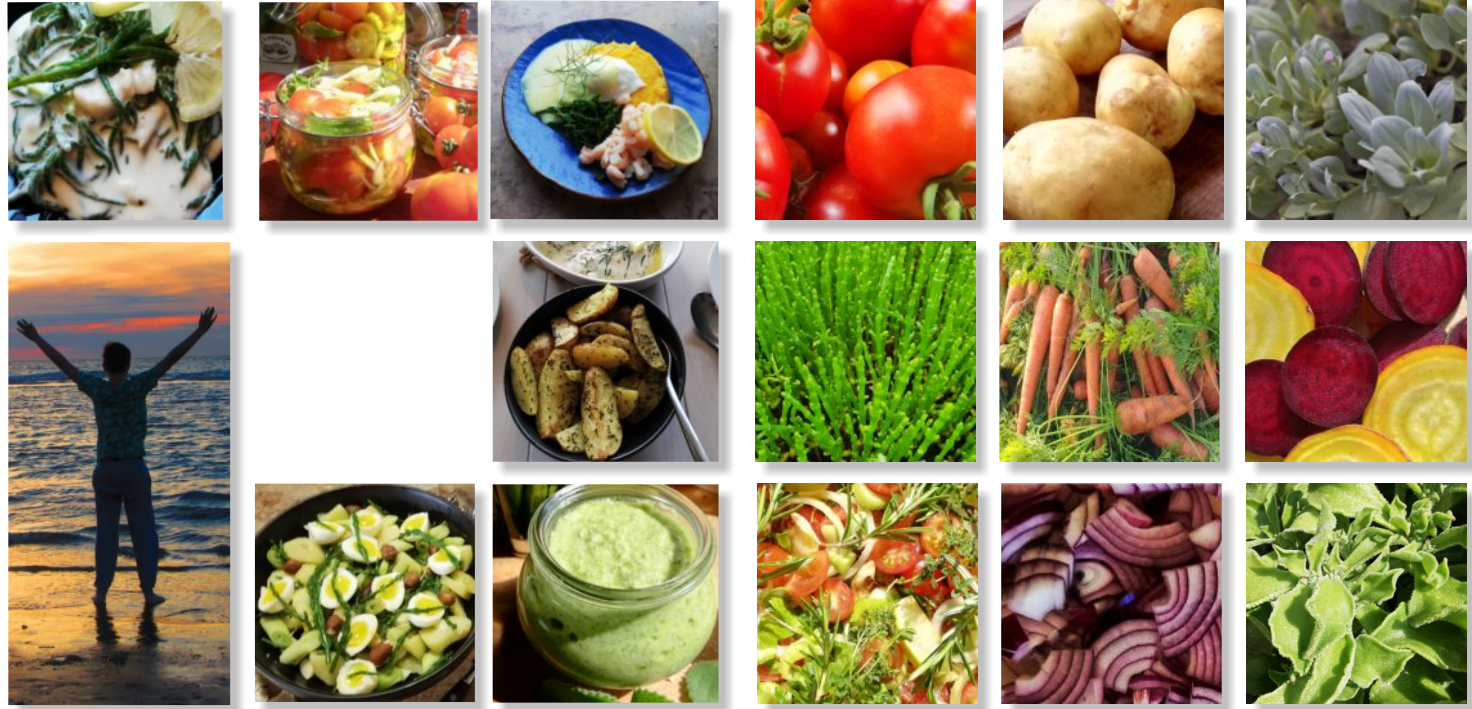




# The Inspiration Catalogue

*of salt-tolerant plants*



*Ideas for food and business innovation in times of climate change*



# Acknowledgements

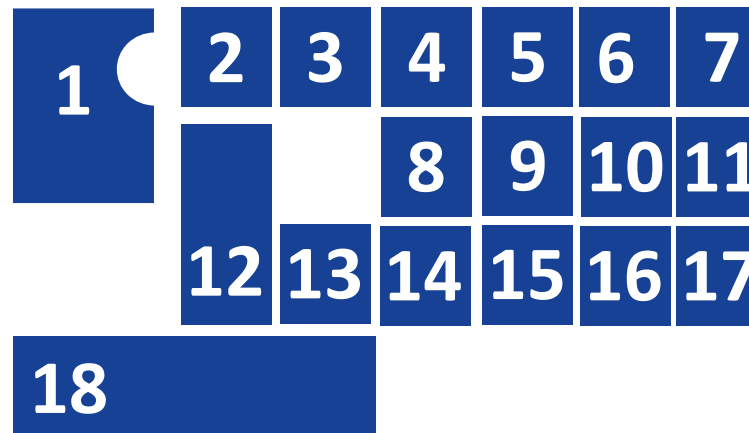


This Inspiration Catalogue of Saline Plants was developed as part of the Interreg Vb North Sea Region project SalFar. It builds on five years of work by people from a range of disciplines in the seven countries of the North Sea Region (NSR). It aims to provide access to a variety of resources, stimulate discussion and inspire action...

A variety of reports and information about the SalFar project can be found here:

[www.northsearegion.eu/salfar](http://www.northsearegion.eu/salfar)

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# Foreword

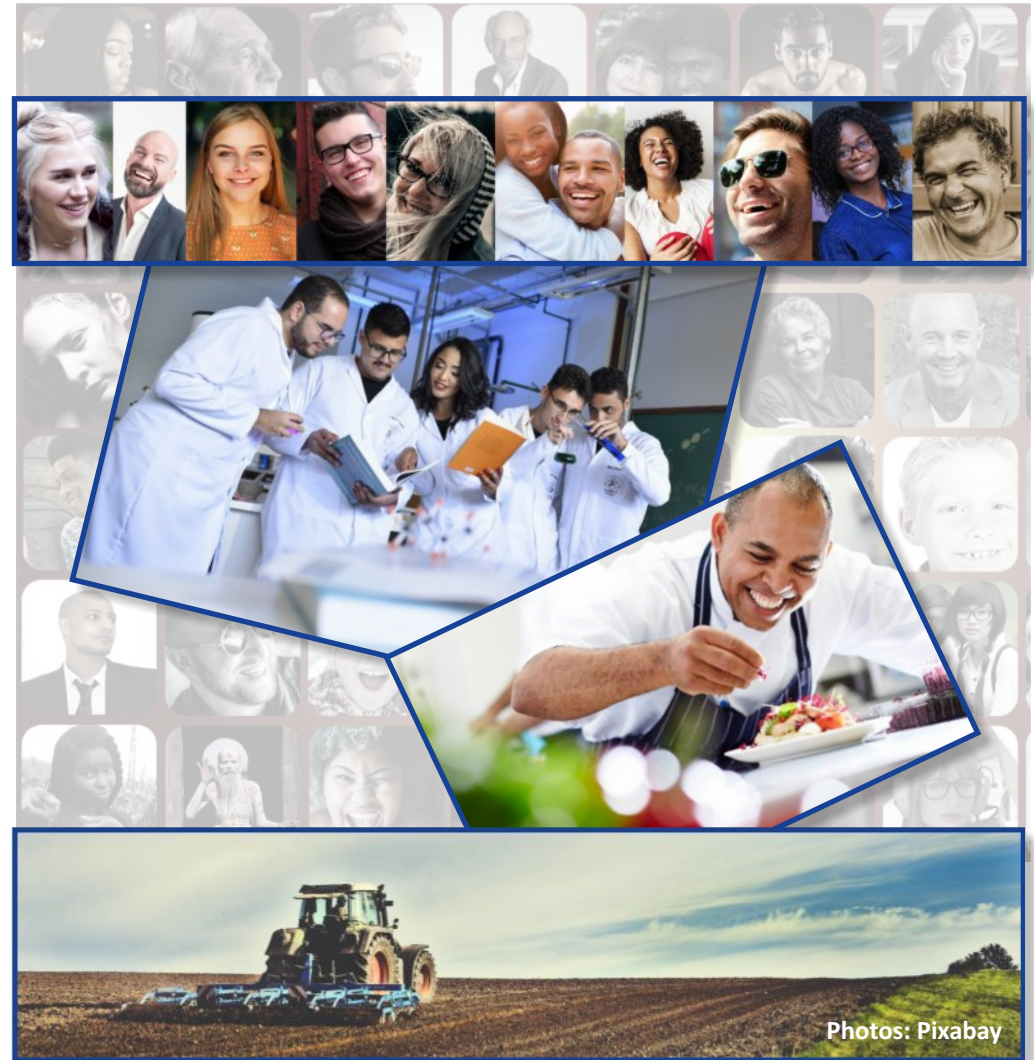


## Foreword

The purpose of this catalogue is to provide you, the food producer, wholesaler, retailer, cook, chef; the interested person - anyone - who has an interest in food, with some inspiration and ideas concerning saline-grown produce. We also offer links to resources that you may find useful and which may inspire you in developing food products using these interesting ingredients. We also offer some ideas to get you thinking about branding, the consumer and business development.

In this catalogue we have done the easy bit (well, only a bit of the easy bit, because there is a great deal more material that we haven't been able to include!) in cataloguing some ideas and concepts and listing some links to the work of others.

These 'others', farmers, scientists, technologists, food producers, entrepreneurs, food enthusiasts of all kinds, have taken an idea - *'maybe we can do something with salt affected soils?'* - and gone off into many different areas to explore that idea. They have developed the science, grown the crops, tested the plant species, evolved techniques, created the recipes that demonstrate: *'yes, we can do something with salt affected soils and also with the foods we can grow in them'*. In doing so, they have given us all a better chance of maintaining food production along our coastlines despite the rising sea levels caused by climate change. Oh! and saline grown products also offer some surprising benefits which you can learn more about in these pages.



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## A branding success story

In 2016 Netto, part of the largest Danish retailer, the Salling Group, launched an own-label organic brand: ØGO. Within three years it

## Food from the wild

Many edible plants, including those that grow naturally in saline environments, can be gathered at no cost and with great enjoyment

## Addenda

After five years of SalFar we should note that we are just at the beginning, in all kinds of ways, of understanding saline farming, of

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Photo: Stephen Valentine



# Introduction...



In January 2020, the global market analysis company Ipsos published a report called 'Climate Change and Consumer Behaviour'.<sup>1</sup> – based on a survey done for the World Economic Forum.

Two-thirds of adults (69%) surveyed across 28 countries said they had made changes to their consumer behaviour out of concern about climate change: 17% made a lot of changes, the other 52% a few. Out of the 69%, 46% say they have made changes in the food they buy (type, brand origin/sourcing, etc.). In total 32% respondents have made changes in their food purchases.<sup>2</sup>

## Why? – Climate mitigation/action

Climate change has been a debated issue for many years, but in the last decade the consequences are becoming more and more visible. They can be seen and felt. They are no longer a theoretical concern that may or may not impact future generations. We are all being impacted now. The weather is



Photo: Stephen Valentine

changing, droughts and other extreme phenomena such as storms and hurricanes are becoming more frequent. Both polar regions are melting – this will have an enormous impact - it is causing global sea levels to rise.

In 2017 a massive iceberg (0.2 x 160 x 48 km), named A68a by scientists, broke off the Antarctic ice shelf. Four years later in 2021, it had melted completely and released around 150 billion tons of fresh water in the Atlantic Ocean<sup>3</sup>. Sea level rise threatens to flood large metropolises like Miami, Mumbai, and Jakarta by year 2100; it also threatens global food security as coastal farmland becomes increasingly subjected to saltwater intrusion.



Photo: Stephen Valentine

This makes food production difficult or impossible in these areas as most crops cannot tolerate salt... Unless we start adapting our food production today to grow more salt-tolerant plants. This has been the focus of the SalFar project.

<sup>1,2</sup> [https://www.ipsos.com/sites/default/files/ct/news/documents/2020-01/report-global-advisor-climate-change-consumer-behavior-final\\_2.pdf](https://www.ipsos.com/sites/default/files/ct/news/documents/2020-01/report-global-advisor-climate-change-consumer-behavior-final_2.pdf)

<sup>3</sup> <https://www.nytimes.com/2022/01/26/climate/iceberg-a68a-antarctica.html>



# ...Introduction



Some of the plants we consume today are more salt-tolerant than we thought – certain varieties of tomatoes, potatoes, and cabbage for example can handle more salt than expected. It is a matter of breeding and growing the most suitable species as well as trying to find ways to ensure the soil structure is not damaged.

We should also take an interest in more unfamiliar edible plants. There are plants which are not only salt-tolerant but thrive in saline conditions – halophytes – some have been known and used for many years but most are a new experience for the majority of people. They present an excellent opportunity for culinary innovation.

The intent of this guide is to inspire food producers, chefs, cooks, indeed anyone, to take an interest in saline produce and be part of the climate adaptation fight that is necessary to feed the world's growing population and produce local, healthy, sustainable foods.

Climate change is no longer the concern of a selected few climate scientists and eco-anxious “hippies”. Studies show that people all over the world, particularly young people, worry about the future, feel let down by their governments, and feel powerless to do anything while recognising that not enough is being done<sup>4</sup>.

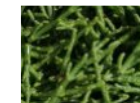
Climate anxiety is on the rise. In the SalFar project we believe that saline farmed foods can bring some hope and provide an opportunity to take action. It provides an opportunity not just for ourselves, but for our children, grandchildren, and their children. Growing and eating saline farmed foods is a way of turning lemons into lemonade. If we can use saline brackish water to irrigate crops during droughts, if we can maintain food production in areas

that are occasionally flooded or sprayed during storms leaving the soil salinised, we can help to maintain a certain level of food security. This can bring hope and reduce the powerlessness felt by those in the affected areas. It also provides a practical approach for those who are just concerned and want to do something.

To make the most of the potential of saline farming and salt-tolerant plant foods we need to experiment, develop knowledge, skills and expertise and educate all those involved – farmers, chefs, food producers and consumers. This guide is a first step to create awareness and interest in the topic.



<sup>4</sup> <https://www.nature.com/articles/d41586-021-02582-8>



# Being the first...



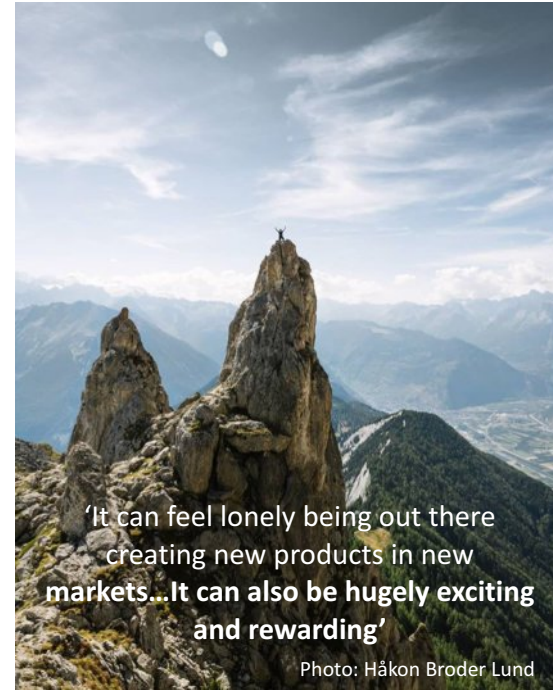
## Having the field to ourselves

Those of us involved in the production and marketing of saline grown products have the advantage of being involved at the beginning of a new marketing category. We have a clear playing field, no signposts, few other players; little or no customer awareness of what saline farming is, what it involves and what its benefits and disadvantages are. This gives us the opportunity of developing a clear USP, creating a strong brand identity, building a customer base and growing customer loyalty. We also have the time to perfect what we do and set market pricing before competitors get into the market. Providing we as first-movers have built a robust market and a large enough customer base then it is more likely than not that we can remain market leaders.

Business people from every sector insist that being a first-mover offers a considerable competitive advantage. A casual study of the evidence suggests that, contrary to their view, this is not a given. Much depends on circumstances. Along with having the right product in the right place at the right time, other factors such as effective branding, marketing; a good business strategy, matching the zeitgeist of the time, adequate resources deployed effectively, and an element of luck all play their part.

## Being a first-mover is not for everyone

It can feel lonely being out there creating new products in new markets, persuading others to get alongside; convincing them to buy into your vision. Being the first in the field is very hard work. It can also be hugely exciting and rewarding. It must not be forgotten that being a first-mover is not, in itself, the magic ingredient for success.



'It can feel lonely being out there creating new products in new markets...It can also be hugely exciting and rewarding'

Photo: Håkon Broder Lund

Being the first in the field in a new market can sometimes feel like the fox chased by hounds must feel: competitors try to build on the market penetration and customer base you have developed. They have the opportunity to copy and improve the products you have produced and they can build on, at reduced cost, the initial developmental work, market awareness and customer base created by you.

## Influences

Two factors can have a significant influence on the success that can accrue from being a first-mover: how fast is

the market growing for the product? And how durable is your product in the marketplace? (think VCR, cassette tapes, mini disks etc.) It is difficult if not impossible to predict how these factors might develop; neither of them is within our control.

## Gaining market dominance

No advantage lasts indefinitely but actions that build a long-term advantage tend to allow companies to dominate their area of activity – on a global scale



# ...Being the first



consider (again!). Coca-Cola and McDonald's as well as Kellogg's. Each dominant in its sector, each having a strong identity and brand awareness. Being the first in the market gives the opportunity for the creation of a strong

**'Copying a product can cost 25 – 40% of the price of developing it from new'**

brand identity, good brand recognition and the development of loyalty to that brand as well as raising awareness and creating interest to attract new customers. There is also the potential for setting the standard in your industry, for gaining exclusive agreements with both suppliers and customers and gaining the benefit that comes from economy of scale. Being further along the learning curve than those following can help to maintain a competitive advantage by simplifying production, reducing complexity, and driving down costs. If a first-mover builds a strong business relationship with its customers, the cost and inconvenience to that customer of changing to an alternative supplier can be prohibitive.

**Market forces:**  
According to CIPA, a Japan-based industry group with members such as Olympus, Canon and Nikon, worldwide camera shipments dropped by 93 percent between 2010 and 2020, wiping out more than four decades of growth.



Photo: Stephen Valentine





# The potential health benefits of saline farmed plants



## Antioxidants and polyphenols

The human body produces several substances as a result of metabolic processes. Some are harmful and are generally described as oxidative stress. This produces damage in the long term, and therefore the body uses compounds called antioxidants as a defence system (23). These can be inherent, meaning that our body already possesses them, or they can be supplied through diet. One class of plant compounds that show high antioxidant activity and help reduce oxidative stress and inflammation is called polyphenols. They are abundant in fruit and vegetables and are crucial in the prevention of lifestyle diseases (24-26).

The reaction of plants to saline stress is, in some ways, similar to ours: they create more substances that can reduce oxidative stress. Consequently, plants experiencing saline stress have the potential to provide us with a superior nutritional content full of antioxidants. The human body would thus have increased defence against metabolic stress by increasing its antioxidant intake. Ultimately, this would promote a better health profile. There is, therefore, value in exploring the cultivation and use of saline-grown foods in more depth. Indeed, existing research already indicates higher levels of polyphenols and other antioxidant substances in a variety of plants subjected to saline stress, highlighting a new and exciting approach to nutrition (28, 29).

Salt is essential to health and serves



[References click here](#)

many different physiological functions including promoting the absorption of the nutrients we ingest (40). Nevertheless, caution needs to be taken when consuming it. A high intake of salt is associated with increased hypertension and subsequently cardiovascular problems, and it should be used in moderation (39). The rich nutritional content of salt-tolerant plants suggests there is potential value in using them to replace regular table salt in our daily salt consumption.

## New crops

The iceplant and *Salicornia* are both succulents. they can grow in a wide range of soil types and are resistant to drastic conditions. Unlike most familiar crops, these plants thrive in a saline environment. This class of salt-tolerant plants is called halophytes, and they generate satisfactory yields, as well as a sustainable income source for farmers (1). Besides being a favourable way to address the impact of environmental changes on food crops, these plants can also benefit our health.



Photo: Stephen Valentine

## Iceplant (*Mesembryanthemum crystallinum*)

Emerging studies have proposed interesting potential effects of the iceplant on health. So far, a common finding is a link between improvements in Type 2 Diabetes and D-pinitol, a



# Potential health benefits...



main compound of the iceplant. The benefits identified include better regulation of blood glucose levels, which is the core problem of diabetes, as well as protection against cognitive decline, which can be one of many consequences of diabetes (2, 3, 4).

Another study reported that the iceplant could play an important role in immunity, as it identified an increase in both immune functions and cell count after consuming the plant grown in saline conditions (5). Increased antioxidant activity was also observed following consumption of ice plant extract. This is important due to the role of antioxidants in interfering with the development of several diseases (2, 6). These potential health benefits point to a promising field, where more interest and studies are needed.



Photo: Stephen Valentine

[Endnotes  
click here](#)

They observed a decrease in Mean Arterial Pressure (7). This suggests that the source of salt is an important factor, and this can induce different effects on health. Therefore salt coming from *Salicornia* could possibly provide the salt content needed by the human body, while offering some additional protective effects. Other health benefits of *Salicornia* compounds that have been suggested are prevention and symptom amelioration effects in Type 2 Diabetes, cancer, and obesity (8).

## Familiar crops

The accelerated rise in sea levels occurring in the past decades has urged scientists to investigate other plants besides halophytes and with it, a growing interest in the salt tolerance of more familiar crops.



Photo: Salt Farm Foundation

## *Salicornia (Salicornia europaea)*

One common risk factor for heart disease is high blood pressure, which can be caused by a high salt diet. *Salicornia* can potentially ameliorate hypertension, and therefore it is relevant to promote this plant and initiate more research into it. One study compared the blood pressure and vascular function of animals fed a high salt diet to others fed an extract of *Salicornia*

## Brassicas

*Brassicaceae* is a family of leafy vegetables, including rucola, kale and broccoli among others. Under saline conditions, the Brassica species have shown enhanced levels of glucosinolates, which are substances with important health functions. This increase suggests that saline treatment possibly

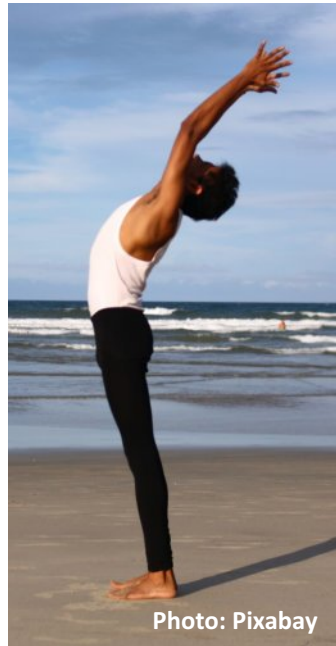


# Potential health benefits...



delivers additional health-promoting effects (15, 16, 21, 22). A wide range of health benefits have been reported for glucosinolates, such as reduced inflammation, activity against microbes and higher levels of antioxidants (14). In salt-treated kale and broccoli, the increase in glucosinolate derivatives is speculated to play a role in enhanced cancer prevention (17, 22). Caution should be taken with these compounds, as some adverse effects have been reported in livestock (35). Consumption guidelines should be investigated in order to establish adequate levels for obtaining optimal health benefits and avoiding adverse events.

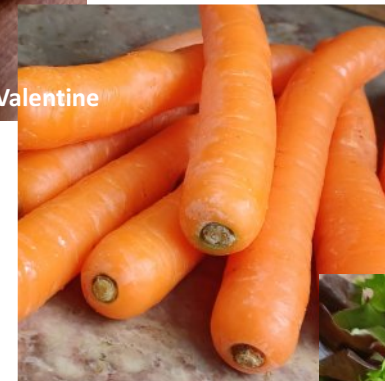
An increase in antioxidant substances has likewise been observed in kale following saline treatment, further emphasizing the potential to decrease the risk of cancer and degenerative diseases (18,19). Another benefit has been reported in salt-treated rucola, namely higher levels of a critical enzyme involved in inflammation and regulation of iron, implying that growing in saline conditions could also promote these functions in the body (20).



## Others

Other familiar crops which have been investigated are carrot, potato, and lettuce. One study investigated the possibility of generating a salt-tolerant carrot plant. This revealed that salt stress increased a class of polyphenols which play an important role in the prevention of cardiovascular and neurodegenerative diseases (30, 31).

Another study showed that the potato plant manages stress by enhancing antioxidant activity and also that salinity may prevent the decrease of phenols as a result of boiling (32, 33). Lastly, lettuce also showed an increase in polyphenols with moderate salinity (34), and may therefore have additional nutritional value.



[References click here](#)



# The familiar & established vs. the new & different...



Crops produced from saline farming can be divided into two broad categories: the familiar and established and the new and different. In presenting both to potential purchasers, while they may have reservations about unfamiliar foods and ingredients, such as Salicornia and Ice-plant, it is not too difficult to imagine how one might market something new, different and exciting. It may be more difficult to think how we might promote familiar & established crops such as potatoes, carrots and onions which don't look any different from those that are a staple part of the diet for most people in the North Sea Region (NSR) and which appear on our plates at home and in restaurants every day of the week, week in, week out.

What advantages, do saline grown plants have for the consumer? What specific features and benefits does the saline element offer and how can awareness of these advantages be made available to the customer, consumer and user?



Photo: Pixabay

Every business needs to tell its own story in its own unique way built on the principles outlined elsewhere in this document. Here are some thoughts to consider:

Evidence is beginning to emerge that food grown in saline conditions may offer some nutritional advantages as well as taste differences. What are the implications of this when we are marketing our products? Can we use these factors to differentiate ourselves, our products and the dishes we offer from

those of other providers and along the way develop a reliable and distinct market sector?

Do we market the product or the brand? Do product and brand go hand-in-hand? if not which one leads? To support individual farmers and producers, a common brand identity and a logo for saline grown food products has been produced by SalFar. This will provide a consistent brand image throughout the North Sea Region and is available for use against the criteria specified in the SalFar Brand Book. Both can be obtained by from: [lkj@foodbiocluster.dk](mailto:lkj@foodbiocluster.dk)



Are there advantages in treating familiar items differently in our shops, sales material and menus? A salt-grown potato has all the nutritional qualities of other potatoes but it may also offer additional features and benefits. If people are willing to pay what they consider to be a reasonable premium for organic food for reasons that include it being better for the environment will they also be prepared to pay a premium for saline grown products? The benefit to the consumer being they are doing something, however small, that benefits the planet and therefore, themselves.

New and different speaks to adventurous eaters, while the possible nutritional and health qualities add another dimension for the health



# ...The familiar & established vs. the new & different...



conscious. Further, the textures and taste of these plants offer the possibility of new products, and dishes which enliven and add value to the menu.

There is today some concern about salt in diet. It is an issue people raise about our products: ‘as it’s grown in saline conditions doesn’t it contain a lot of salt and salt is bad for you isn’t it?’

They are, quite rightly, concerned and a diet high in salt (or sodium) can cause raised blood pressure. This can increase the risk of heart disease and stroke.

Salt is however, also an essential ingredient, necessary for the functioning of our bodies at a cellular level. Sodium, the key element found in salt, is needed to maintain their overall fluid balance, transport oxygen and nutrients, and allow our nervous system to function.



Photo: Stephen Valentine

Using saline grown ingredients can help us reduce the need to add salt to our dishes and the use of good ingredients in freshly prepared foods allows us to choose and closely monitor the amount of salt we are using. In many people’s diet more than 70% of the sodium eaten comes from processed and pre-packaged foods. Here it does a number of things, acts as a flavour enhancer, preservative and colour fixer among other uses. It is also used to make bread and other baked items rise. It’s much more difficult to control consumption when it’s already added before it’s bought. Going for less-processed foods is a great way to exercise control.

For long-term success, statements we make about our products should be clear, honest and truthful and should not make claims that cannot be justified. To do so risks destroying our credibility, the credibility of the product, the brand and the business.

## Taste

But how do halophytes taste? As one of the SalFar partners, Aarhus University conducted experiments to evaluate the sensory properties of two halophytes. The plants were grown under different conditions (salinity and nitrogen levels), which seemed to affect their perceived intensity of flavour and juiciness.

	Iceplant	Salicornia
Overall flavour intensity	<ul style="list-style-type: none"> <li>• <b>Medium to high</b> overall flavour intensity</li> <li>• <b>Medium to high</b> saltiness, umami &amp; sour taste</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Low to medium</b> overall flavour intensity</li> <li>• <b>Medium</b> saltiness, bitterness &amp; green grass flavour</li> </ul>
Texture	<ul style="list-style-type: none"> <li>• <b>Medium</b> rubbery, crispy at first bite, crunchy texture</li> <li>• Different levels of dissolving texture &amp; juiciness</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Moderately</b> crunchy, stringy &amp; chewy</li> <li>• <b>Medium</b> levels of dissolving texture &amp; juiciness</li> </ul>



# ...The familiar & established vs. the new & different



## Opportunities for product innovation

Not only can saline-grown plants be used in dishes as a direct food source, but they can also be incorporated into innovative products. For example, the nutrient content, along with the textural and sensory characteristics of cooked pork loin have been improved by partially replacing salt with red *Salicornia* powder (9). This indicates the potential of *Salicornia* to be an ingredient of cured and processed meats, to reduce overall salt content in the diet and thus provide a healthier, more nutrient-rich alternative to these products. Similarly, *Salicornia* has been tested as a replacement of salt in crackers, and the feasibility of using it as a promising food ingredient has been emphasized (10). Therefore, savoury snacks could be another target for novel product development using *Salicornia*. Naturally, other saline-grown plants can be experimented with, keeping in mind the levels of sodium in the products. One other suggestion is to create a halophyte powder and test its use in the kitchen as a replacement for cooking salt.



Photo: Nordcraft Destellery

Ökowerk Emden, a SalFar partner, has been working with Nordcraft Destellery exploring the use of saline plants in their distilled spirits.

decreasing its quality. A recent study investigating the effects of halophyte extracts on melanosis reported that the salt-tolerant plants inhibited this process. The findings indicated that the halophytes produce better results than the current preservative method used in the industry. Therefore, the extracts could be beneficial for maintaining the sensory properties, as well as increasing the shelf life and commercial value of seafood (36, 37).

[References click here](#)

Lastly, a previous review looking into the potential of iceplants as a future solution to arable land found that the ice plant reduced the salinity of soils, along with their metal contamination. Based on this, halophytes have an interesting potential to detoxify polluted soils, and to ultimately increase the crop yields (38).

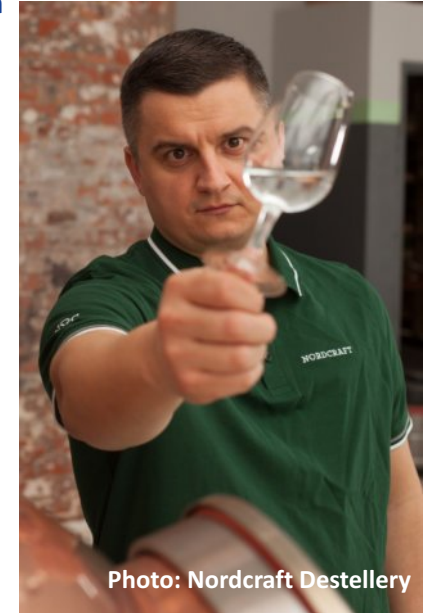


Photo: Nordcraft Destellery



# Salicornia as an ingredient



*Salicornia* goes under a number of different names in different places including Samphire, Glasswort, Marsh Samphire, and Rock Samphire. Glasswort is any plant of the *Salicornia* species. It has been used for many years by coastal communities as a source of soda for use in glass making and as food.

Fresh Samphire picked over, washed and steamed for a few minutes then dressed with a good olive oil butter, and pepper makes a tasty, interesting and different addition to almost any plate of food though it seems to have natural affinity for seafood of all kinds. In many places it has, traditionally, been pickled, usually quite simply in a strong malt vinegar. More pleasing and interesting results can come from using cider or white wine vinegar with various herbs and spices.

Samphire can add interest, value and a story to many dishes. It's an easy vegetable to prepare and keeps well. Here are some examples to pique your interest



Roast Cod loin in Samphire Sauce with saline grown potato wedges



Samphire with a potato & carrot mousseline, a poached egg & prawns



A Mackerel fillet with steamed samphire, saline grown potatoes & carrots.



Salmon & Samphire tartlettes



Samphire pickled with bay leaves, peppercorns, juniper berries and garlic.



Dried in the oven & ground to a powder samphire makes an interesting and flavoursome alternative to salt & pepper



Samphire, potato & hazelnut salad with Quail's eggs and pickled figs



Samphire pesto

All photos: Stephen Valentine



# Grow your own...



Many people, chefs among others, like to grow their own produce. In this way the provenance of the food is known and it can add interest, novelty and value. The techniques for growing familiar & established crops are well-known, those of the new & innovative plants and products less so. Furthermore commercial growers often use methods and equipment that are not available to those of us who grow things on a smaller scale.



Photo: Alexander Gregor

Having a kitchen garden or other growing facility where customers, especially children, can experience collecting part of their own dinner can be a rewarding experience for all concerned. It is easy to forget that, with increasing urbanisation, many people grow up with little or no real understanding of how food is produced.

Growing something new is always interesting and as part of the SalFar project I was presented with a small plastic bag containing a large quantity of very small seeds and told: 'Grow them'. 'What are they?' said I. 'Iceplant' came the reply. 'How would you like me to grow them?' - a shrug - 'you're the gardener.'

So not knowing anything about these seeds I sowed them as thinly as

possible in shallow trays, put them in full sun in a south facing window, as you do, kept them watered and waited.

While waiting, a bit of research was called for. It turned out the Iceplant was *Mesembryanthemum crystallinum* a halophyte (whatever that was) and it probably originated in the Namib desert.

Back on the windowsill the cotyledons (first leaves) appeared quite quickly, dusted with what appeared to be sparkly crystals. The plants then stopped growing – oh no! A heating mat was put under the trays and a growing light above – normal service was resumed.



Photo: Stephen Valentine

While this was going on I was put in touch with an expert who had some experience of growing these things commercially. I asked, among other things, about transplanting the seedlings. 'Ah!' Says he, 'they have very delicate roots, we don't do that we...' Well, whatever 'we' did or did not do I was stuck with what I had done.

The seedlings did indeed have very delicate roots. They were transferred, very carefully, into pots, moved into a small unheated greenhouse to be





# ...Grow your own



grown on, which they did with surprising vigour, before being hardened off as they became more robust.

Three rectangular tubs were prepared and filled with a standard commercial compost mixed with table salt (sodium chloride). The first had no salt, the second 0.6% and the last 1.2% determined by weight. When at a decent size six plants were planted in each, the troughs set against a south facing sunny wall and kept watered. A commercial tomato fertiliser was applied every 10 days.



Photo: Stephen Valentine



Photo: Stephen Valentine

The Iceplants flourished, expanding to fill the boxes. The more salt in the soil, the better the growth of attractive, thick, crinkly edged leaves covered with what looked like ice crystals but were bladders filled with saline.

The plants were robust, disease free, easy to grow but, come cold weather, had no frost resistance.

The plants have a 'cut and come again quality' are fresh, crunchy, moist and salty.



Photo: Stephen Valentine

They do not have a strong flavour and they make an interesting addition to salads and other dishes.

Growing them again I would take more care in planting the seeds. Just two or three seeds in small degradable containers which can then be used for planting on without disturbing the delicate roots. I would also use top lighting and bottom heat.



Photo: Stephen Valentine



Photo: Stephen Valentine



# A new food trend?



New global and national food trends are continuously arising. They vary from high-end versions of products that did not previously have a high-end market, through indulgent foods that haven't been seen before. Good examples are plant-based alternatives to meat and dairy, such as the Beyond Meat plant-based burger, or the oat drink company Oatly's products.

In the past 50 years or so, different food trends have occurred as part of the rise of consumerism. With social media they appear faster and more frequently. On Instagram particularly, where visually appealing food is shared, people follow food influencers to get inspiration. According to Facebook IQ, food and drink is UK Instagram's most popular topic: 39% of users consider themselves "food aficionados"<sup>6</sup>. This statistic is likely to be representative of many western countries where the app is widely used and is not restricted by borders.

A food trend usually starts when something catches the eye of a group of influencers who are always looking out for new things. If it gathers momentum, and enough people take interest, the trend can reach critical mass and begin to permeate mainstream media as well as other platforms. Suddenly, everyone wants avocado toast, kale, quinoa, matcha tea, acai bowls, kimchi or whatever is trending. Before long, marginal products like quinoa, matcha tea or kimchi, are available at your local grocery store. Retailers closely watch trends and quickly identify market opportunities.

Food trends can occur on multiple levels from broad social or societal trends down to individual dishes or ingredients which are often either healthy ("super foods") or indulgent. One of the overarching societal trends of the last ten years is a movement towards more sustainable foods with the

invention of the concept of "conscious eating". "Conscious" referring to being aware of what you are eating and what it does not only to your body, but also your community and the planet. Under this umbrella, trends like clean eating, whole foods, locally-sourced and plant-based diets have appeared.

Salt-tolerant plants represent a potential new food trend. Some of these plants are new to the consumer. Others can be presented in new ways. There is an opportunity to be the first mover on something new. It is quite clear that difference sells in the community of "foodies" on Instagram. Being first with something new is exciting and appealing. Furthermore, it speaks to broader societal issues such as sustainability, climate change and healthy foods. There is also the opportunity to brand it as locally produced from coastal areas.



Photo: Pixabay

<sup>6</sup> <https://www.theguardian.com/food/2021/jan/17/what-will-be-eating-in-2021-and-how-do-food-trends-happen-kimchi-teff-lao-gan-ma>



# Consumer types & buying behaviour...



Consumers are often categorised according to their behaviour. Increasingly, that behaviour occurs online. In marketing, these are the five most common types of consumers: Loyal Customers, Impulse Shoppers, Bargain Hunters, Wandering Consumers, Need-Based Customers.

## Loyal Customers

Loyal customers make up the bedrock of any business. As the name implies, loyal customers are those who have made a commitment to your product or service. Even though they may comprise the smallest percentage of your overall consumer base, your loyal customers are also the most likely to generate the majority of your income. As an added bonus, they're far more likely than any other type to recommend your company to others.

Do not to make the mistake of taking loyal customers for granted — they're as likely as anyone else to move on to other providers if your business isn't meeting their needs and preferences. It's essential to keep these customers involved, engaged, and feeling as if they're valued by your company. Consider what you might add - reward programmes and interactive social media for instance - to keep them coming back.

## Impulse Shoppers

Impulse shoppers are those simply browsing products and services with no specific purchase goal in mind. This consumer segment generates significant revenue for most retailers. They are usually receptive to upselling and have the potential to become a loyal customer if products and services meet or exceed their expectations, needs and desires.

## Bargain Hunters

Bargain hunters are seeking the best deal. Just that. Full stop. They are not likely to be swayed by upselling techniques —they may, very easily, cause them to move on. It is unlikely that this person will become a loyal customer unless it's part of your business strategy to offer the lowest possible price at all times. This customer also rarely, if ever, makes purchases on impulse. Advertising sales, bargain offers, discounts, bogoffs<sup>7</sup> etc. is the best way to appeal to those in this customer group.

## Wandering Consumers

Wandering customers are in some ways similar to impulse shoppers, but they're much less likely to make purchases. This type of customer is more prevalent in brick-and-mortar locations, but they do appear in online retail venues on occasion. It's sometimes possible to make a sale to those just wandering through - provided you can stimulate their interest, but keep in mind that many of them are simply attracted to the social interaction of shopping and have no intention of making a purchase. They can take up a lot of staff time to no good effect.

## Need-Based Customers

As the name implies, need-based consumers are driven by the need for a specific product or service. Although these customers generally make purchases decisively and quickly once they find what they're looking for, they're easily lured away by competing businesses. However, they are frequently converted into loyal customers. They often have practical questions or concerns that they need answering. They can be addressed with good staff knowledge and a proactive social media presence.

<sup>7</sup> Buy One Get One For Free



# ...Consumer types & buying behaviour



As can be seen from these consumer buying-behaviour examples, different marketing approaches work better for different customer groups. Knowing and understanding your customers, who they are, what they need and want from you, is vital. Today, businesses have more marketing options than at any time in the past. Having such a choice can, in itself, be a problem and we may be unsure of the best way to use these resources. It is important to understand the types of consumer markets as well as the types of online consumer behaviour in order to craft an effective and profitable marketing strategy. It can be difficult to put this into practice — and that's a perfectly normal response to the plethora of information and consumer behaviour examples when we are trying to devise a customised marketing strategy. When it comes to salt-tolerant plants there is, however, one consumer group that is worth focusing a little more on, and that is millennials.



Photo: Pixabay

## Millennials

Easily written off by older generations as lightweight, self-obsessed and unimportant, millennials are very possibly one of the most significant customer groupings - and they're also going to be around for a long time - ignore them at your peril!

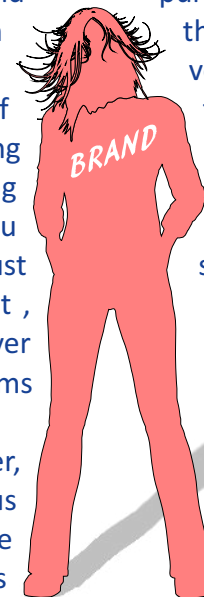
Millennials approach shopping quite differently from older generations.

***Brands need to understand this and respond appropriately.***

## Some things to consider about millennials

In 2018 the digital advertisement company Creuna - today known as Knowit - did a study of Millennials (people born between 1980 and 2000) and their relationship with media and food. The study looked at their brand preferences and purchasing behaviour to understand what drives them when they buy food. Their conclusions were very much impacting food trends for the main ones being that food and Millennials are closely linked. An example is that eating kale is a way of signalling to the surroundings that you are well-educated, smart and rich. Food is not just sustenance, it is also entertainment, and art and it is ever present on various digital platforms where Millennials are present too.

They are, however, known to be less brand loyal than previous generations. According to this study, they are critical, idealistic, and rational consumers who focus on environment, animal welfare,



# Millennials



and a good cause. At the same time, they are very price conscious. They do not necessarily want the cheapest product, but overall, they look at the best value for money which includes the impact of the food on their body and the environment. They look at the labels to see what their foods contain (60% look at labels), they are not impulse shoppers (66% plan their purchases from home). They are idealistic shoppers.

“Millennials are idealistic - even more than they can afford. They really want to buy organic, shop locally, and support those products and brands that work for a good cause. Although price is the undisputed winner when we look roughly across the data, it is clear that Millennials are constantly weighing price against how much organic, local farming and altruism they can get in the bargain”.

- Millennials, Mad & Medier, 2018, p. 26

29% of the respondents in this study prefer organic foods despite the additional cost and are willing to absorb a minor premium. They tend to navigate according to consumer labels to determine what foods to choose. They also care about local food production as they are aware that transportation potentially has a heavy carbon footprint.

“Millennials have an intuitive sense that locally produced goods are the way to go when it comes to protecting the environment”.

- Millennials, Mad & Medier, 2018, p. 30

One of the recommendations of the Creuna authors, when marketing products to this consumer segment, is to connect a real and authentic story to your brand, and if it connects to something local so much the better. There

is more on this in the next section about branding. It seems to be a driver for many Millennials to select products that have a positive impact in the world. According to the study, 41% of respondents were motivated by supporting a good cause. The results of this study indicate that the general values of this consumer segment are well in line with what saline farmed foods have to offer.

**‘Millennials approach shopping quite differently from older generations. Brands need to understand this and respond appropriately’.**



Photo: Pixabay



Photo: Pixabay



# Elements of Branding



## Putting it together

Creating, adjusting and refining your brand is similar to solving a puzzle - The final picture will not be clear - may not fully make sense - until the last pieces are fitted in. Once they are all in place the picture becomes obvious and the benefits start to materialise. To get to this point takes effort, determination, concentration and, very often, a lot of trial-and-error.

Creating an effective brand takes work, care and a thorough understanding of all the pieces and small details that need to be put together into an effective and coherent whole. We should attempt to keep an objective view (not always easy!), to allow for reassessment and evaluation of our branding activities and to help identify potential areas of improvement and development.

What are the basic elements of branding that should be included in our puzzle? Concentrating on the wrong areas means losing direction and investing energy into something that will not fit the bigger picture. This will only lead to confusion, the creation of yet more puzzle pieces, and will ultimately weaken the overall branding strategy.

On the following pages we have set out to explore and define the essential elements of branding to both bring some clarity and draw the elements together into a coherent whole.

When people write or talk about brands, multi-national companies with multi-million dollar budgets are often used as examples. These are used as they are likely to be well known to the audience but it can be difficult to see how they relate to start-up, small, local, one or two person enterprises:

The following are massive and have global recognition. It is easy to forget that they all were, at some time, also start-ups -small, local, one or two person enterprises:

- Coca-cola was started in 1886 by John Stith Pemberton, bought out by Asa Griggs Chandler. He grew the business by creating an effective marketing strategy and building a brand.
- McDonald's was founded in 1940 as a restaurant in San Bernardino, California by two brothers, Richard and Maurice.
- IKEA was started in Sweden in 1943 by 17-year-old Ingvar Kamprad.

**A predominant reason for their success is their strong brand identities.**

Elements needed for a strong brand include:

- a Tagline,
- a Clear Vision,
- an Emotional Element,
- consistency Throughout and a
- positive Perception of the Brand.



# Branding elements: Pieces of the puzzle 1



## Taglines

A tagline is a short, memorable phrase that tells the world who you are, what you sell and what you stand for - it should express the values of your brand in a short, sharp phrase and should be immediately understandable. Its job is to land in the mind, take root and enable easy recall of the brand. The more memorable the tagline the greater the chance of success.

A tagline can be as important, or even more important, to a brand than its name.

It can become bigger than the brand, witness 'Just do it', 'Vorsprung durch Technik', and 'A diamond is forever'.

## Some well known taglines include:

'Think Different'. Apple

Pocket the Difference'. Asda

'Just Do It.' . Nike

'I'm Lovin' It' . McDonald's

'A Diamond Is Forever'. De Beers

'Designed for Driving Pleasure '. BMW

'It does exactly what it says on the tin'. Ronseal

'Never knowingly undersold'. JLP

## A Tagline can become bigger than the brand

### 'Vorsprung durch Technik'

50 years ago Audi started using the above tagline in advertising campaigns in the UK.

Only about 9% of the British population could hold a conversation in German.

The success of the campaign and the strapline changed the perception not only of Audi but also kick started the reputation of Germany as a source of engineering excellence.

If a brand is what you call yourself when you shake someone's hand, a tagline is the interesting thing you say immediately afterwards.

The great majority of taglines have between two and five words - the shorter the better. They should stick in the mind, get used, often, and serve as a reminder, a prompt - they are a repeating reintroduction to the brand.



# Branding elements: Pieces of the puzzle 2



## Vision

Having a clear vision, a clear picture of what you are, what you stand for (and what you don't stand for), is the most important element of your brand. It puts the needs of your customers at the heart of the business.

Think about the following:

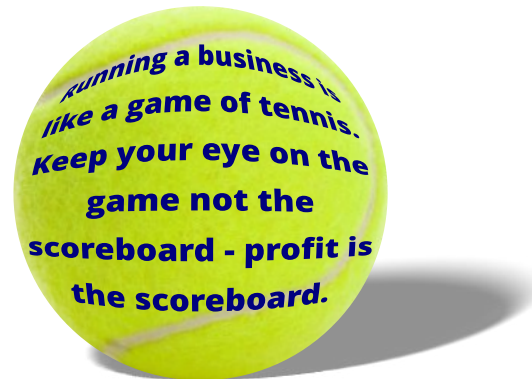
- What drives your business forward?
- What sets you apart from the competition?
- What aspects of your offering add value to the people you are serving?

Answering these questions will help you clarify your vision, communicate it effectively and move forward. It is important to remember to put the needs of your customers first.

Generating profit is just a consequence of the value you bring to the market and the way you improve things for others.

If you are not clear about what you are, what you do, what you offer and how people will benefit from your products or services, how can your customers be clear?

IKEA says very clearly: "Our vision is to create a better everyday life for many people."



The brand is known for its affordable prices that could fit everyone's lifestyle. It has stayed true to this vision since it was founded in 1943, so its value proposition could explain why IKEA has remained the most successful player in its industry.

*If you think branding is unimportant -*

**Coca-Cola is the largest beverage company in the world and the global leader in the non-alcoholic drinks industry. As of August 10, 2021 it had a market capitalisation of \$244.54 billion.**

**Yet between 2015 and 2019 it spent an average of \$4 billion each year on marketing its drinks to consumers around the world.**





# Branding elements: Pieces of the puzzle 3



## Emotion

Emotion is a powerful feature in building and maintaining people's perception of a brand. Like it or not, consumers form emotional opinions about your brand and products. This can be difficult to deal with. Customer's feelings about you, your brand and your products are not in your control. There is, however, much you can do to influence them. Do not forget, feelings profoundly effect purchasing decisions. The feelings customers have contribute to or subtract from your bottom line and, ultimately, to the success of what you do.



Using emotional branding can significantly increase advertising effectiveness. If you want to build a loyal customer base, appealing to their positive emotional side is one of the most effective approaches you can adopt.

People don't buy your products. They buy the features and benefits your brand and your products offer them. A big part of this is their emotional investment – what your product says to the world about them.



**Are you clear on what this means for your endeavour?**

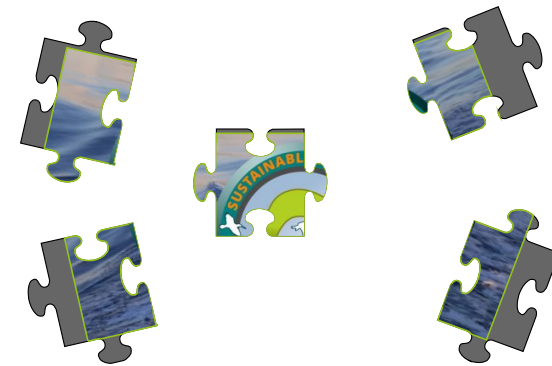
The key to getting and maintaining an emotional involvement in and a commitment to your brand is effective story telling.

The emotional aspect can make or break a business - or force it to re-brand in order to change negative emotions in the market.

Re-branding is equal parts opportunity and risk. On the one hand, it gives you the chance to start fresh, to gain relevancy. On the other, re-branding – when done poorly – can set you back – a lot!



**'Logic makes you think. Emotion makes you act'.**



# Branding elements: Pieces of the puzzle 4



## Consistency

Consistency is a major factor in creating and maintaining a strong brand image. It is tempting to continue being innovative, creative, experimental and exploring all available avenues and opportunities. This will, ultimately, do more harm than good diluting time, effort and energy.

There is considerable competition in today's marketplace. Standing out, being noticed, being used; being talked about, is essential. This is particularly important in a world dominated by the online digital environment and the ubiquity of social media. It is easy to forget that when you go online everything that you do is available for scrutiny, comment and criticism. It can be made available, immediately, and to a global audience.

Consistency of approach builds a strong brand image: consistency in packaging, marketing, communications; consistency with colour, typefaces and creative elements help consumers recognise your brand.

**'A restaurant is only as good as its toilets'**

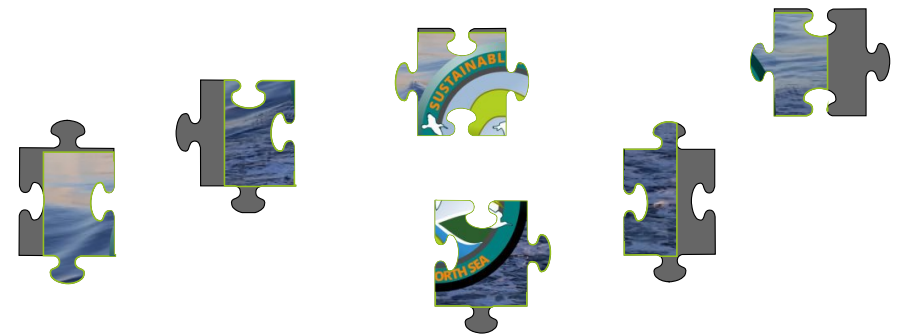
Put consistency at the heart of your business. Make sure to analyse everything you share. Ask yourself: does this contribute to your overall brand image or not? Is it consistent with existing material? If it is, keep it. If it isn't, no matter how attractive you may think it is, reject it. Sometimes you need to be brutal.

**It is important your brand doesn't become a viral sensation for entirely different reasons than those you set out to promote**

Consistency means always delivering messages that are in agreement with and reinforce the core values of your brand. The use of the same tone, the same colours, the same strapline and the same logo, over time ensures strong recognition, identity with, and loyalty to, your brand and products.

It is also important that every encounter a customer has with any and every aspect of your business and brand is consistent. This builds trust, loyalty and confidence in you, your brand and the things you make, sell or do.

Your values should be explicit, consistent and with the words backed up by identifiable actions.



# Branding elements: Pieces of the puzzle 5



## Perception

Perception is all that matters. Whenever customers see, buy or use a product, read or talk about it with friends, with you, your employees or anyone or anything associated with your brand they will make judgements about it. This perception is what they believe you, your business and your brand represent. This may not be what you or the company says it does or wants.

No matter how much time and effort you invest in establishing and maintaining your brand, it is the consumer who will dictate how your brand is perceived. The impression you leave on your audience will determine how successful you will be. Some perceptions may appear to you to be more valid than others and, even if they appear to be only loosely rooted in reality, they are what the customer will treat as being real and will operate from. This is one of the reasons why it's important to measure and document perceptions of your endeavours in order to improve branding initiatives - ***what gets measured gets managed.***



Photo: Pixabay

Carefully consider:

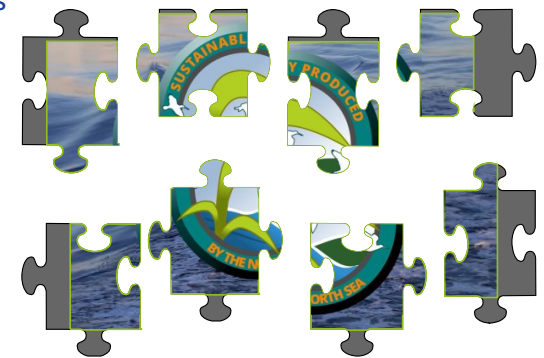
- how is your brand presented visually to the world: your signage, packaging, logo, people. What does your business look like to others? The best way to find out? Ask them. Be brave!

- how does your brand sound? If it's a café restaurant or shop, what noise is there, from where, by whom? How does that impact on customer perception?
- what does your brand smells like – smell has the powerful ability to engage memories and emotions, positive & negative – think about cooking bacon and fresh made coffee. Also, consider staff body odour, perfumes and deodorants.
- what does your brand taste like? You might think it's great but what do others think? Again, ask them, hear what they say. Think about free samples and opportunities for people to taste and comment.
- do people emotionally engage with what you make or do? is the engagement positive or negative?

**'your brand is what people say about you when you're not in the room'**

**- Jeff Bezos**

The more of the above attributes you can include in your branding effort in a positive and consistent way the more effective your branding activity is going to be.



# A branding success story



In 2016 Netto, part of the largest Danish retailer, the Salling Group, launched an own-label organic brand: ØGO. Within three years it became the biggest-selling organic brand in Denmark. At the time of its launch there was considerable scepticism in large parts of Netto's customer base as well as in the Danish population in general about organic products. Many thought that they were expensive, exclusive, the messages were irrelevant and the products were targeted at 'a certain sort of customer' who was not them.

Against this background, Madbureauet, the agency working with Netto, developed a brand, based on Netto's values, that could meet these reservations and create relevance for customers who were 'not into' organic food. They deliberately did not aim to engage with specific segments. They created a brand that is sympathetic, unpretentious, down to earth, represented value for money and was easy for customers, particularly sceptical customers, to choose.

Consistency, clarity and reinforcement are significant features of the branding helping customers buy with confidence. The use of the trusted red Danish Ø label together with the EU's organic logo provide strong reinforcement of the brand values and also help to create confidence in the products.



The singing bird is an interesting and amusing conceit, possibly often not noticed. It is worth reflecting on what it brings to the brand, why it is included and if and how it works.

The branding elements discussed in this chapter are clearly evident.

**Netto's value proposition:**  
**'We think it should be up to the individual whether to choose organic. You only have that freedom of choice if there are enough organic alternatives to conventional goods and if the prices are such that everyone can afford to make that choice'**



# The elements added up



Having analysed these elements of branding and considered some examples, what conclusions can we come to? Is IKEA successful just because of its brand vision? Is brand consistency the key to customer loyalty for Netto? Of course not. No amount of good branding will, ultimately, overcome a poor product.

In addition to products and services that are fit for purpose these essential elements of branding are only as good as the overall branding strategy that supports them. Overlook one aspect and you risk jeopardising everything that you have already invested.

Once your puzzle is complete and all the elements are in their place, you should see your brand come to life in the eyes of the consumers. The key to maintaining success in the long-term is to measure and communicate all these elements effectively — and consistently.

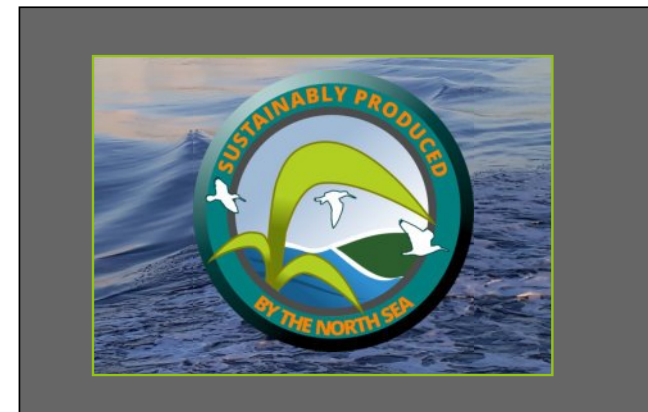


Photo: Pixabay/  
Stephen Valentine

## A Final thought

Sometimes the impression can be given that, providing the expert advice, from whatever source offered is followed, a successful result is guaranteed. This is not so. Luck and good fortune are always needed and cannot be legislated for. It may be that you have a great product, beautifully packaged, an effective marketing strategy, brilliant staff and an excellent location – what can possibly go wrong? - 101 things – a nuclear power station catching fire, floods, volcanic eruptions, tsunamis, a global pandemic or a mad man starting a war are among many other events that can fatally disrupt the best of endeavours.

Were it not so even beggars would ride.



# Gathering food in the wild



Many edible plants, including those that grow naturally in saline environments, can be gathered at no cost and with great enjoyment in a variety of locations. Gathering food for free can be a fine way to de-stress, chill-out and engage with the natural world and our natural self, our families and our friends. A few generations ago we would have grown up absorbing a knowledge of which plants, fruits and fungi that are out there in the 'wild world' were good to eat and which were not. Today, at least in the so-called developed world, this is rarely the case so care must be taken, a good guide consulted and, if in doubt, leave it alone!



Here are some thoughts, dos and don'ts that we need to know before engaging with our inner hunter-gatherer:

In the countries of the North Sea region, plants that grow in saline environments flourish in or near the sea and the sea has tides. In some places, Morecambe Bay in the UK, parts of the Wadden Sea for instance, tides can come in faster than you can run. Every year around our coastlines, tragedies occur. Don't be one of them. Know the situation where you are and be careful. 'Discretion is the better part of valour' as they say.

Collect from clean areas away from sewage outlets, roadsides with traffic pollution and areas subjected to pesticides, fertilisers etc.

Never take more than you can use. Pick selectively here and there leaving enough so that what is left can easily recover. We should be careful to minimise our impact on what is a living community.

Do as little damage to the plant and its environment as possible. Never pull up plants or take the roots.

Always, always positively identify what you are picking. That doesn't mean 'it's not this and it's not that therefore it must be OK'. It means spending time, enjoyable time, getting to know what you are dealing with. Join a course, get a good book, check online what is what. Be sure or leave it alone.

Know which parts are edible and which aren't. as an example: Rhubarb leaves are poisonous, the stems are delicious – at least when cooked! It's also useful to know when is the best time to pick what and how to cook it. Older Dandelion leaves picked in full sun can taste horribly bitter; young ones, grown in the shade, provide a delightful astringent quality to a salad.

Never pick rare or protected species.

Only forage where it is legal to do so. Know the legal position. This can and does vary from place to place and country to country. Ignorance is no excuse.

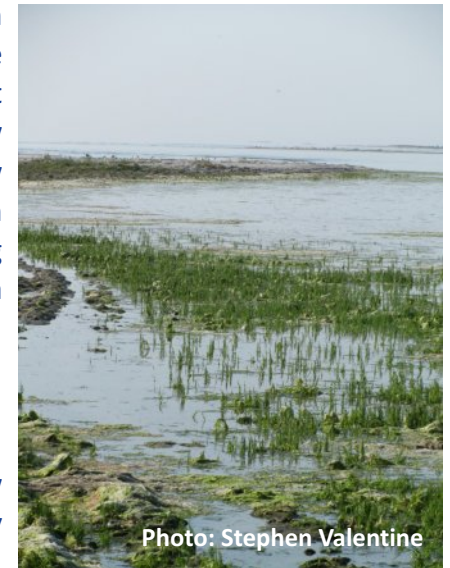


Photo: Stephen Valentine

Salicornia in the inter-tidal zone on the east coast of Jutland, Denmark.



# Addenda



After five years of SalFar we should note that we are just at the beginning, in all kinds of ways, of understanding saline farming. We are at the beginning of knowing how we can make it work and capitalise on the benefits that will come from utilising land that would otherwise be abandoned. We are at the beginning in the knowledge skill and expertise we have gathered, in understanding the effect of salinisation of farmland due to the rise in sea levels caused by climate change; in raising awareness of the threat to our food supplies and of the opportunities offered by managing saline affected land and the use of brackish water for irrigation. All of the above will continue to grow. With good fortune, some of the negative aspects will be offset, to some degree at least, by the others.

For more information about saline farming, go to the SalFar project website, <https://northsearegion.eu/salfar/> where you can find an inspirational guide on how to get started.

Thank you to everyone within and without SalFar who have so willingly made available their knowledge, skills, thoughts and ideas.

**The Inspiration Catalogue.**  
**Louise Krogh Johnson,**  
**Stefana Darvariu**  
**&**  
**Stephen Valentine**  
**at the**  
**Food & Bio Cluster Denmark.**  
**2022**



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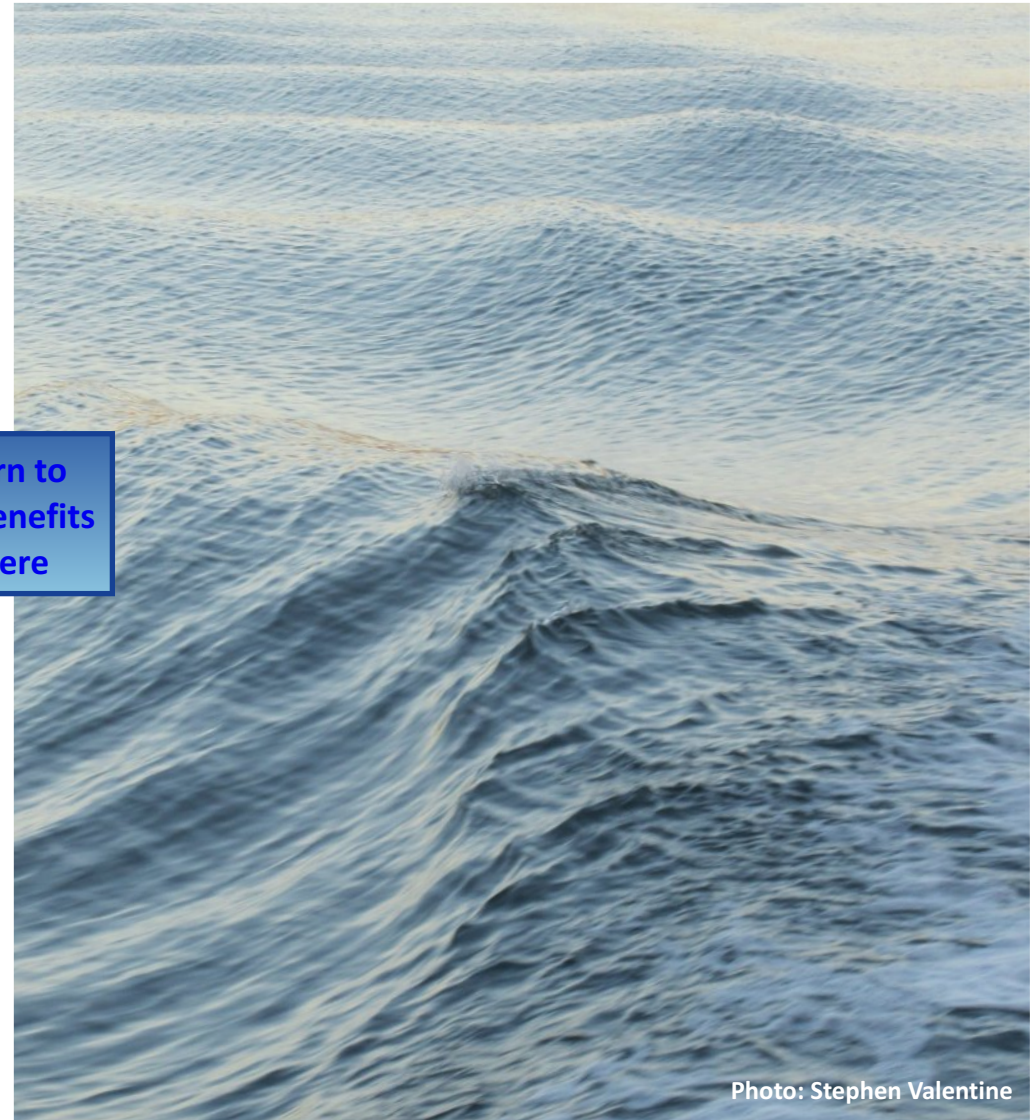


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