LESSONS LEARNED MARKETING SEAWEED PRODUCTS IN THE U.S. 2024

SEAGREEN INSIGHTS

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Acknowledgements

Seagreen Insights would like to thank the many individuals who took the time to share their insights for this report. We felt it was important to obtain a cross section of viewpoints from companies selling products to the organizations that support the sector more broadly.

Authors

Mike Blakeley, M.A., CoFounder, Seagreen Insights
Elaine Blakeley, M.A. CoFounder, Seagreen Insights, Founder, EB Seaweeds

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1. KEY TAKEAWAYS

Seagreen Insights interviewed over 25 professionals in the seaweed sector to capture lessons learned in marketing seaweed-based products in the U.S. market. After concluding the interviews and analyzing results from a survey, the following themes emerged as key takeaways:

What To Call It? There was no consensus among producers of how to refer to the seaweed product. The most common term across product categories is "seaweed", however, many producers felt strongly that products should be named based on the variety or species of seaweed utilized. For example, in the U.S. many food products are derived from "kelp" and producers felt that using that term was important to differentiate their product from other food-grade species, like "nori" or "gim."

Efficacy And Performance: Many producers find success in marketing the performance and efficacy characteristics of seaweed relative to alternatives. In such cases, the marketing message is really about performance, and not other benefits. This holds true more so for B2B sales channels which are using seaweed as an input.

Traceability And Food Safety: The need to assure customer (consumer) safety is critical. Globally the seaweed sector has been working to establish safety protocols for commercial seaweed products. However, there are not widely recognized certification or labeling schemes meaning producers are integrating safety messages into their marketing efforts.

Restaurant/Chef Partnerships: Establishing partnerships with restaurants or individual chefs was identified as a critical opportunity for any seaweed-based food product. Some producers have partnered to create products, recipes and menus in an attempt to win new consumers who might otherwise not know how to use seaweed in meals.

Retail Sales Channels: Producers agreed the most difficult sales channel was brick and mortar grocery retail. The demanding nature of supplying regional/national chain stores, along with competition from other products/brands was among the most difficult challenges for producers. Many producers went through "growing pains" to supply these customers.

What Were The Top Needs For Marketing Assistance Desired By Producers?

01 Industry Representation: Seaweed producers are looking for trade association and industry representation for marketing and regulatory advocacy.

02 Funding opportunities for marketing/sampling events: Seaweed industry companies have limited access to public funding for marketing activities relative to other seafood and agriculture programs.

03 More data! Tracking industry harvest, production and end market sales is complicated but some tools are emerging.

04 Customer/consumer feedback: Producers don't have good or obvious tools to obtain feedback from customers.

2. INTRODUCTION

The global seaweed sector is experiencing significant growth, tripling production volumes in the past 20 years.[1] The overwhelming majority of product originates from Asia and is farmed, with just 3% of total volumes estimated from wild harvest globally.[2] Market research organizations estimate compound annual growth rates (CAGR) between 8-16% to 2030 suggesting continued growth. While accurate statistics on production volumes and values are hard to locate, the FAO estimates total production at 36 million tons for 2020.[3] Most commercial volumes serve existing and mature markets from food and food ingredients, health and wellness products, and biomaterials for use in feed, fertilizer and other industrial applications.

In the West, seaweed cultivation is on the rise driven by a strong interest from both the public and private sector. This interest is tied to the multiple benefits achieved through the cultivation and utilization of seaweed, from its potential as a protein in a plant-based diet, to health benefits attained by the many nutrients found in seaweeds, to the potential for seaweed biomass to be a viable alternative to fossil-fuel based industrial inputs. Perhaps the most appreciated aspect of seaweed is the light footprint of its cultivation relative to land-based agriculture while also serving as a potential climate mitigating tool through carbon sequestration. Economic opportunities for individuals and regions also make seaweed compelling. In response, seaweed farms are increasing in the U.S. and Europe and other regions considered “new” suppliers and new producers are emerging, eager to create new products or environmentally friendly alternatives to traditional inputs.

Previous and Existing Research on Seaweed Consumers and Markets

As more countries have entered and scaled seaweed production, a body of research on consumers and markets has also evolved. The early research on consumers’ perceptions and attitudes of seaweed-derived products concentrated on food products, in an effort to measure demand. The findings from this research varied, mostly due to a difference between populations familiar and experienced consuming seaweed products and those with no experience. The most frequently cited findings from previous research on perceptions and attitudes include consumers low awareness of seaweed as a nutritional food source, a lack of familiarity with seaweed-derived products, with exception of limited awareness of seaweed as a snack or ingredient in Asian cuisine, low availability or access to seaweed in local markets or in restaurant menus, and in some cases an aversion based on a flavor profile cited as “fishy” or “briny.” There are also positive perceptions, including associated health and nutrition benefits and a low environmental footprint. Specific to the U.S. market, a measure of perception among seaweed consumers and non-consumers (Zheng, et al., 2023), concluded that both groups[4] would likely increase consumption of seaweed food products with greater awareness, more knowledge on preparation but that “taste” remained a barrier to the non-consumer group.

Another important factor is the consideration of traditional shopping variables such as cost, taste and availability. Over the past two decades with the introduction of “organic” foods and a trend towards healthy diet, much research validated the growing consciousness of consumers of what they are eating, where it comes from, how it is prepared, and its environmental footprint. All these variables have been applied in the body of research on seaweed consumers of food and cosmetic products. Research has established that, across many global regions, a consumer is willing to try seaweed products, especially those in more heavily processed formats, including snack foods. Yet this research remains theoretical in nature, as declaring interest versus making a purchase cannot be considered the same action.

1 “Global Seaweed New and Emerging Markets Report 2023” World Bank, 2023
2 Ibid.
3 “The State of World Fisheries and Aquaculture 2022: Towards Blue Transformation.” Food and Agriculture Organization (FAO)
4 “U.S. consumer preferences and attitudes toward seaweed and value-added products”, Zheng, Davis, Langston Noll, Bernier, Labbe, 2023

More recently, "willingness to purchase" (WTP) models have been introduced to measure the effect greater awareness of seaweed products and their cultivation effects/benefits may have on consumers decision to buy those products. These studies attempt to measure differences in possible purchasing habits once awareness is increased. Results from these studies vary, but a recent study conducted in the U.S.[5] (2022) demonstrated a positive change in WTP after an education on benefits of farmed kelp, confirming consumers increased likelihood to purchase after receiving information. This positive development is significant when it has been well documented that many non-seaweed consumers perceive seaweed as something that washes up on shore, and not necessarily desirable as a food product for the uninitiated.

Marketing Efforts In Response To The Research

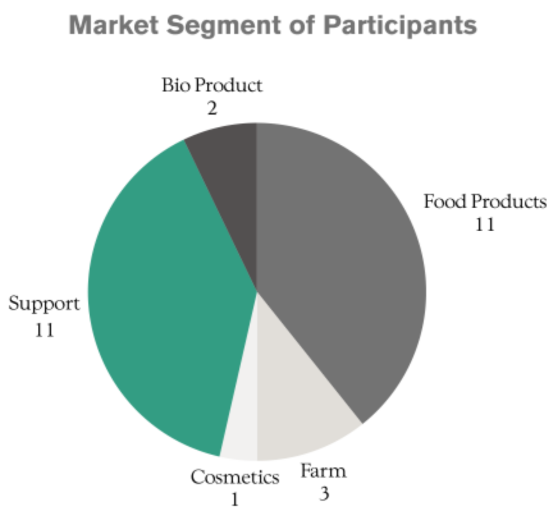
The research has provided material to craft marketing plans or recommendations. Several seaweed producing regions, including the states of Maine and Alaska in the U.S., have successfully marshalled public resources into sector-wide marketing strategies. Federal U.S. agencies, such as the National Oceanic and Atmospheric Administration (NOAA) have integrated seaweed into their aquaculture portfolio and allocated resources towards research, pilots and some market development. Combined with the marketing messages developed by private companies and advocates, we believe there is sufficient information on the most promising marketing messages to use to promote seaweed products, especially in large consumer markets like the U.S.

What is missing in the current research is documentation on what actually has worked and what are the best practices for marketing seaweed-based products, now that a critical mass of producers of products exists in the mass markets and a track record of sales growth is evident.

About This Study

Seagreen Insights aims to contribute to the body of research by capturing key lessons learned in selling and marketing seaweed products in the U.S. market. Our approach concentrates on producers, not consumers, who have been market participants and experienced sales with regularity. The study intends to bridge a knowledge gap between understanding consumer preferences and willingness to purchase seaweed products and what producer-led activities are translating to actual sales of products. We set out to speak to larger and successful companies utilizing seaweed as an ingredient, input, or final product, to identify the most effective and pragmatic marketing tactics and concerns. The results of this study serve two functions: to inform start-ups and investors in the sector what types of activities have proven successful for their more established peers, and to identify where funders supporting growth of the sector, from public entities to private foundations, can best allocate resources that will support growth of the sector in areas such as market development and producer capacity building. The focus is on the U.S. market given the highly competitive and resource intensiveness of this market and its retail channels. It is hoped that this research can also provide a template to study best practices in markets beyond the U.S.

Figure 1.
Market Segment of Participants.



The lessons learned presented below were derived from interviews with 28 professionals operating in the U.S. seaweed sector. Figure 1 shows a breakdown of market segment of each professional. A survey was also distributed online. Those results are presented below.

5 "Consumer willingness to pay for farmed seaweed with education on ecosystem services", Buldoc, Griffin, Byron (2023)

3. LESSONS LEARNED

Defining the U.S. Market For This Study

The U.S. market is the focus of this study given it is one of the most complex and competitive in the world. Producers serving the U.S. market must contend with a variety of regulatory and competitive challenges that can present a significant resource constraint, especially to a start-up company. Previous research on the U.S. market for seaweed-derived products exists in a variety of forms from market intelligence reports utilizing secondary data sources (such as government statistics) to the previously mentioned consumer-focused studies that measure or estimate demand for products. Market reports by industry, such as “snack foods” also exist, although seaweed data is limited if available at all in those reports.

This study considers the U.S. market for seaweed-derived products as two distinct market segments: business to-consumer (B2C) and business-to-business (B2B). B2C markets include consumer packaged products (CPG) including food, cosmetics, fertilizer, or other finished products available for consumer purchase. B2B markets include processors purchasing wet or dried seaweed, manufacturers of goods using seaweed as a processed ingredient (powder, liquid, etc.) for food, cosmetics, or otherwise, and users of finished product inputs, such as packaging or yarn utilizing seaweed but destined for use in other retail products. Many of the lessons learned described here apply to both market segments and others are unique to a B2C or B2B sales channel.

I. What Producers Said About Marketing Seaweed Products In The U.S.

We are presenting lessons learned captured through our interviews with producers, including farmers and other support providers. We have arranged comments according to six common themes or demands producers face in the process of marketing and selling their goods. We attempt to focus these lessons learned on the actual steps that have proved to be most successful or even considered “best practices” at this early stage of the U.S. seaweed market. We also highlight stated concerns.

Vocabulary And Terminology

What To Call it? Choosing a term to define your product is a highly individual action. Among all theme areas in this study, “naming” the product (i.e., “Kelp”, “Sea Vegetables”, etc.), had the least amount of consensus on best practices. The most common term across all product categories is “seaweed.” However, many producers felt strongly that products should be named based on the variety/specie of seaweed utilized. For example, in the U.S. many food products are derived from “kelp” and producers felt that using that term was important to differentiate their product from other food-grade species, for example “nori” or “gim” which is a term used to describe seaweed used in snack sheets and sushi. Conversely, some users of kelp were concerned it is not as widely recognized as a term like “seaweed.”

Other producers sought to use terms that may appeal to new consumers of seaweed, such as “sea vegetables” which is also commonly used in other markets like Japan and Europe. Some producers purposely omitted any reference to seaweed for a few reasons; they prefer to draw attention to the final product and not an ingredient, the amount of seaweed in the product was minimal and therefore should not be marketed as a true seaweed product, and some producers are concerned about the negative connotation of seaweed as something that washes up on the shore, especially in food products.

Producers also utilized names or terms that would resonate with their preferred audiences. For example, products that target children or youth used the term "seaweed" because those consumers had not yet developed an opinion of seaweed such as older consumers had. Another common tactic for products where seaweed is used an alternative ingredient, such as in snack foods, was to manipulate the common name and insert a seaweed term such as "seafibre", "kelp noodles", or "vitamin sea."

Producers must also differentiate product as "farmed" vs. "wild", similar to commercial fish. Producers interviewed had mixed opinion whether consumers respond better to one version of seaweed or the other, with both terms having positive reception. However, there was some concern over the negative perception / environmental impacts of harvesting wild seaweed, mostly because consumers are not well educated on how seaweed grows or how wild harvest occurs.

Developing Successful Marketing Messages

A. Origin (Local And Imported): Producers using U.S.-sourced seaweed were unanimous in the importance of emphasizing local origin. Most U.S. producers interviewed launched companies or developed products based on accessing and utilizing local seaweed. These producers customers confirmed the importance of consuming a local product consistent with the broader trend of "eat local" that is prevalent in natural foods categories. This was especially true of the Pacific Northwest and the East Coast which have a longer tradition of consuming seaweed products.

For those producers working with imported products, they recognized the importance of emphasizing descriptors of the origin, such as "Atlantic Ocean" or "natural fjords" that would appear familiar or resonate with U.S. consumers.

Some producers are repacking imported product and using terms such as "packed in U.S." or "made in USA" if that product has been transformed significantly from a raw material into a finished product.

As use of seaweed products increases, it is assumed consumers will develop a greater understanding between the different species, applications and whether the origin of the seaweed matters to them.

B. Health And Nutrition: Across all product categories, the health and nutritional benefits of seaweed were confirmed as the most valuable marketing messages by producers. There is a long list of health benefits that can be utilized according to market segment, i.e. protein content for consumers of plant-based products, anti-aging properties of fucoidans in brown algae in cosmetics, or the presence of taurine, which is an essential amino acid for cats, in the pet food market segment. Nutritional composition varies due to species, geography, or other variables and there are no absolutes, so producers must constantly be measuring/testing any specific amounts/levels of nutritional content. However, the consumer is mostly unaware of this level of detail. Therefore, any nutritional claims must be backed by credible evidence.

> ***"Across all product categories, the health and nutritional benefits of seaweed were confirmed as the most valuable marketing messages by producers."***

C. Climate impacts: On par with health and nutrition, marketing seaweed products as good for the environment is increasingly appealing to producers. It must also be acknowledged that many producers started working with seaweed in direct response to concerns for the climate of traditional inputs/products. In 2023, the COP 28 global climate meetings shined a light on seaweed as climate solution for several multiple reasons (see text box). One producer noted that seaweed should be considered the best form of "carbon-neutral protein." From a customer perspective, Millennial and Gen Z represent 43% of the US population and they represent an active spending consumer base. A report by Climate Trade states that 78% of millennials are willing to change purchasing habits to buy "environmentally friendly" products and 73% of Gen Z consumers are willing to pay more for "sustainable" products.[6]

Resources such as the "Seaweed Marketing Toolkit"[7] provide multiple possibilities for marketing the climate-positive impacts of seaweed. Producers did warn against too much emphasis on seaweed as a "savior" of climate change, noting that customers base purchases on more traditional characteristics (such as health, organic, or local product) and the lack of awareness of consumers on specific science-based characteristics like "carbon neutral." Producers agreed that the amount of science-based messaging depends on the product or market segment.

How COP 28 Promoted Seaweed: Seaweed had a "moment" at the December 2023 COP 28 meetings. Recognized for its ability to be a food source, create livelihoods, and sequester carbon, the UN Global Compact promoted seaweed and side events at COP28 and shared examples of companies and solutions, bringing seaweed to the attention of the thousands of delegates.

D. Sustainability: Similar to climate-based messaging, sustainability is a popular message to integrate into marketing. Because of heightened consumer awareness on the production of products, the fact that seaweed grows naturally, without added inputs such as water, fertilizer, and mostly does not require land is considered a winning message. A small but growing appreciation for regenerative farming in agriculture is also being applied in seaweed marketing campaigns, although the consumer has low awareness of this technique. Calling seaweed "sustainably farmed" is a current approach of most producers.

E. Efficacy And Performance: For many producers, creating a product from seaweed or using seaweed (or derivative) as an input is based on the performance and efficacy characteristics relative to alternatives. These characteristics may include higher moisture contents or superior nutrition elements, for example. In such cases, the marketing message is really about performance, and not other beneficial aspects of seaweed discussed above. This holds true more so for B2B sales channels which are using seaweed as an input (to plant fertilizer, pet food, etc.). In contrast, food products made from seaweed may emphasize nutritional elements of seaweed versus other raw materials which could be considered a "performance" characteristic, however, the issue of taste is the primary driver of choice for food products and that can be highly subjective.

F. Labeling Schemes: For most producers of seaweed food products, being able to apply the word "organic" to their products was very important given consumers are familiar and desire products with such designation. Seaweed can be certified organic in the U.S. through the U.S. Department of Agriculture. Given the relative newness of seaweed food products and a low awareness from consumers on wild versus farmed harvest, the organic designation can be a critical product differentiator among common seaweed products. The Aquaculture Stewardship Council-Marine Stewardship Council (ASC-MSC) also have developed a standard for sustainable farming and wild harvesting of seaweeds that can carry a certification on a label, however, this standard is less known in U.S. consumer markets.

Identifying And Utilizing Selling Channels

A. Online: Most producers interviewed that sell consumer ready products have direct-to-consumer (D2C) sales capability via online sales. Either through their own websites or other ecommerce platforms like Amazon or Shopify, producers cited online sales channels as necessary in today's market. User experience with these major online channels varied so there was not a preference among them, however it has been noted that the terms suppliers must comply with can be difficult, in terms of maintaining inventory and pricing strategies that must not undercut the pricing on the platforms (i.e., lower sales price on the company website or other seller of the same product compared to the online platform selling price).

6 "Consumers and Climate: How they are Driving your Brand Identity" November 8, 2023, Climate Trade
7 https://www.seaweedtoolkit.com/

B. Retail-Grocery: Retail outlets include chain stores, boutique or other retail (such as hotel or airports). Serving retail chains is the most common approach for CPG food and cosmetic products. However, producers also stress the challenge of selling through these clients. Specifically, working with large retail chains often requires utilizing a distributor or other intermediary arrangement. Working via intermediaries can be difficult as they maintain strict procurement guidelines and can impose challenging delivery standards, deadlines and payment terms. While most producers targeted large chains in the hopes of scaling their sales, they also acknowledged how challenging the chain store sales channel can be. Start-up companies should be certain of their ability to meet the terms of these chains, including working through their appointed intermediaries (for example, Whole Foods does procurement through UNFI distributors).

C. Farmer's Markets: Farmers and producers of food grade seaweed have experimented with selling product at Farmer's markets. The opportunity to get the product in front of a live audience, including tastings, is very valuable. However producers also were unanimous that farmer's markets do not provide good sales/profit opportunities. In the State of Maine there is a "seaweed week" that does draw a large crowd and can result in good sales, but generally producers saw farmer's markets as a marketing opportunity with associated costs-not a viable sales channel.

D. Food Service: Producers of food products, including "kelp burgers" or other forms of seaweed food products that can be served in an institutional setting or as a volume ingredient believe that food service holds high potential to sell at scale. In this study only one producer interviewed confirmed successful sales to food service specifically oriented towards school catering. The demand to supply food service companies is similar to large grocery chains with exact and demanding delivery schedules and quality control. Some producers interviewed were targeting food service once their operations reached a consistent scale. In other words, food service may not be the best entry point for a producer given the demands and scale required. Producers also suggested from a marketing standpoint food service was difficult-there isn't much opportunity to "tell a story" or make that connection to the end user as can be done in a B2C sales channel.

Specific Activities To Drive Sales

A. Sampling: Sampling is among the best ways to gain consumers for seaweed products given the low awareness. Specifically, seaweed-based food products have a challenge in perception that can be best overcome by trying the product. Producers confirmed that in-store sampling was the most effective approach. Other successful sampling approaches included farmer's markets or sporting venues where there are large audiences present. Producers also confirmed that companies should include sampling as part of their overall marketing budget.

"Sampling is among the best ways to gain consumers for seaweed products given the low awareness."

B. Restaurant/Chef Partnerships: Establishing partnerships with restaurants or individual chefs was identified as a critical opportunity for any seaweed-based food product. Some producers have strategically partnered with chef's to create products, recipes and menus that integrate fresh, frozen or dried seaweed, in an attempt to win new consumers who might otherwise not know how to use seaweed in meals. Some activities associated with the partnerships include restaurant promotions, tourism-related site visits to farms, cooking demos and in some cases, endorsements with well known chefs/restaurant chains.

C. Advocacy/Partnering With Climate Efforts: Consistent with seafood marketing messages that emphasize the climate benefits and sustainability of seaweed, companies can grab attention or "win hearts and minds" by aligning with certain issues or partners. Currently, ocean-themed advocacy, philanthropic and entrepreneurship activities are abundant and seaweed naturally aligns with that mission. Globally seaweed industries have a lot of women working in them and there is a lot of focus on the importance of supporting women's livelihoods and business opportunities.

D. Vendor Education: For those producers selling through retail outlets, educating staff on seaweed products was important. For example, retailers may not know the best space to place seaweed products in store; some place dried products alongside other categories including “snack” “cooking ingredients”, “condiments”, or alongside “Asian” products. For retailers selling a fresh or frozen seaweed product, they are unsure to sell as a “seafood” item or “produce.” Therefore, producers should be prepared to educate vendors on the uses and applications and where product placement should occur. To be informed, producers shared that retail data analysis is extremely important, specifically “sales velocity” which can show how successful (or not) movement of products within stores.

E. Trade Shows: Producers had mixed reviews on the benefits and challenges of trade shows. From a positive perspective, trade shows provide an opportunity for major outreach and promotion given large audiences. Often trade show visitors attend to “discover” new products and given the novelty of seaweed-derived end products (namely food and cosmetics) many visitors might experience seaweed products for the first time. Having the opportunity to touch, feel, and taste products can be important as noted above inthe discussion of “sampling.” In addition, many trade show organizers seek to highlight new products or companies which provide an opportunity for greater exposure of seaweed companies. In the B2B market, trade shows were considered very important given the variety of market segments for seaweed as an input. For example, “agriculture” themed trade shows can present opportunities for producers providing seaweed inputs in plant-feed, fertilizer, and animal feed in one venue. Some of the popular trade shows were those centered on natural products, plant-based products, seafood/aquaculture and even some climate-related shows and conferences.

Trade shows also are very expensive to participate in and can be demanding on the time of producers, usually requiring one week out of the office. Further, because of the sheer scale of these shows, typically with thousands of visitors, companies may not be guaranteed to meet the right kind of customers. In addition, trade show participation requires strategic planning, specifically prospecting attendees and trying to arrange meetings well in advance to assure the investment was worth it. However, securing participation in trade shows must be done and paid for months in advance, without any guarantee of meetings. Ultimately producers must employ a risk-reward approach and carefully choose which shows to attend.

Product Development That Influences Marketing Approaches

A. Snack Food vs “Center Of Plate”: Among food producers there was consensus that the consumer is more willing to try seaweed-based food products in snack form opposed to a main ingredient in a dish, including such items as “kelp pasta”, “kelp burgers” or others. Some producers had tried, unsuccessfully, with products that used a high content of seaweed but were unable to achieve a desirable product. That does not suggest other producers are not having success with those products, but most producers interviewed in this study experimented with both snack and main dish items and snack foods achieved better sales. Snack foods, including condiments, are appealing for no preparation required-can be consumed straight from packaging versus needing to be heated or cooked, existing experience and acceptance of nori sheets in snack form over time has paved the introduction of new snacking forms of seaweed, high sales velocity of snack items in grocery retail relative to prepared meals, shelf stabilization of processed snack items/dry condiments versus the requirement of refrigeration or freezer on site, general popularity of snack items and condiments (see text box), and a low relative price (typically under $5).

Salsa Or Spaghetti Sauce? One producer shared their story of determining which product they would produce and sell, deciding between a salsa or a spaghetti sauce. Ultimately, they chose a salsa due to several factors: salsa is a faster selling category than spaghetti sauce, salsa has less shelf space and competition, typically a high-end salsa will still be cheaper than a high-end spaghetti sauce, and as condiment or snack item, is a less sensitive purchase compared to spaghetti sauce which is used in meal preparation.

B. Natural Ingredients: Most producers of seaweed-based products understand the value of natural ingredients, in fact many entrepreneurs work with seaweed due to its natural characteristics and viable alternative to chemicals or fossil fuels. Including other natural ingredients in the finished product can be an important differentiator in snack foods where there is a lot of competition, namely from other "plant-based" foods that may still rely on artificial ingredients.

C. Purposeful Packaging: The heightened awareness of plastic packaging pollution, especially in the ocean, has raised consumer awareness of alternative packaging. In the case of seaweed, packaging is an opportunity in two ways; seaweed extract utilized in the production of packaging or other materials (including flower pots and textiles) and creative use of packaging in traditional products, like the introduction of compostable bags for snack products. Producers shared that while plastic remains most efficient and price competitive, the importance of consistency when brands are committing to environmentally friendly products should ideally be from end-to-end in the production process.

D. Traceability and Food Safety: Globally the seaweed sector has been working to establish safety protocols for commercial seaweed products that not only guarantee consumer safety but also assure good manufacturing processes and environmentally safe cultivation and harvesting standards. While there are not widely recognized certification or labeling schemes that all consumers would recognize, there is some key information producers are integrating into their marketing efforts, including on packaging/labels.

i. California's proposition 65 requires products to provide warnings to consumers about the possible presence of harmful chemicals in the product.This is very important for seaweed given the fact that seaweed can absorb heavy metals. Most consumers are not aware of the issue of heavy metals in ocean products and may wrongly associate dangerous levels of heavy metals with any seaweed product. Therefore, producers are encouraged to directly address concerns of heavy metals in their labeling or other promotion.

ii. Nutritional information on packaging is not only a regulatory requirement in the U.S. but is very important for consumers to understand and compare nutritional values of seaweed products.

iii. Many consumers of seafood products are familiar with "Hazard Analysis Critical Control Points (HACCP)" certification and there are also guidelines for seaweed and HACCP so it can appear on a label.

iv. Although seaweed is considered a newer product, there are established federal guidelines producers and retailers must comply. Seagrant has produced the publication: "Seaweed Food Safety: Comparing Compliance with Preventive Controls for Human Food with Seafood HACCP"[8] to guide producers.

Strategies And Activities To Improve Marketing

A. Sourcing: Some producers are purposely developing products with seaweeds of origin that meet branding objectives. For example, wild harvested seaweed fits very well into the narrative of "sustainability" "natural" and "uniqueness" that some producers use to differentiate their products from those made of farmed seaweed. Certain regions in Europe and the U.S. are known for wild harvesting and producers have sourced raw materials, or even finished products, from those regions to sell in the U.S. market. Conversely, farmed products fit narratives of sustainability from the perspective of not "taking" from the ocean. It is important to remember that a low awareness of seaweed as a commercial product on behalf of U.S. consumers can provide opportunity for producers to shape their own narratives.

8 https://seagrant.uconn.edu/wp-content/uploads/sites/1985/2023/09/seaweedfoodsafety.NSG_.LAWCENTER.pdf

B. Regionality (Selling into Local Markets): Many producers launched products in regions with an existing knowledge or experience with seaweed products. Obvious examples were the Northeast region, which also was noted to have a high appreciation for seafoods to begin with and a growing knowledge of seaweed thanks to the growth of the sector in Maine. The Pacific Northwest and California, also culturally steeped in consuming seafood products, were other popular markets to launch products. Producers also confirmed that using data tools that disaggregate consumer trends by geography can help to identify retail targets (for non-national chains) that can sell their products.

C. Using Experienced Sales And Marketing People: Most of the producers interviewed for this study use or had tried to use sales personnel that had experience selling into retail and CPG channels. As many companies were start-ups, the founder typically started in a sales capacity but once the company reached scale to the point it could invest in personnel, most preferred to hire individuals with sales experience. Sales experience, versus experience with seaweed or science, was the preference, especially in the demanding national retail markets.

D. Using Data/Market Research: Understanding consumer markets requires use of data tools, specifically market research provided by major international groups like Nielsen, to more specialized firms that work in niche product markets like "natural products." All producers confirmed that data is invaluable as a marketing tool and they use several approaches to acquire market intelligence, including:

E. Brokers/Distribution: For market segments like food products, brokers and distributors have been and continue to be a valuable, and sometimes required, piece of the supply chain, but not all producers choose to use them. Brokers are typically used in a sales function whereas distributors can do both sales and procurement, meaning they represent large-scale buyers and handle the sourcing and delivery of products. Both entities will add cost to the product, so some producers have opted out of any arrangements if possible. Some of the established seaweed producers interviewed in this study have built up a track record and relationships with major retailers to the point they can handle sales and distribution directly, while startups or smaller companies benefit from utilizing these services to expedite their place in the market.

On the B2B side, overseas suppliers selling into the U.S. market are accustomed to contracting some form of representation for both sales and distribution.

II.What Were The Top Needs For Marketing Assistance Desired By Producers?

Seagreen Insights asked each interview subject what kind of marketing assistance would most benefit them going forward. The top responses included:

1. Industry representation: as the industry grows producers see the need for trade association-type representation to advocate and promote on their behalf. This activity is occurring in some cases, either through state-funded initiatives (such as in Alaska and Maine) although not yet at a national level or even within a market segment (i.e. seaweed promotion in the agricultural sector). It is envisioned these organizations will emerge as the sector grows.

2. Funding for sampling: As noted, with a newer audience seaweed producers see the activity of sampling products as a critical need, especially in the foods segment. Whether in restaurants during specific promotional opportunities (like "restaurant week" which is a common activity across the U.S.) or other events that expose large audiences to the products was raised as an important need.

3. More data! A few organizations are attempting to better track seaweed harvesting data but producers also confirmed the need for regular data on the markets they are serving. For smaller producers this information is especially hard/expensive to acquire.

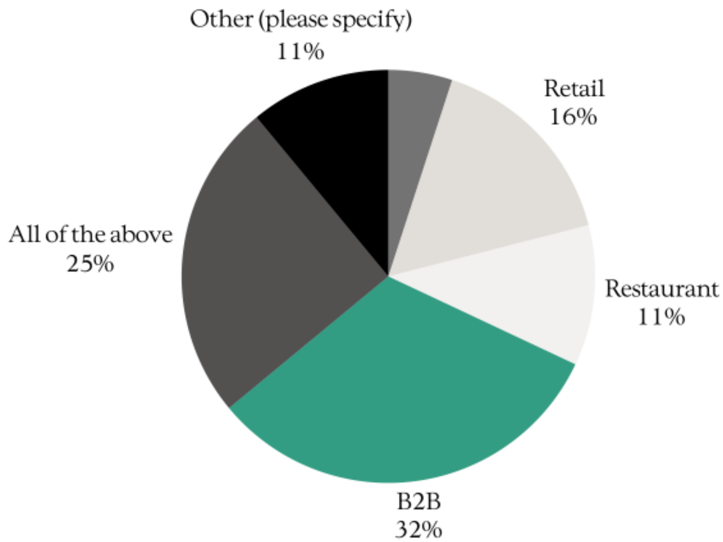
4. Market development-consumer feedback: Producers have made significant investments into their products, but most confirmed they need to continue developing new products as new raw material sources develop and as consumer awareness increases. Although some producers are successful at obtaining customer feedback, all expressed interest in more consumer feedback on seaweed products and needs.

4. SURVEY DATA

As part of the study effort Seagreen Insights also disseminated a short survey to capture input from producers not available for interviews. The data is presented below.

Sales Channels

Which Sales Channels do you sell through?

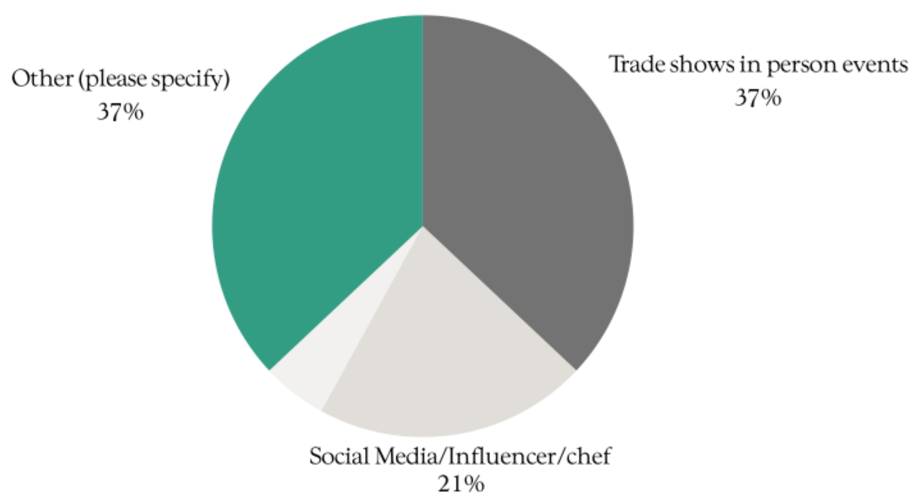


"Other" responses:

"B2B and D2C"

Marketing Approach

Which marketing approach is most successful with your product?



“Other” responses:

“Too early to answer”

“science driven reliable information, samples, recipes and extensive testing of our products”

“Networking”

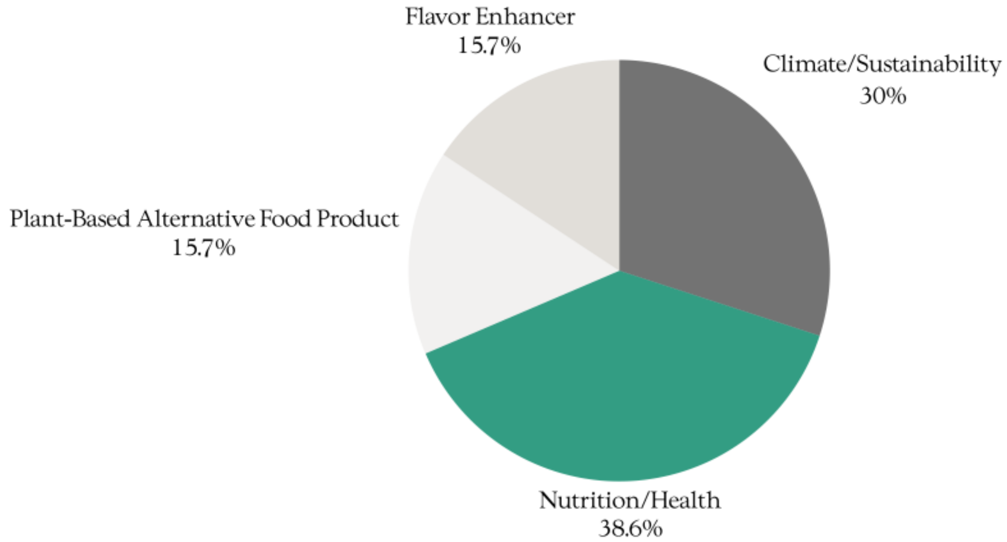
“In-store promotions”

“We don’t yet have enough data to answer the question”

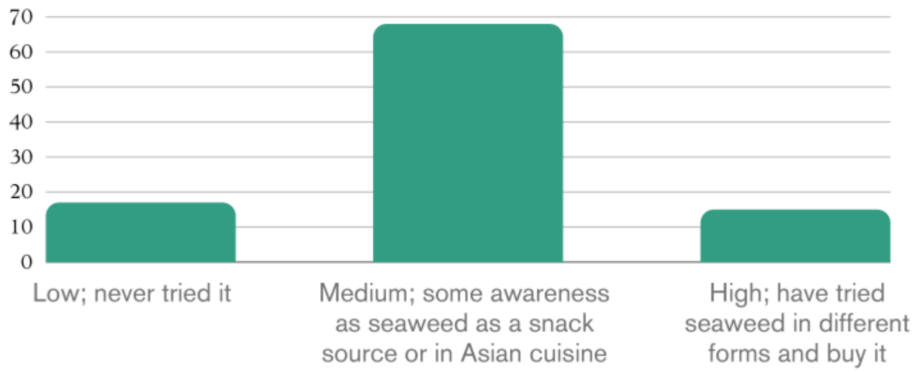
“It depends on which of our products”

Consumers

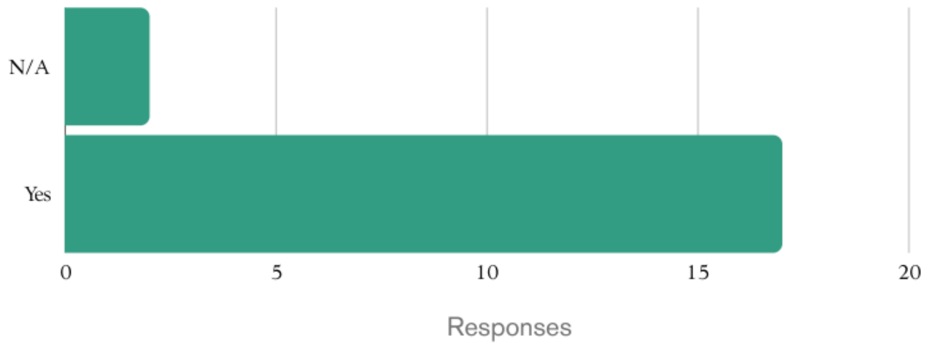
What benefit of seaweed resonates best with consumers?



How would you rate the consumer knowledge on seaweed as a food source?



Would more marketing assistance increase your sales?



“Other” responses:

“They need more than awareness, they need a compelling reason to try it (and it needs to be tasty when they finally try it). Consumer reasons for trial tend to center on flavor first, nutrition or cultural trendiness second.”

“In general the people of Hawaii have a high awareness of seaweeds and have been consuming seaweeds for centuries. Our customers want a high quality fresh and preferably a locally sourced product. We are in the process of expanding our seaweed (Ogo) production to meet our local Kauai market. We operate on the island of Kauai and word-of-mouth is all the marketing we've needed to date.”

“Not markedly; I don't think that awareness of the benefits can trump taste”

Appendix A. Interviewees

Travis Bettinson - Blue Dot Sea Farms

Jenn Brown - Foraged & Found

Maylin Chavez - Blue Evolution

James Dillard - Macro Oceans

Sophie Egan - Food for Climate League

Kiera Foti - Atlantic Sea Farms

Julian Goldman- Fun Stuff Design

Rachelle Hacmac - Blue Evolution

Melissa Hanson - Kelpful

Mike Kollins - Vashon Kelp Forest

Dan Lesh - South East Conference

Jean-Marc Emden - Algamar

Jules Marsh - Kelpful

Emily Miller - Sea Grant California

Aaron Nesser - Earth Keep Company

Emily Power - Ocean Made

Jacklyn Robidoux - Sea Grant Maine

Krista Rosen - Cold Current Kelp

Matt Ryan - Ocean's Halo

Nate Schlachter - Blue Evolution

Patrick Schnettler - 12 Tides

Dierdre Shea- Fun Stuff Design

Katie Silva - Food for Climate League

Mark Smith - Pacific Seaweed Industry ,Victoria BC Vancouver Island

Mike Spranger - Pacific Sea Farms

Theresa Talley - California Sea Grant

Chuck Toombs - Oregon Seaweed

Hannah Wilson - Alaska Fisheries Development Foundation, Inc.