



The Origin Green
Ambassadors Global
Insights Reports 2021

SUSTAINABLE DIETS: A KEY TO FOOD SYSTEM TRANSFORMATION

Jude Bredin &
Róisín Murphy

BORD BIA
IRISH FOOD BOARD





Origin Green Ambassador Programme

Never has sustainability been so top of mind and globally important, and it is this convergence that has opened some important discussions among the global food industry. Bord Bia's Origin Green Ambassador programme is designed to open and facilitate these conversations and the role of Irish sustainability initiatives in export markets.

Created in 2013 with the Michael Smurfit Graduate Business School, this programme has at its heart two interlinked pillars: one focused on education in the sphere of Business Sustainability, and the other on partnership with major international food companies. The format of this 23 month programme towards an MSc in Business Sustainability ensures that high quality executives are placed in many of the leading Global Food & Drink companies, honing their skills while engaging on live sustainability projects. Working to embed sustainability best practices, strategic planning, refine policies and bring new thinking to their placements.

The Ambassadors are the connection between Ireland's Origin Green programme and its associated partner organisations who are world leaders in the global food industry. Over two years, modules focus on accelerating growth, sharpening business strategies, and anticipating change in an ever transient global economy. In partnering with major international food firms, these ambassadors can then build on an awareness of established Irish initiatives across key target markets.

In this series of global insights reports, the Ambassadors bring you their insights on some of the most pressing sustainability issues and opportunities facing our industry.



Jude Bredin

Jude's first placement was with Sodexo in London where he managed their food waste prevention programme rollout and introduced a new food waste app. He also worked with the WWF as a partner to implement a sustainable diets project across university campuses. He spent his last 2 placements with Mars in the UK as a Sustainable Sourcing Specialist, managing the execution of the dairy sustainable sourcing strategy with key suppliers. Jude also managed the coordination of internal stakeholders in a global GHG data collection project.

www.bordbia.info/ucd-2021



Róisín Murphy

Róisín's first placement was with Nestlé in Switzerland as a Sustainability Analyst where she developed a strategic global roadmap for net zero dairy and a calculation model to predict cost/payback for on-farm carbon reduction interventions. Her second placement was with the Hilton Food Group in the UK as a Sustainability Specialist, working on decarbonisation roadmaps for beef suppliers and communication framework on the role of animal proteins in sustainable diets. Róisín's final placement was with Tesco UK as a Responsible Sourcing Specialist defining a sourcing strategy for 'better' meat and dairy.

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Introduction

Sustainable diets are a key lever in transforming our food system toward one that ensures nutritious affordable food, restores and protects nature, and is beneficial for human and planetary health now and into the future. The need for this transition is urgent as we look to feed a growing global population within the limits of our planetary resources¹. It is predicted that 70% more food will be needed to meet demand²; accessibility and affordability will be key considerations, as most growth will be in developing countries.

The negative impacts of our current food production systems are well documented.³ Food systems account for 30% of all Green House Gas (GHG) emissions and are the number one driver of biodiversity loss, according to a 2021 Chatham House report.⁴ Despite currently producing more food than ever, the number of hungry and malnourished people in the world continues to grow and at the same time, global obesity levels continue to rise⁵ – so malnourishment at both ends of the spectrum is a burgeoning problem.

The transition to sustainable diets presents many challenges for food companies but it also provides a platform of value-generating opportunities to improve the health of both consumers and the planet while creating new value across the supply chain. Sustainable foods systems are predicted to generate trillions of dollars, through the development of more resourceful supply chains with reduced inefficiencies.⁶



In this report, we will provide an overview of industry and policy action that is underpinning the shift to sustainable diets. We will focus on three key areas that Irish companies can leverage to assess and understand their opportunities within this evolution; balancing human and planetary health, the expansion of the protein menu and the critical role of consumer engagement.

¹ Planetary Boundaries, <https://www.stockholmresilience.org/research/planetary-boundaries.html>

² http://www.fao.org/fileadmin/templates/wsfs/docs/Issues_papers/HLEF2050_Investment.pdf

³ Environmental impacts of food production, <https://ourworldindata.org/environmental-impacts-of-food>

⁴ <https://www.chathamhouse.org/2021/02/food-system-impacts-biodiversity-loss>

⁵ <https://globalnutritionreport.org/reports/2020-global-nutrition-report/>

⁶ Actions to transform food systems under climate change. <https://ccafs.cgiar.org/resources/publications/actions-transform-food-systems-under-climate-change>

Challenges to the transition to Sustainable Diets

Exactly what do we mean by the term ‘sustainable diet’? The UN Food & Agriculture Organization (FAO) defines it as: “Sustainable Diets are those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimising natural and human resources.”⁷

Within a sustainable diet, we must balance numerous variables and dimensions of diet, which may not be compatible, to achieve nutritional adequacy, economic affordability and cultural acceptance while ensuring all systems respect the environment and ecosystems.⁸ Currently, there is limited advice on how to select parameters or use the available data in models that will result in the most sustainable dietary advice across all dimensions.

To date, the focus has been on reducing the environmental impacts in food production. Increasingly, policy now puts an emphasis on sustainable consumption as a key pillar in transitioning to sustainable food systems. The UN Food Systems Summit 2021⁹ highlighted this shift as a key action track and the EU Farm to Fork Strategy¹⁰ has also highlighted sustainable food consumption as a strategic pillar. The EU ambition is to make the EU food system a global standard for sustainability.



⁷ FAO, 2010, Sustainable Diets and Biodiversity Directions and solutions for policy, research and action. <http://www.fao.org/3/i3004e/i3004e00.htm>

⁸ Mathematical Optimization to Explore Tomorrow’s Sustainable Diets: A Narrative Review *Adv. Nutr.*, 9 (2018), pp. 602-616 Accessed at:

⁹ United Nations, 2021 Action Tacks, <https://www.un.org/en/food-systems-summit/action-tracks>,

¹⁰ EU Farm to Fork Strategy https://ec.europa.eu/food/farm2fork_en,

A key recommendation for a more sustainable diet is one that contains less animal-sourced foods and more plant-based foods, conferring both environmental and human health benefits.^{11 12 13 14} According to a recent study from Oxford University, while the carbon footprint of animal-based foods differ depending on the production system, in almost all cases, the environmental impact of plant-based foods is less than the lowest-scoring animal production system.¹⁵

A key challenge to the reduction of animal products is the cultural and nutritional significance it has in diets globally, as well as the economic importance of animal farming in rural communities. The replacement of animal proteins with alternative proteins will result in a significant decrease in carbon emissions in diets. Achieving the recommended level of reduction, as advised by the EAT Lancet Report, is challenging, particularly as this relies on changing consumer purchasing behaviour. Consumers are using their diet to reflect their lifestyle choices and values. A recent IGD report¹⁶ indicated that while 66% of consumers say they are making changes to make their diets healthier, there is clearly confusion about what this means, with consumers tending to overestimate how balanced their diet is.

The Planetary Health Plate

#foodconfixit #EATLancet



EAT

11 Eating for 2 degrees. New and updated Livewell Plates. Summary report, revised edition. Available: <https://www.wwf.org.uk/what-we-do/livewell>

12 Chatham House, 2021, <https://www.chathamhouse.org/2021/02/food-system-impacts-biodiversity-loss>

13 The EAT-Lancet Commission. Can we feed a future population of 10 billion people a healthy diet within planetary boundaries? <https://eatforum.org/eat-lancetcommission/>

14 Committee on Climate Change, 2019. Net Zero. The UK's contribution to stopping global warming. Available: <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/>

15 Reducing food's environmental impacts through producers and consumers, Science (2018), <https://science.sciencemag.org/content/360/6392/987>,

16 IDG, 2021, Appetite for Change

There is also recognition that the reduction of animal-sourced foods should not come at the expense of human health, particularly in low income countries where lack of dietary diversity increases the importance of nutrient-rich animal foods as a source of protein and micronutrients.

It is also worth noting that studies investigating the carbon footprint of different dietary patterns, as opposed to studies comparing the carbon footprints of individual foods, have conflicting results on which consumption patterns yield the lowest overall carbon footprint. An Irish study, (Hyland et al. 2017), concluded that a culturally sustainable diet which included daily intakes of animal products and low intakes of processed foods had a lower carbon footprint than a diet that was considered nutritionally sustainable, i.e. 'flexitarian' style diet.¹⁷

Similarly, an Australian study found that diets with less processed foods have lower carbon footprints.¹⁸ The 2017 Global Burden of Disease study also found that diets high in sodium and processed foods and low in grains and vegetables, were the main causes of diet-related disease and illness.¹⁹

Therefore, to understand the impacts of dietary changes, there is a need to consider what trade-offs are necessary to create a balance between diets that support human health and the environmental impacts of those diets. In 2018, there were only eight²⁰ countries worldwide with national dietary guidelines reflecting both the environmental and health implications of food. This lack of regulatory guidance increases the challenges for companies in defining where their products fit in a sustainable diet.

Economic growth is associated with increased consumption levels of animal products, so considering where population growth is occurring globally, there is an intensified need to develop production systems with reduced environmental impacts. The narrative used to describe sustainable diets is constantly evolving, the WWF are advocating a **Planet Based Diet Approach**²¹ while retailers such as Tesco are using the lens of **Less and Better**.

¹⁷ The climatic impact of food consumption in a representative sample of Irish adults and implications for food and nutrition policy. Available: <http://dx.doi.org/ucd.idm.oclc.org/10.1017/S1368980016002573>

¹⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3916862/>

¹⁹ Measuring global health: motivation and evolution of the Global Burden of Disease Study. The Lancet, 390(2017), 1460-1464. <https://pubmed.ncbi.nlm.nih.gov/28919120/>

²⁰ Sustainable and Healthy Diets: Reviewing existing dietary guidelines and identifying gaps for future action <https://www.wbcsd.org/Programs/Food-and-Nature/Food-Land-Use/FReSH/Resources/Sustainable-and-Healthy-Diets>

²¹ <https://planetbaseddiets.panda.org/>

How industry is embracing the transition to Sustainable Diets

Governments play a key role in facilitating the transition towards more sustainable diets. It is critical that policy and regulation create a balance between demand for more sustainable food and the ability of producers to adapt their systems to provide this. Investment in a just transition means that the technology, infrastructure, knowledge, skills and wellbeing of all those in the food value chain are considered, (Henderson, 2020).²² At a global level, governments must announce clear recommendations and national dietary guidelines, which consider both health and environmental impacts of food.



NGOs are playing a leading role in generating pre-competitive science and roadmaps that companies can use to navigate this transition. At the end of 2020, the World Business Council for Sustainable Development (**WBCSD**) launched the Food and Agriculture Roadmap – Chapter on healthy and sustainable diets,²³ which lays out transformational targets, key action areas, and solutions urgently required to transform food systems to achieve environmental sustainability, equitable livelihoods, and healthy and sustainable diets for all. **The Eating Better Alliance**²⁴ brings together 60 civil society organisations to develop and accelerate action for less and better meat and dairy for health, environment, animal welfare and social justice.

Both academia and industry have acknowledged the need for radical reduction in the environmental impacts of food production. Research assessing the practical implications of system change and focusing on the development of better systems, as well as novel proteins and alternative foods are emerging from leading academic institutes such as Oxford University; Wageningen University, Teagasc and Meat Technology Ireland.

²² Reimagining Capitalism in a World on Fire, Henderson Rebecca, New York

²³ <https://www.wbcsd.org/Programs/Food-and-Nature/Food-Land-Use/FReSH/Resources/Food-Agriculture-Roadmap-Chapter-on-Healthy-and-Sustainable-Diets>

²⁴ <https://www.eating-better.org/>

Food companies are expanding their traditional offerings to cater for consumer demand for products they perceive as healthier for both them and the environment. Partnerships are key to this expansion and we see cross-industry collaborations and technology driving innovation.

Their response to delivering more sustainable diet options can be summarized in two points:

1. Developing alternative protein options to replace traditional animal-based foods.
2. Developing supply chains that produce animal proteins with enhanced nutrient density and reduced environmental impacts.

Leading global food companies have made public commitments to reduce their carbon and environmental emissions dramatically over the next 30 years. Plant-based proteins offer an opportunity to help build more sustainable food systems and importantly are an exciting growth opportunity to meet consumer demands for foods with lower environmental impacts. The alternative protein market offers huge opportunity for growth – in 2021 Unilever forecast €1 Billion in sales from plant-based meat & dairy alternatives by 2027.



Global food corporations are responding to the sustainable diets challenge by aligning their future strategic growth plans with plant-based and alternative protein solutions. **Kerry Group** is developing solutions for their customers to optimise the sensory experience of plant-based and alternative proteins to equal real meat in terms of nutrition, taste, colour, and value.²⁵

The increased association by consumers with non-animal foods as being healthier has led food companies, with traditional animal-based offerings, to develop alternative menu options to allow consumers to choose. In February 2021, **Beyond Meat** and **McDonald's** signed a 3-year global strategic partnership that will see further development of their plant-based menu options; McPlant. It is clear from this development that the world's largest beef burger restaurant chain recognises the growing trend for meat-free alternatives. Under the agreement, Beyond Meat and McDonald's will also explore co-developing options such as plant-based chicken, pork, and eggs for the McPlant range. At the same time, **YUM Brands** announced a similar agreement, looking at innovative new menu choices such as plant-based pizza toppings, chicken alternatives and taco fillings, for its collection of brand restaurants including KFC, Pizza Hut & Taco Bell.

²⁵ <https://www.kerrygroup.com/investors/investor-centre/agm/Kerry-Group-Annual-Report-2020.pdf>

Advanced technologies are enabling the development of cell-grown meats, fermented proteins and even 3D printed animal proteins,²⁶ demonstrating an ability to produce animal foods without animals. While these protein alternatives are currently still out of reach based on cost, they could play an important role in sustainable food systems within the next ten years and are particularly attractive options for countries who have low food security.

Perfect Day Ice-Cream, a company founded in Cork, has developed a product identical to dairy protein in taste, texture and nutritional value.²⁷ The lab-grown product uses plant yeast and fermentation process to create a protein genetically identical to dairy protein. This ingredient can now be used to replace the traditional dairy protein that goes into making ice-cream and the Perfect Day sales pitch is that you no longer need the cow, or the associated emissions. This is very different from the current milk alternatives and substitutes on the market.

Using fermentation to create dairy protein

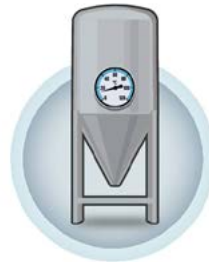
The Emeryville company Perfect Day employs fermentation to make dairy proteins without using cows. This week the company is releasing its first product, an animal-free ice cream.



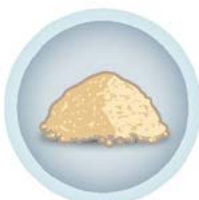
1 Perfect Day starts with microflora, specifically a type of fungi.



2 The microflora is given a blueprint through biotechnology.



3 This blueprint allows the microflora to ferment sugar and create whey and casein.



4 This process results in dairy protein.



5 The proteins are mixed with water and plant fat to make milk.



6 They can use the milk to make dairy products such as ice cream.

²⁶ <https://www.redefinemeat.com/>

²⁷ <https://www.foodnavigator.com/Article/2021/01/28/Perfect-Day-gives-its-dairy-aisle-predictions-for-2030#>

Retailers are responding to the consumer and NGO demands for more sustainable diets with public commitments to increase sales of plant-based products. In 2020, **Tesco UK** set a sales target to increase sales of plant-based alternatives by 300%²⁸; **Albert Heijn** also committed to doubling their plant-based offering.²⁹ Social media and mobile apps are increasingly being used by consumer-facing brands and companies to engage consumers and demonstrate their own commitments to meeting the demand for more sustainable food. **Tesco** have a target to create a “Sustainable Shopping Basket,” in conjunction with the **WWF**, which would provide metrics on the environmental impacts of products across 20 different categories, including consumer favourites such as burgers, sausages and ready meals. A key metric to the success of the project will be ensuring that products remain affordable for the end consumer. As a first step, in January 2021 Tesco published a report, co-authored with the British Dietetic Association, outlining how consumers should adapt their diets for improved health and a lower environmental impact.³⁰

Retailers are entering partnerships with environmental organisations to accelerate their journey, through knowledge sharing and practical research to develop more sustainable food production. For example, **Sainsburys** are working with the Rivers Trust to improve water quality and **Sodexo**, the global food service company, have partnered with the WWF to reduce their environment impact while offering end consumers sustainable food choices. Their “Low-Carbon” menu offerings seek to increase the number of sustainable proteins it offers as well as increasing access to plant-based food options. Education, raising awareness and point-of-sale information are used to encourage consumer choice. They have set a global target that 30% of all meals sold will be plant-based by 2025.

²⁸ <https://www.tescopl.com/news/2020/tesco-commits-to-300-sales-increase-in-meat-alternatives/>

²⁹ <https://vegconomist.com/food-and-beverage/dutch-supermarket-chain-albert-heijn-doubles-its-vegan-offerings-in-an-effort-to-meet-demand-in-the-netherlands/>

³⁰ Tesco, 2021 A balanced Diet for a Better Future <https://www.tescopl.com/media/756844/a-balanced-diet-for-a-better-future.pdf>

³¹ https://wwfint.awsassets.panda.org/downloads/wwf_position_on_healthy_and_sustainable_diets.pdf

Partnerships and advanced technology are driving the development of better supply chains to produce animal proteins with enhanced nutrient density and low environmental impacts. While the progress on environmentally friendly production systems are well documented, there is also increasing research in how to naturally improve the nutrient content of animal foods. For example, **Meat Technology Ireland** is examining if the addition of Vitamin D to animal feed would increase the nutrient content of that vitamin in the final meat or dairy product in the human diet.³² **Devenish Nutrition** are also exploring the supplementation of chicken feed with omega 3 to achieve poultry and eggs with higher omega 3 content – this would result in increased human population intakes of omega 3, which is needed.³³

Consumer engagement is critical in the transition to sustainable diets and is important to recognise the reliance on changing current consumer purchasing behaviours³⁴ and consumption habits. Encouraging consumers to choose more sustainable foods is a challenge that many companies are facing. The **World Resource Institute** are supporting businesses by making sustainable menu options more appealing to consumers. Changing how dishes are described on a menu can increase sales, and research shows that labelling dishes vegan or vegetarian is off-putting for a lot of consumers. Point of sale language and labelling really can influence consumer behaviour and purchasing decisions.

A good example of creating demand through consumer engagement is **Carrefour**³⁵, the French supermarket, who wanted to source sustainably-produced avocados, which would ultimately be more expensive to consumers. To communicate why these avocados, despite the increased price, were a better choice for consumers, Carrefour looked to engage with them on the process of creating demand for this product. The product development team worked with consumer input to design a new guacamole recipe, using the sustainably-produced avocados. With consumers on board as to the true value of the product, including visibility on the trade-off of price, the company saw a six-fold increase in sales.

³² Kevin D Cashman, Siobhan M O’Sullivan, Karen Galvin, Michelle Ryan, Contribution of Vitamin D2 and D3 and Their Respective 25-Hydroxy Metabolites to the Total Vitamin D Content of Beef and Lamb, Current Developments in Nutrition, Volume 4, Issue 7, July 2020, nzaa112, <https://doi.org/10.1093/cdn/nzaa112>

³³ <https://us.devenishnutrition.com/press-releases/150/worlds-first-naturally-enriched-omega-3-chicken-and-eggs-with-proven-health-claims>

³⁴ <https://www.wri.org/blog/2019/02/qa-how-cuban-name-change-boosted-paneras-soup-sales>

³⁵ https://www.carrefour.com/sites/default/files/2020-07/Carrefour_RA2019_EN_280520.pdf

Recommendations

The transition to sustainable diets is well underway and being able to communicate how your products contribute to a sustainable diet, from both a health and environmental perspective, will be essential. Companies could consider the following elements;

Communication and engagement: Companies need to be talking about how / why their products contribute to a healthy diet from a human health and environmental perspective. Global demand for animal protein is growing. There is a need to demonstrate how Ireland is the best place to produce these products, based on natural resources, in comparison to other geographical locations. Utilising our available data to provide proof points in B2B communication, and in engaging consumers, will be beneficial, particularly as modifying consumer behaviours is a key challenge in the transition to sustainable diets.

Focus on reducing food emissions from production and consumption: Understandably, nutritionally dense animal proteins have a place in a sustainable diet, but they need to be sourced from low carbon, regenerative production systems. Understanding the trade-offs between nutrient density of foods and their environmental impacts is key to understanding how they fit into a sustainable diet. With retailer focus on engagement and delivering foods that are better for health and the environment, understanding the true value of your product will be key.

Embracing innovative thinking and technology: Across the value chain, technology is a key enabler in both the transition to more sustainable production practices and the development of completely new and novel products. Technology and social media are bridging the knowledge gap between producers and consumers, with apps providing excellent touch points to build consumer understanding and empower them to use their food choices to eat more sustainably. Collaborative thinking around new product development and understanding how the technologies such as fermentation and nutrient management can be utilised to improve your own supply chain and product offerings will be important strands.

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