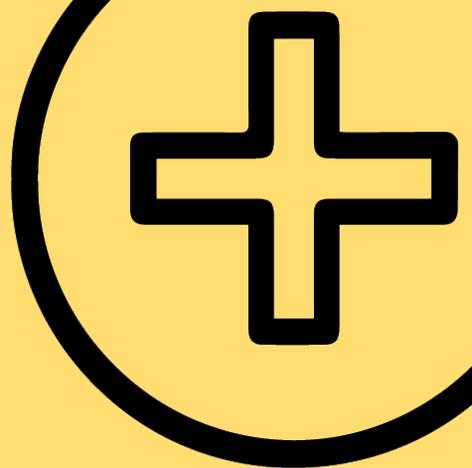


NAVIGATION TOOL



THE FOOD & DRINKS 2030 TOOLKIT

Empowering Food & Drinks pioneers



Positive

THE FOOD AND DRINKS 2030 TOOLKIT

A practical guidebook to empower Food and Drinks Pioneers.

First edition, Copyright © May 2021.

The Positive Impact Community - www.makeapositiveimpact.co - @PositiveRegen

Acknowledgments

This Navigation tool was developed over several months by the core team of Positive and the appreciated and valuable support of external contributors experts, academics and reviewers.

Table of Contents

Foreward	4
What's Inside?	5
Introduction	7
Health and Nutrition	10
Growing Responsibly	15
Regenerative Sourcing	22
Packaging Responsibly	27
Selling Responsibly	39
Zero Waste	42
Trends	50
Useful Links & Resources	55

FOREWARD

Welcome to the Positive Food & Drinks 2030 Toolkit. This guidebook is aimed at equipping changemakers in the sector with a broad overview of the big drivers shaping positive change, as well as providing practical insights and knowledge at a time of converging crises as we look towards a decisive decade for our just transition.

Much of the energy coalescing in the climate space has understandably been focused on the fossil fuels sector. Yet the food & drinks sector will also play an outsize role in our just transition. Land-use has long suffered from a legacy of exploitation and extraction, with a history riddled with expropriation, empire, slavery and genocide. After the two World Wars of the 20th century, we repurposed chemical weapons as pesticides and fertilizers in a relentless drive for efficiency - to produce cheaper and cheaper food - in a new war against Nature. Our soils are now perilously eroded. Meanwhile, 800 million starve while 2 billion people are obese, and a third of our food is wasted. A western diet dependent on industrial agriculture and processed foods packed with additives and chemicals is largely to blame. These issues are inextricably linked. Meanwhile, we continue to trash the planet with plastic packaging in the same way we trash our bodies.

Fortunately, change is afoot. Regenerative farming practices are becoming increasingly popular. A new generation of more environmentally savvy and health conscious consumers are now clamouring for more nutritious foods, and, in more responsible packaging. And many innovative changemaker brands are emerging to meet this demand.



We need to talk about food. Food is the heart of our communities, global health, and the future of this extraordinary planet we call home. We have a unique window of opportunity to make radical changes to the way we all think about, produce, consume and share food to have a net positive impact on people and the planet, and create a food system that we are proud to hand over to the next generation.

Tess Kelly, Sustainable Development Manager, Quorn Foods

» WHAT'S INSIDE?

The guidebook is divided into seven sections for ease of use. You can dip in and out of each section as you please, as the order is not linear.

In the introduction, we take you through a sweeping account of the major forces at play within the global food system, from climate change to climate justice. In health and nutrition, we look at key drivers in our changing diets, highlighting some of the companies that are leading change in this field. In *Growing Responsibly*, we dive into Regenerative agriculture and look at how it is different from sustainable and organic. We also look at the importance of responsible packaging and adopting a zero waste approach in two dedicated sections with practical insights on packaging options and the latest home compostable biodegradable plastic innovations.

Finally, we take a look at the trends in the sector that are shaping food tech.



“

Currently 1/3 of all food goes to waste, yet 800 million people go hungry every single day - our current system is not only broken, it's destroying the planet. OLIO fully supports the Positive manifesto for a more regenerative food system, and hopes as many food and drinks businesses as possible will join us in pledging to advocate for systematic, positive change

Saasha Celestial-One - OLIO

“

There has never been a more imperative time to review how the food sector operates. From harmful ingredients, insular supply chains to continuing to deplete the earth of its vital resources. Businesses need to act with purpose, integrity and commitment. Healthy Nibbles want to demonstrate, that irrespective of business size, we can all play a role in creating a better future

Sara Robert - Healthy Nibbles

“

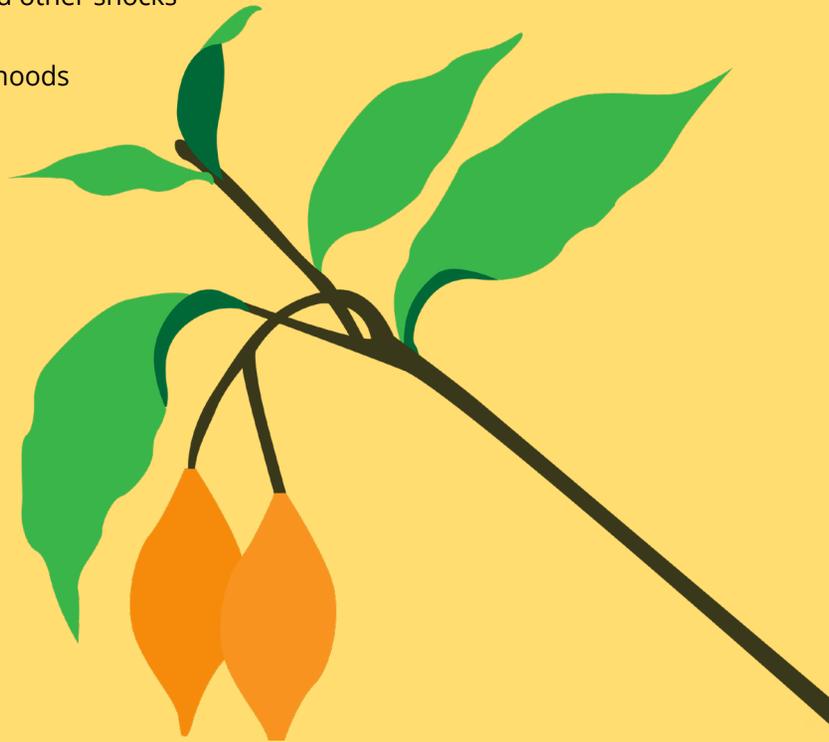
At Alter Eco, we envision a world where farmers, as they feed us, can also feed their families. A world where farmers capture carbon from the atmosphere, and create a regenerative system that gives back to the soil more than it takes. A planet that can continue to provide food to our children and future generations

Antoine Ambert- Alter Eco

INTRODUCTION

Food systems encompass production, processing, packaging, distribution, marketing, purchasing, consumption, and food waste. We can only prioritize health & nutrition if we consider how the broader food system affects the diet, nutrition, and health outcomes of populations. Today, there is a growing debate on how food systems can best deliver healthy and nutritious diets that are;

- i) Supportive of human health
- ii) Environmentally friendly whilst
- iii) Resilient to climate change and other shocks
- iv) Affordable
- v) Able to provide dignified livelihoods
- vi) Respectful of social, cultural, and ethical norms



With 1 billion people on our planet malnourished, 2 billion overweight or obese, and a third of the food we produce never making it to our plate, it's clear that the issues of our food system extend beyond yields into distribution, diet, availability and waste

The Soil Association

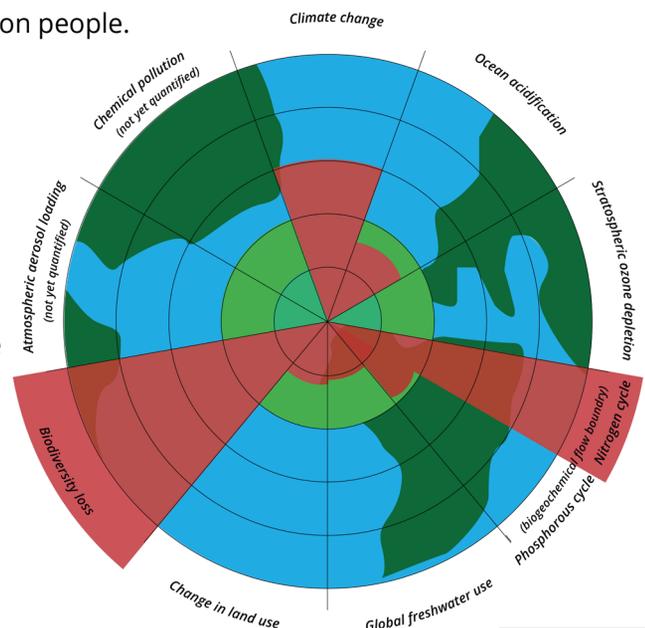
» FOOD SYSTEMS IN THE ANTHROPOCENE

The Anthropocene has been recorded by Geologists as a new epoch in the geological record: an era where human activity has, for the first time in the Earth's 4.53 billion years history, impacted with measurable effects on the health of the planet. Not surprisingly, the health of human civilization and the natural systems on which it depends are irrevocably interlinked. Our future viability as a species dependent upon these same systems and their continued good health.

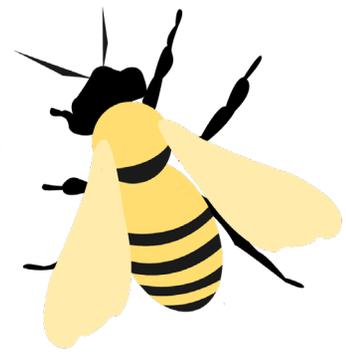
Factors impacting the future of food systems and food security include rapid biodiversity loss, destruction of habitats, reduction of available land cover, soil erosion, deforestation, reduced availability of freshwater, ocean acidification, and alteration of the nitrogen and phosphorus cycles. Some of these processes have feedback loops that trigger greater levels of climate change, as well as causing climate-related natural disasters, pollution, reduced air quality, water and food shortages, and conflicts over ever scarcer resources. Many of these impacts are fuelled by the need to feed mushrooming urban populations worldwide.

The history of agriculture land use – the foundations of our current food systems – is one of systemic dispossession, appropriation, colonization, empire, exploitation, indentured labour and slavery. Today, that winner-takes-all legacy is plain to see: the global food system is currently failing to meet the nutritional needs of a growing human population with around one billion million (one-in-nine) people undernourished. The anthropocene is both an historic reckoning and an opportunity for humanity to reframe its relationship with its home planet. A shift to a plant-based diet could enable us to meet the demands of a growing population. [It is estimated](#) that shifting biofuel production and animal feed crops to human consumption could feed an additional 4 billion people.

Global warming is undoubtedly one of the greatest challenges to food security we face today. This is especially true when we consider the issue of climate justice. Low-income communities have less capacity for adaptation: many are fully dependent on agriculture and engaged in climate-sensitive activities.



»» THE EFFECTS OF CLIMATE CHANGE ON HEALTH AND NUTRITION



Climate change is already beginning to affect human health on a massive scale. As the effects of climate change intensify over the coming decade, the environmental conditions we need to sustain health and nutrition will be increasingly under threat. Small increases in global warming and climate effects will severely hamper our ability to produce, raise, harvest, rear animals, fish and farm seafood, in order to meet growing demand from a rising population. Unfortunately, studies show that this will hit the global south hardest, although models also show that all populations' nutrition will be affected in the coming years.

»» FOOD SYSTEMS AS COMPLEX SYSTEMS

Factors such as the quality of soil, availability of water, and adverse weather can influence food systems through their impact on production, storage, and transportation. This has an impact on food availability, quality, safety, and affordability. Because environmental changes are both a driver and an outcome of the food system, the relationship between food systems and the environment is complex. Like other complex systems, there are also feedback loops. Two feedback loops include GHG emissions (34% of all GHGs from food) and agricultural run-off which poisons both groundwater and the oceans. Other factors which can affect health outcomes include increased exposure to contaminants (i.e. from industrial fertilizers), poor diet, and food waste.

Over the last century, as industrialisation transformed our food systems, the main drivers were efficiency, maximizing costs and convenience. Today, the knock on effects of a poorly structured food system include; obesity, chronic disease, food insecurity, habitat loss and climate impacts, and shamefully, gargantuan amounts of food waste. Dealing with any one of these issues calls for a multidimensional and multidisciplinary approach. Yet this all goes back to food systems design. We must now shift our priorities towards healthy and nutritious diets, restoring biodiversity, feeding the world's poor, and empowering local farmers. Climate justice must be at the core.

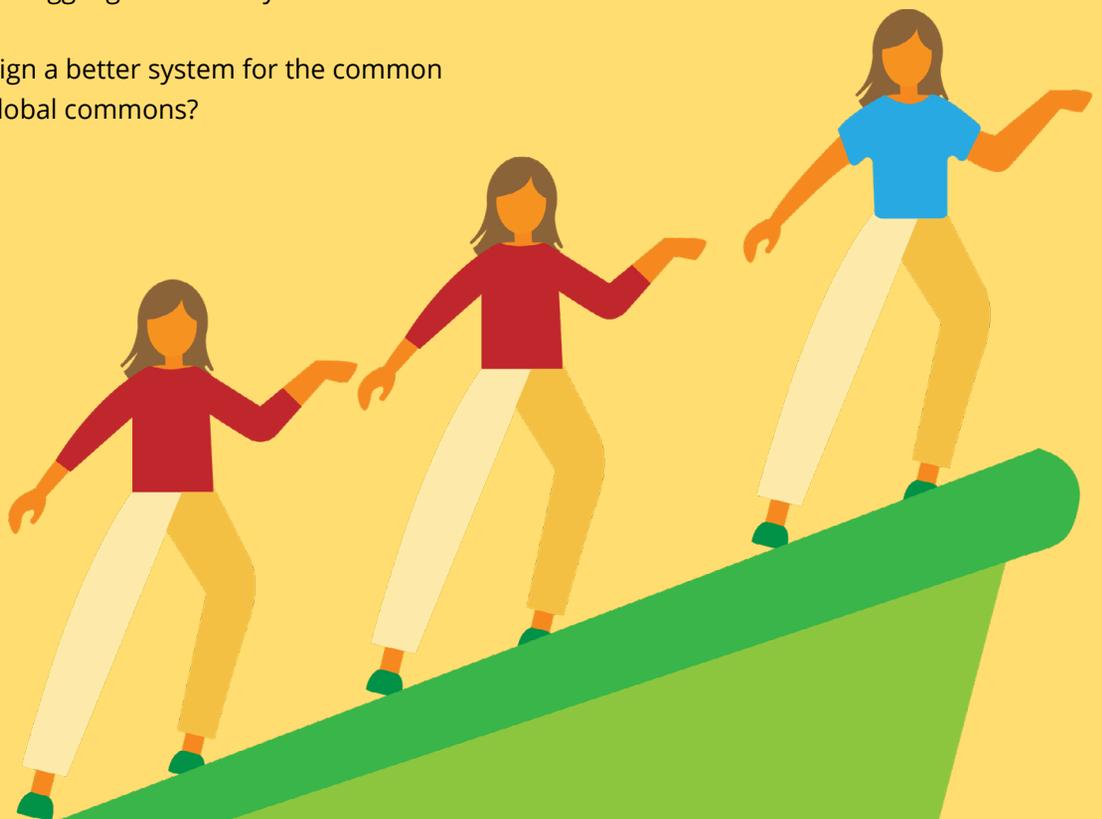
CHAPTER 1

HEALTH AND NUTRITION

Putting health and nutrition at the heart of our food system has never been more important. Presently too few reap the benefits of a healthy and nutritious diet.

Why do we have so many malnourished people in the world, and even more struggling with obesity?

Can we design a better system for the common good and global commons?



» EATING HEALTHIER REAPS ENVIRONMENTAL BENEFITS



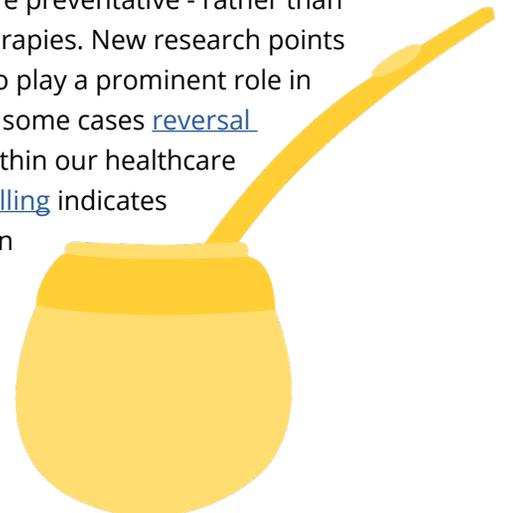
Eating healthy food is also (almost always) better for the environment, [according to researchers](#) at the University of Oxford. The report was the first to look at both the poor diet of western nations and our environmental footprint. The analysis assessed the health and environmental impacts of the most common foods in western diets and concluded that fruit, vegetables, beans and whole grains were best for both avoiding disease and protecting the environment while red and processed meat was damaging to both. There are a few exceptions e.g fish, which is healthy but has a large environmental footprint and biscuits and fizzy drinks which have a smaller footprint but are unhealthy.

The team concluded that replacing any meat with plant-based food makes the biggest difference. How and where a food is produced also affects its environmental impact.

Unprocessed red meat had -unsurprisingly- the greatest impact across all the environmental markers: plant-based diets were healthier and more sustainable than meat-heavy diets.

» FOOD AS MEDICINE

The food we eat can be a great healer, even though food's role in nourishing and healing the body has been greatly diminished by convenience food and modern day eating habits. It is slowly dawning that our medical system uses drugs- not very effectively - to alleviate the symptoms of a bad diet. One of every five deaths across the world occurs due suboptimal diet, representing a [greater risk to health than tobacco](#). The "food as a medicine" movement is a more preventative - rather than palliative - approach in relation to pharmaceutical therapies. New research points to the potential for food and nutrition interventions to play a prominent role in the prevention, management, treatment, and even in some cases [reversal of disease](#). By headlining the role of good nutrition within our healthcare system we could make transformative impacts. [Modelling](#) indicates that making prescriptions for healthful foods results in significant cost savings when targeting the highest risk groups i.e. elderly people, adults with disabilities and low income households.



» TRANSFORMING OUR DIETS

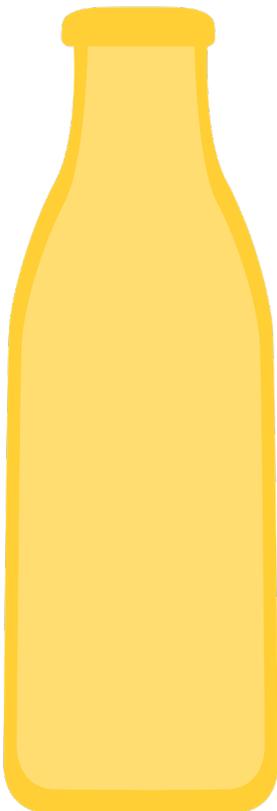
The Western diet is majorly out of kilter and needs a course-correction. Thankfully, awareness and preferences are changing, and the offer is now more diverse than ever before. As consumer habits evolve, a number of food brands are also working to nudge behaviours in the right direction.

MORE...

› Nutrients

Nutrient rich diets [reduce the risk of chronic diseases](#) yet most processed food has less minerals, vitamins and trace elements, anti-oxidants, fibre, phytochemicals, [amino acids](#). Botanicals such as acerola and citrus fruits, for example, are popular for their vitamin C content. Savvy consumers are demanding more and better nutrient rich food. So let's pack those nutrients in!

Plugging the nutrient gap: [Aduna](#) and [YourSuper](#), on a mission to improve health with superfoods.



› Plant-based

Meat and dairy are high in saturated fats and can cause heart disease and type 2 diabetes. Plant-based diets improve gut health, support the immune system and [reduce inflammation](#). Researchers found that “prescriptions” for fruit and vegetables could save more than \$100 billion in healthcare in the US where 70% of diseases are [lifestyle-driven](#).

Leaders include [Impact Snacks](#) making plant-based snack bars and [Oatly](#) and [Rerooted](#) making alternative milks.

› Probiotics

We have 100 trillion microorganisms living inside us – mainly in our “guts.” These “beneficial” bacteria span [1,000 species and 7,000 strains](#) and outnumber human cells ten to one. In recent years there has been a significant upsurge in research on the health benefits associated with the use of probiotics for gut health-as well as causal links to illnesses.

Check out; [Maple Hill](#), [Brew Dr.](#) and [Siggi's](#).

› Protein

Protein is a key building block for growth, development, and [tissue repair](#). While perceived wisdom shows that 10% of calories should come from [protein](#), some experts suggest twice the amount, and protein-rich diets are booming. Let's make sure we chose plant-based protein which is better for both human and [planetary health](#).

Check out [Purition](#) and [Sunwarrior](#) for that protein punch!

› Organic

A [Cambridge University study](#) found that antioxidants were higher in organic foods, while organic milk contains 50% more omega 3 [fatty acids](#). By choosing organic it's also much more likely your food is free from [pesticide residues](#).

Leading the pack: [Auga](#) now the biggest vertically-integrated organic food company in Europe.

› Wholefoods

A shocking 70 percent of our calories now come from [processed food](#), which is spurring the trend to wholefoods. More and more people want to know where their food comes from.

Leading the pack: Leading the pack [Cool Beans](#), [Allplants](#) and [The Tattooed Chef](#) whose products are packed with wholefoods goodness.

LESS...



› Sugar

[Estimates](#) suggest a full 1% to 2% of global GDP in health costs due to bad diet - sugar is probably the main culprit. Figures show a statistical correlation with increased sugar consumption. Natural sweeteners can add sweetness alongside other nutrients: Stevia is 15-20 times sweeter.

Bucking the trend: [Healthy Nibbles](#), [ChocZero](#) and [Free From Fellows](#) are exemplars of companies offering a healthier alternative.

› Sodium

On average most people consume 9–12 grams per day - twice the recommended maximum. This has been linked to high blood pressure, stroke, heart failure and kidney [disease](#).

Leading the way; [Kallo](#), [Bragg](#) and [Mr Spice Organic](#).

› Fat

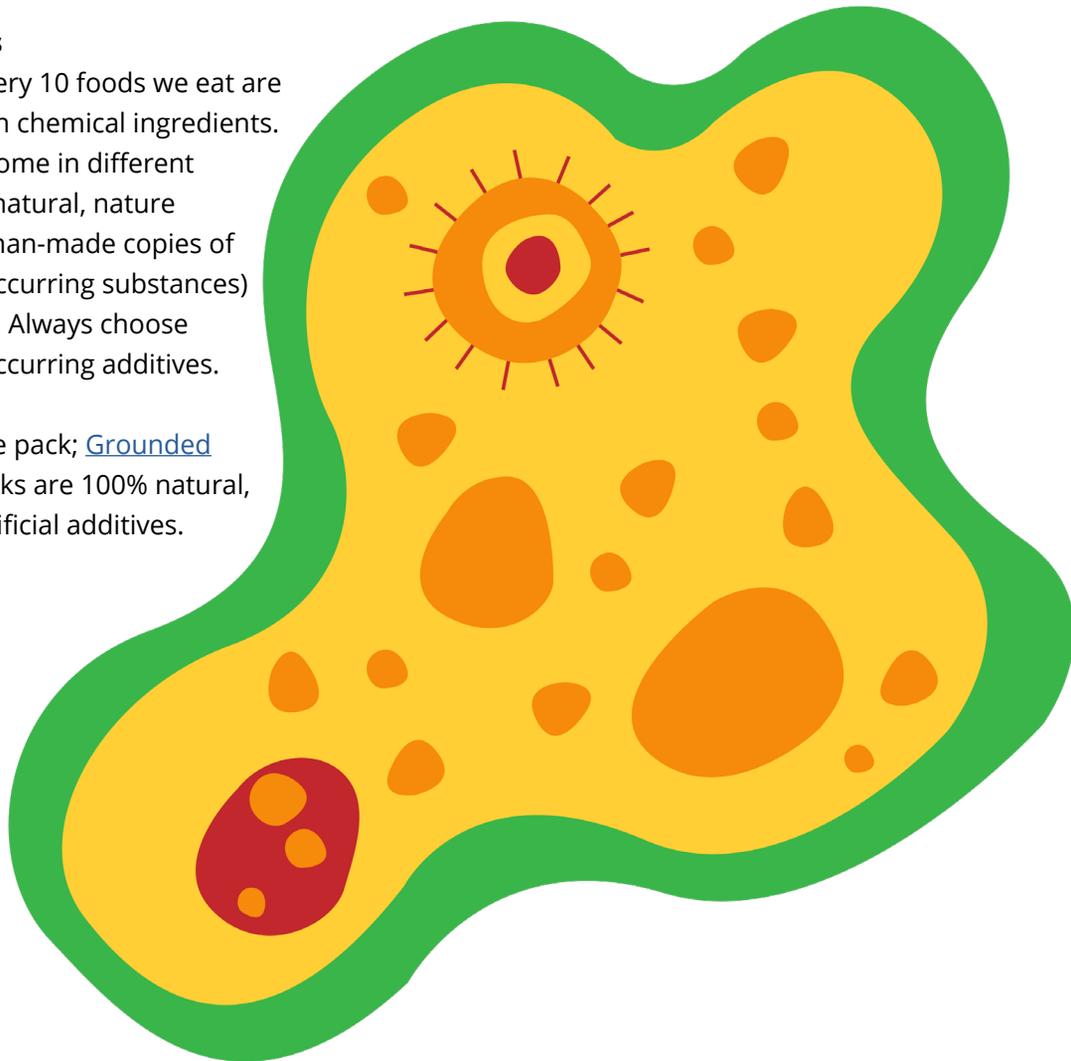
Trans and saturated fats are prejudicial and raise cholesterol. On the other hand, recent studies now suggest that diets with moderate amounts of healthy fat (i.e. the Mediterranean diet), may prevent metabolic diseases such as type 2 diabetes, and cardiovascular issues.

Check out [Lub Foods](#), and [Skinny Cow](#) for sugar free low fat ice creams.

› Additives

7 out of every 10 foods we eat are altered with chemical ingredients. Additives come in different packages; natural, nature identical (man-made copies of naturally occurring substances) or artificial. Always choose naturally occurring additives.

Leading the pack; [Grounded](#) whose drinks are 100% natural, with no artificial additives.



CHAPTER 2

GROWING RESPONSIBLY

The intensification of industrialised farming over the last fifty years has been a double edged sword. After the second world war, armament factories discovered a new use for the explosive ammonium nitrate - as a fertilizer to enhance crop yields. Chemical weapons, such as mustard gas, were then repurposed as pest control. The industrialization of agriculture has led us into an unconscious war against Nature. Today we see less and less crop diversification, with many pests and weeds requiring greater and greater amounts of more and more toxic chemicals, and a relentless push for efficiency to produce the cheapest food possible at the expense of human health and the environment. The consequence has been a more than two thirds decline in wildlife with 2 out of every 7 people are clinically obese. If we do not change the way we farm soon, we may lose the vital ecosystems we depend on for our survival. So, here are 5 priorities farmers, buyers, brands, consumers and policymakers must get embrace to protect our food system for future generations.



» NOURISH SOIL HEALTH

Soil health, or soil quality, refers to the continued capacity of soil to function as an ecosystem that powers plants, animals and humans. It is important to manage soils in a way which will allow them to remain sustainable and to keep powering ecosystems for future generations.

Accelerated soil erosion can have disastrous consequences for all of us as the equivalent of one soccer pitch of soil is eroded every five seconds: If we don't act now, over 90 percent of the Earth's soils could become degraded [by 2050](#), imperiling our ability to feed future generations. To date America's farms have lost about half their soil organic matter since colonial times, and we have lost around one third of all arable land worldwide. To maintain soil health, we need to support conditions that allow microorganisms in the soil to flourish. These living organisms include billions of species of fungi, bacteria, insects and many others. Together, they constitute a complex, symbiotic ecosystem. Not only does soil provide nutrients for plants to grow, it also absorbs and holds rainwater, filters potential pollutants and reduces their entrance into waterways. To carry out all these functions, the soil must remain [diverse and alive](#). Soil erosion is linked to a number of systemic issues including climate change, migration, and availability of drinking water. The Earth's soil is also the planet's greatest carbon sink: storing about 2,500 gigatons -more than three times the amount of carbon in the atmosphere. How we reshape our relationship with soil could determine our future viability as a species.

» SAVE WATER RESOURCES

About 4 billion people live in water-stressed areas where there are water shortages at least once a year. Over a billion more, including 1 in 4 children, will live in areas of extremely high water stress [by 2040](#). In the United States, the agricultural industry is the largest consumer of water, accounting for 80% of the nation's consumable water. This is particularly relevant when you consider that one in five states are experiencing droughts [today](#). Research has shown that conventional field agriculture uses water inefficiently. This provides an opening for Controlled Environment Agriculture (CEA) and hydroponics, which use less than 1% of the water that conventional farming do. The [Aral sea](#) may offer a warning and a glimpse at the future we have been creating, having largely been drained due to industrial cotton production. Managing water sustainably will be key to the future of food and agriculture.



» EMBRACE ORGANIC AND REGENERATIVE FARMING

Chemical fertilizers and pesticides pollute soil, further reduce its biodiversity and resistance, [polluting waterways](#). Degraded soils, excessive nitrogen, and phosphorus fertilization, lead to the runoff into waterways and eventually the ocean, where they can lead to [eutrophication](#) and [coral degradation](#). Organic farming relies on [preventative measures](#). Organic fertilizers [have been shown](#) to facilitate and maintain the interconnected web of microorganisms, insects and plants, while achieving their main objective of increasing the quality and yield of crops. In addition, they suppress populations of plant pests. A separate, but crucial advantage of organic fertilizers, is that they are [easily accessible](#) for small-scale farmers and farmers in indigenous communities. They can often be obtained locally from other farmers. This makes farmers less dependent on chemical companies, and creates interdependencies within farming communities, making them more resilient. Because nitrogen fertilizer production is tied directly to natural gas, a shift to organic supports the transition from fossil fuel production. If all farming activity in the world were organic, the use of chemical pesticides would drop by [98%](#).



» PROTECT BIODIVERSITY

Biodiversity is, indisputably, the key factor of resilience in ecosystems. The more varied the species in a given area, the richer and [stronger the ecosystem in the area is](#). Tragically, [one million species](#) around the planet are now at risk of extinction. Industrialized agriculture is the primary culprit in what has been called the sixth mass extinction: the first mass extinction event to be caused by humans. In the UK, 72% of all land is now farmland, so the role of farmers in restoring biodiversity is critical. Monoculture -and intensified industrial agriculture -is extremely prejudicial to biodiversity. The figures are shocking; nearly 21,000 monitored populations of mammals, fish, birds, reptiles and amphibians, from 4,400 species around the world, declined an average of [68% over the last fifty years](#). This tragic loss has been caused by the shift from traditional mixed farming to a hyper specialisation in arable crops and livestock, whilst increasing farm size. As fewer crop species were being planted we also lost nature-friendly meadows, ponds and hedgerows, all important wildlife habitats.



Monoculture creates vicious circles: insects proliferate around their favourite food sources and reproduce faster in monoculture fields with farmers using more and more pesticides to control them with pests then developing greater resistance and forcing farmers in turn to use stronger pesticides. Pesticide use has doubled in the last 25 years causing a devastating decline in vital pollinators that are essential for most farmed crops. Mixed farming practices on the other hand boost crop yields, increase food security and build greater resilience against environmental shocks. Yet smaller may be more productive: the average corn farm earns \$400-\$600 per acre, though a new wave of micro farmers can make as much as [\\$100,000 per acre](#) using a combination of high-tech advancements and traditional methods that aim to protect the land's natural fertility.

» ENABLE LIVELIHOODS

Over 68 million people have been displaced from their homes worldwide, many for climate related issues. As depleted soil exacerbates the effects of weather events, people's livelihoods are increasingly affected – and more people may be forced to move elsewhere.

Roughly 2 billion people (over 25% of the world's population) in 500 million households work on "smallholder" farmers, working less than 5 acres of land. A reimagined farming system could rapidly improve soil health without toxic fertilizers, and without sacrificing crop yields. It could also provide more resilient livelihoods for the world's climate vulnerable smallholders. Building a food system that delivers climate justice for the world's most vulnerable people is now an urgent priority.



Agriculture can help reduce poverty, raise incomes and improve food security for 80% of the world's poor, who live in rural areas and work mainly in farming

The World Bank



» GENETICALLY MODIFIED FOODS: FRIEND OR FOE?

Genetically modified foods (GM foods), are also known as genetically engineered foods (GE foods). These are bioengineered foods which are produced from organisms that have had changes introduced into their DNA, with genetic engineering. Genetically modified foods remain a controversial topic due to debatable benefits and [concerns over the technology](#). While they may be safe for human consumption, a lot of [environmental](#) and social concerns remain unaddressed. GM crops are linked to intensive farming (monoculture), which as discussed are harmful for biodiversity. In addition, most GM crops are either engineered to resist chemical herbicides or to produce their own pesticides. In the first case, this often leads to resilient weeds and the use of even more chemicals. Crops with insecticides [harm non-target insects](#), such as butterflies and bees. Yet GM is just a technology. Perhaps the real issue is in how the technology is applied.



Is GM being used to empower farmers? Current indicators do not bode well. Genetically modified crops are currently developed and owned by biotech companies, which have the control over the entire chain - from research to commercialization of seeds. This reduces the role of small-scale farmers, who have always selected and improved their own seeds. If using GM seeds, farmers are forced to turn to seed-owning companies every season. As a result, the power balance shifts towards big companies and puts small scale farmers in a weaker position and decreases the role of small-scale agricultural business. Terminator seeds can never be a good thing under any circumstances.



At Positive, our preference is for non-GMO, organic produce, grown and harvested using environmentally-friendly methods. By empowering small-scale farmers, we ensure the livelihoods of agricultural communities, facilitate social equality and make a positive impact.

REGENERATIVE AGRICULTURE



Regenerative Agriculture is quite simple: it is any form of farming, ie the production of food or fibre, which at the same time improves the environment. This primarily means regenerating the soil. It's a direction of travel, not an absolute.

Groundswell

ORGANIC VS. SUSTAINABLE VS. REGENERATIVE AGRICULTURE?

Organic

The UK Department for Agriculture and Rural Affairs (DEFRA) explains best: 'Organic food is the product of a farming system which avoids the use of man-made fertilisers, pesticides, growth regulators and livestock feed additives. Irradiation and the use of genetically modified organisms (GMOs) or products produced from or by GMOs are generally prohibited by organic legislation. Organic agriculture is a systems approach to production that is working towards environmentally, socially and economically sustainable production. Instead, the agricultural systems rely on crop rotation, animal and plant manures, some hand weeding and biological pest control'.



Sustainable Agriculture

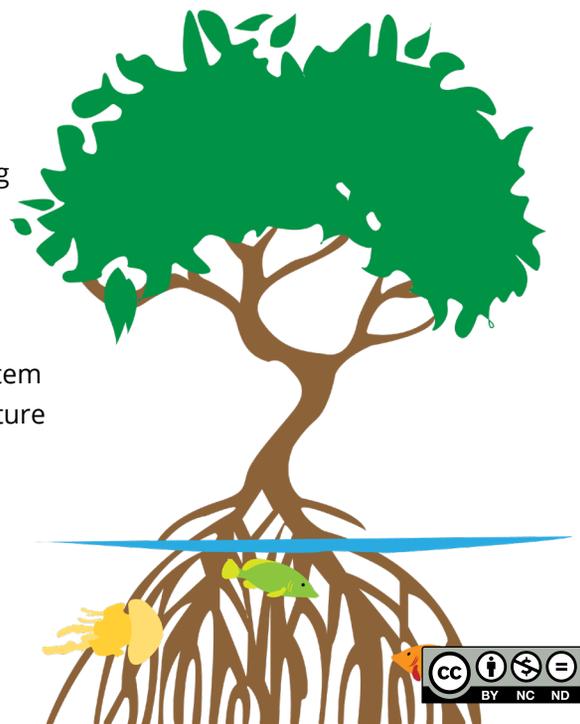
'Sustainable' covers a broad array of practices. Dictionary definitions tend to point to protecting certain thresholds and standards so that resources are not depleted or permanently damaged. The concept of sustainability has its roots in the maintenance of the status quo, rather than the continuous improvement and restoration required by regenerative agriculture. To complicate matters, there is no agreed uniform standard for sustainable agriculture, and what it can therefore mean different things to different people.

Regenerative Agriculture

As with sustainable agriculture, definitions may still vary. However, the importance of regenerative agriculture is implied in its terminology. Regenerative agriculture is about restoring and regenerating the land by consistently improving the soil health, rather than simply maintaining and preserving a status quo. Regenerative agriculture generally includes, and also goes further than organic. Practices encompass a wide variety of different approaches from cover cropping, a focus on crop diversity and soil health. Generally speaking, regenerative agriculture has five main principles:

1. Minimising soil disturbance, prioritising soil health
2. Rejecting chemical inputs in favour of organic inputs
3. Maximising biodiversity, both animals and plants
4. Covering the soil with crops as long as possible, and a focus on crop diversity
5. Adapting to the local environment

Regenerative farming practices have myriad environmental benefits, from mitigating climate change to yielding nutrient-rich crops to improving water quality. For investors, regenerative agriculture at scale can offer higher price points, lower input costs and less vulnerability to market volatility. Big picture, regenerative agriculture can create a better agricultural ecosystem for the benefit of today's consumers as well as future generations.



CHAPTER 3

REGENERATIVE SOURCING

The onslaught of the COVID-19 pandemic – and the disruption that followed – has exposed the fragility of just-in-time supply chains of our food systems. This supply shock has also flushed out major inequalities and a lack of redundancies within supply chains. As a consequence, a process of rapid change and digitalisation which had already been underway has been amplified. Many organisations, caught short in the first weeks of the pandemic, have been rethinking their systems and supply chains. Prior to the COVID-19 shocks of 2020, goods and services were shipped across the planet by logistics managers who used digital systems to manage the flows. Procurement managers oversaw and managed risks and disruptions. Primary considerations were efficiency, the ability to ship vast quantities, and reducing costs. Companies negotiated on a win-lose basis.

A supply chain - and the clue is in the title - is only as strong as its weakest link. With COVID-19, all of a sudden, many links were broken; companies either faced an unprecedented drop in demand; or frozen logistics and a dried-up supply or a demand surge (i.e. toilet paper). Overnight, waste that had been built into the system became an anchor. Because the entire system entered paralysis, there was no plan B. Supply-chain leaders had seldom faced more complex, changing conditions than they faced during the pandemic. Yet the businesses that proved most resilient during this time had invested in supply webs, not supply chains.

Over the last two decades supermarkets focused on a just-in-time strategy, reducing the diversity of their supplier base and driving efficiencies. The sudden systemic shock of COVID-19, led to deadlock within the supply chain. The shock made the previously invisible manifest. Today, supermarkets in the UK and EU are more sensitive to workforce safety concerns, as well as the risk of labour shortages holding up fruits and vegetables harvesting, affecting fresh food supplies, not to mention bottlenecks and shortages caused by a lack of drivers, dockworkers and packers. In the UK alone, 70,000–80,000 seasonal agricultural workers arriving mainly from Romania and Bulgaria, every year to harvest crops.

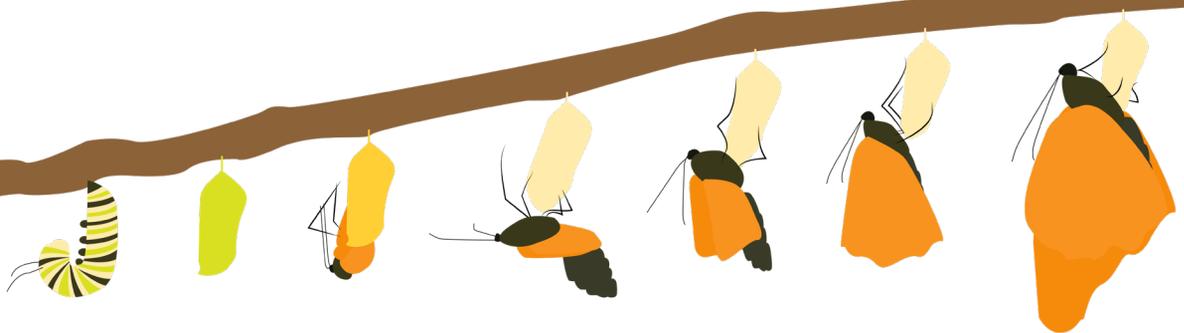


» FUTURE-PROOFING PROCUREMENT

Spiderwebs are a source of inspiration due to their delicate strength—if spiders were in human proportions, their webs would be strong enough to catch airplanes. Now, scientists understand how these silky strands (each a fraction of the size of a human hair) get their power: thousands of even tinier nano-strands that stick together to create the web. This means silk five times stronger than steel. The web, as a design, is interesting because it is highly elastic, more flexible than rubber, retains its structural integrity under stress, and can weather the elements. It's also adaptive to place and conditions. Future proofed supply webs count on both diversification of partners and building resilience and integrity within the system. Taking a supply web vis-à-vis supply chain approach means working more closely with growers, suppliers, factories, shippers, packagers, retailers, logistic centres and others. We can then view these webs as networks of multiple and bidirectional interdependencies between organizations (or as nodal networks).

» STRONGER BY DESIGN

Supply webs are networks of partners where the strength of each participating entity enriches the strength of the whole. Because of their interconnected and interdependent nature, supply webs can be designed to better protect the interests of people and planet. Each connection seeks to engage in a more meaningful way with the other- there is a more implicit understanding of shared value than in linear supply chains. And of course, one major benefit of building supply webs is that they are more resilient and dynamic providing more give-and-take to allow for disruption or changes with partners. Circularity is a key component of the supply web, whose design is geared towards producing as little waste as possible. This explosion in e-commerce favours companies pioneering innovation in greener logistics such as Positive member Pandobac. They use a RFID and QR coded durable packaging that can be reused over and over and over with digital addresses facilitating returns.



» CORONA AS A CATALYST

On the one hand, the pandemic has caused a huge spectacular spike in ecommerce with consequences for logistics. On the other, we've seen procurement managers recognise the need to develop more regenerative supply webs eco-systemic resilience. Whereas efficiency was the mantra of supply chains past, resilience is now the main priority.



If you've tried to buy a bicycle ...(during the pandemic)..... or you recall the great toilet-paper shortage you already know about the importance of the supply chain

Diane Brady, Mckinsey

» MORE TRANSPARENCY

More savvy consumers are demanding that their products be slavery-free, don't contribute to deforestation, or come packaged in single-use plastics. The climate risks we face means decarbonisation of supply chains is a near to medium-term priority and consumers are becoming more aware about impacts of food miles. A company's brand integrity now reaches deep across the entire supply network – from the treatment of farmers, land impacts, to the carbon miles attached to logistics and distribution all the way to the type of packaging used and where and how a product is stocked. Transparency – and accountability - across supply webs is the key to unlocking and safeguarding brand value.

The brands of the future have a zero-tolerance mindset to toxic chemicals, excess waste and harm to eco-systems or human health.



FIVE STRATEGIES FOR HEALTHY SUPPLY WEBS

1. Embrace multi-sourcing

Multi-sourcing is an obvious way to mitigate risk. Benefits range from; having less reliance on any one supplier providing a safety net if a supplier runs into difficulties; more flexibility to cope with unexpected events that could jeopardise capacity: and fewer bottlenecks as having more suppliers are able to meet peak demand.

2. Build ecosystem partnerships

The COVID-19 crisis has shown the need to have a diversified approach to sourcing. In order to strengthen resilience, collaboration with raw material suppliers and external service partners will be key. Forming tighter collaborations and a shared value approach can have other impacts; from eradicating slavery, and delivering better livelihoods (i.e. with Fairtrade), to working towards Net Zero commitments across the supply web. Likewise, as companies seek to establish their own supply webs, they may need to work across silos in order to establish them. As we emerge from the economic impacts wrought by the pandemic, it is clear no company acting alone can heal the damage - let alone transform their sectors. Organisations will need to forge new partnerships, perhaps forming coalitions for action with competitors, coming together in common purpose.

3. Prioritise nearshoring

Reducing geographic dependence in global networks and shortening cycle times for finished products has obvious benefits. Even when local supply chains can sometimes be more expensive, and add more complexity to the ecosystem, they do allow for a more responsive inventory. Companies nearshoring benefit from bringing the product closer to the end consumer – as well as cutting out unnecessary carbon from logistics.

4. Put people and planet first

For traceability and transparency, from provenance to chain of custody, independent third-party validation also helps underpin brand credibility, mitigating risk, says Ruth Rennie, director of standards and assurance at the Rainforest Alliance speaking to the Raconteur. "Sustainability standards and certification focus businesses on necessary actions and measurable requirements," she says. "This key data on risks and performance, updated through regular verification, is critical for businesses to constantly adapt their strategies for building more resilient and sustainable supply chains."

5. Digitalise systems

Digitalisation of supply chain management began long before the pandemic with the promise of environmental and social gains. Digitalisation of the supply chain means more oversight into provenance and how deliveries are made, which means procurement managers can make more informed – and greener- choices. This is supported by the research of data scientists at Blue Yonder, a digital supply chain platform, who predicted that the UK's biggest eight grocers could cut £144 million a year in food waste by using machine learning. Consumers now want proof of how their food is produced, where it comes from, and confirmation it is safe. As a result, we are now seeing a proliferation of technologies including blockchain and artificial intelligence attempting to meet that demand.

51%

of supply chain professionals expect that the focus on circular economy strategies will increase over the next two years (Gartner 2020)

93%

of supply chain executives plan to increase resilience across the supply chain (McKinsey 2020)

CHAPTER 4

PACKAGING RESPONSIBLY

Around 10 million pieces of plastic are dumped into our oceans annually. It is estimated that packaging is the largest segment of the end-use market which accounts for 40% of total plastic usage. And some of the packaging, like plastic bags, have a working life of only 15 minutes. This is why it is so important that the packaging people receive their food in is sustainable and responsible. At Positive, we define 'responsible packaging' as safe and healthy for consumers and community during its entire life cycle, increases use of recycled or renewable materials and is effectively retrieved in industrial closed loop cycles. In other words, responsible packaging is the one that is functional, safe for consumers and the environment.



» RESPONSIBLE PACKAGING CHECKLIST

When establishing whether a certain type of packaging is responsible or not, we suggest asking these questions:

› What materials is it made of?

Is the material safe for consumers? Is it sourced using renewable energy? Is it created using recyclable or recycled sources?

› Is it functional?

Is the packaging absolutely necessary? What special function does it serve?

› Can it be used in any other way after the food is consumed?

Can it be repurposed?

› Can it be recycled?

How easy is the packaging to recycle? Is it a complex amalgam of different materials that is only partially recyclable?*

› Is it home-compostable and biodegradable?

Does it disintegrate into earth-safe components within 6 months? Are you sure it is home-compostable and biodegradable? When advertised as compostable, does it need industrial technology to support that? **

**Tetra Pak claims their packaging is 100% recyclable but needs special machinery.*

***Most PLA (polylactic acid) plastic is marketed as compostable. However, most PLA actually requires industrial facilities to break it down. Only PLA specifically labelled as home-compostable can be composted at home.*

Comparing glass versus plastic versus tetrapaks

If you look at climate change impacts alone, Tetra Pak cartons have the smallest impact, followed by plastic, aluminium, and then glass. If you look at plastic pollution and the ability to do closed loop recycling, glass and aluminium are preferable. When you recycle these their carbon emissions start to approximate those of cartons and plastic.

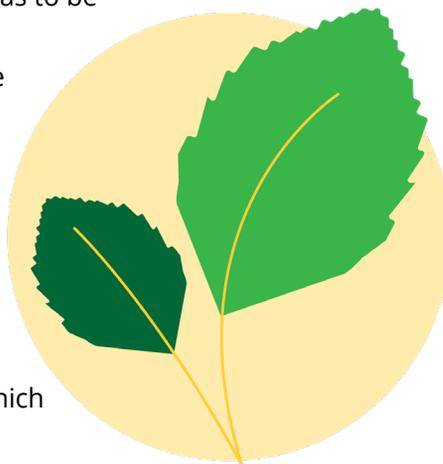


» COMPOSTABLE VS BIODEGRADABLE

Biodegradability is the ability of materials to break down by naturally occurring organisms such as bacteria or fungi in the right conditions. This means that the material will keep breaking into smaller and smaller pieces, when eventually turning into environmentally safe components and returning to earth.

While this sounds great and exactly like what we would want, the problem with biodegradability is the vague time frame. Almost any material will “die” and break down eventually, but depending on what it is, it can take 6 months or it can take 600 years. Famously, 1 plastic bottle is [estimated](#) to take 450 years to degrade. Technically, because it does break down, a plastic bottle can be labelled as ‘biodegradable’. However, it remains in the environment and harms it for a long time, and is a long-term pollutant. Therefore, the term ‘biodegradable’ can be misleading and confusing for consumers.

To be compostable, on the other hand, a material has to be able to disintegrate after 12 weeks and completely [degrade after 6 months](#). Importantly, a compostable material will not remain in the environment in a harmful form but rather turn into water, biomass and CO₂. It can be composted either through home or industrial composting. At Positive we are committed to creating the conditions for a regenerative economy: this is why we recommend opting for harmless materials which have minimal impacts on biodiversity, and which can be reused or recycled effectively. It is always preferable to choose materials that can be certified specifically as ‘home compostable’.



All compostable items are biodegradable, but not all biodegradable products are compostable

MATERIALS

Paper and cardboard

Paper and cardboard, used in packaging, is created from cellulose. It is sourced in many countries and processed into pulp. Several layers of pulp are then 'sandwiched' together, producing a dense, versatile material. The pulp industry is known to be a heavy contributor to global CO2 emissions. In addition, it uses a lot of resources, such as trees and water. Even though these are renewable, the pulp industry still has a big impact that cannot be neglected. Fortunately, there is a lot of work and research ongoing to reduce impacts.

Emissions from the pulp and paper industry are balanced out by paper and cardboard's excellent recyclable qualities. In fact, the Environmental Protection Agency estimates that cardboard can be recycled between 5 and 7 times. In addition, common waste management strategies have good capacity to recycle it: 85.8% of paper and cardboard in Europe [is now recycled](#) compared to [64.7% in the US](#). To ensure your packaging is as eco-friendly as possible, source recycled paper and cardboard. Alternatively, FSC-certified are sourced from sustainably managed forests, and a good option. In the unfavourable case of the cardboard not making it to the recycling plant, it can and will easily degrade within 3 months. This is important to keep in mind also because cardboard cannot be recycled forever and will eventually make its way to a landfill.

› SCORECARD 4/5

Paper and cardboard are practical, versatile materials that are manufactured from renewable materials. On the downside, production of pulp is an energy-intensive process that consumes a lot of wood and water, with additional effort going into treating waste water. However, it is a widely recycled and easily recyclable material that can still decompose quickly, should it end up in the environment.



Aluminium

Aluminium is a very popular material for drinks and food packaging, made from an abundantly available material on earth, making up 8% of its crust. It is the third most common element, following silica and oxygen. Aluminium is extracted from bauxite, a mineral mined from the level of several meters under the ground. Its production is both land and energy intensive. In the past, primary production of aluminium was very CO2 intensive, but as of 2018 it has decreased by 55%.

Today, primary production globally emits around 18kg CO2e per kg of aluminium with 7kg CO2 per kg of aluminium in Europe. A big drawback of aluminium is that it is not biodegradable or compostable. However, when it does end up in the environment and finds its way into an ocean, for example, it will sink and either become part of the sediment, or maybe even form a new habitat (if the sunken piece is big enough). Aluminium packaging is easily recyclable and is effectively recovered for recycling around the world, minimizing its impact on the wildlife. According to European Aluminium, 75% of all aluminium ever produced is still used today, as it can be recycled almost infinitely. Recycling also saves 95% of the energy needed for primary production of this material.

Analysis from Bloomberg has found that green aluminium - produced with renewable electricity and using inert anodes instead of carbon anodes - is now cost competitive with traditional aluminium made with fossil fuels. It's also likely that green aluminium will become much cheaper as renewables fall.

› SCORECARD 3.5/5

Aluminium is a reasonably good option to package your product with. The industry has made significant progress on its energy use and raw sources consumption, rapidly decreasing emissions since the 1990s. On the negative side, aluminium is not biodegradable. It can however be recycled endlessly, without losing in quality and further decreasing the amount of energy needed for its production.



Glass

Glass manufacturing uses an abundant resource - silica, which we also know as sand. Amongst its disadvantages are relative fragility and heavy weight. Environmentally speaking, glass packaging has an overall lower profile than the plastic one. This is due to a significantly higher amount of energy used during the manufacturing and transport stages in [comparison to plastic](#). High melting temperatures in glass manufacturing can release a lot of nitrogen oxides, which, in its turn, facilitates ocean acidification and releases smog. While neither compostable, nor biodegradable, glass is highly recyclable and can be recycled multiple times without the loss of quality or quantity.

The biggest impact glass has on the environment is attributed to manufacturing and transportation emissions. These factors decrease every time glass is produced with recovered glass: each tonne of glass is manufactured with recovered glass reduces CO2 emissions by [246 kg](#). As recycling depends not only on the capacity of the material, but also on effective waste management strategies. In the EU, the average recycling rate is [67%](#), while Sweden, recovers a whopping [95% of glass](#). When glass leaks into the environment, it does not harm it, other than being a danger due to sharp edges.

› SCORECARD 3/5

Glass is a great material that can be used for a diversity of products. Its biggest disadvantages are high rates of emissions during manufacturing and transportation, due to its weight. It is made of sand and limestone, which, while abundant, should still be protected and conserved. Luckily, glass is a highly recyclable material which can be repurposed multiple times and not lose quality. In addition, glass has an effective high recovery rate. Glass is most sustainable when created from recovered materials. If this is your chosen packaging material, make sure it is made using recycled waste.



Polylactic Acid (PLA)

PLA, or polylactic acid, is an increasingly popular substitute to conventional, petroleum-based plastics. Its popularity is increasing because the manufacturing process does not require fossil fuels, and uses renewable resources. PLA is made from the fermented starch of plants, such as corn, cassava or sugarcane.

PLA bioplastic can emit 75% less greenhouse gas emissions compared to conventional plastic. Because PLA is made of organic, plant-based substances, they are compostable and may also sometimes be recyclable. That said, PLA is not home-compostable, and must be composted in specially equipped, industrial composting plants. In addition, much PLA is not recyclable, though is expected to become so at some point in the future. When PLA ends up in landfill, it [takes just as much time decomposing](#) as conventional plastics.

› SCORECARD 1/5

PLA has one advantage over conventional plastics in that it comes from renewable, plant-based resources - although this is not clear cut as the raw materials compete to use land which could be better used to grow food.

Furthermore, when it comes to the end of life, PLA has the same impact as fossil-based plastics. PLA requires specialised industrial plants to both decompose and recycle, and these plants are not very common globally. When leaching into the environment, PLA behaves as regular plastics do, floating or breaking up into microplastics in the ocean, harming marine life and polluting for hundreds of years.



Plastics

Plastics are polymeric materials that can be molded into any desirable shape and are very accessible and cheap. There has been a lot of evidence of plastic's harmful impact on the environment, particularly marine and its incredibly long life-span. However, although demonized, plastics do have advantages. For example, due to their light weight and durability, they require significantly less energy during manufacture and transportation in comparison to other materials, such as glass. Despite plastic pollution, plastics have many advantages and are hard to completely eliminate. It is clear we need to - at the very least - moderate our consumption, and shift to more regenerative options. There are many different types of plastics: most are made from fossil fuels with their manufacture accounting for about 4% of global oil production. PET (polyethylene terephthalate) plastic bottles are a popular choice for packaging soft drinks. PET is also the most widely recycled plastic. In the United States, however, only about 20 percent of PET material is recycled.

Reducing our plastic addiction would help our decarbonisation efforts. The biggest problem with plastics is that, despite using a small amount of energy, they are not compostable. They are degradable however, although they break into smaller microplastics - less than 5 mm in size - which is problematic. Microplastics enter our soils, rivers and oceans, where they are consumed by marine organisms, poisoning our food. Currently, microplastics constitute 94% of the Great Garbage Patch. The Ocean Conservancy points out that "Plastic has been found in 59 percent of sea birds like albatross and pelicans, in 100 percent of sea turtle species and in more than 25 percent of fish sampled from seafood markets around the world." Importantly, according to the Sustainable Packaging Coalition, biodegradability additives do not improve sustainability of plastics. However, one major advantage of plastics is its high recyclability. Recycling plastics can reduce pollution, oil usage and CO2 emissions. At the same time, successful recycling depends on waste management strategies and efficiency. This varies over geographical areas. Only 9% of the 8.3 billion tonnes of plastic produced worldwide is actually recovered and recycled.

› SCORECARD 0.75/5

In theory, plastics is a great material that does not use much energy during manufacturing and transportation, and can be recycled multiple times. In reality, it has poor recycling rates, with insignificant amounts of it collected globally. Most frequently, it ends up in the oceans where it stays for a very long time, polluting the environment and hurting marine life. Until we can ensure a 100% recovery and recycling of plastics, it is better to avoid them, as their real impact is more significant than their theoretical benefit.

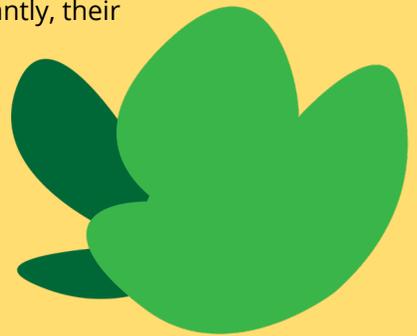
HIGH IMPACT ALTERNATIVES

Luckily for us and for the planet, progress is not standing still, and there are more and more alternatives to plastic packaging available on the market today. Some alternatives are fully home compostable, while others are even edible, allowing us to reduce plastic waste 100%. The following packaging options score 5/5

› Plant-based plastics

Importantly, seaweed-based plastic can have better features than PLA. They can be home compostable, and even digestible. A great example is a tech startup Notpla, who have created a 100% degradable packaging. Very importantly, their seaweed-based plastic material can be used as a lining for takeaway boxes- an innovation that is transforming a previously sticky challenge.

[Notpla](#) packaging is digestible - and the company showcased their Ooho water bubbles at the London Marathon.



› Mushroom packaging

This is a cheap, eco-friendly packaging alternative gaining traction, using agricultural and food waste, fusing mycelium. Packaging can be grown within a week. Mushroom packaging has many advantages; it does not rely on fossil fuel or food sources as a source material; it biodegrades quickly, and is home compostable.

Check out [Mushroom Packaging](#).

› Bagasse

Bagasse is the perfect alternative to problematic polystyrene food containers, which we often see when ordering takeaway. Bagasse is a fibrous by-product left from the production of sugar cane. There is no need for any chemicals or additives to whiten or strengthen it. Bagasse is easily compostable, does not require any additional infrastructure and will break down on its own if left in the natural environment. As a by-product of sugar production, it uses waste from the world's largest agricultural crop.

Check out [Decent Packaging](#) for info.

HIGH IMPACT ALTERNATIVES

› Bagasse

Bagasse is the perfect alternative to problematic polystyrene food containers, which we often see when ordering takeaway. Bagasse is a fibrous by-product left from the production of sugar cane. There is no need for any chemicals or additives to whiten or strengthen it. Bagasse is easily compostable, as it does not require any additional infrastructure and will break down on its own if left in the natural environment. As by-product of sugar production, it uses waste from the world's largest agricultural crop.

Check out [Decent Packaging](#) for info.

› Edible packaging

Some companies have gone the extra mile and created their own edible packaging. A Belgian startup [DoEat](#) has created food boxes and bowls out of water and potatoes. As a result, this packaging is edible and compostable. Another successful example is the beer company [Saltwater Brewery](#) who have solved the problem of plastic beer rings - notorious for their environmental impacts. The Florida-based brewery has found a way to create the six-pack rings from by-products of beer brewing.

Positive member [Impact Snacks](#) have also designed edible packaging for their snack bars.

PACKAGING GUIDELINES

1. Prioritise home-compostable, biodegradable

It's not fair to pass the issue of disposing of our waste to future generations. So always choose home-compostable, biodegradable first. As a second option, choose packaging options which have a minimal footprint and are supported by waste management facilities i.e. glass and aluminium with high rates of recyclability. [Celestial Tea's](#) home compostable packaging does not use strings, staples or individual wrappers for its tea bags, avoiding 3.5 million pounds of landfill a year. Love the Wild released a compostable tray for ready-to-cook sustainable seafood meals, with trays made from plant-based plastic.

2. Give single use the heave-ho!

Single use plastic is the scourge of our polluted planet, and at this stage, there's simply no excuse. Plastic straws, carrier bags or sweetie wrappers can seem harmless but these single use plastics come with a high environmental price—one that we'll be paying off for millennia, as well as devastating impacts on our ocean, wildlife, and health. Check out [Single Use Alternatives](#) and [Vegware](#) in the UK, and [Green Packaging](#) in the US for great alternatives.

3. Design with mono-materials

Packaging composed of several materials is always harder to recycle e.g. boxes with plastic 'windows' to show the product inside. Always opt for packaging consisting of a single material, ensuring the material is recyclable and is indeed recycled.

4. Reduce size and weight

The less materials used to create packaging, the less resources were used to manufacture these materials and the less waste there will be at the end of life of packaging. The same goes for weight and transportation emissions.

5. Use realistically recyclable materials (and choose recycled first)

It is important to pay attention to recycling capacities of individual geographical regions or cities. Other things being equal, it is better to use packaging materials that can be realistically treated by local waste management capacity. [Guayaki](#) is a yerba mate company. A large portion of its cans come from half previously recycled aluminum and use 95 percent less energy than conventional aluminum cans.

6. Design for reuse

Follow the 3Rs rule: Reduce, Reuse, Recycle, in that order. At Positive we encourage brands who go the extra mile and think creatively about other ways their packaging can be used afterwards. [RISE](#), from Sweden, prototyped a cellulose-based container that can be filled with freeze-dried vegetables and flavourings, which, after adding hot water, opens up into a fully compostable bowl. [Rerooted](#) has revived the milkman - with electric floats and returnable glass bottles - for its plant-based alternative milks.

7. Introduce tara return or circular schemes

To make your packaging even more reusable, why not reuse it yourself? To do so, you could introduce tara return schemes, through which consumers could give packaging back to you. For example, [Wee Isle Dairy](#), a small farm on the island of Gigha, reuses their milk bottles - you can bring your bottle back to the store, from where it will be sent back to the farm. Oat milk brand [Untitled Oats](#) follow a similar scheme, but go a step further by returning a 'deposit' to their customers for every returned glass bottle.

8. Use nature friendly print colouring

Printing materials can be toxic and leech into the environment, poisoning soils and entering the groundwater. No Evil Foods' meat alternatives come in compostable packaging made by Kraftpak which are printed with plant-based ink.

9. Avoid over-packaging across the business

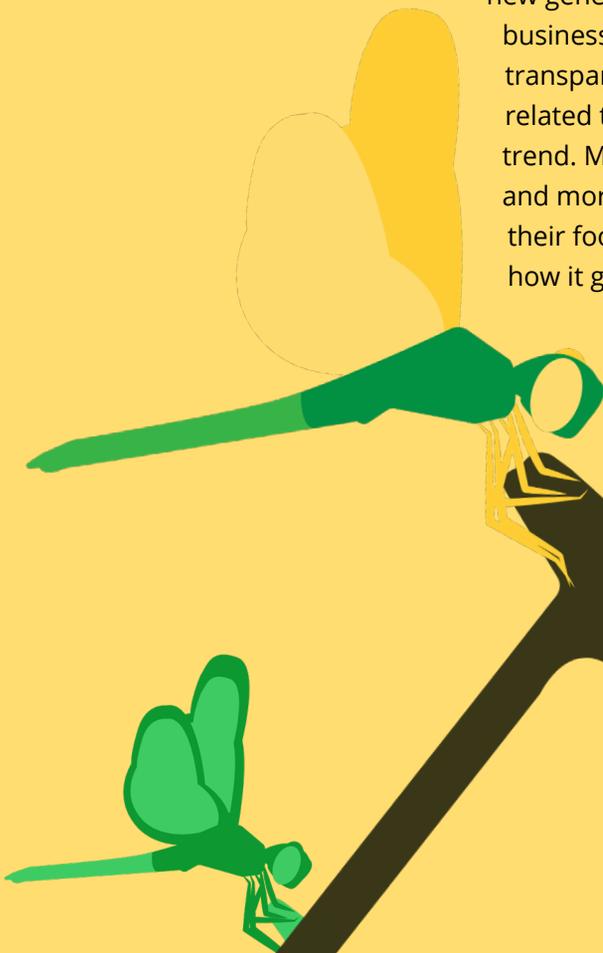
Optimize how materials move across the chain so you can cut the waste that comes with them. Work with suppliers and vendors to optimize your supply chain. Three areas to look at: better managing demand properly to ensure that you don't overproduce/over-order, consolidating shipments to use less packaging, working with supply chain partners to use better packaging.

CHAPTER 5

SELLING RESPONSIBLY

Safety concerns due to the recent COVID outbreak, which was said to have broken out at a wet food market in Wuhan, have spotlighted the role of food on health. A

new generation of software services now supports businesses to manage their supply chains more transparently. Blockchain, the Internet of Things and related technologies, are converging to accelerate this trend. Meanwhile, consumers are demanding more and more from food brands. They want to know where their food comes from, who grew it, and made it, and how it got to their plate. Increasingly, they also want to know about issues such as slavery and food miles, and how much carbon was used to make and bring their food.



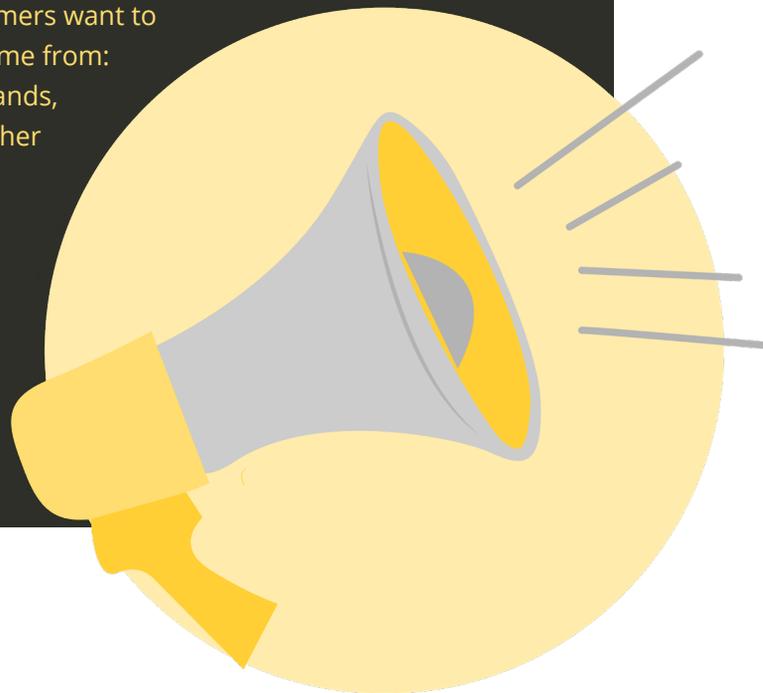
SELLING GUIDELINES

1. Be honest

Building a Regenerative business is a journey. It is not always easy and it is never fast. However, it is important to remain honest with your customers, providing them with all information on your product and keeping it transparent. Transparency shows that you are a responsible business and that you take care of people, allowing them to decide what to buy.

2. Share milestones

Don't hide from customers how your product arrives in their hands. Even if it seems uncomfortable or wrong, the right thing to do is to make information on your supply chain as accessible as possible. If you feel that some components of your supply chain can be deemed 'unsustainable' or not fully regenerative or responsible, work on a plan and a timeline to transform this, and share your commit and the process with your customers, and if you can, on your website. You could display a detailed analysis or a simple timeline illustration-hold your business to account. Transparency raises the sustainability profile of your product and makes it more valuable - studies have shown that clients could be willing to pay up to 10% more for a product if they know more about the supply chain. Today, consumers want to know exactly where food products come from: 94% are more loyal to transparent brands, and 81% are willing to try a brand's other products if it offers transparency.



3. Put people first

People are amazing. They work in stores, offices and factories. Always put them at the forefront of what you do and ensure their health and safety and equitable working conditions for each one of them. You can showcase your commitment to people by highlighting policies and codes of conduct you support, as well as celebrating communities you work with. Where possible, aim to introduce training programmes and other opportunities for your employees. And share this commitment, and the human stories behind your brand with your customers. Take a leaf from [Aduna](#), which has built an entire baobab superfood brand around the women-led communities it empowers in Ghana.

4. Trade fairly

If sourcing from outside your base-country, always ensure that your producers are paid a fair price that can support a dignified livelihood. Engaging in sourcing decisions with a shared-value mindset, as exemplified by the FareTrade movement is a responsible approach. Alter Eco, a regenerative cacao and chocolate company has undertaken partnerships with cooperatives in the Peruvian Amazon to support local communities to transition to regenerative practices.

5. Build in traceability

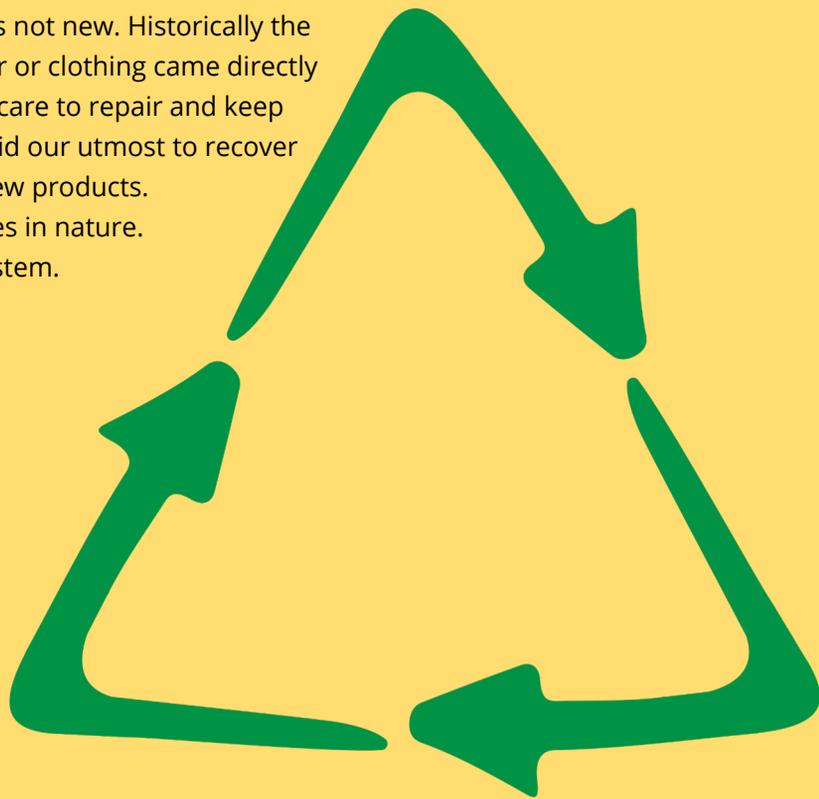
57% of consumers check a label to see the provenance of their groceries. Safety concerns due to the recent COVID outbreak have spotlighted the role of food on health. Today we are seeing a new generation of suppliers and related services supporting businesses to become more transparent. The internet, blockchain, and related technologies are converging to accelerate this trend. One such service provider is [Collectiv Food](#), connecting restaurants with food producers directly, cutting out wholesalers, so food buyers can understand exactly who produced it, where it comes from, and how - and at what temperature -it is stored. The Italian company [Spinosa](#) has introduced a blockchain certification system to authenticate its own Buffalo Mozzarella di Campania as a product of origin, with every cheese properly certified.



CHAPTER 6

ZERO WASTE

The concept of a circular economy is not new. Historically the materials used to build tools, shelter or clothing came directly from nature. Until recently we took care to repair and keep things for as long as possible, and did our utmost to recover and reuse or upcycle materials in new products. Circular systems mirror the life cycles in nature. Nature is the perfect Zero Waste system.



Zero Waste is the conservation of all resources by means of responsible production, consumption, reuse and recovery of all products, packaging, and materials, without burning them, and without discharges to land, water or air that threaten the environment or human health

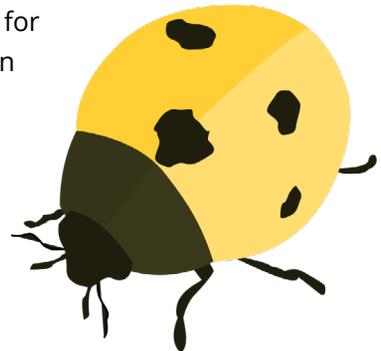
Zero Waste International Alliance (ZWIA)

»» ZERO WASTE IN THE FOOD SECTOR

Wasting food is bad for the environment, and has consequences for our climate. We waste about a third of all food produced for human consumption. Wasting this is a problem in itself, but is especially bad because it has taken loads of fresh water, land and labour to produce. If food waste were a country, it would be the third highest emitter of greenhouse gases in the world. We waste 1.3 gigatons of edible food every year and this releases 3.3 gigatons of CO2 equivalent (not factoring in land use change). Over 10 million tonnes of food are binned each year in the UK alone.

»» ZERO WASTE IS MORE OF A GOAL RATHER THAN A HARD TARGET

Zero Waste involves a whole systems approach that aims for a change in the way we interact with materials, resulting in no waste. Zero Waste involves redesigning products and processes, and systems, to reduce and eliminate waste altogether. This goes much further than just eliminating waste via recycling and reuse. Recognising that eliminating 100% of all waste is challenging, the Zero Waste International Alliance's certification requires a 90% elimination of waste to landfill.



We are here to make goods, not 'bads'

Bill McDonough, Father of the circular economy

» ZERO WASTE GOES FURTHER THAN RECYCLING AND REUSE

Zero Waste is built on a set of principles focused on waste prevention that encourage the redesign of resource life cycles so that all products are reused. The goal is for no trash to be sent to landfills, incinerators or the ocean. In a Zero Waste system, material will be reused until the optimum level of consumption. Zero Waste involves completely redefining the system, writing waste out of existence. The overall goal or strategy is to completely eliminate waste, not to manage it. Zero Waste means replacing disposable, single-use or short-life products with products that are designed to last, be reused, and to be repaired and/or recycled time and time again. Robust circular Zero Waste systems have the following features;

- They prevent waste by rethinking design & business models
- They lengthen a product's life through re-use, repair or remanufacture
- They improve end-of-life processing and resource recovery



By applying these principles to the food sector, the key opportunities lie in eliminating or finding different uses for food waste, and redesigning packaging.

» ZERO WASTE AND PACKAGING

Litter from food packaging poses a threat to marine life and birds. Plastic is by far the worst offender. Most coffee cups and lids, coffee pods, straws, styrofoam containers, plastic bottles and caps, plastic wraps, six-pack holders and plastic grocery bags are designed for single use. Unless these plastics are recycled, they end up in our waterways, where animals mistake them for food or become entangled in them. Currently, 79% of plastic waste is sent to landfills or ends up in the ocean. Only 9% of plastic is actually recycled while 12% gets incinerated. It is estimated that more than 10 million tons of plastic is dumped into our oceans annually, and many predict that there will be more plastic than fish in the ocean by 2050. Every day approximately 8 million pieces of plastic pollution find their way into our oceans. Roughly 5.25 trillion pieces of plastic (macro & micro) are estimated to be in the open ocean resulting in the death of around 100,000 marine mammals, turtles and 1 million seabirds every year. As we embrace a regenerative approach, we must adopt more responsible packaging systems, eliminating waste wherever possible, cutting out single plastics altogether, and choosing biodegradable and compostable options. By embracing a zero waste mindset we can take this even further, and minimize our footprint.

10 STEPS TO ZERO WASTE

1. Get the support of your colleagues

Identify the right people, and collaborate to ensure a successful roll-out. Win over your team, and get the buy-in of senior managers. Depending on the size of your organisation, these may include facilities managers, procurement teams, operations supervisors, and catering and cleaning teams, etc.. Be mindful of the language you use, to get the buy-in you need, your Zero Waste goals should be communicated in ways that inspire your colleagues to action. Do your best to align your narrative with your global vision of meeting targets and maintaining a smooth roll out and update your messaging as you shift gears.

2. Audit your waste

A waste audit will give you a detailed understanding of your waste streams, where it is being generated, how often, how much, where it ends up, and how effectively your waste and recycling programs are working (or not). Guesswork should be avoided as it is a very poor substitute. Analysing the composition and make up of your waste and measuring the volume and weight (food, paper, plastic, metals, etc.) allows you to see where you can intervene to have the greatest impact. As with carbon Net Zero audits, set a baseline year and work from there.

3. Set goals

You will need a coherent waste strategy to tackle the most significant waste streams and maximise your early results. Ensure that your strategy reflects the waste hierarchy, prioritising reduction first, then reuse and recycling. Set yourself targets to help focus your organisation and colleagues on action and empower team members to find solutions. It may be helpful to set modest goals for the short term, testing along the way and exploring what's possible, increasing the level of ambition afterwards.

4. Test and trial

If you operate a larger, more complex operation, you may prefer to launch a trial first in one part of your business, working closely with employees to understand their challenges, if any, and how easily they embrace and adapt to the changes. Host a session with your team to explore possibilities and ideas. Survey your employees. Live trials can inform how best to roll-out new initiatives at scale. Trialling can also provide you with better information about volumes of waste streams and provide useful insights which can be helpful as you plan your solutions and strategies.

5. Look for upstream and downstream opportunities

By studying 'upstream' sources you can identify whether you can reduce the quantity of the original product in quantity, weight and size, or switch to a more durable product. A 'downstream' analysis will reveal opportunities to extract maximum value from your waste.

You may find that you are able to open up a new revenue stream, whilst simultaneously reducing waste, and reducing waste disposal costs. Many companies have found that they can already make a significant dent on their waste strategy by setting up a process to compost food waste and organic materials. That's because organics don't decompose properly in landfills because they aren't properly aerated - 20% of all methane emissions are from landfills. This is why one of the best things you can do for the environment is to compost your food scraps. By composting wasted food and other organics, methane emissions are significantly reduced. Compost reduces and in some cases eliminates the need for chemical fertilizers. Food waste also makes up around 30% of all waste.

6. Design with zero waste in mind

Designing your food products, packaging, and services with Zero Waste in mind - all the way through the production process with the end-user and end of life-cycle in mind - is key.



7. Work with suppliers

Work with suppliers to take-back or redesign products and reduce packaging i.e. from polystyrene to recyclable cardboard. Some companies get crafty: one hotel now asks suppliers to remove pineapple heads before taking delivery. B2B suppliers are responding to green demand: Positive Founding Member [Newcy](#) replaces disposable cups with reusable cups in on-site vending machines, water fountains and cafeterias. Newcy then collects, washes, and returns the cups.

8. Align with networks

Plug into local recycling or environmental business networks. It's important to remember you are part of a wider movement, and others are working to address similar challenges. Drawing on the hard-won insights and experience of others in your area or sector can be very enriching. Getting involved in community initiatives will help you raise awareness and deepen engagement for your in-house recycling and Zero Waste program. This is a strategy that Positive founding member [Ethstat](#) adopts in Croydon, South London in the UK. The ethical stationery company partners with local housing associations and homeless charities to enhance its impact, and support its partners on their Zero Waste journeys e.g. by taking disposable cups out of homeless outreach solutions. There may also be local business networks and social enterprises focusing on specific items such as furniture, equipment or food waste. If your organisation's waste is too small on its own to warrant a waste-to-wealth solution (below), a more viable opportunity could present itself in peer to peer collective actions. Freiburg, where around 70% of coffee shops have clubbed together to tackle the issue of single-use coffee cups, bringing in the [FreiburgCup](#) scheme to encourage the re-use of cups.



9. Create wealth from waste

A new generation of companies is turning its waste into wealth. Businesses are even building brands out of waste, such as [Rubies in the Rubble](#), which makes condiments and chutneys out of food waste. Your trash may be someone else's treasure! This is the philosophy of [Revive-Eco](#) which repurposes spent coffee grounds, diverting this waste from landfill and extracting the natural chemicals for further applications. The chemicals held in the grounds have a wide range of uses including cosmetics, food and drink, pharmaceuticals, cleaning products, and more. Currently, the UK imports high quantities of product ingredients every year, adding more emissions to the environment. By repurposing used grounds, the company is tackling issues of food waste, reducing the carbon footprint of both consumers and organisations, and delivering a more sustainable alternative to traditional products used in many industries. What's more 95 million cups of coffee are consumed in the UK every day!

Positive member [Take a Waste](#) is another good example. They are a waste management consultancy with a healthy sideline in processing rubbish that includes; cans to cups, lightbulbs, cigarette butts, batteries and biowaste. They service distributors, hotels, restaurants and health companies. Similarly, Positive founding member [Vepluche](#) offers a fresh food delivery service working with locally grown food. They collect waste on the return journey back from delivery partners, which they then process into compost and resell to local florists. Other companies such as [Incr-edible](#) and [NapiFeryn BioTech](#) are also transforming waste into exciting new products and even entirely new foodstuffs.



10. Promote a zero waste mindset

Create a Zero Waste culture shift in your workplace. Encourage everyone in the business to rethink the idea of waste. Engage the whole team in finding solutions and alternatives to legacy materials, inputs and systems that can't be recycled or reused. Embrace best practice. Even the very best program can fail without awareness. Engaging stakeholders in your Zero Waste ambitions and program is key. Stakeholders need to know what can be recycled, where to place those materials, and how to avoid contamination and spillage which can recyclables being sent to landfill.

- Encourage employees to opt for circular products
- Involve your whole team in finding innovative ways to reduce waste.
- Create a new policy for suppliers, and work with them to achieve your goals
- Make sure your whole team, and suppliers align with your goals
- Promote your leadership in the Zero Waste arena
- Be transparent, showcase successes and wins with facts and figures, and key targets.
- Nominate 'recycling champions'
- Involve employees in design, communication & implementation of ZW strategies.



CHAPTER 7

TRENDS

Consumer interest in non-meat-based protein options is rapidly increasing—driven by health and environmental and animal welfare concerns - creating burgeoning demand. Swiss bank UBS is bullish: they predict the plant-based alternative protein market will achieve 28% annual growth to reach a US\$85 billion market size by 2030. Yet, there is a lot of room to catch up with meat; the market for alternative protein is approximately \$7 billion compared to approximately \$1.7 trillion for meat.



» ALLERGENS-FREE IS THE SECOND WAVE OF PLANT-BASED FOODS

Over the last decade we have seen a surge in vegan, dairy free, and cruelty-free foods. The second wave will be about both replicating taste and texture and health and nutrition. More and more companies will introduce products and ranges minus ingredients that cause allergic reactions. Brazilian company [The New Butchers](#), which was launched in 2019 produces plant-based salmon, cod, chicken, and beef products. All its products are non-GMO and free of all common allergens including soy and gluten, positioning itself alongside [Beyond Meat](#) as one of the only high-quality plant-based meat brands free of these two common allergens.

» PLANT-BASED AND LAB-GROWN SEAFOOD TAKES OFF

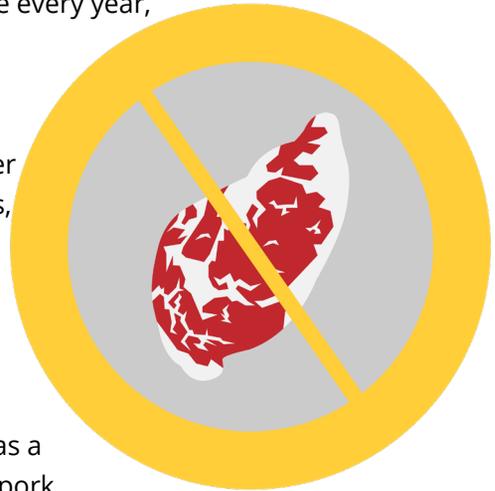
Plant-based seafood is the latest trend faux food to follow the burgeoning faux meat sector. Seafood is hard to veganise well, though we are already seeing companies develop new technologies and market segments to overcome the challenges. The two main challenges involve; the first is the technical challenge of replicating seafood's flaky, fragile texture; and the second involves developing an alternative that delivers the same or greater health benefits of seafood. Fillets have proved trickier than tuna flakes for example. According to Elysabeth Alfano of Plant-based Business Hour, "Plant-based seafood is to 2021 what plant-based burgers were to 2019". Indeed, faux seafood is still a small market. In the US, plant-based seafood makes up only 1% (\$9.5m) of all plant-based sales in 2019 which are growing at a clip but still represent 1% of the meat sector. There's a lot of room to grow.

Leaders in the space include [Ocean Hugger Foods](#), making tuna from tomatoes and unami from aubergine, [Good Catch Food](#) who use a legume blend providing protein and algal oil providing a source of omega-3 fatty acids, The Plant-Based [Seafood Company](#), using the Asian vegetable Konjac, [Save Da Sea](#) making faux salmon from carrots, [New Wave Foods](#), who produce a plant-based shrimp, and Singapore's [Shiok Meats](#) and [BlueNalu](#) who are working on developing lab-grown cellular seafood.



» VEGAN BACON AND PORK ARE NOW A THING

Around 1.4 billion pigs are slaughtered worldwide every year, and the U.S. is the world's third-largest producer and consumer of pork and pork products. After Hurricane Florence in 2018, pig waste lagoons overflowed causing environmental damage. Other incidents have included polluting local waterways, and fertilizer and manure causing air pollution and endangering human health. This makes this market a big target for the alternative meat industry.



Leaders in the sector include [Omnipork](#), which has a distinctly Asian offer, and [Barvecue](#) in the pulled pork segment and [Outstanding Foods](#), with their PigOut pigless meat range, catering to US tastes. Meanwhile, a raft of faux bacon offerings have entered the market including; [Hurray Foods](#), [THIS](#), [VBites](#), [Sgaia Mheat](#), [Vegan Cartel](#), and [Plant Pioneers](#).

» CRACKING THE PLANT-BASED EGG MARKET

Regularly spotlighted for animal welfare concerns, the egg industry has a major impact on the environment. Growing chicken feed takes up a lot of land and water and soil pollution are knock on effects. Yet eggs are still a popular and versatile element in our cuisine, making the race to find a replacement a lucrative opportunity in Europe according to ProVeg International. Today some egg alternatives are getting close to offering almost all of the functionalities of regular eggs, although the perfect faux egg substitute does not yet exist. In the US, the plant-based egg market is already worth \$10 million, growing 228% in the 2017 to 2019 period. Early leaders include [Oggs](#), [Follow Your Heart](#), [Eat Just](#), [Zero Eg](#) and India's [Evo Eggs](#).



» FANTASTIC FUNGI

[Atlast Foods](#) and [Meati](#) have developed a method of creating whole cuts of plant-based meat using fast-growing mycelium. The programmable plant-based meat can then be infused with various flavors, fats, or other proteins similar to the process in [Beyond Meat](#) and [Impossible Foods](#). [Fable Foods](#) is also muscling in. Mycoprotein a protein made from fungal mold is now a \$200m USD industry growing at 12 per cent per annum, with leaders like [Quorn](#), and [3F Bio](#) building on strong foundations.

» THE CHEESE & DAIRY COUNTER

Vegan cheese is already a US\$2.7 billion market, and is expected to double to US\$4.5 billion by 2025 an indication of the robust demand for dairy-free alternatives. Alternative milks, icecreams and other desserts are also booming. [Rerooted](#), [Oatly](#), and [Good Hemp](#) for alternative milks; [Violife](#), [Follow Your Heart](#) and [Field Roast](#) for cheese; [Booja Booja](#) and [So Delicious](#) for dairy-free ice cream goodness.

» FERMENTED FOODS FIZZ

The global pandemic has inspired greater awareness of both shelf life and food waste. As a result, interest in fermented foods and probiotics is rising on the back of two converging trends - the demand for natural food products and foods that deliver added health benefits. Some pundits predict fermented foods are going to be the next big thing.

Check out [Biona](#), [London Fermentary](#), and [Forager Project](#).



» HEALTHY DRINKS

Healthy drinking is taking off with probiotic drinks from kombucha producers like [Brew Dr](#) and [Flying Embers](#). There's plenty of creativity in the space; [Nix & Kik](#) are spicing things up with a low-calorie sparkling drinks with exotic natural flavors and [Three Spirit](#) a non alcoholic faux-spirit infused with rare herbs. Oatly's founder Bjorn Oste, is also backing this trend: his latest company [Good Idea Drinks](#) has been created with diabetics in mind. Positive member [the Naked Collective](#) has launched with a range of health drinks that are also kind to the planet.



» CARBON FOOTPRINTING IS HERE

As consumers become more discerning, a number of food brands are brandishing their carbon credentials. Brands are labelling the amount of carbon emissions their product is responsible for producing from farm to store. Meat-free brand Quorn was the first large company to do so, sharing that its carbon footprint labeling could inspire others to put their environmentally-friendly efforts front and center for consumers. Oatly, Just Salad and others have joined the fray. Plant-based foods have the most to gain from this shift towards greater transparency.



» PET FOOD JOINS THE PARTY

New pet foods are coming to meet a rising demand for plant-based and more sustainable alternatives to conventional pet foods, a market worth an estimated US\$94 billion worldwide. Pet food has a giant environmental footprint and accounts for one quarter of meat production. New pet food brands are making products from fermented fungus and experimenting with lab-grown food from animal cells and microbes, just like Impossible Foods and Quorn.

New brands to watch out for include plant-based [Veggie Pets](#), [Because Animals](#) made from cultured meat and [Bug Bakes](#), made of insects.

USEFUL LINKS & RESOURCES

› Carbon Footprinting

<https://www.carbontrust.com/resources/sme-carbon-footprint-calculator>

<https://www.carbonfootprint.com/businesscarboncalculator.html>

› Zero Waste

<https://zerowasteurope.eu/>

<https://www.zerowaste.com/>

› Good Packaging

<https://www.londonbiopackaging.com/product-category/portapromo/>

<https://www.eco-craft.co.uk/packaging.html>

<https://www.vegware.com/uk/>

› Regenerative Agriculture

<http://www.terra-genesis.com/>

<https://kisstheground.com/impact/>

› Organic

<https://www.soilassociation.org>

<https://ofgorganic.org/about>

› Think Tank for Food

<https://foodtank.com>

› Food Traceability

<https://www.softwaresuggest.com/food-traceability-software>

› Health & Nutrition

<https://www.healthline.com/>

<https://www.nutrition.org.uk/>

› Vegan

<https://www.vegansociety.com/>

<https://viva.org.uk/>

› Food News

<https://www.foodnavigator.com/>

<https://plantbasednews.org/>

› Food Tech

<https://forwardfooding.com/>





Positive

THE POSITIVE IMPACT COMMUNITY

www.makeapositiveimpact.co

@PositiveRegen