feed conversion rates</li> <li>• Very high rates of repurchase after testing products</li> <li>• 15 patents, which makes it more difficult to copy product</li> </ul>	<b>Weaknesses</b> <ul style="list-style-type: none"> <li>• Not allowed to use health claims in EU, limited use allowed in the US.</li> <li>• Price-sensitive market</li> <li>• Distribution of competitors is better</li> </ul>
<b>Opportunities</b> <ul style="list-style-type: none"> <li>• Validate positive health effects to differentiate the products</li> <li>• Change of health claim legislation in EU</li> <li>• Targeting other market segments (i.e., fish farming, petfood etc.)</li> <li>• Only western world producer</li> <li>• Increase the number of farmers that test the product</li> </ul>	<b>Threats</b> <ul style="list-style-type: none"> <li>• Not able to validate positive health effects</li> <li>• Small company, marketing and personal selling is difficult, particularly in the EU</li> <li>• Competitors are large multinational companies (i.e., Cargile)</li> <li>• Price compared to competitors</li> <li>• Industry espionage</li> </ul>

### P7: Green alginate

<b>Strengths</b> <ul style="list-style-type: none"> <li>• Only one other producer of green alginate</li> <li>• Seaweed alginate has low volatility in supply</li> <li>• Eco-friendly processing with low use of chemicals</li> <li>• Versatile through a wide range of applications</li> <li>• Biodegradable</li> <li>• Sustainability; raw material, short supply chain</li> <li>• Fresh, high-quality raw material</li> <li>• Health claims</li> </ul>	<b>Weaknesses</b> <ul style="list-style-type: none"> <li>• Algaia is a small-volume producer, large multinational customers want large product volumes</li> <li>• High production cost</li> <li>• Might have low willingness to pay</li> <li>• Specific customers have not been identified</li> <li>• Small company, marketing and direct sales strategy can be expensive</li> <li>• Targeting different applications and markets, could be challenging in terms of sales and marketing resources</li> </ul>
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<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"><li>• Develop eco-friendly extraction technics limiting or eliminating the use of chemicals. This could also give organic certification</li><li>• Target market segments that focus on sustainability</li><li>• Target low-volume customers with a high willingness to pay</li><li>• Only western world producer</li></ul>	<ul style="list-style-type: none"><li>• The market for regular alginates has a lot of competitors, dependent on succeeding in the market for green alginate</li><li>• Competitors can produce high volumes of regular alginates</li></ul>