



# The New Menu

REPORT

A Revolt report on the global nutrition crisis.



# The state of nutrition

As climate change accelerates, the cost of living crisis deepens, and our global healthcare systems reach a breaking point, our future as humans is at a critical juncture. The way in which we live, eat, and produce, has been thrown into question. With urgency placed on a reassessment of our food systems as paramount.

Today, we have 1.6 billion people who cannot be sure of getting enough to eat and millions more on the brink of famine<sup>1</sup>. Food insecurity is no longer limited to nations of lower wealth but is affecting even the most developed countries and communities.

And it's not just the availability of food that needs to be evaluated. It's also its role in supporting wider global challenges. Today, poor nutrition is placing extreme pressure on healthcare systems all over the world, with its direct connection to the leading causes of death, disability, and disease now proven<sup>2</sup>.

**“Crisis is not only a time of danger but also a time of opportunity. It is a time to think and act anew”**

*Kofi Annan, Former Secretary-General of the United Nations*

Whilst we can't underplay the severity of such crises, we can find ways to mitigate their impact. Starting by identifying the opportunities that are created by them.

This report explores the many ways in which innovators can embrace new opportunities to turn current threats into future advantages, and in doing so, unlock new demand.

## World In Crisis

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**ChAnGiNG EnvirOnmEnTs**

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**Broken Access**

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**Deficient Diets**

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**L\_st Flav\_urs**

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## World of Opportunity

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**Flourishing supply**

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**Re-connected communities**

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**Unique enrichment**

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**Savoured experiences**

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# Damaging environments





**72% of farmers worry that climate change will make it even harder for them to grow food in the next 5 years<sup>3</sup>.**



# Constricting conditions

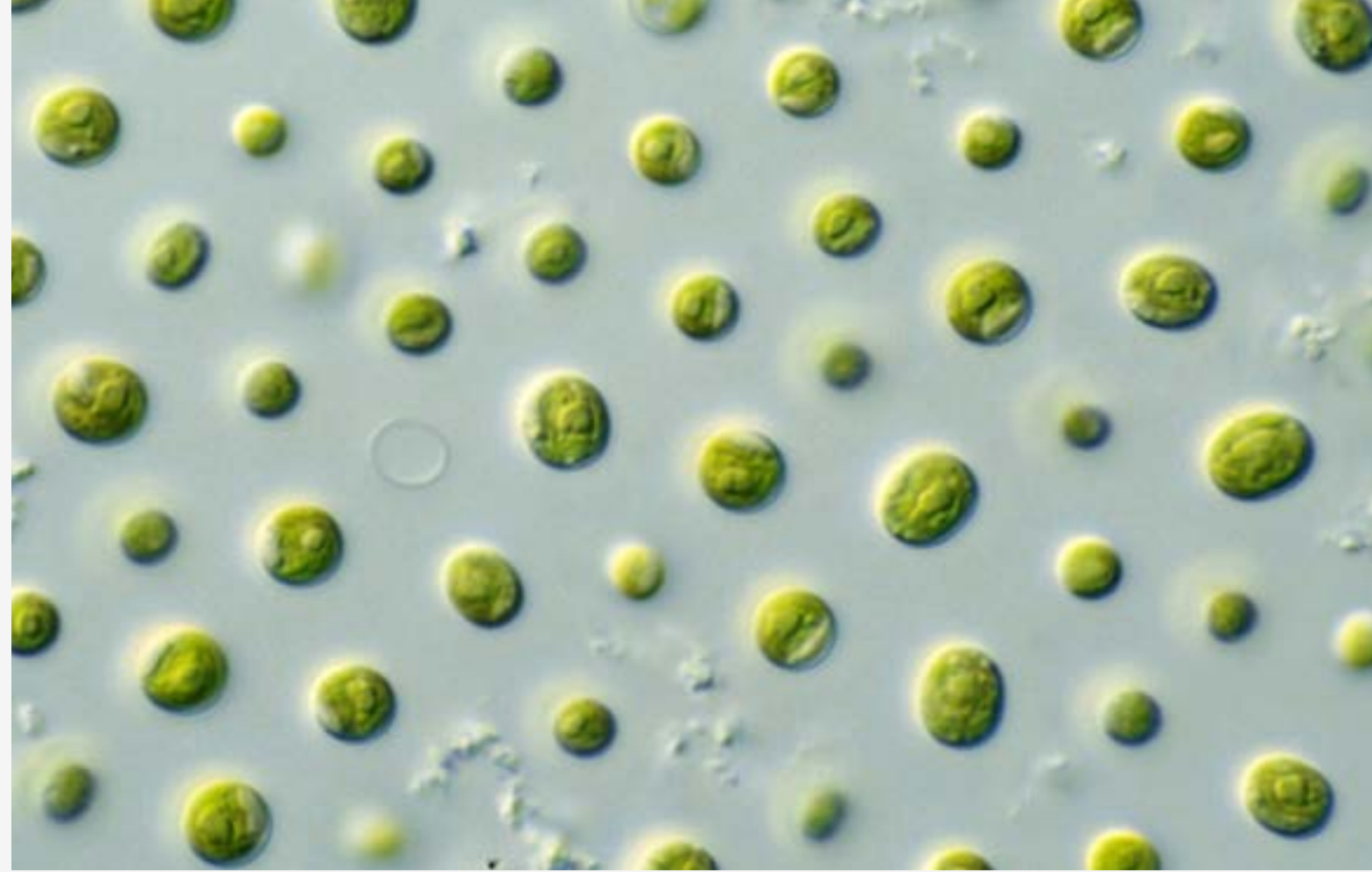
Our changing climate is destroying the food system as we know it. Global sea level is at an all-time high<sup>4</sup>, 55 million people are now affected by life-threatening droughts each year<sup>5</sup>, and the overall number of climate-related disasters has jumped by 83% over a 20-year period<sup>6</sup>. As a result, agriculture is in a state of emergency, with loss of lands, declining crop yields, and damage to infrastructure making growing and supplying essential produce, at times, impossible.



**“If climate change continues at its current pace, global food production will drop by at least 30% by 2050”**

United Nations at Cop27, 2022





But what if we could leverage changing environments as a catalyst for new resources?

What if flooded farmlands or desert droughts became a gateway for new sources of nutrition?

Could they better serve a growing population with more open, more ambitious appetites?

2/3 of people are now open to changing their eating habits for the environment<sup>7</sup>

At a time when consumers are actively seeking to change their eating and drinking behaviours and are more open to the possible benefits of new food sources to support their health and the environment, capturing the opportunity presented in changing conditions could be a competitive advantage.



The number of established alien species is expected to grow by 36% by 2050<sup>8</sup>

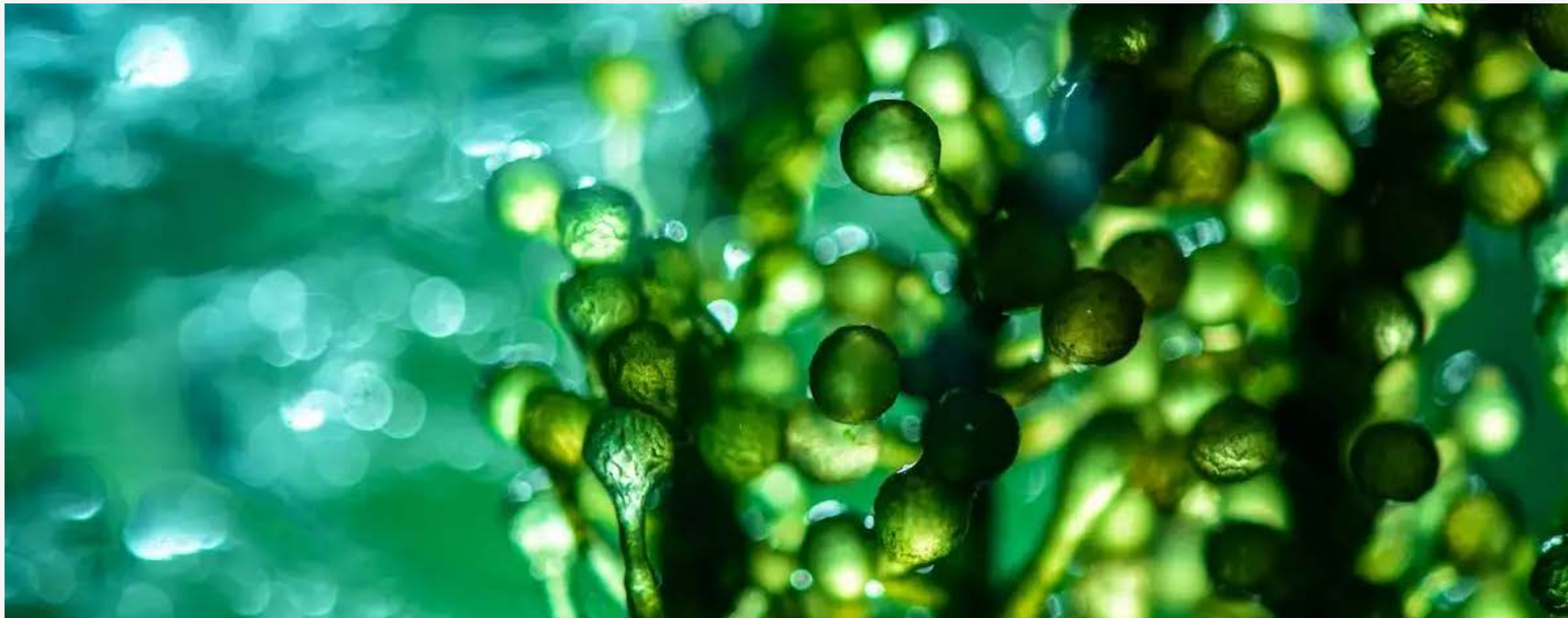
As well as providing new conditions for farming, changing climates are proliferating new alien species, each a possible protein for future consumption.



# Rising resources

## Magical microalgae

With health concerns spreading as fast and as widely as our waters, microalgae has emerged as a highly nutritious, resilient, and available nutrient. With anticancer, anti-inflammatory, antimicrobial, and antioxidant properties<sup>9</sup>, it is destined to become a superfood staple, with companies such as Sophie's Bionutrient's exploring its use in everything from cheese and milk to algae-made burgers.



## The invasive delicacy

In an effort to control the biodiversity damage being caused by invasive species, many countries are building a case for invasive species as delicacies. In Columbia, lionfish, an invasive species able to reduce native fish by 80% within just 5 weeks, is now eaten during Lent as a good deed, to help restore equilibrium to the sea. In Florida, the NOAA and REEF have made lionfish ceviche a local chef's favourite<sup>10</sup>.



# A 2050 kitchen staple?

Eat The Problem is a 544-page cookbook of curated recipes from celebrated chefs, each revolving around an invasive species that has wreaked havoc on the native biosphere. Recipes include species such as the Cane Toad, Brushtail Possum, Lantana, Burmese Python, as well as Lionfish.







## Floating foods

Once a cause of lost lands and lost crops, flooding has become an integral part of the agricultural practice of Bangladeshi farmers<sup>11</sup>. Using a cultivation method known as baira, floating vegetable gardens enable farmers to work with the waters to produce rich and sustainable supply during monsoon seasons. Now with the acceleration of CRISPR, more farmers are set to follow suit, with companies like [Alora](#) trialing the growth of salt-tolerant rice in the Mekong Delta.

## More room to grow

### Growing waters

As the sea expands and our land shrinks, our reliance on the ocean for agriculture will continue to grow. Beyond being a natural producer of nutritious seafood, cultures, and kelps, the ocean is an endless space to reimagine the way we farm. In the case of [Nemo's Garden](#), 6 air-filled plastic biospheres sit deep underwater, demonstrating how household vegetables can be grown in a highly sustainable, highly efficient, and more densely nutritious way.





## The Crisis

# ChAngiNG EnvirOnmEnTs

Damaging environments are depleting the vital ingredients our planet relies upon.

## The Opportunity

# Flourishing supply

Flourishing supply found in changing landscapes can provide new vital ingredients for our future.



# Broken Access Broken Access





**Even if we increase agricultural output 60% by 2050, we will still have 300 million people going hungry due to lack of proper access to food<sup>12</sup>.**



# Meals out of reach

Accessing quality nutrition remains challenging for millions of people all over the world. With poorer global communities<sup>13</sup>, more isolated food deserts, and an increasing refugee population<sup>14</sup>, providing everyone with the nutritional products they need can feel impossible for modern food producers. Especially when they themselves feel the burden of shortages, disruption, and an increased cost of supply<sup>15</sup>.



“Food insecurity is a major problem in many parts of the world, and it disproportionately affects vulnerable populations like refugees and those living in food deserts. Ensuring that everyone has access to nutritious and affordable food is essential for the health and well-being of our communities.”

UN World Food Programme





But what if the absence of access could create a new entry point to lost audiences?

What if food deserts became innovative heartlands?

Would they be less wasteful?

More affordable?

More exciting?



5.31 billion people now use a mobile phone, with many more having access to one<sup>17</sup>

Widespread mobile phone usage could be a more accessible route to food ordering, with usage continually rising, and SMS, group chat, apps, and social media now commonplace worldwide.

Packaging technology can now enable fresh food to stay fresh for at least 3 more days<sup>16</sup>

With accessing fresh food being the biggest challenge for remote, underserved, and moving populations, the combination of advanced future technologies and widespread forms of existing technology could help to revolutionise the way communities access nourishment, whilst enabling food companies to become more streamlined and more innovative in their approach to food delivery.





# Advanced delivery

## Two for one

Delivering enough food with the right nutritional content to communities in areas of low access is an ongoing challenge, but edible packaging with a high nutrient value will enable food producers to deliver more through less. In the case of fermented packaging Scoby, consumers can improve their gut health by eating the packaging alongside the foods inside, demonstrating the potential of packaging as a future vehicle for heightened nutrition.



## Print-and-collect

The rise in 3D printing<sup>18</sup> has sparked great inspiration around its possible uses for food. With 3D printed foods now able to be delivered in space, there is great hope for their application in other isolated locations, such as food deserts. Companies able to leverage this technology could offer a new way for communities with low access to nutritional foods to receive immediate, healthy, and long-lasting produce without any excess waste.



# “Make local”, the new minimart?

Farming newcomers Tiny Farms harvest locally made produce as part of a micro-farm network. Sitting inside the community and training local people to create the desired produce, Tiny Farms shows how organisations can translate local demand into crop rotations to ensure community needs are precisely met without the need to travel.





# Collective action

## Social buying

With mass moving populations and communities more connected, group buying could enable more affordable access to food for many. In the case of Trela, social commerce is used to allow neighbours to group together and buy bulk orders from wholesalers at a discounted price. Through optimised delivery routes, businesses and neighbours can find mutually beneficial ways to deliver high volumes of produce at a low cost.



## Dark grocers

With low proximity to fresh food grocers being one of the primary barriers for food deserts, but the commercial cost of setting up in such locations often too high for many companies to bear, the adoption of dark kitchens could provide an affordable solution. Karma Kitchen, a multi-brand kitchen space for food production and delivery, demonstrates a future model where brands can work together to offer fresh food supplies to underserved markets without the costly investment.



## The Crisis

# Broken Access

Broken access is leaving millions undernourished and isolated from the food system.

## The Opportunity

# Re-connected communities

Re-connected communities introduce a new way of delivering and consuming nourishing foods for all.



# Deficient diets





**Worldwide vitamin and mineral deficiencies will continue into 2050 unless nutritionally rich foods are made more available<sup>19</sup>.**



# Mass Malnourishment

Global malnourishment is growing, with 1 billion people now obese<sup>20</sup>, and undernourishment up by an extra 150 million since 2019<sup>21</sup>. Now, with both sides of malnutrition co-existing in the same communities, known as the “double burden”, tackling dietary deficiencies is an increasingly complex challenge. One that will require healthcare and nutrition to work hand in hand to resolve.



**“The future of healthcare is food. We are seeing a complete shift in the way that we approach healthcare. Instead of just treating symptoms with medications, we are starting to focus on the root causes of chronic diseases, and one of the biggest drivers of these diseases is poor nutrition.”**

Mark Hyman, Founder of The UltraWellness Center







64% of global consumers demand more personalised nutrition and products<sup>22</sup>

With global awareness that a one-size-fits all approach will not be effective enough to improve the nutrition of a diverse population, and a personal expectation from consumers for nutrition to be more precise and bespoke to their needs, the opportunity for food businesses to accelerate worldwide nutrition in a highly personalised manner is primed.



But what if in solving the nutritional challenges of a deficient population we could create more effective products?

What if we could be more precise, more personal, and more productive in our outcomes?

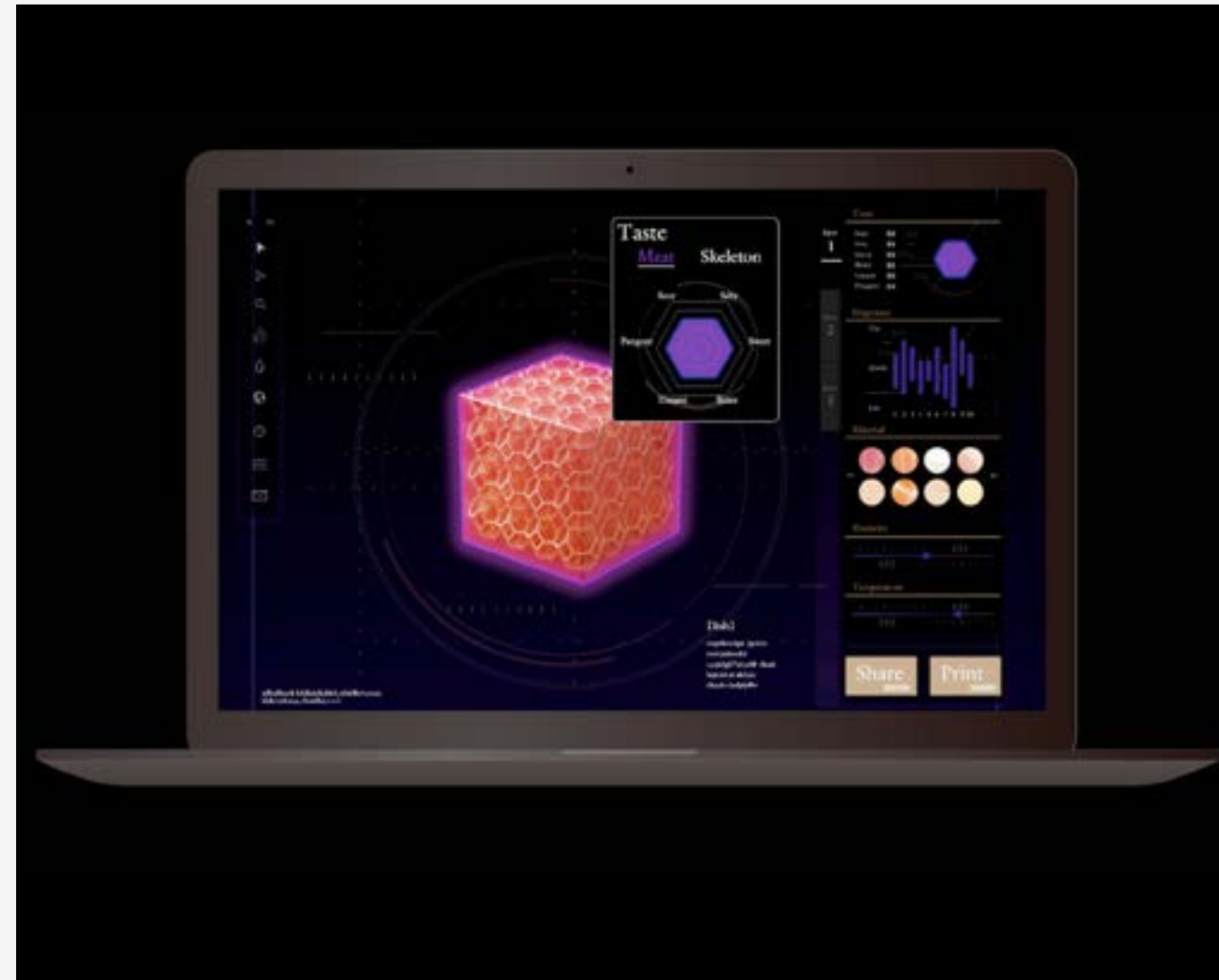


By 2030 consumers will know their personal and biological requirements<sup>23</sup>

Advanced technologies will empower consumers to be more informed and more active in the management of their nutrition moving forward.



# Improved function



## Personal plating

Wellness is fast becoming a luxury experience. One that can offer pleasure in a moment and prolonged enjoyment long after. Restaurant concepts such as Tokyo's Sushi Singularity, demonstrate how nutritional wellness will sit at the heart of our future restaurant experiences. Using a customer's saliva, faeces and urine, the restaurant creates 3D-printed sushi tailored to each customers bespoke nutritional needs.

## Responsive hydration

With a shifting environment comes changing nutritional demands. In the case of rising temperatures, more people are experiencing the challenging effects of unexpected dehydration. Yet by using responsive technology such as Gatorade's smart-cap bottle and sweat patch, future drinkers can experience monitored hydration that will highlight when and how much to drink in real time based on their bodily needs.





# Could our future nutrients be hiding in plain sight?

UK biologists are using CRISPR to gene-edit tomatoes to be a heightened source of vitamin D. With 1 billion people not consuming enough vitamin D<sup>24</sup>, editing the nutritional value of such a widespread food would enable the reduction of immunity and neurological disorders amongst key demographics worldwide.





# Hyper-healthy precision

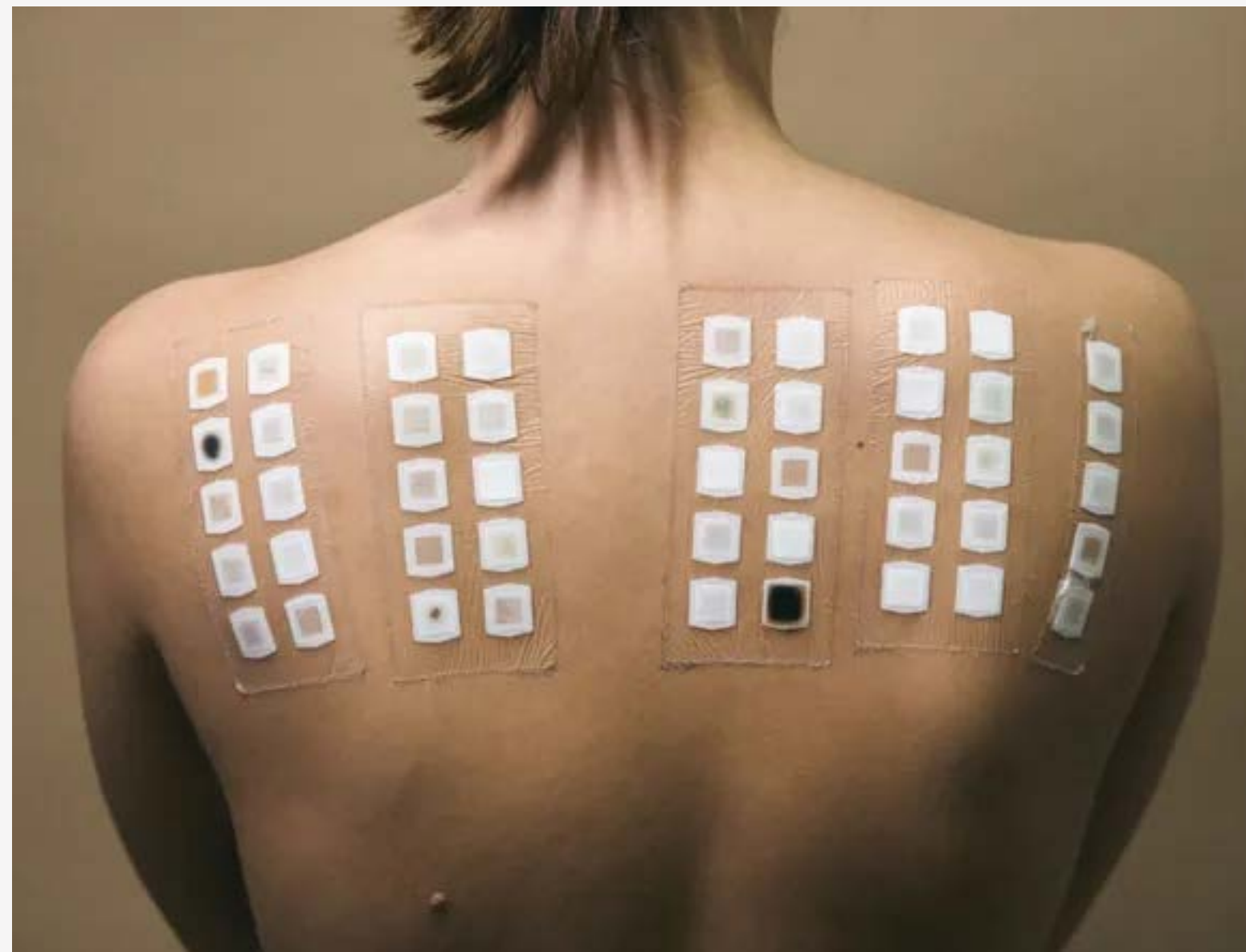
## Allergic appetites

Food allergies and gluten-related disorders are on the rise, with 220 million people now affected worldwide. Allergies can be difficult to manage personally, but also at a social and economic level. However, this might not be the case in the future. Ukko engineer proteins that keep the good biophysical properties of original proteins, while removing the immune-triggering parts that can cause life-threatening allergies, from gluten to peanuts to pets.



## Prescription diets

Medical prevention, management and recovery will increasingly rely on nutrition as an effective and accessible treatment. Not least in the case of widespread diseases such as cancer, an issue that will see 27.5 million new cases each year by 2040. Faeth is an example of a program showing how highly personalized precision nutrition can deprive cancerous tumors of the nutrients they need to grow whilst providing optimal nutritional support to healthy tissues in the process.





## The Crisis

# Deficient diets

Deficient diets are driving critical healthcare challenges all over the world.

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## The Opportunity

# Unique enrichment

Unique enrichment unlocks a more precise, more responsive future for human health.



# L\_st Flav\_ur





Coffee, nuts, and chocolate are  
just a few of the many flavours we  
could lose by 2080<sup>27</sup>.



# Falling flavours

Flavour is central to the eating and drinking experience, yet through combined factors such as global restrictions on high fat, sugar, and salt (HFSS)<sup>28</sup>, crop extinction from climate<sup>29</sup>, and the long-lasting loss of taste through diseases such as long covid<sup>30</sup>, flavour's future could be at risk.



**“Reducing the levels of HFSS in our products has been a challenging process, as these ingredients are often used to enhance the taste and texture of food.”**

John West, CEO of John West Foods





84% of young people believe sensory immersion makes experiences more fun<sup>31</sup>

With younger audiences looking to enjoy more sensory experiences, the opportunity to heighten the multi-sensory potential of flavour could drive new pleasure through food. Particularly in cases where consumer preferences around health, novelty, and sustainability are also incorporated.

But what if flavour restrictions could lead to a fuller palette?

What if taste could become more than just the ingredient?

What if we could create seasoning for greater health and greater enjoyment?



1/2 consumers state healthy eating as their top priority<sup>32</sup>

With more consumers taking active steps to be healthier, their willingness to trial new products and behaviours makes them primed for experimentation.



# Tastier tools



## New sources of flavour

Like salt, sugar consumption remains severe, especially in the category of beverages. Drinks accessories like SORBOS's edible straws show great potential in how sweet taste can be added to beverages with far less sugar and no additional ingredients. Each straw has a popular flavour that can be paired with everything from cocktails to water.

## Adjusted to appetite

Salt addiction is causing an unnecessary 2.5 million deaths a year<sup>33</sup>, deaths that will be prevented in the future through salt seasoning alternatives. Wearable devices like the Taste-Adjusting Chopsticks, use an electric current to simulate food tasting up to 1.5 times saltier, enabling eaters to adjust the salty flavours of a food without adding anything at all.





# Same flavour less harm?

Minimising sugar intake at scale will take time, but Inulox shows how flavour can remain whilst its impacts are reduced. Their proprietary ingredient links together at least 30% of sugar ingested and turns it into a healthy vegetable fibre inside the person's gut.





# Enhanced experiences



## Flexible flavours

In cases where food variety or taste variety has become limited, introducing a flexible flavouring experience would drive new, more enjoyable experiences. Technologies such as ASMR inspired tableware can enable the playful alteration of food flavours, sonically. This enables foods to become sweeter without sugars or saltier without salt and allows textures to be altered in ways that might mimic the outcomes of frying and fats.

## Sonic seasoning

A playful alternative to physical taste alteration is audio taste alteration, through the method of sonic seasoning. As the first to trial sonic foods as part of a high-end eating experience, Heston Blumenthal's 'Sound of the Sea' dish demonstrates how an audio accompaniment of crashing waves can increase the perceived freshness of a dish. This approach could help to improve the perceived freshness of foods that would otherwise be wasted due to sell-by dates, or revive lost flavours, in support of more sustainable eating.





## The Crisis

# Lost Flavours

Deficient diets are driving critical healthcare challenges all over the world.

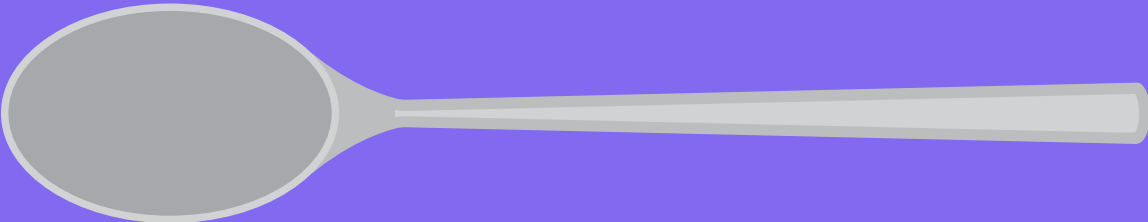
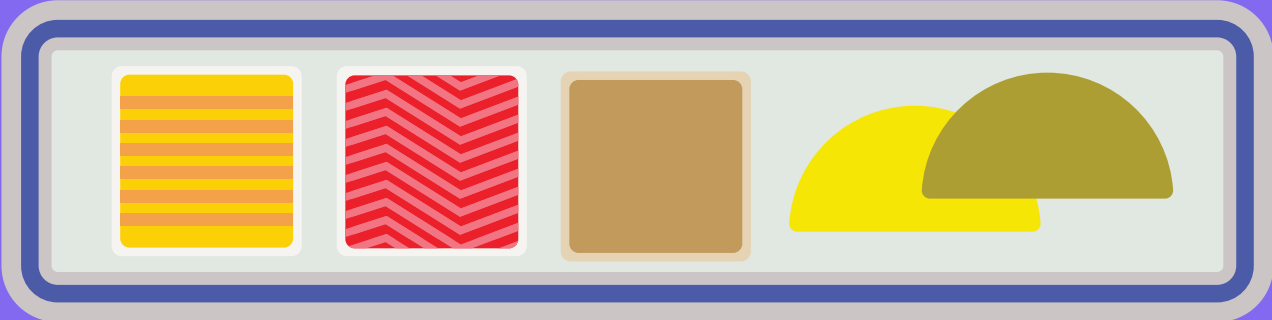
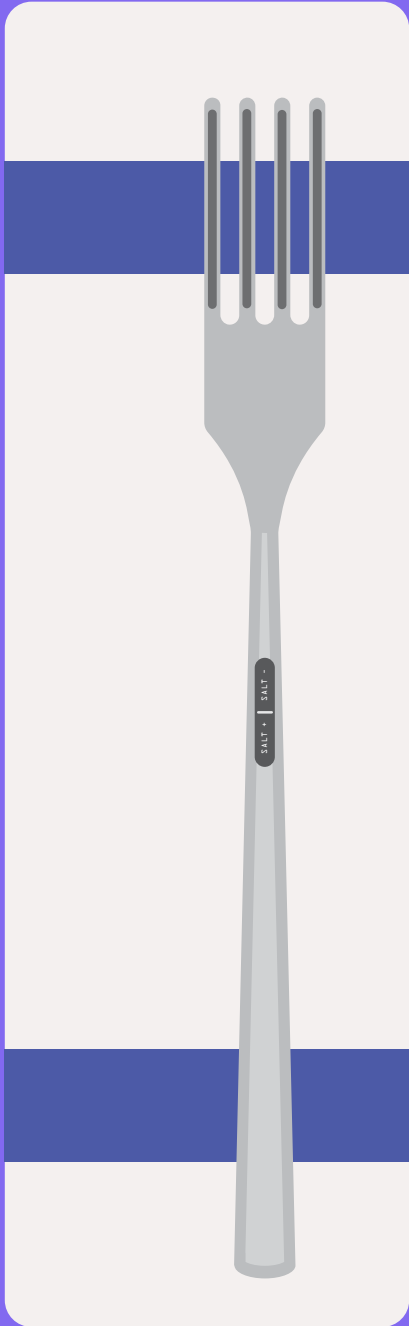
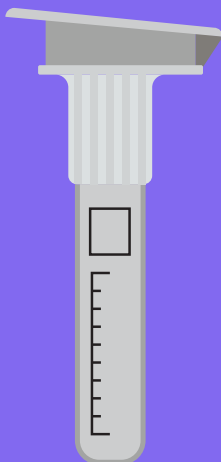
## The Opportunity

# Savoured experiences

Unique enrichment unlocks a more precise, more responsive future for human health.



# The future menu?



**RECEIPT**

Customer #00734

Vitamin deficient: A, B12, D

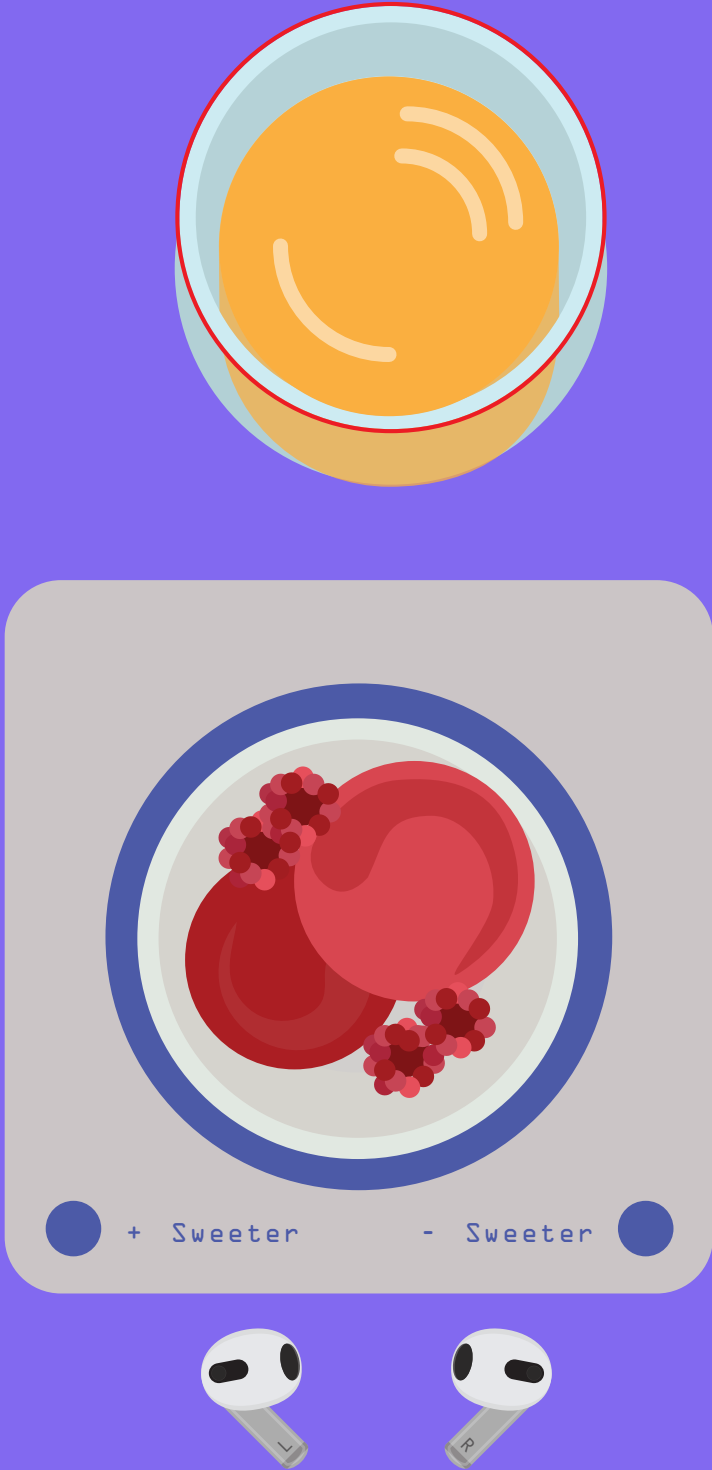
Intolerant: gluten, FODMAPs

Allergic: peanuts

Starter: printed charcuterie

Main: rattas rattas and CRISPR greens with a microalgae and Japanese black beetle dressing

Desert: sonic sweetened sorbet





# Appendix



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