



PLANTING VALUE **IN THE** FOOD SYSTEM

Part 2: The Research

Exploring ideas for policies, principles and legislation that can lead towards a sustainable plant-based food system



This report presents **our vision** for a vegan food system, how this intersects with other issues relating to health, environment, economy, and cultural values, and how we can get there.

Acknowledgments

We thank all those who offered their time and expertise to be participants in this research, and for all the information and further contacts they provided. They have helped us formulate what we believe is the urgent yet pragmatic agenda we need to build a fair and sustainable food system. We also wish to thank Dr Alex Lockwood of Sunderland University, a member of our Research Advisory Committee who conducted the interviews and synthesis of existing research, and is the lead author of this report. The Vegan Society policy team also contributed to the report: Louise Davies, Amanda Baker, Tim Thorpe, Sabrina Ahmed and Louisiana Waring.

People and organisations we spoke to

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Simon Billing, Eating Better
Helen Chesshire, The Woodland Trust
Dr Christian Reynolds, City University
Alexandra Clark, food policy strategist
Dan Crossley, Food Ethics Council
Zoe Davies, Wildlife and Countryside Link
Ivan De Klee, conservationist / Knepp Estate
Andy Eaton, farmer
Tom Embury, British Dietetic Association
George Gill, The Vegan Society
Tom Gill, Promar International
Sarah Gould, Tyfu Cymru
Vicki Hird, Sustain
Menna Jones, The Vegan Society
Professor Tim Lang, City University
Martin Lines, farmer / Nature Friendly Farming Network
Humphrey Lloyd, Land Workers Alliance / farmer
Josiah Meldrum, Hodmedods
Bruce Pearce, Organic Research Network
Rob Percival, Soil Association
Dr Christian Reynolds, City University
Sarah Shuffell, farmer / XR Farmers
Tim Strang, farmer
Isabella Tree, Knepp Estate / rewilding/ conservationist
Peter Tyldesley, Centre for Alternative Technology.
Daniel Vennard, Better Buying Lab
Roger Vickers, Processors and Growers Research Organisation
George Young, farmer
Richard Young, Sustainable Food Trust / farmer

What we did

We conducted thirty semi-structured interviews with farmers, food producers, leading food policy experts, health professionals, land use and sustainability consultants, over a period of nine months, to explore their understanding of what is needed to improve the security, sovereignty and sustainability of the UK food system. In supplement, we also analysed over forty major food, farming and policy reports released in 2020, including the *National Food Strategy: Part 1* and *Food in The Anthropocene: the EAT-Lancet Commission on Healthy Diets From Sustainable Food Systems*. This was in addition to a thorough synthesis of the literature, including a further fifty academic books and published journal papers, as well as consultation with colleagues and trustees within The Vegan Society regarding proposals and concepts for a fairer UK food system. This work is then embedded in the context of ongoing global food systems and farming transformation processes.

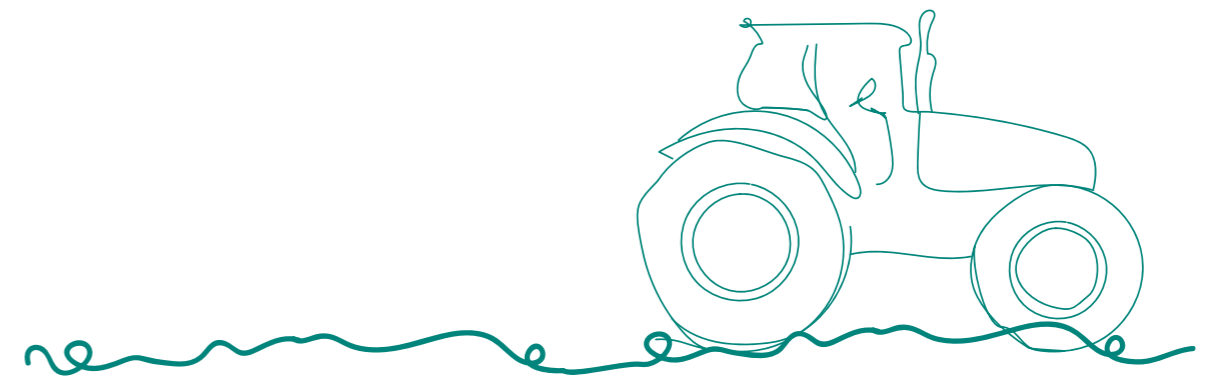
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Introduction

We commissioned this research to help us discover the urgent issues facing the UK food system landscape and potential solutions to those issues. Conducting dozens of interviews and a synthesis of the most up-to-date and in-depth food systems research (at the time of writing), this research explores those ideas in the context of building a fair and sustainable food system.

Our vision is for an equitable plant-based food system. We wanted to invest in understanding the policies and mechanisms most likely to bring that vision to fruition. So, we set out to explore what a holistic approach to the UK food system would look like, to help us formulate and present a realistic and achievable plan in the next phase of our policy programme.

We have used the findings to help shape our legislative agenda as it is laid out in the report *Part One: Our Vision*. We publish this research alongside that report for the purposes of transparency, and as a thanks to the many interviewees whose ideas and experiences are captured here and helped challenge and advance our thinking.

The findings of this research show that there is a great deal of common ground across the UK food, farming and policy communities for what we need our future food system to look like, as well as pathways to get there. The foundation of this common ground is a multi-criteria approach to food systems thinking, which addresses multiple considerations around human health, sustainability, affordability and social justice issues and our relationship with non-human animals. This is the approach taken by most policy experts and Government departments, including Defra, and is the approach that we adopt going forward. This

aligns our policy work with the majority of experts and organisations in the UK food policy sphere, shifting us together towards a food system that is fair, compassionate and sustainable for everyone.

This research has helped us make an even stronger case for the shift from animal-based agriculture to plant-based agriculture. Stronger, because it is based not only in the ethical imperative to free animals from the food system, but also in the understanding that a plant-based food system is overall a more beneficial and fairer way forward for the UK. This research contributes to our ambition of being recognised as an innovative organisation in the global vegan movement and as leaders in providing solutions and policy to support the transition to plant-based agriculture. It also means that our legislative agenda is building towards a specific, just, vegan food system grounded in multiple-criteria and systems-oriented thinking.



Summary of Research Findings

Our aim in conducting this research was to explore ideas for policies and implementing mechanisms that could play a role in helping move us towards a more sustainable food system in a fair, practical manner. For The Vegan Society, no food or farming system can be fair or sustainable unless it takes the flourishing of all beings into account, humans and other animals. However, our approach here has been pragmatic. We set out to engage with those working in farming and food policy to explore ideas in the context of the current, animal-based food system, even while our ethical ambition is to work towards a fully plant-based system.

We conducted interviews with figures from across the food, farming, production and research communities so as to gather the most pressing ideas and likely solutions to the challenges that our UK food system must overcome. These ideas were offered during qualitative research with our interviewees. We then explored support for those ideas in a wide range of data, research-led and academic publications, and modelling engaged in examining the current and future food systems. In **Parts 2 and 3** we go further into the context in which these ideas meet the challenges and opportunities facing our food system, the process of gathering the research, and look at each of the ideas in more detail.

After data collection, we categorised our findings for potential policies and mechanisms according to four criteria.¹ This helped us organise our findings into coherent categories for how we can bring about effective, sustainable change to return value to the food system. Before presenting these ideas, it makes sense to explain in more detail why we have adopted this multi-criteria approach to food systems policy as a framework for categorising the findings of this research.

A Multi-Criteria Approach to Food Systems Policy

Food policy is a shared responsibility between all people, including farmers, food producers, concerned organisations and governments. Conducting this research, we employed the definition of food policy as “all the policies which influence the food system and what people eat”¹ and views food policy as naturally complex. Indeed, as Josiah Meldrum, co-founder of Hodmedod (who work with British farmers to source less well-known high-quality grains and pulses for our food system) told us, “What we ask for is diversity in policy formulation. We know the food system is complex, so we have to err towards the most complex policy approach that we can. Systems thinking is important.”

A systems-oriented approach to food policy “requires examining how connected and coherent a government’s policies are” and “how policy-making processes operate, including the bodies which are involved and how well they work with one another.”² Most food policy practitioners advocate a multi-criteria, systems-led approach to food policy, and indeed this has been part of Defra thinking and planning for many years now.³ “A multi-criteria food world is emerging where environmental, health, social and quality factors need to sit alongside price and not be subsumed by it,”⁴ writes Professor Tim Lang. As Dan Crossley, Director of the Food Ethics Council, shared with us, food policy is dynamic and should respond to where energy for change is found, with its constituent parts not developed in isolation but factored together when forging any new policy, mechanism or legislation.

We have chosen to present the policy ideas and mechanisms that emerged in our research using a sustainable food system model based on this multi-criteria measurement approach. We took as our starting point four of the six areas for assessment as laid out by food policy experts Mason and Lang.⁵ This model applies analyses of **economics**, **health**, **social values**, and **environment** to the food system. (It also works towards improved **governance** and **quality** in the food system to meet national targets. However, while we consider questions of governance and quality as vital to food system sustainability, they were beyond the remit of this specific project.)

This aligns our policy vision process with those

put forward in the interim *National Food Strategy: Part 1* report released in July 2020, the “Great Food Transformation” presented in the Eat-Lancet Commission’s *Food in The Anthropocene* report, the RSA’s Food, Farming and Countryside Commission report *Our Common Ground* and the UN’s One Health agenda, as well as the UK Government’s own analysis of the importance of joined up policy across different departments and policy making bodies. Our approach was also grounded within larger frameworks, such as the Planetary Boundaries limits, the Paris Climate Agreement and the Sustainable Development Goals, to ensure our policies are credible and actionable for our global commitments.

With our approach explained, here then is a summary of the main policy ideas and mechanisms which emerged during the research process, and from interviews with food system stakeholders. These ideas are explored in more detail later in the report, together they illustrate what a coherent multi-criteria approach to food policy would look like.

The Four Criteria in our ‘Multi-Criteria Approach’ Ideas for Policy and Practice

1 Health

- New UK dietary guidelines that are just and sustainable and which move us towards plant-based consumption and production.
- Restrictions on food advertising.
- Reprogramme consumer spaces for health, legislating for people-led development and the growing plant-based food market.
- Improve people’s access to nutritiously balanced plant-based food by ensuring at least one such option as standard on every public sector menu.

2 Economy and Just Work

- Guaranteed doubling of GVA^a for land managers over two years to farm production

^a GVA is Gross Value Added for a business or region. In this case, GVA is a measure of the value of farm outputs, less all the costs involved in farm production.

- through shortening supply chains and investing in farm-to-consumer links & technologies.
- New guidelines for plant-based public procurement.
- Mechanisms to improve farmer- consumer links for British plant and legume crops.
- Strengthen competition policy to increase the return on food going to farmers, small and medium sized enterprise (SME) producers, co-ops and collectives.
- Strengthen workers' rights and legislate to secure the value of farm labour work especially in horticulture.
- Redirect innovation funding in the food & drink sector towards plant-based businesses.

3 Climate Change and Ecosystems

- Provide clear metrics and binding enforcement relating to food value for defined public goods as laid out by Environmental Land Management schemes (ELMs) in the Agriculture Act (2020).
- Set ambitious targets for meat reduction, leading to elimination.
- A Nitrogen Tax to help farmers get off the fertiliser treadmill and support improvements in crop and soil management for fertility building.
- Investment in crop research and development to enable greater adoption of nitrogen fixing legumes in arable rotations.
- Planning law changes to help farmers develop their land into secure enterprises.
- Scale up and invest in horticulture through a range of mechanisms including loans and new entrant schemes.

4 Social and Cultural Values

- Rewrite the story of our relationships with other animals and the land by enshrining a philosophy of a 'right to food with fairness' into the Bill, similar to Scotland's Land Reform Act (2016) 'right to buy'.
- A public education programme to help facilitate a realistic view of the value of food and farming today.
- Democratise research through investment, on-farm led projects and digital technologies.
- A National Nature Service to grow skills and labour in developing nature protection schemes.

- Food 'citizenship' development through people's assembly projects.
- A Food Value Programme that would ensure fair access to food for all those on low incomes.

These ideas had extensive support from those working in the food and farming sectors, considered as having valuable potential for bringing about practical and necessary change. Just as importantly, there was universal agreement of the method of approaching food system change through systems thinking, with policies and mechanisms measured against multiple criteria rather than through a single-issue lens. Conducting this research has helped us understand that our vision for a plant-based food system has to be healthful for everyone and its implementation cannot be measured against ethical criteria alone. That is, for a plant-based food system to replace the current animal-based system, it must also improve human health, working conditions, social justice, environmental and biodiversity health, and overall sustainability. Luckily for us, the evidence suggests it can, and will!

Many of the policy ideas discussed in this research fall outside of the scope of The Vegan Society's advocacy work and so these are not detailed in the legislative proposals we present in *Part One: Our Vision*. Instead, our legislative proposals acknowledge the need for this multi-criteria approach to food policy, and the ideas contained within this research offer an insight into how our vision for the food system could be further detailed and elaborated in collaboration with other food system actors.

With that in mind, the rest of this publication is arranged as follows:

In **Part 1: Reprogramming the Food System**, we outline the current state of the UK's food system, and existing data and literature measured against the multiple criteria outlined above. We also introduce our synthesis of the data for what impacts a plant-based or fully vegan food system would have against those criteria.

In **Part 2: Voices of the Food and Farming Community**, we report the qualitative findings from our thirty semi-structured interviews, communicating the narrative of change that emerged in those conversations, illuminating what works and what is in the way, as well as what our farmers and food system needs to be secure, sovereign and sustainable.

In **Part 3: Solutions for a Fairer Food System Through a Multi-Criteria Lens**, we revisit the

context shaping these ideas and present the research in more detail, outlining the potential ways in which our participants saw those ideas to be beneficial and operational.

In **Part 4: A Charter for Change?**, we offer our

Who Will This Research Benefit?

This research has helped us formulate our legislative agenda and informed our future research needs. We hope it can also help those responsible for food policy delivery and management. These accountabilities lie with the state and several key Government departments are responsible for different areas in developing a programme of targets, mechanisms and legislation to ensure the UK is fed. The Centre for Food Policy at City University has identified at least 16 bodies or departments within government responsible for some aspect of food policy.⁶ We believe this research is helpful for six groups of stakeholders, outlined below, drawing again upon a multi-criteria approach to food policy.

The Department for Environment, Food and Rural Affairs (Defra), and comparative Departments in the devolved nations

Policy makers at Defra are responsible for "safeguarding our natural environment, supporting our world-leading food and farming industry, and sustaining a thriving rural economy." Their remit includes "a major role in people's day-to-day life, from the food we eat, and the air we breathe, to the water we drink." Policymakers at Defra are also those most responsible for the development of Environmental Land Management schemes (ELMs) and other transition mechanisms,⁷ the replacement for the EU Common Agricultural Policy (CAP) subsidy, as well as for the Agriculture Act 2020 and Environment Bill 2021. (The environment and agriculture departments in Northern Ireland, Scotland and Wales hold similar responsibilities.) For you, this research is a synthesis of the ideas, experiences and demands of those within the food system that can help form legislative Bills and governance mechanisms, alongside existing Acts. These ideas are presented through the lens of a vegan ethic to show how our food system can be more secure and sustainable, if the UK were to show global leadership and pioneer the transition to a plant-based food system.

Department for Health and Social Care (DHSC) / Public Health England / National

discussions leading from this research and propose a Charter for Change for how The Vegan Society can play a role in shaping UK food system policy to bring about our vision for a fully vegan future.

Institute for Health Protection / UK Health Security Agency / Scotland / Wales and Public Health Agency Northern Ireland

Food is increasingly seen as central to health and social care. Food- and nutrition-related issues are overseen within the Population Health Department, including the July 2020 obesity strategy. DHSC promotes a healthy balanced diet and the prevention of health harms from poor quality food (working jointly with the Food Standards Agency and Defra) while there is also a nutrition legislation team. Rooted in evidence from farming and food communities, this research offers a narrative linking health and nutrition to plant-based production and consumption, and the role that a fair and sustainable food system has in leading to health improvements for the UK population.

HM Treasury & Chancellor of the Exchequer

If food policy is to lead to a sustainable food system, its outcomes have to make sense to those who hold the purse strings. Baseline criteria for future policy activity will be based upon the deceptively simple call for 'public money for public goods'. As we have already seen in instances such as the removal of support for wood-pasture restoration in the uplands,⁸ if policies are not deemed to offer value for money, they will not be supported. The policies and mechanisms captured in this research may offer potential benefits for food users, farmers and rural communities in both the short and long term that will require a re-programming of UK public spending to support new initiatives to increase the UK's food security and food sovereignty. This research is then useful for those within HM Treasury and the Chancellor of the Exchequer to help clarify proposals that may benefit the public purse as part of a legislative agenda supporting a shift to plant-based agriculture.

Members of Government, Parliament and Political Parties

As parliamentarians and political organisers, you already know research suggests the public expects Government to lead on environmental and health

issues,⁹ particularly in the wake of the pandemic. The hundreds of interviews conducted for the *National Food Strategy: Part 1*¹⁰ found a similar desire for governments at national and local level to act with authority. This research provides further evidence from the farming and food community of what government actions are seen as necessary to bring about a fairer and sustainable food system. Many of these ideas can be translated into priority policies and we are keen to engage with Government, alongside other food system stakeholders, to promote those which are the most beneficial for the UK public.

The Sustainability Community

The health, social and environmental arguments for a plant-based food system – not just in the UK but across industrialised, rich countries – are growing stronger and clearer by the day, especially with awareness of the zoonotic origins of pandemics. Much criticism in the past of vegan-oriented policies has focused on the perceived imposition of privilege by Western policymakers onto the two billion people globally who live through subsistence farming, normally including the keeping of 'livestock', especially in southern Africa. Our legislative agenda published in the report *Part One: Our Vision* does not propose the immediate imposition of such policies on peoples in countries in the Majority World, many of whom have been impoverished by European colonialism. We publish this research alongside that report to confirm how and why we came to those legislative propositions. Yet current global economic and social imbalances lead us to conclude that the UK has now even more opportunity – and ethical responsibility – to take on the mantle of a transition to a plant-based food system, with all of the environmental benefits this brings not only to the UK but to the world's

community. Such a pioneering transition will reduce our carbon footprint significantly, as well as ending the exploitation of land, water sources and labour of poorer countries, who need first of all to feed themselves rather than feed us. The Vegan Society stands in solidarity with those fighting against all injustice, to humans as well as to non-human animals.

While trade will always remain a part of the food system, it makes sense that a fully plant-based food system with more food grown at home is the fairest direction of travel for our common environmental and global health. We hope this research provides many in the sustainability community with further evidence to take that next step towards plants as the production base for fairness, value and ecological sustainability in the food environment.

Farmers and Food Users

This report draws on research about food users (we are avoiding the term 'consumers' for good reason)¹¹ and their experiences of the food system. But there will be no food, and no resilient food system, without farmers and land managers, so we have gathered voices from the food and farming community. A few were vegan, but most were not. While each perspective was different, we believe they offered a collective chorus calling for a better, fairer, more fulfilling food system, one that benefits everyone, and the nature we all love and want to protect. Many of the interviews we conducted were with farmers asking us to help them do what they want to do: run successful businesses, take care of the land and produce quality food that is valued. As plant-based proteins become more available and the lives of farmed animals become more visible, it is no surprise that, more than ever, what many farmers want is more closely aligned with our own vision for the future of the food system.

The Post-Pandemic Context

Of all sectors of the economy, the UK's food industries have been most significantly impacted by the coronavirus. In January 2019, 3.9 million people – one eighth of all working people – were employed in the food sector. Most of these worked in hospitality and retail. But as Henry Dimbleby's *National Food Strategy: Part 1*¹² outlined, every restaurant, cafe, takeaway, drive-through and pub closed overnight; around 82% of businesses closed. A new Food Resilience Industry Forum, set up by Defra, met daily to face the logistical challenge of ensuring food supplies made it through to the public and especially those most in need.

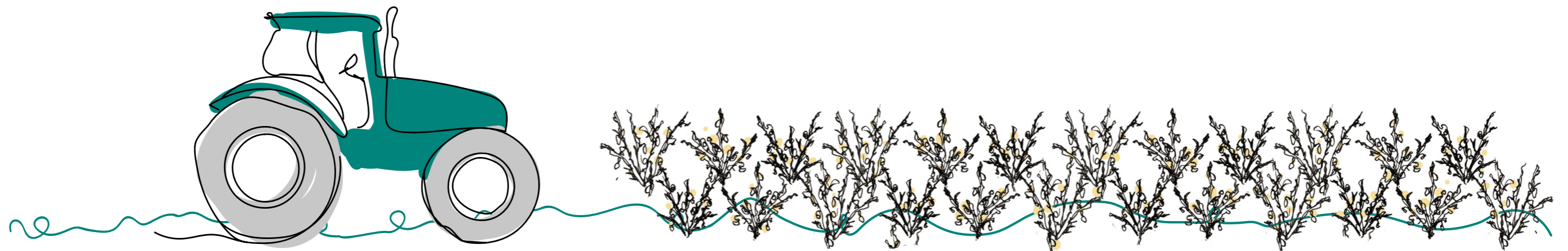
Yet even before the COVID-19 pandemic, many UK farmers had been struggling to operate profitably. The decline in dairy farming continued,¹³ made worse by the pandemic as farmers poured away thousands of litres of milk.¹⁴ While many fears of a collapse of the food system did not come to pass, the pandemic did expose the fragility of the system's conventions, with agribusinesses and slaughterhouses unable to operate under the new, safer socially distanced conditions.¹⁵ The long supply chains came under increased scrutiny as global air travel was halted, supermarkets closed and reduced staff, resulting in more food being ordered online – placing a much larger proportion of the market into the hands of big supermarket retailers.¹⁶

Beyond the market, the pandemic exposed our unhealthy food system, with higher death rates found in those with chronic diseases (such as obesity, diabetes, hypertension and high cholesterol) linked to unhealthy food and lifestyle environments.¹⁷ "There is overwhelming evidence that existing socio-economic inequalities and co-morbidities such as CVD [cardiovascular disease] and diabetes have played a key role"¹⁸ in the disproportionate deaths of Black and South Asian

people associated with COVID-19. The strength or weakness of the immune system is greatly determined by our food environment, including stressors and dignified access to healthy food. Such access plays a major role in who will contract and suffer from widespread communicable diseases, prompting, for example, the Government to launch its so-called 'war on obesity'. The Food Foundation's *Plating up Progress 2020*¹⁹ report lays out many of these issues in detail.

Finally, the pandemic has forced many millions more people to confront our dysfunctional relationships with the other animals with whom we share this planet. While "it is tempting for us to lay the blame for pandemics such as COVID-19 on bats, pangolins, or other wild species, it is human behaviour that is responsible for the vast majority of zoonotic diseases that jump the species barrier from non-human animals to humans."²⁰ The increase in the regularity of lethal zoonotic diseases jumping to humans is caused by destruction of ecosystems and animal habitats increasing close human-animal contact, and by stressed animals in gruesome conditions in hugely overcrowded and unsanitary factory farms that are a growing concern in the UK as well as globally.²¹

The necessities of the pandemic have given us an opportunity to transform social and cultural relations around food for the better. Responses to the COVID-19 pandemic here in the UK and globally have shown us what can be done when deemed necessary – and what happens when governments do not step up to act responsibly. And that is good, because significant change is needed if the UK is to build the fair, just and sustainable food system we deserve. It is in this context that we conducted this research.



[Interlude]

The Farmer and the Chickpea: The View From 2030

Research can sometimes feel dry and divorced from those it is meant to benefit. This research has heard many stories of food and farming, all of which offered a narrative of change – some exciting, some challenging. Before you read on, we invite you to spend time thinking about the kind of story you want to tell about the UK food system. Read about Jane and her farm, and see if your story for the future is anything like ours.

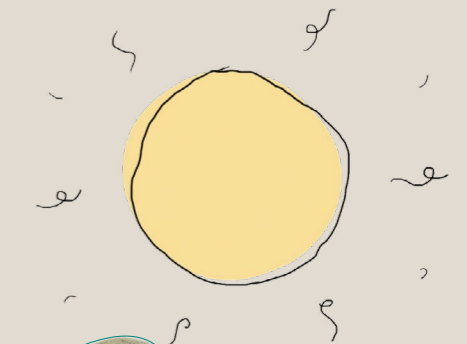
Jane is out early to check on her chickpeas. There's a healthy morning chorus from the redstarts and robins in the hedges around the field, and a quiet hum from the digital irrigation and feed system Jane put in place last year with help from the Food Sustainability Council's continuing horticulture fund. The chickpeas are well suited to Jane's low nutrient soil. The changed climate, bringing more sun to this part of the UK, has seen Jane make healthy returns for the last four years. Because chickpeas secure nitrogen in the soil and she was able to access funding to boost green manures into her crop rotation, Jane has climbed off the fertiliser treadmill and has not used agrochemicals for a decade; she barely sees the bags in the farm supplies shop any longer. Since the Food Sustainability Bill secured a doubling of her Gross Value Added (GVA) income for the first two years until settling at the higher rate, the farm is running at a profit not only off the hedgerows and restored wetland (thanks to ELMs) but also, critically, off the crops. Thanks to the hard work of so many producer networks, from Hodmedod to the Land Workers Alliance (LWA), the UK market for chickpeas is, along with other home-grown crops, almost unrecognisable to what it was back in 2021.

While the COVID pandemic gave the UK a taste for more local, whole foods, it wasn't a given – certainly not with trade deals looming – that the country was going to learn the lessons of that crisis. But thanks to the determination of people working in the farming community, food policy, and Government, we were able to come together around the table and confront "the slow motion disaster of the British diet"²², as the National Food Strategy asked. For Jane, as she bends to cup a chickpea seed-pod between her fingers, that attitude is summed up in one delicious, life-affirming word: **value**. Jane knows now that she and her food are properly valued.

Jane has a few hours this morning checking on the orchards (apples and plums, mainly) and hazelnut trees across her 120 hectares before going to deliver a workshop at the local food and farm college, which opened three years ago in 2027. She regularly has students from the college come to the farm for paid internships so she feels it's only right to deliver some teaching when they ask. Today she's leading on 'reskilling farmers to grow more fruit and veg in rotation'²³ because, despite the huge increase in the consumption of home-grown fruit and veg—up to 56% from just 16% a decade ago²⁴—there is still more growth potential in the UK. This is especially so in the uplands, where agroforestry has thrived and where the final farms have transitioned out of 'livestock' and into stewardship payment mechanisms. The Food Sustainability Act's goal of 75% of home-grown fruit and veg by 2030 is not quite met; but the fact that UK self-reliance has more than tripled means that Jane's farm, as well as those in her Farmer Cluster, aren't just surviving, but thriving. That's the same for the people who eat her food – more of whom she knows now, with the new farm-consumer apps and direct sales – who are much healthier. Thank goodness the Government strengthened its healthy lifestyle plans, passed legislation to tax junk food advertising and had the courage to implement measures to produce more autonomy and dignity in the food system. Finally, the majority of the UK are getting their 10-a-day. And Jane's farm has just reached its carbon negative target, with ELMs flexible enough to find other ways to earn from her land.

Before Jane leaves for the college, she messages her land manager to check the ground source heat pump they installed in the farm-hand accommodation. The warm shower isn't the only thing that gets the farm hands up at 4.30am (there's the ethically sourced, Fairtrade coffee too – they can't grow everything on the farm!). But at least with the planning law changes to make it easier for farm development and the way land is valued, and the huge increase in farm labour status legislated in the Food Sustainability Act, Jane could afford to convert her cattle sheds into co-housing for the workers and afford to pay a decent and fair wage.

She looks across the next field – lentils – that cuts across the orchards, ten years in the making. It's almost impossible to remember now that these fields were mainly pasture and animal feedcrops (beet and barley) for the cows during the winter. Her last cow, Mabel, retired in 2025 and died out at pasture earlier this year, helping to tread down the leys. She misses them all, although she does not miss sending them to slaughter. She winces to remember not even making a profit on their bodies without the support of the old EU subsidy. The chickpea seed in her hand is her farm's future now. The seed, finally recognised as a public good – and food of value in itself.



Part 1: Reprogramming the Food System

The Food System We Have

To say our food system is not fit for purpose is to confront the legacy of those who have held the levers of policy during the last seven decades. Generations of farmers in the UK have responded to Government direction and done what they were asked to, and what market pressured demanded: which, since the 1940s, was to produce more food, cheaply. Farmers have followed this productionist model, fitting their on-farm processes to the ever-changing, complex picture of the food system, as supermarkets replaced local retail, as ultra-processed packet meals replaced whole ingredients and cooking, and as imports replaced seasonal fruit and vegetables. Farming's use of pesticides and agrochemicals to boost crops has had deleterious impacts on the environment, with run-off from farms polluting our rivers and devastating wildlife, but it meant that farmers met food quotas and were 'feeding Britain' as asked. To blame farmers for doing what they were directed is a major barrier to forward progress.

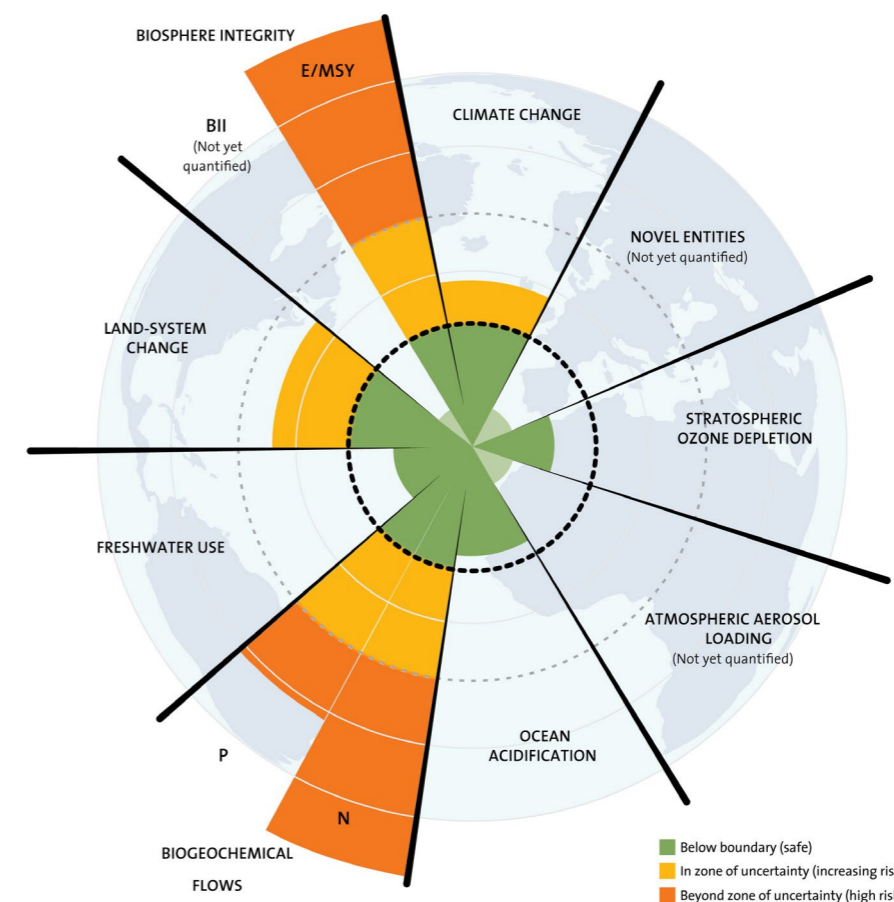
We agree that we are at a new stage of farming and one that needs a new agenda. This agenda recognises the harms of the productionist model, but looks forward to improved practices without the baggage of blame. Recognising the harms done, though, is to accept that what exists is a predominantly unhealthy, unsustainable and unfair food system – over-reliant on overseas producers, with poor health impacts spread unequally through society, a destructive environmental inheritance, an unsustainable use of farmed animals, and a system which doesn't fairly reward the majority of those who work within it.

The major 'Transforming the UK Food System for Healthy People and a Healthy Environment' initiative, led by the Global Food Security Programme, has mapped the UK food system and found "a number of negative consequences in the current system. These include a heavy reliance on imports, skills shortages, poor working conditions, unsustainable production methods and diet-related disease."²⁵ As Professor Tim Lang, co-founder of the City University Centre for Food Policy, reminded us, "pressures on the food system now emerging from environmental damage, ill-health, social inequalities, distorted consumption, undervalued food work and underrecognized complexity of land use [means] the political task is to unpick the mutually reinforcing dynamics which stop us from putting the UK food system – from production to consumption – onto the right footing for the rest of the twenty-first century."²⁶

Addressing these "mutually reinforcing dynamics" through a multi-criteria lens is critical; complex problems require systems thinking. This is doubly important for an organisation such as The Vegan Society, our members and all of those following vegan practices who want to see an end to animal use within the food system. Thinking holistically about the multitude of threats we face as a society, and proposing policies and mechanisms that lead to improved scenarios for *everyone*, is the most likely way to secure support for the release of farmed animals from the food system. Such change is likely to happen only when measured against the criteria of health, economy and just work, environment, and social and cultural values. It was, then, important for us to take a realistic look at ideas that fall under all of these criteria. The research we conducted drew out many potential ideas as candidate solutions that could help us develop a legislative pathway and articulate how a 'free from exploited animals' system works better as a whole, for everyone.

This matters globally. Now used widely across Government and in development, the Planetary Boundaries model (first introduced by Röckström et al. in 2009) outlines a whole-earth assessment of the threats and limits that define a safe

operating space for humanity – four of which are already transgressed.²⁷ (Kate Raworth adopted this model for Oxfam offering a 'doughnut' with not only planetary limits on the outside but the complementary concept of social boundaries on the inside, such as education, providing a 'safe and just space' in which we need to operate as a species if everyone is to survive, sustain and flourish. Of course, our doughnut will be vegan.)²⁸ Our food production depends on these biophysical systems and processes, and the evidence is convincing that food production is "among the largest drivers of global environmental change by contributing to climate change, biodiversity loss, freshwater use, interference with the global nitrogen and phosphorus cycles, and land-system change."²⁹ Not all food production is equal, however. Animal agriculture is the larger stressor on many of those planetary boundaries, especially the ones already transgressed, such as biodiversity loss and the nitrogen and phosphorus cycles.^{30,31,32} By 2050, the 'livestock' sector alone is predicted to occupy 60% of the planetary boundary for greenhouse gas emissions, exceed the boundary for the nitrogen cycle by 50% and occupy 80% of the boundary for land-system change.³³



Credit: J. Lokrantz/Azote based on Steffen et al. 2015.

These boundaries can operate as targets for a global food system that, as the EAT-Lancet Commission found, “allow us to assess which diets and food production practices will help ensure that the UN Sustainable Development Goals (SDGs) and Paris Agreement are achieved. ... The Commission concludes that quantitative scientific targets constitute universal and scalable planetary boundaries for the food system.”³⁴ Aware that animal agriculture contributes the major impact of agriculture as a whole, it is right that the UK takes a hard look at our practices to see where we can contribute our fair share to meeting these targets, keeping within the “safe operating space” or indeed helping reduce the impacts where we have already transgressed.

This also matters nationally. Here in the UK farmers will rightly point to the fact that our agricultural impact on climate change is less than the global average, in relative terms. Yet, as the National Farmers Union write in their *Achieving Net Zero: Farming’s 2040 Goal* report,³⁵ it is still one tenth of all UK emissions.^{36,37} This remains unsustainable and our food system remains unhealthy and unfair:

Health

According to the Food Foundation, “the diets of typical British families now pose the greatest threat to their health and survival.”⁴⁰ This threat is not spread equally among us. It is, as Henry Dimbleby writes in his introduction to the *National Food Strategy: Part 1*, “a peculiarity of the modern food system that the poorest sectors of society are more likely to suffer from both hunger and obesity.”⁴¹ The problem is not that the UK is poor and cannot afford healthful food, but that we have created an unequal and unfair food system, with levels of inequality growing wider in both health and income.^{42,43} It is shocking that the fifth largest economy in the world has some of the highest rates of food insecurity (those living in households unable to provide three meals a day) in Europe,⁴⁴ while:

- Poor diet is responsible for one in seven deaths in the UK (90,000 per year), on a par with smoking.⁴⁵
- Nearly a third of all UK adults and 20% of children are classed as obese, a factor driven by privilege and poverty – the prevalence of obesity is almost twice as high in the most deprived areas compared to the least deprived areas.⁴⁶
- Just half (54.8%) of British adults get their

for farmers, workers and farmed animals. Taking a multi-criteria approach to our food system reveals the changes we need to make – indeed, must make, if the Paris Agreement remains a credible goal.³⁸

The policy ideas gathered here are presented using such a multi-criteria approach. We took as our starting point six areas for assessment as laid out by Mason and Lang,³⁹ and found that the majority of ideas being advocated or investigated fell within four of these six: **health, economy and just work, climate change and ecosystems, and social and cultural values.** (The other two are **governance and quality** in the food system.)

To prepare the ground for the qualitative research that follows, gathered from 30 semi-structured interviews from our participants, we first synthesised over 40 food systems’ reports and a further 50 academic articles, book chapters and books, to provide a concentrated sense of the key issues within these first four criteria of our approach. We outline those syntheses here, beginning with health.

‘five-a-day’ of fruit and vegetables. For most minority ethnic groups, this falls below half.⁴⁷ 85% of secondary school children are not eating enough fruit and vegetables, more than 90% are not eating enough fibre and all are eating too much sugar.⁴⁸

- In the UK we eat more ‘ultra-processed’ food (high in fat, salt and sugar) than every other EU country for which there is enough data to compare – up to 50.4% for the UK compared to 10.2% for Portugal and 13.4% in Italy.⁴⁹
- One in eight 21-to-34 year olds, and one in six 16-to-20 year olds, say they eat fast food at least twice a day.⁵⁰

We might wish to choose better, but the food environment – a structural system of complex decisions made by Government, retailers, producers and advertisers, and others – “does not yet frame or push us to do so.”⁵¹ Whether it is those in the Government’s Behavioural Insights Team, the Food Citizenship Project or the team at the World Resources Institute’s Better Buying Lab, experts are clear that governments need to do more in clawing back consumer spaces for people, so they become spaces that “help us choose better” as Simon Billing at the Eating Better Alliance explained.

Systems-oriented thinking tackles these problems in a systematic way. As Christian Reynolds of the City University Centre for Food Policy told us, “Neoliberalism has made food an individual rather than societal issue. But changes have to be systemic and business-based. Individual changes take a

huge amount of time and money – it’s a one-on-one battle with every single person to change behaviour. But if you implement policies that bring about a smaller number of changes but which affect everyone, the change is much bigger.”

Economy and Just Work

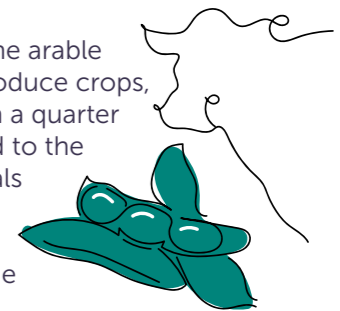
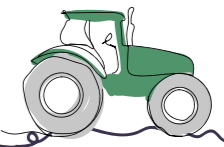
The UK has a ‘cheap food’ culture driven by a complex combination of factors that are difficult to unpick and have proven stubbornly resistant to change. The UK retains an almost religious commitment to the sanctity of ‘personal consumer choice’ married with the high concentration of the food retail market in the hands of just ten big retailers, Tesco being the largest.⁵² We also suffer from the legacy of what Professor Tim Lang calls “residual imperial thinking”: that we believe it is our right for the rest of the world to feed us. Together, these factors have pressured the food system to be driven primarily by price and convenience over and above health, fair value, and environmental or ethical concerns.

This cannot continue. As Lang writes, “The price system is unjust. Either prices need to rise, and more of the money to be returned to those currently squeezed, or the length of the value chain needs to be shortened or short-circuited to cut sectors out. ... a long-term reorientation is overdue, but unlikely to be delivered, if current thinking remains.”⁵³ Pay and conditions for farm workers are further significant factors in the UK’s food problem, which may be worsened by Brexit, with 30% of all workers in the agri-food sector being migrant workers.⁵⁴ Indeed, as early reports of food rotting in fields emphasised,⁵⁵ the impact is already being felt. If we are to get the food system we deserve, we must improve the financial viability of farming and make farm work a well-paid and respected employment. But at the moment:

- Agriculture currently contributes £10.4bn of Gross Value Added (GVA) to the UK economy; but despite providing over 60% of the ‘raw materials’ (or ingredients) for all the food products we purchase (in cafes, restaurants and supermarkets), that £10.4bn is only 8% of the agri-food sector’s overall contribution to GVA. What this means is the income that farmers and farming make for their produce (the ingredients) is a fraction of the value of the food when it reaches us, via shops or restaurants.⁵⁶ This “disconnect” between “what farmers do, their financial returns and food’s

public health role”⁵⁷ is symptomatic of the broken system we have.

- In 2017, Defra estimated that 40% of farms would make a loss without the existing EU subsidy, confirmed again by The National Audit Office in 2019.⁵⁸ With the end of the EU CAP programme, a 2019 Strutt and Parker study estimated that a drop in subsidies would see 75% of British farmers experience profitability cuts of 22–67% by 2027.⁵⁹
- Nearly 40% of people in agriculture, forestry and fishing and 60% of people in the food services sector are in low paid jobs.⁶⁰
- Only 8% of housing in rural areas is classed as affordable.⁶¹
- While 70% of land in England is utilized for agriculture, the majority of this (around 60%) is used for grassland or rough pasture to graze animals.^{62,63}
- Up to 60% of prime arable land is used to produce crops, of which between a quarter and a third are fed to the 900 million animals farmed each year, nearly 13 for every person in the UK.⁶⁴
- At the same time, horticulture uses just 1% of agricultural utilized area and only 1% of subsidies go to horticulture. It is no wonder then that only 16% of fruit consumed in the UK is grown here.⁶⁵
- Much of the real environmental, social and health costs of food are hidden: the Sustainable Food Trust reported to the House of Commons Select Committee on Food, Poverty, Health and the Environment in 2020 that “for each £1 spent on food in the shops in the UK, consumers incur extra hidden costs of £1. In addition to the £120bn spent annually on food by consumers in the UK as a whole, the UK food system generates further costs of £120bn in external costs”.⁶⁶



- We should not think that zoonotic pandemics caused by diseases such as COVID-19 could not start here. In March 2020, while the UK was preparing for lockdown, there were 16 confirmed cases of avian flu, mostly in Northern Ireland;⁶⁷ and both Variant Creutzfeldt-Jakob Disease (known disparagingly as 'Mad Cow' disease) and Foot and Mouth disease have stricken the UK agriculture sector in the last 30 years.
- We also know that globally the "cheap food paradigm" is driving the expansion of agricultural land and intensive farming, the major cause of the destruction of habitat, pollution and wildlife loss.⁶⁸

The Vegan Society is not anti-subsidy in principle, nor do we believe the Government should take a hands-off approach. We believe it is the job of

Climate Change and Ecosystems

Our global ecosystem is under great stress, much of this due to animal agriculture. An incredible 60% of all non-human mammals on earth are 'livestock' animals in our food system (with humans making up 36% and 'wild' animals 4%); for birdlife, 70% are those within the food system such as chickens, and 30% are free living.⁶⁹ We have known about the climate impact of 'livestock' since at least 2006⁷⁰ and it is now widely recognised that, globally:

- The food system is responsible for around a quarter of all greenhouse gases;⁷¹
- 'Cattle' alone are responsible for nearly a tenth of all greenhouse gas emissions – 6% from beef and 3% from dairy;⁷²
- 'Beef' from cattle is responsible for a quarter of the entire food system's emissions, despite providing only 1% of global calories;
- While using ~83% of the world's farmland, 'livestock' products contribute only 18% of global calories.⁷³

Emissions from beef are up to 100 times greater than from plant-based alternatives such as lentils or beans. But that is not to say 'meat' from other animals is better, with the 'best' or lightest impacts of animal agriculture still worse for the planet than the 'worst' plant-based products. Other environmental impacts are in some cases even more immediately worse than greenhouse gas emissions. As noted above, by 2050 the global 'livestock' sector is predicted to exceed the planetary carrying

Government to get fair, nutritious food on our tables. The question is not *if* Government must act, but *how*. For example, it would be fair to ask – and many of our participants did, including farmers operating mixed farms, Rob Percival from the Soil Association and Humphrey Lloyd from the Land Workers Alliance – why horticulture suffers from such a lack of support when it produces the foods that most of us need to eat more of? Revitalising our fruit and vegetable sector could turn around our health, environmental and economic food system problems. To take food seriously we must value it by more than what it costs in the supermarket. The reduction and removal of meat and other animal products from our diets can and will be replaced by a massive increase in fruit and vegetable production. This outcome will require Government support. And our health is not the only reason to do so.

capacity for the nitrogen cycle by 50% and occupy 80% of the safe operating space of the planetary boundary for land-system change.⁷⁴ Agriculture is responsible for around 90% of all ammonia emissions in England,⁷⁵ almost all of which comes from 'livestock' farming, its use of inorganic fertilisers applied to grasslands, and the remainder from manures and slurries, stemming from "intensive" units. These intensive units are favoured by pig and poultry farming – over 60% of all pigs in England are kept inside for their entire lives, which increases to 100% for breeding sows.⁷⁶ And while much environmental policy and research focuses on the impact of 'beef' – research we have highlighted here – in the UK, poultry overtook red meat sales in 2017 and currently accounts for over half of total meat consumption. Across the UK last year, over 850 million chickens were reared for meat, 95% of whom were kept for their entire lives in intensive indoor units. These intensive units create huge amounts of ammonia, while also consuming around 1.8m tonnes of soy, 60% of the total of UK soy imports.⁷⁷ The climate and ecological impact of these imports is vast as 70% of UK imports come from Brazil and much of this soy is grown on recently deforested land. This land-use change leads to significantly higher carbon emissions than most arable crop production due to the carbon released when forest is converted to farmland. But worse than this, the habitat destruction it causes drives extinction of species, and threatens the integrity of the amazon rainforest ecosystem.^{78,79} Ammonia and nitrogen pollution from pig and poultry farming have a destructive impact on more

than 60% of the UK's land area, affecting rivers, sensitive ecosystems and endangered wildlife.⁸⁰ England is worst hit, with 95% of conservation areas, special protected areas and sites of special scientific interest registered as having critical levels of pollutants.⁸¹ The UK Government does not currently test for ammonia levels on most UK farms, even though investigations have revealed critical levels of pollutants in the air.⁸²

Despite the regular 'scare stories' that circulate via social media about the water consumption of almonds,⁸³ avocados "not being vegan" (a claim from the TV quiz show QI)⁸⁴ or the large impact from methane production in rice, a global plant-based food system has been shown to produce less environmental impact than an animal-based global food system.⁸⁵ And the UK is part of that global food system, with its own footprint:

- The UK agriculture sector is responsible for nearly one tenth (46 MtCO₂e - million tonnes of carbon dioxide equivalent - in 2017) of the UK's greenhouse gas emissions, much of which comes from farming cattle and sheep. The Committee On Climate Change's *Land Use Policies for a Net Zero UK* report specifically targeted 'low-cost, low-regret' shifts to increasing plant-based options to replace beef, dairy and lamb consumption (their report suggests a 20% per capita reduction of these 'meats'; we are more ambitious in our desire for the UK to show global leadership in taking its 'fair share' of climate reduction activities, which we believe would be best done by pioneering a fully plant-based transition).⁸⁶
- The majority of UK agriculture's emissions are not carbon dioxide but methane from ruminant animals (50% of emissions) and nitrous oxide (40%).⁸⁷
- Intensive agriculture has caused arable soils to lose 40-60% of their organic carbon, while soil degradation in the UK has been calculated to cost £1.2bn every year, with four million

Social and Cultural Values

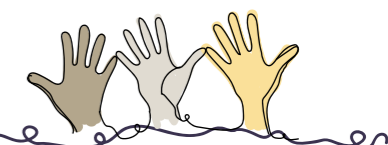
Humans are contradictory creatures. We create stories to satisfy our beliefs, which means we can say one thing while doing another – something

hectares of soil at risk of compaction (in England and Wales), affecting soil fertility and water resources, and increasing the risk of flooding; while a further two million hectares of soil are at risk of erosion in England and Wales.⁸⁸

- In the last 50 years, almost 60% of species of UK wildlife such as starlings, hedgehogs and pine martens have declined, meaning we have lost significantly more animals over the long-term than the global average.⁸⁹ A quarter of native UK non-human mammals are now at threat of extinction,⁹⁰ much of which is driven by the destruction of their habitat, for which agriculture, covering 70% of UK land, is at least partly responsible via pesticide use and crop expansion – much of which is to feed farmed animals.

The *EAT-Lancet* Commission demands that we must eat 65% less meat, but increase our consumption of vegetables by 75%, fruit by 50%, legumes by 75% and nuts and seeds by 150%, if we are to meet our climate change commitments.⁹¹ But we can go further, be braver and more pioneering. As Helen Harwatt and Matthew Hayek modelled in their report *Eating Away at Climate Change with Negative Emissions*, the UK could be Paris-compliant in terms of its climate commitments by switching to a fully plant-based food system, where "the UK would still produce enough food for the current population of 66 million people, at 2,587 calories and 70 grams of protein per person per day."⁹² There might, they add, "be some reliance on food imports to meet micronutrient needs from fruits and vegetables and/or to satisfy the needs of a growing population." But that is where we are at now and there is no other scenario that gets us as close to a "zero carbon Britain"⁹³ while ensuring a more secure and sustainable food system.

those who have spent time doing advocacy in the food space will know well.⁹⁴ We publicly support farmers and farming; in 2020, 75% of people



voiced a positive view of UK farming, the highest figure since the annual Farmer Favourability survey was first carried out in 2012 and a six percent increase on 2019, largely due to the focus on food security in lockdown.⁹⁵ And yet, according to the research, we are continually influenced by the food environment so that we buy food based mainly on taste, price and convenience – which continues to disadvantage those same farmers we claim to value and support. What we need is a food environment that helps people better support, and value, our farms and farmers.⁹⁶

We should also consider the mental health challenges for farmers, which have long been worrying: farming in England and Wales as an occupation has one of the highest risks of suicide, accounting for 1% of male suicides of young and adult men in the age group 16–64.⁹⁷ Social and cultural values will have to change if we are to support farmers and re-programme our food system in ways that are safe, long-lasting and sustainable.

As well as shifting away from a food culture based on convenience and price, we will need to develop the food literacy of those who use food – that is, everyone – not only in terms of kitchen skills, but also greater transparency and awareness of how the food system works. The Government’s Behavioural Insights Team published their report, *A Menu for Change*, in January 2020 outlining 12 strategies for promoting sustainable diets, focusing particularly on ways to influence the behaviour of the UK population. Some of these strategies involved addressing why so many people continue to evade the knowledge that meat consumption is driving ecological catastrophe. They found we adopt various psychological manoeuvres to keep us from changing our food behaviours so that they remain comfortable for us, including:

- *Motivated inattention* (not thinking about the issue at the point of purchase);
- *Moral licencing* (using good acts, like that time we took the train instead of driving, to excuse the bad);
- *Motivated reasoning* (reasoning towards the convenient or self-serving conclusion);
- *Delegation* (pushing responsibility onto Government, industry etc.).⁹⁸

In particular, the report says, “there is a rich body of evidence on the role that these psychological defences play in the consumption of animal products, as we wilfully evade the ethical implications of our food.”⁹⁹ We rationalize that

animal products are “natural, normal, necessary and nice”¹⁰⁰ while believing the myth that it’s difficult to obtain protein from plants, because that matches people’s existing behaviours. This is despite major research such as the European Prospective Investigation into Cancer and Nutrition EPIC-Oxford cohort study showing adequate protein intakes among vegans.¹⁰¹

It is not simply about individual action, however. Governments are also re-framing their vision for the food environment to ensure safe, healthy food is available and affordable to everyone. The bottom line is that people are prevented from eating well. Food distribution is key – people go hungry because we do not empower them to access healthy food.

Policies that provide a social and economic safety net are likely to improve people’s ability to access healthful food. One example that others have explored is the idea of a Universal Basic Living Income (UBLI or Universal Basic Income, UBI). In a recent Food Ethics Council debate, it was considered that UBLI/UBI “could be the single most powerful tool to eliminate household food insecurity.”¹⁰² In Canada’s Southern Ontario Basic Income Experience report, their pilot of UBI showed that food security went up dramatically for participants during the trial. One disabled man stated he did not need to use a food bank for eight months. Others stated they were able to buy better quality food, which had a positive impact on their health.¹⁰³ People whose basic needs are met are able to buy sustainable, healthy food from local businesses. In this pilot project, at least, a Universal Basic Income significantly increased access to, and affordability of, high-quality food. Further Universal Income trials have indicated many, diverse benefits such as recipients buying more of what they need to live, staying longer in education, and children having fewer health, emotional and behavioural problems.^{104,105} Solutions such as UBI, or a four-day working week,¹⁰⁶ are possibilities available to help combat food insecurity. These ideas deserve further research to explore how such socio-economic measures are able to facilitate a plant-based future.

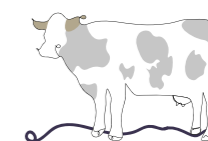
Yet it remains that a new food system imposed from above would run up against ingrained beliefs, particularly around the use of animals. Rewriting our relationship with other animals at these individual, social and cultural levels is critical for reprogramming the system. As we know, “Meat consumption is a battle for minds not just nutrients and health.”¹⁰⁷ Consumption of animal products is deeply rooted in cultural habit and aspiration and this constrains the influence that policy, food environment changes and even shocks such as COVID-19 can have on people’s habits. Much of the reason for the

food system we have now is that “consumers are symbolically and actually surrounded by messages and food offers which normalize poor diets.”¹⁰⁸

But habits do change. The best available data showed that, in 2019, vegans accounted for 1.2% of the UK population,¹⁰⁹ but a YouGov poll asking

about future issues suggested that at least 14% of people felt that by 2030 they would not be eating meat, rising to 20% of 18-24 year olds.¹¹⁰ This is the direction of travel, and one which governments and policymakers can accelerate, with all of the associated health, environmental and economic benefits that plant-based foods bring.

Animal Equity



For The Vegan Society, a truly fair, sustainable food system requires, at the very least, ending animal ownership under historic property rights and their release from their pre-determined deaths in the food system. In an average month in the UK, we slaughter around 2.1 million cattle, pigs and sheep for human consumption.¹¹¹ A further 80 million chickens (mainly what are called ‘broilers’, chickens manipulated to be fast-growing so they reach slaughter weight of 1.8kg within 45 days of birth, many of whom suffer terribly for it),¹¹² 4.4 million

‘boiling fowl’ (including ‘spent’ egg-laying hens), and nearly a million turkeys and ducks are killed by us for food each month.¹¹³ Nearly 90 million land animals per year – 35 every second of every day – are killed by underpaid food sector workers in abattoirs. The vast majority of these animals are in their adolescence; most, mainly chickens, have never seen sunlight. These figures do not include fishes who are also killed in their millions for UK diets.

United Kingdom monthly numbers of livestock slaughtered (Thousand head)

	May 2020	Mar 2021	Apr 2021	May 2021	yr on yr
	31 days	31 days	30 days	31 days	% change
Steers	83	89	82	81	-2.0%
Heifers	70	73	67	66	-4.5%
Young Bulls	17	14	15	18	9.0%
Cows and Adult Bulls	46	53	48	50	9.5%
Calves	5	7	6	5	-11%
Clean Sheep	886	924	858	833	-6.0%
Ewes and Rams	95	104	92	79	-17%
Clean Pigs	797	1052	955	916	15%
Sows and Boars	15	24	20	20	35%

<https://www.gov.uk/government/statistics/cattle-sheep-and-pig-slaughter>

We will not go into the various detailed conditions in which non-human animals are reared, kept and killed in the UK. *How* animals are used is not the central issue for us, but *that* they are used and their

deaths pre-determined within a process that sees animals as property. For us, animal welfare standards should be considered as improvements for life quality applied *after* moral rights are first recognised;

these moral rights include a birthright to live freely and flourish in their species-specific ways. Indeed, animals currently being used within the food system are owed immediate respite for the uses they have been put to already.

We know that most people reading this report are sympathetic to the lives and well-being of other animals; and the majority of the UK population will channel that sympathy into demands for higher welfare standards. And yet the 'right' to take any animal's life in UK law is not based on scientific or ethical reasoning, as UK animal welfare law is said to be based, but instead upon an appeal to consensus within the population, as outlined in the Farmed Animal Welfare (FAW) Council 2009 report.¹¹⁴ With the increase in veganism, plant-based diets and awareness of animal sentience, is it time to question whether such a 'consensus' now exists – or will soon evaporate?¹¹⁵ As intensive industrial units become more common, in which the vast majority of pigs, chickens and other poultry birds are kept for their entire lives – mostly for a mere fraction of their natural lifespans – have even the minimum conditions "of a life worth living"¹¹⁶, as outlined in the FAW Council report, been met? Our legislation urgently needs to catch up with our national attitudes towards our fellow animals.^{117,118,119}

Regardless of whether or not you argue for animal welfare, or for a birthright for animals that consists of freedom and release from systemic oppression, the evidence synthesised above (and from the hundreds of books, articles, research papers, reports and conference proceedings that we have not been able to include in this report) tells us this: not only is the direction of travel for the food system plant-based, but **we have already begun the transition to a plant-based food system.**

To provide just some of the evidence that we have already started this transition:

- The number of vegans in Great Britain quadrupled between 2014 and 2019. In 2019 there were an estimated 600,000 vegans (or 1.16% of the population), 276,000 (0.46%) in 2016 and 150,000 (0.25%) in 2014.¹²⁰
- Almost half (42%) of UK vegans made the change in 2018, which suggests veganism may be growing exponentially.¹²¹
- In 2018, the UK launched more vegan products than any other nation.¹²²
- In 2018, one in six products launched in the UK carried a vegan claim. In 2019, this figure rose to nearly one in four.^{123 124}
- Mintel reported nearly a quarter of people in

Britain consuming plant milk in 2019, up from just 19% in 2018.¹²⁵

- As of January 2020, every one of the top ten UK food retailers now stocks their own vegan alternatives range (Tesco, Sainsbury's, Asda, Morrisons, ALDI, Co-op, M&S, Waitrose, Lidl, Iceland). The trend proliferated throughout 2018 and 2019, with Co-op completing this accomplishment with the launch of their 'Gro' range at the start of 2020.¹²⁶
- 2020 became the year that every one of the top ten restaurants / food-to-go vendors in the UK (by revenue) had a vegan offering (McDonald's, Starbucks, Costa, Pret A Manger, KFC, Nando's, Subway, Burger King, Pizza Hut, Domino's Pizza). Domino's was the last to develop their vegan menu, but trials in June 2020 suggest this may become nationwide in the near future and their no-chick Veganuary pizza was launched nationally in January 2021.¹²⁷
- The UK's purchase and consumption rates of vegan alternatives to animal products are the highest in Europe.¹²⁸

Major global food producers such as Unilever, Kraft-Heinz and the world's largest food company, Nestlé, are all increasing their plant-based portfolios in recognition that the trend for meat- and dairy-free meals is increasing. According to research from July 2020, the plant-based food market is expected to grow around 11.9% per year to 2027 to reach \$74.2bn.¹²⁹ The demand is especially prominent in Europe. For example, a 2017 study found that 69% of Germans eat meat-free meals once a week or more and that environmental factors are appealing to more people to choose plant-based meals.¹³⁰

Much of the change within company production is in line with the scientific basis for more plant-based diets globally.¹³¹ According to Tom Gill, Head of Sustainability at Promar International, who provide policy formulation and consultancy to farmers and food producers, "there is a massive desire in business and corporations to work on these issues, and the appetite is growing. For example, McDonald's 'scale for good' programme of how to run supply chains was an incredible example of improving environmental and social impact, and showed a real 'in it together' attitude. But often it is attitudes to corporations as the bad guys that blocks that kind of work from spreading elsewhere."

Unilever has made a public commitment to increasing its portfolio of plant-based products and

recently acquired The Vegetarian Butcher (which was founded by a ninth generation farmer, Jaap Korteweg), which supplies the 'Rebel Whopper' to Burger King.¹³² At the beginning of 2019, Unilever brand Knorr partnered with conservation group WWF to launch the Future Foods 50 report, promoting 50 sustainable foods, mostly plant-based, to over 5000 chefs and restaurants across Europe and the United States.¹³³ Nestlé owns Europe's second largest plant-based brand, Garden of Eatin', and also in June 2020 launched Vuna, a plant-based tuna alternative, keen to respond to the fact that 90% of the world's fish 'stocks' are depleted.¹³⁴ This was quickly followed by a vegan version of their iconic Carnation condensed milk. Such product development is reflected in the growth of applications for vegan trademarks in the UK, which grew 128% in 2019.¹³⁵

Beyond mere products, however, what is notable is the investment in "pushing plants forward" as one major Unilever campaign to train chefs and caterers

puts it.¹³⁶ An unprecedented alliance of over 40 leading food corporations including Unilever, Oatly and Beyond Meat, campaign groups such as ProVeg International, and industry experts came together in October 2020 to petition the EU Government to reject meat industry lobbyist attempts to ban words such as 'burger', 'sausage' and 'patty' being applied to plant-based foods.¹³⁷ Their campaign was largely successful, but the animal industries are still trying to increase restrictions around 'milk' terminology.

With the rapid rise in availability of vegan foods, the investment in plant protein development and the acceptance that meat is one of the most significant factors in the climate emergency, we believe we are already in the transition to being a plant-based society. Some estimate of the collapse of the US, and then global, animal agriculture industries by 2035 as they are replaced by plant proteins and lab grown alternatives.¹³⁸

The Food System We Need: Healthful, Fair and Sustainable

We believe the fairer food system we need is plant-based. But will that bring about maximum benefits for everyone, animal and human? Evidence suggests that more people are waking up to the idea that it is the best solution to achieving fair outcomes for all. People are learning about the significant health benefits that plant-based food consumption and production brings to our population and our soils, and we know more every day of the serious implications of our food's footprint in tackling the climate emergency. It is becoming increasingly clear that the science around food's role in population and planetary health is catching up with our vegan position, as are solutions to the practical means for reprogramming the economic, labour, social and cultural dimensions of our food system.

If we accelerate the transition to a plant-based food system today with all of the industry, government, farmer and public support it needs via the legislative agenda we outline in *Part One: Our Vision*, it would:

- Release up to a third of UK crop land currently used to grow crops for farmed animals who are then fed to humans in a massively inefficient system.¹³⁹
- Greatly increase the amount of fruit and vegetables we grow and eat in the UK, increasing the percentage of people who currently get their five-a-day and tackling obesity, poor diet and food insecurity.¹⁴⁰
- Reveal the need for legislation to increase the value of food for producers and farmers while also making more healthful foods available to those on low incomes.¹⁴¹
- Reduce the climate footprint of the UK's food by ending the production of high impact foods such as beef and dairy, helping us achieve our binding targets under the Paris Climate Agreement – removing between 3,236m and 4,472m tonnes CO₂ equivalent greenhouse gases, equal to offsetting between nine and twelve years of current UK CO₂ emissions.¹⁴²
- Reduce the impact of artificial chemical and nitrogen fertilisers on the soil by increasing the growth of nitrogen-fixing plants such as chickpeas and legumes, replenishing our land with vital nutrients to grow healthy foods, following the ready-to-go Blueprint for UK Pulses.¹⁴³
- Nitrogen-fixing crops are not likely on their own to replenish soil fertility to ensure the UK can grow the food it needs from plants and become both food secure and food sovereign; therefore, a plant-based food system would also increase the use of plant-based fertility-building methods such as more effective use of green manures in rotation,^{144,145} as well as better utilization of crop residues, cover crops, and composted ramial woodchips^{146 147}

- Despite the stereotypes of vegans eating tofu, a plant-based food system in the UK could *reduce* our use of soy, which is increasingly imported as feed for pigs and poultry, and drives deforestation in large forest fronts such as Indonesia and the Amazon.¹⁴⁸
- Reduce our 'offshoring' of food demands onto countries and peoples struggling to feed themselves, rightly showing global leadership in meeting the Sustainable Development Goals (SDGs) especially in reducing hunger and eradicating child poverty.¹⁴⁹
- Help save the National Health Service (NHS): a shift to a plant-based food system would increase fruit and vegetables in the standard British diet, tackle obesity and deliver economic benefits worth £17bn a year, including an annual £800m saving to the health system.¹⁵⁰

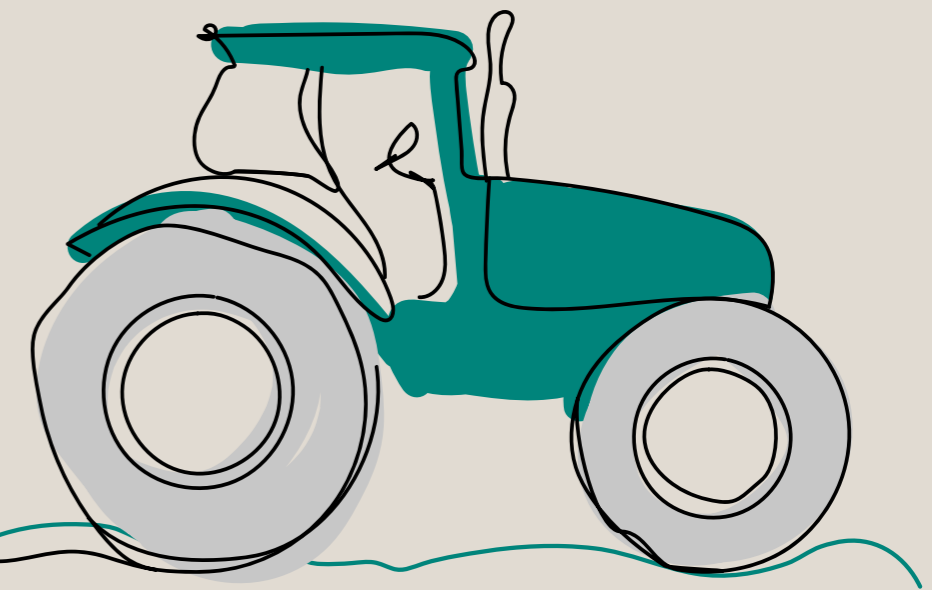
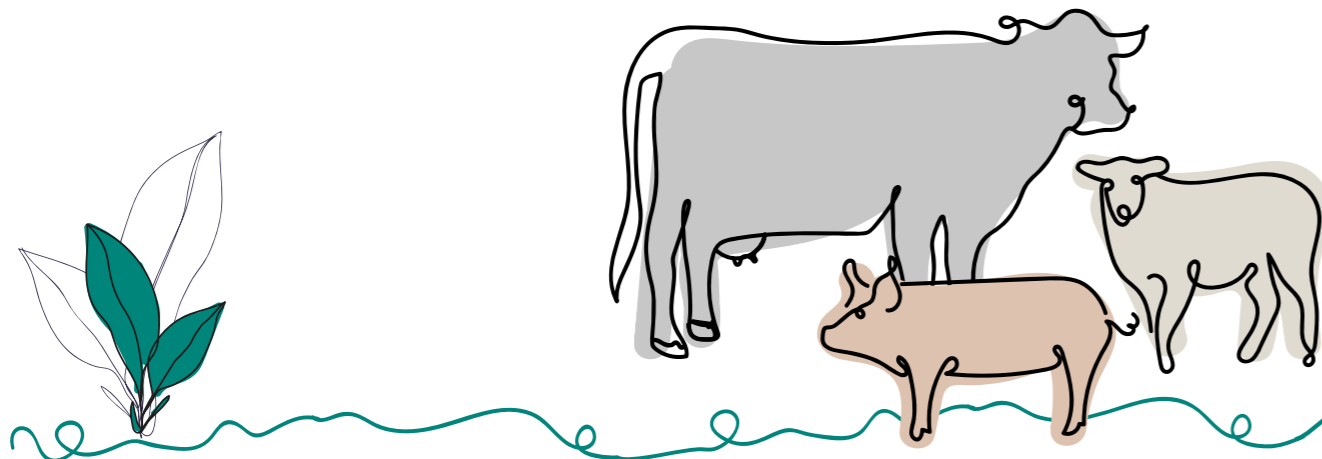
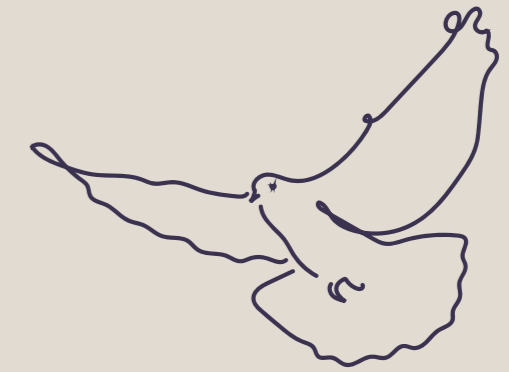
A plant-based food system is fair to our fellow *animal* beings by releasing them from their pre-determined deaths in the system; but it is also fair to our fellow *human* beings, particularly those in developing economies, who do not have the opportunities, finances or technologies that we in the UK can access to reshape our food system. The UK is not a subsistence economy; indeed, we draw too much of our food from places where people are struggling to survive, which threatens both their and our security.¹⁵¹ While our society is far from equal and our food system far from perfect, the UK has, in a post-pandemic and post-Brexit world, a chance of change: we *can* meet our commitments on the world stage, meet our climate targets, and help reduce global poverty and hunger, but only if we choose to pioneer a world-leading plant-based food system. This is the choice to remain a fair and decent society.

Globally, the very latest research shows that "shifts in food production to plant-based diets by 2050

could lead to sequestration of 99–163% of the CO₂ emissions budget consistent with a 66% chance of limiting warming to 1.5°C."¹⁵² There are many more immediate, medium and long-term benefits to transitioning to a plant-based food system. Of course, there are challenges as well, not least in terms of fairness to those whose livelihoods currently rely on the production and selling of animal food products, as well as the contention of 'personal choice' to eat animals. We come back to these issues in **Part 4**, namely:

- The misperceived high environmental impact of plant foods;
- Nutritional concerns about a plant-based diet;
- The ability to meet nutritional needs with more sustainable UK home grown produce;
- The often perceived 'artificiality' of modern vegan diets as contrasted to the perceived more 'natural' diets based on animal products;
- The role of 'animal agriculture' in UK rural economies;
- How farmers and farm workers make a living under a plant-based food system;
- The overuse of fertilisers and pesticides on arable land;
- The health of UK soil;
- The ability to grow more plant crops across UK lands suitable for pasture;
- The use of animals in plant-based farming;
- The future for animals released from their use in 'animal agriculture'.

Before we get to these questions, we first want to share with you the process of talking, listening and learning that helped us reach our conclusions. These are captured in **Part 2**.



Part 2: Voices of the Food and Farming Community

Opening Narrative: A Story of Farming, Food and Community

“A lot of farmers feel castigated as the problem,” Tim Strang told us from his home in the hills of West Wales, where he farms fifty hectares of land. “You’ve got the perfect storm of farmers being told that their businesses are a major contributor to climate change, people’s changing eating habits with more vegan meals, on top of the huge financial pressure we feel we’re under. A lot of livestock farmers feel very defensive.”

For Sarah Shuffell, part of the XR Farmers group as well as a Welsh sheep farmer, the attacks she has experienced from some animal activists is a cause of defensiveness. For Sarah, such polarization only deepens the divide between people who should be working together to tackle the myriad crises we face. “But it’s not nice, being told you’re the problem,” she said.

As someone who has farmed animals for 40 years, Tim understands the defensiveness that these attacks generate, although he does not feel it himself. “I’m more pragmatic,” he said, before adding, “although I’m not your typical farmer.” Tim is atypical in that he agrees that, at least as far as the environment and diet are concerned, “the planet and the health of its population would undoubtedly benefit from a massive reduction in meat consumption.”



Tim thinks a lot about this – his son first went vegetarian at around the age of five or six, then returned to eating meat for a year, before going fully vegan aged 16.

“Yes, it’s on my mind,” says Tim of the environmental impacts and ethical considerations of a meat diet. “I won’t eat pigs and won’t eat chickens because of how they’re reared. I know that probably doesn’t make any sense for you. But I rear my lambs and I call the slaughterer and we kill them here and I put them in my deep freeze. I do it with reverence and respect for the animals. It’s industrialization that is the dirty business, for animals and climate.”

It was hard to hear farmers like Tim and Sarah talk about slaughtering animals. It was even harder to visit Andy Eaton’s dairy farm and see the day-old male calves taken from their mothers, useless for dairy production and to be shot or sold on for veal. Yet we felt it important and respectful to listen to farmers and their stories, and critical that we work with the farming community if we are to find collective solutions to common problems. While slaughtering animals does not make sense to those following an ethical vegan practice, Tim’s position does make sense for many people in the UK. Many agree with Tim that it is the way in which farmed animals are reared, treated and killed that matters, not that they *are* killed.

Farming Identity

Before speaking to our interview subjects, we already understood that farming, particularly ‘livestock’ farming, is more than simply a job or a business, and perhaps more so because of the nature of rearing and taking life through slaughter.¹⁵³ But during our research it became clear that farming is a family inheritance, a way of life and an identification.

“All farmers will back each other regardless of what they farm, because of their shared identity,” said Josiah Meldrum, who works directly with farmers of peas, pulses, chickpeas and other plant crops. Many of these crops are grown on mixed farms which use animals too. “So, you see, any polarisation of the narrative just makes things really difficult. Any move towards a plant-based system will have to be a transition. I do find the way discussion is polarised on social media, and even more in traditional media, extremely frustrating.”

For those such as Richard Young at the Sustainable Food Trust and Bruce Pearce at the Organic Research Network, farming is a vocation: a labour of love to give back to nature through advocating

respectful methods, which they understood with immense knowledge and shared with us.

Farmers Leading Change

Any shift to a plant-based food system will need farmers and those farmers will have to lead the process if the farms are to stay productive and feed people.

Ivan De Klee runs a farm cluster, a group of farmers who pool knowledge to develop projects that work better together, especially for ecological benefit and land use management such as developing wildlife corridors over the landscapes of multiple farm businesses. Such clusters, supported by Natural England, are based around group learning. “You can’t give directive advice,” Ivan told us about the restrictions on the project, “and that’s not what farmers want anyway. No-one is telling them what to do. It gives people freedom to learn and implement at their own pace. Farmers say what they want to focus on and I organise events around those subjects. We managed to get two in before lockdown. We’ve got 35 farmers from 27 farms, every different kind of shape and system, from conventional arable to places like Knepp. There’s a whole range of different points of view – some farmers are doing it to feed their families, others as hobbies – but what brings everyone together is the idea that going forward we have to farm in a carbon neutral way.”

Ivan works on the Knepp Estate, made famous by Isabella Tree’s award-winning book *Wilding: The Return of Nature to a British Farm*, and for the first pair of breeding storks in the UK since the fifteenth century.¹⁵⁴ Isabella and her husband Charlie have transformed the Knepp estate from a traditional farm into a nature restoration project, rather than “setting ourselves up as an alternative farming system,” Isabella told us. Knepp’s value to the food system is in providing complementary services—a buffer for agriculture, bolstering the system with flood mitigation, pollinating insects, pest control, water storage and purification, micro-climate, and protection from extreme weather events, “inspired by the past to kickstart natural processes and getting biodiversity back” within a very restricted space. “Twenty years ago,” Isabella explained, “our soil was some of the most depleted land and most unpromising for nature in Britain. We’re right under the Gatwick air corridor. But now we’re one of the most significant areas for nature, with some of the rarest species. It shows how fast it can come back.” Even this flagship success is under threat, though, if planning laws do not change to protect such developments.¹⁵⁵

Sustainable Enterprise

For Roger Vickers at the Processors and Growers Research Organisation (PGRO), whose *Blueprint for UK Pulses*¹⁵⁶ lays out a pragmatic and achievable ten step response to the food system's challenges post-Brexit, sometimes farmers *do* want to be told what to do. This is especially so when there are mixed messages from industry, food users and government in times of uncertainty, such as we are facing now.

"Farmers do things for two reasons," said Vickers. "Their peers do it and they make money out of it. If a policymaker can't help the farmer make money, then policymakers have to shape the parameters to meet other motivations. And it is important to be clear. For example, the CAP2014-15 greening measures were made on the basis of environmental benefits in return for money and importantly pea and beans qualified as crops under those measures due to their environmental credentials of fixing nitrogen in the soil.¹⁵⁷ Crop areas for peas jumped

significantly, by 20–30%. So, you can see how policy can work well in showing farmers what they can do." (It is worth noting that, when the rules changed, excluding pea and bean crops from using agrochemicals, then crop numbers dropped as pest proliferation was too prevalent for farmers to take the risk with new and sometimes difficult-to-grow foods.)

What we *can* all agree is that the UK needs to be eating much more fruit, vegetables, nuts, grains and legumes. "There could be huge opportunities for farmers, hill farmers too, and a better life," explained Meldrum if the UK were to invest in this growth.

Other opportunities would be policy levers to reduce stocking densities, and other ways to make money from land, such as tree planting for climate benefits, or wildlife restoration and stewardship, as examples.

The Farmers' Vision in More Depth: What is Working Right Now

The research we conducted was by nature qualitative and narrative, and is presented in a manner reflective of that approach. As well as the factors expressed above, we gathered further cross-cutting themes that kept resurfacing in the interviews. We summarise them here as the practices, policies or frameworks that our participants wanted to retain in any future food system. For our purposes, we considered these the most interesting for further exploration as having potential to facilitate a fairer plant-based food system. These were:

- **'Public Money for Public Goods'** has been the clear message from government for a transformation of the agriculture system. For those we interviewed, this concept needs to extend into food production, so that farmers do not turn into 'mere park keepers' or become dependent again on subsidies for farm profitability. There was also the perceived need for a clear definition of what public goods are, so that effectiveness in application of the models can be measured against a set of public good principles. (See also our discussion of 'public value', as outlined in the Barber Review, in **Part 4** below.)
- **Benefits of 60 years of productionist models.** Leading up to and following World War II, farmers were tasked with growing more food quickly, and cheaply. Farmers responded to

the challenge. Doing what they were asked to, many of the older generation of farmers, especially on family farms, feel frustrated that they are now told their practices damaged the environment. This is especially so when structural conditions, including policies such as the Common Market grants to "grub up" (destroy) apple orchards in the 1990s, led to British farmers being unable to compete with cheaper European imports. This productionist economic model is rightly seen as outdated and the shift to a multi-criteria and diversified approach for food production has taken its place. But many of the efficiencies and benefits of the productionist model, such as guarantees of major basic crops, should be recognised even as the system progresses. We felt these issues voiced by the participants were particularly relevant for a plant-based food system that will demand an increase in plant crops at scale to properly meet complex food demands.

- **Move towards diversification.** Many farmers and food producers, such as George Young at Fobbing Farms and Josiah Meldrum of Hodmedod, advocated a farming system that goes beyond the current 'three crop rule' for diversification of EU farms that was carried over into UK law when we left the EU on 31 January 2020. For more diverse, mixed and rotational production, three crops will not give us the

food system we need. And while a temporary relaxation of the rule was implemented in 2020 (responding to floods earlier in the year that made it difficult for farmers to have even one crop growing, let alone three), a long-term relaxation of the rule would lead to greater intensification and monocropping of the land, which is the wrong direction to go in if we are to replenish soil and grow more of our own food.

- **Passionate relationship with the land.** "Farming is an identity, not a job or profession," Josiah Meldrum told us, echoed by all those we spoke to. "Farmers are an independent, strong-minded community, who are the current guardians of a system which has been developed over many, many centuries," agreed Tim Strang, a sheep farmer in Wales. This strong identification with the practice of farming is what maintains our food supply in the face of ever-more challenging conditions for farming to be profitable and is something that we recognise is likely to be part of any future sustainable food system. In the CLA's report, *Redefining Farming*, over a third of all farmers surveyed (36%) said they farmed to look after the environment, while nearly half (46%) said they were motivated to improve natural assets and protect the natural environment through their business. (With different incentives, research, production and consumption priorities, measured against multiple criteria in health, social values, ecosystems benefit and economic viability, there is the opportunity with a pioneering plant-based food system for farmers to feel even more attached and passionate about what they do; feeding the UK population healthfully and protecting the environment.)
- **Increased awareness of ecological impacts.** "Even five years ago you had farmers around here not interested in what we were doing with the project," explained Isabella Tree of the Knepp Estate. "But now, many more farmers are looking at what we do. Not all of them. But the change, even over the last couple of years, has been incredible." There has been a significant shift in awareness in the farming community of farming's ecological role, both good and bad. Numerous studies have shown the deleterious effect of 'animal agriculture', and the positive potential of plant crops and a more diverse production system. "Soil regeneration is at the forefront of farmers' minds," agreed Ivan De Klee of his 35 farmers in the cluster. "And there are really positive aspects of the narrative here around climate, in terms of carbon sequestration."

This growing awareness of the role that food production plays in responding to the climate and ecological emergencies will have to be a central pillar of any future food related policy.

- **Growth in regional resilience and co-operatives.** Co-operatives such as the Kindling Trust in Greater Manchester, producer networks such as Hodmedod that grew out of the East Anglia Food Link, and the Sustainable Food Places partnership (previously Sustainable Cities) were put forward as excellent models for seeing how local and regional food systems can work effectively. And while some may be working in local or regional rather than national settings, they all provide leadership in multi-criteria and systems thinking approaches to solving social, environmental and economic issues which, where relevant, may be scalable to the national level.
- **Transparency around sources of food.** One of the most important improvements to the UK food system in the last decade has been the return to transparency around sources of food. Before 10 retailers took hold of the food retail market (controlling 90% of the market during the first few months of the pandemic lockdown),¹⁵⁸ food was purchased through thousands of smaller independent shops such as grocers, with many more local farms supplying local people. Although we are unlikely to return to such a scenario, even within a new plant-based food system, the value of knowing where our food comes from creates an important bond between land, farmer and food user. As Josiah Meldrum of Hodmedod put it, "Our pea growers have found it massively rewarding to get the feedback that people are enjoying their products." George Young of Fobbing Farms began milling and delivering flour during lockdown, "not to make any money, because it didn't, but because it felt good to see people using our food." We can also learn from abroad, such as the Crowdfarming¹⁵⁹ initiative in Spain, linking farmers to food users, as well as from new ways of telling the food narrative, such as Hodmedod's partnership with the Dark Mountain storytelling group.¹⁶⁰

These positive aspects of the existing food system, expressed by our interview participants, are a valuable set of indicators for researching future policies that can return value to the food system. These are ideas already found in the policy proposals of organisations and alliances such as Sustain, Eating Better, the Sustainable Food Trust, the Soil Association, the Food Ethics Council,

Nourish Scotland and the Land Workers Alliance. They are aligned with the EAT-Lancet Commission and the Committee on Climate Change, the RSA's *Common Ground* report and the EAT report¹⁶¹. We recognise the broad support to retain and encourage these existing facets of the food system. We also believe there needs to be further transformative shifts in our food system, because there is still much that stands in our way in building a food system that is both sustainable and truly fair.

What's In Our Way?

The farmers and producers we spoke to had direct experience of a range of obstacles to their farming and food production that could be removed, through new policies, clearer implementation of policies or more robust mechanisms to enforce existing legislation. For example, many spoke of the need for a **nitrogen tax** and related **investment in research on nitrogen-fixing crops** to help reclaim healthy soils from denuded land. But there were also obstacles that were difficult to pin down, being more cultural than economic. For example, George Young spoke of the 'modern myth' of farming, where local residents want farms to be neat and tidy, "good to live next to" by living up to the bucolic images that commercial brands create to sell 'natural farm' products. When this myth of farming gets in the way of, to select one example, planning applications for farm worker accommodation, these attractive images of farming are working against the farmers themselves.

The food policy experts we spoke to recognised most of these obstacles to a fairer, more sustainable and economically viable food system. Many of their existing and future policy proposals reflect plans to overcome these challenges. For example, as Vicki Hird, Head of Sustainable Farming at Sustain, told us, a lack of living hours and living wages in the food system is a critical obstacle to valuing food properly. In post-Brexit scenarios, these obstacles could result in not enough labour being available to pick crops, especially fruit and vegetables. This is a thorny issue for policymakers and another that requires a multi-criteria approach to food policy that interacts with potential solutions that cut across society. If we cannot properly resource labour in horticulture, then we cannot increase our UK production of fruit and vegetables, with the knock-on effects that has on land use, food miles and population health.

The obstacles our interviewees identified as stopping us from building a fairer and more sustainable food system were:

- **Existing subsidies.** Nearly everyone we spoke to looked forward to the end of the

EU's Common Agricultural Policy (CAP) and the introduction of the Environmental Land Management scheme (ELMs). But there were caveats, with the fear that there are, as yet, no figures or budgets attached to the work that ELMs can support – as Humphrey Lloyd of the Land Workers Alliance put it, a much-improved payments system will fail to achieve the hoped-for ecological benefit if there is much less money available. Many were worried that ELMs would also fail to be systems-led and remained unclear of the details. Also, as Martin Lines of the Nature Friendly Farming Network (NFFN) told us, the late-in-the-day lack of clarity significantly hampers farmers' ability to plan and implement more sustainable practices.

- **Watering down of environmental commitments.** The recent announcement by Defra of the Sustainable Farming Incentive (SFI) as a transitional scheme into ELMs has caused concern among farmers and the food policy world. For example, Martin Lines of NFFN told us that it could "oversimplify the system and provide no oversight as to what the money is going to pay for, in terms of environmental benefit." Sustain have argued it could divert time and resources away from implementing the more ambitious ELMs. "A whole farm approach should be based on agroecological farming that supports farmers to grow plentiful healthy food in a way that protects and enhances our environment and culture,"¹⁶² argue Sustain.
- **The political system in general.** The lobbying power of major retailers and producers of existing unhealthy and unsustainable foods, including highly processed meat and animal products, is huge compared to those advocating for more plant growth and plant-based products. The current UK Government's position on trade leans towards non-intervention in markets,¹⁶³ at a time when intervention is exactly what is needed for an urgent redirection towards more positive outcomes. Some of this, our participants explained, was about politicians fearful of losing their rural community base, although some policy practitioners felt the risk of a public backlash against a shift to a plant-based food system was overstated. Tom Gill of Promar International felt that, "there is a lack of harmony through the current agenda – not enough people in government are trying to get services regulated, food procured and farmers supported so that the all parts of the system are working in harmony."

- **Misalignment across England and the devolved nations.** As many, such as Tom Gill lamented, there is a growing sense (worsened by Brexit and at the outset of the COVID-19 pandemic) that policies across the four nations are not aligned. This is particularly worrying for the food policy environment, where learning, habitat protection and environmental stewardship works best at the landscape scale. "The devolved nations have to be aligned," Tom said, "including England. But instead it feels as if it is becoming more divisive and that will undermine production. Food and farmers are not bothered by postcodes."
- **Consumer habits.** There is an unwillingness to change the ways in which consumer market spaces are dominated by corporate, rather than consumer, interests. Consumer habits are driven by dominant factors that shape our diets at three levels, according to the Government's Behavioural Insights Team.¹⁶⁴ These are at the *individual level*, e.g. psychological drivers such as tastes, preferences, values and beliefs; the *social level*, such as peer influence; and the *material level*, including the ways in which consumer spaces are designed to lead to specific choices, including pricing, advertising and media. As Daniel Vennard from the World Resources Institute and their Better Buying Lab¹⁶⁵ told us, "We have to tackle ownership models of our consumption environments so they are not only run by corporates for profits, so we can rebalance them for citizens to do what citizens want, which is to make better purchases. We have to tackle how the food market is run, change the power dynamics so that civil society plays a role. We need to rethink shopping spaces as public citizen spaces." Or as Simon Billing of Eating Better put it, "It is not about less choice but better choice."
- **Industry status quo.** There is heavy investment and belief in, especially among political circles, a highly-capitalised agri-tech system that operates as a 'lock in' to obstruct changes to production processes. Once large capital investment has been made in producing specific foodstuffs, it is difficult to shift to a more diverse model or into rotation. Post-Brexit trade talks may strengthen this lock in. Lock ins can be seen as "undesirable resilience"¹⁶⁶ in the food system. As many of our participants pointed out, including Bruce Pearce of the Organic Research Network, even with changes in competition law or new farmer-consumer networks, the dominance of supermarkets means very little can change when food distribution is based on a *laissez*

faire free market model. The International Panel of Experts on Sustainable Food Systems (IPES-Food) have mapped out many of these threats from "agri-business as usual" in their report, *A Long Food Movement: Transforming Food Systems by 2045*, to highlight the risks of handing over "the keys of the food system to data platforms, private equity firms and e-commerce giants" which, they argue, puts "the food security of billions at the mercy of high-risk, AI-controlled farming systems, and accelerating environmental breakdown."¹⁶⁷ However, as all of our interviewees accepted, supermarkets at least are here to stay and must be part of the solution to a fairer, sustainable food system rather than being seen as the problem.

- **The myth of farming.** Agriculture contributes £10.4bn to the UK economy, which is 0.53% of the UK's total Gross Value Added (GVA).¹⁶⁸ To put that into some perspective, the Creative Industries contribute around £111bn, or 5.8% of total GVA, while agriculture is on a par with gambling (also around 0.5% of GVA).¹⁶⁹ Considering agriculture's crucial role in planetary and population health, this Value Added must be much higher, through increases in production, especially for fruit and veg, but also in the value given to food and the monies paid to primary producers such as farmers, rather than further along the supply chain. However, as it exists now, the public and political understanding of farming is divorced from its real value. This means that agriculture is both over-represented in political influence, but under-represented in its realistic operation (e.g. farmer George Young's experience with local resistance to planning applications.) The unrealistic picture we have of farming ultimately works for no-one. The polarization of debate around farming's ecological and ethical impacts has not helped, and contributed to the separation of farmers and farming from the environmental and animal protection communities.
- **No coherent investment strategy.** At the moment, farming enterprises are unable to shift from their current production processes, either turning animals into food or growing arable crops, because there isn't a coherent strategy or policy for supporting long-term business growth in plant-based production and foodstuffs. As Rosie Wardle, Senior Advisor at the FAIRR Initiative told us, "policy is lagging behind investment."
- **Lack of compliance with regulations.** The Environment Agency has enough enforcement

officers to visit each farm in England and Wales only once every 200 years, explained Zoe Davies, Policy Officer for Wildlife and Countryside Link. If no-one thinks they are going to get in trouble, then difficult procedures to safeguard environments and ecosystems will naturally fall by the wayside under the increasing pressures farmers find themselves under to run profitable enterprises. This is a particular concern for air and water quality around farms. While as many as 40% of farmers see themselves as custodians of the land, and a quarter see themselves as environmental stewards, according to the CLA's *Redefining Farming* report,¹⁷⁰ the majority

of farmers continue to see their primary motivation as running profitable businesses. All our farmer participants expressed this clear need and desire to run sustainable businesses, for their benefit and ours. Compliance environments are critical for those who wish to run ecologically sustainable businesses.

- **Gaps in knowledge for protein growing options.** Farmers do not yet know enough about the different options for growing plant proteins direct for human consumption; where there is knowledge, there is not enough capital investment or market opportunities to make those options viable.

What our Farmers and Food System Need

As Professor Tim Lang writes, we need "policy-makers to adopt a broad 'multi-criteria' approach to delivering sustainability for food systems"¹⁷¹ and that was reflected in the views of those we interviewed for this research. From these 30 conversations, there emerged a consensus on where priority efforts need to be made. Firstly, there was broad support for establishing a systems-thinking, multi-criteria approach with clear principles and measurable targets. Priority needs also emerged; ideas shaping legislation or work that needed to be done to establish fairer, sustainable foundations for changes to follow. These views have helped us think through what a credible legislative agenda looks like, based upon the commonly held understanding of the ways in which the food system works and how it needs to shift if it is to become fair and sustainable. What emerged from our research was a set of principles and ideas that those involved in the farming community and food system believed were critical to its long-term sustainable success. These were:

- **Long-term thinking.** Time and again, this came through as the key to making decisions that have a chance for bringing about the transformative change we need. "Big decisions have to go through the long-term lens," said Dan Crossley, Chief Executive of the Food Ethics Council. "All policies are really just tinkering at the edges if we miss the big picture." This was echoed by multiple voices, such as Josiah Meldrum of Hodmedod, who added, "There's been a failure of systems thinking at policy level, but also in academia and research." For Daniel Vennard at the Better Buying Lab, a project of the World Resources Institute, "Policy has been naive." For Isabella

Tree at Knepp, something akin to the 'seven generation rule' from indigenous cultures – where decisions made have to take into account their impacts on descendants seven generations in the future – is a creative model that we have lost sight of in (some of) the UK. The Well-being of Future Generations (Wales) Act (2015) was cited by many as a positive example of where such long-term thinking could be applied to food policy – this call from all of our participants for long-term thinking has influenced our legislative agenda.

- **A unifying mechanism.** The lack of an overarching vision has hampered efforts to create the fair and sustainable food system we need. We have not had such a strategy since the post-war period. A new initiative, what started out in 2015 as the current Government's ambition to establish a '25 Year Food and Farming Plan'¹⁷² was broadened into the existing 25 Year Environment Plan, with the Agriculture Act 2020 and Environment Bill (going through Parliament at the time of writing). With the promise of a National Food Strategy and a Government response in 2021, this has given hope to many in the sector. Finally, the UK could begin to value food properly again. As Dan Crossley of the Food Ethics Council put it, "the National Food Strategy will be the only game in town" and the delivery of *Part 1* in July 2020 has only cemented that vision for most people. But concerns remain that the fragmented nature of current Government responsibilities for food production will continue. Simon Billing of Eating Better echoed this need for an overarching approach. "The National

Food Strategy is only the beginning. The UK needs to be a model for 'better'." Without a "harmonising" unifying mechanism, as Tom Gill at Promar International put it, to tie together policies and binding targets on land use, nature recovery, health, rural economy, just work and social values (including animal use), the different Bills could introduce laws that compete with each other and fragment the food system. For example, as many of our participants explained, the key to the Agriculture Act working effectively will be targets set in the Environment Bill, but how will they be measured or enforced?

- **Investment in and ownership of ELMs.** The Environmental Land Management scheme that is to replace the EU's CAP subsidy system is the largest shake up of farming and food production for five decades. It was clear to all that ELMs needed to be shaped with the farming community, to embed farming policies within a broad sustainability and climate change framework. This would have a focus on productive land use that does not provide payments for subsidiary environmental benefit only, but also for sustainable food production. As many, such as Sarah Gould from Tyfu Cymru, Vicki Hird from Sustain and Rob Percival from the Soil Association were all in agreement on, having ecosystems' services recognised is wonderful from an eco-conservation perspective; but as many, including Humphrey Lloyd from the LWA and Richard Young from the Sustainable Food Trust noted, ELMs need to support the locking in of carbon. Targets must be linked to a systemwide change in farming, with payments for a "whole farm" approach tackling, as Rob Percival put it, "three crises, not one – health, climate and environment." There were many further aspects of ELMs that participants felt needed looking at:

- Rotational farming as key to sustainable success;
- ELMs must be landscape scale and requires collaboration to join up parts of land across farms (where farm clusters can be particularly useful);
- Integrating environment into farming enterprise business planning;
- The need for strong policy drivers to create wetlands and natural benefits around farming;

To see subsidy at the point of consumption rather than at production, so, for example, subsidies existing to help make basic, nutritious

foods (e.g. sourdough) much cheaper, while making unhealthy, highly processed foods of the same food type (e.g. branded white bread) much more expensive.^{173,174}

Worries remained about ELMs, not least that no one knows yet how much money will go into the scheme. As Humphrey Lloyd of the LWA identified, "If after CAP the money available goes *down*, there might be loads of farmers leaving the sector and a real piling up of agri-tech as the solution." As Richard Young also articulated, "If food production drops if farmers leave and land is taken out of food production, and if consumption doesn't drop, then imports increase, which is worse for our environment and food security." As Isabella Tree argued, "What is needed is a new contract between farming and government, where environmental enhancement is an attractive proposition and makes farming enterprises profitable in the round, especially encouraging and incentivising agroforestry so it becomes viable and not taboo."

- **A sweeping reduction in chemical fertilisers and pesticide use.** Farmers, food policy and health experts were united on the need, as a matter of urgency, for the UK to enforce a drastic reduction in the use of chemical and nitrogen fertilisers in the interests of plants, insects, air quality, water and soil health. There has been progress.¹⁷⁵ Richard Young of the Sustainable Food Trust pointed to their 'polluter pays' principle as grounds for a policy instrument,¹⁷⁶ which could be a 'nitrogen tax' although there would have to be anti-dumping practices enforced, so nitrogen or other fertilisers were not simply dumped into other national farm systems. Roger Vickers of the Processors and Growers Research Organisation (PGRO) advocated for a carbon credit system for good practice in pulse growing, which fixes nitrogen in the soil. He was also keen to support a major reduction in agrochemical use – but not a total elimination, yet, as UK farmers lean on agrochemicals to grow legumes and pulses with financial viability under changing economic and environmental climates. Much more research is needed here. "We get £1m a year from growers and other sources for research, which is tiny in comparison to organisations such as the Agricultural and Horticultural Development Board," said Vickers. "Investment must come in from government – a huge increase is needed in pulse crop research production [to go pesticide and chemical free]."
- **Planning law changes.** There is a multitude

of opportunities where changes to existing planning law would improve both the food and farming system. For example, as Humphrey Lloyd of the Land Workers Alliance outlined, existing planning laws are obstructing hundreds of new entrants to farming due to limitations, bureaucracy and prohibitive costs on setting up farming enterprises, especially on the small scale (three hectares and under). As George Young at Fobbing Farms has discovered, trying to make the farm more sustainable by converting existing buildings into farmhand accommodation – to make recruitment easier and also reduce the carbon footprint of their travel – has not been as easy as hoped. As many suggested, government policy to regulate land use and purchase is key so it is cheaper and planning is easier. Planning law also affects what food can be purchased, where and by whom – for example, in allowing concentrations of highly processed fast food takeaways in poor areas.

- **Scale up horticulture.** Horticulture (especially the growing of fruit) is highly productive per unit area, offers a high intensity of employment creation and the income off one acre of land can support two people's livelihoods. There are, as Humphrey Lloyd from the LWA argued, "Strong social and health dimensions too, as no one eats enough fruit and veg." Since the 1980s, though, land used for horticulture in the UK has declined by a third, despite the context of a rise in the trade in fruit and vegetables under EU common market rules. A major problem is that farms under five hectares (almost all horticulture) don't have support or data gathered to show their sustainability. The UK currently imports around 97% of the fresh fruit we consume and it is likely that Brexit will see a rise in prices. Horticulture works well in community and social formats, and has lots of members, and contributes to health, economic and environmental benefits, especially, as Bruce Pearce from the Organic Research Network argued, when produced without fertilisers and pesticides. Christian Reynolds of the City University Centre for Food Policy highlighted the need to plant fruit and nut orchards now, given their ten-year growth period without cropping.
- **Reprogramme public procurement.** Public purchasing of food in the UK is vast, in terms of hospitals, prisons, schools, council and statutory services. "We can definitely deliver on a better food system by having public procurement refocused on a healthier diet, with purchasing far more fruit and vegetables," agreed Simon Billing of Eating Better. (The

Vegan Society runs a Catering for Everyone campaign to improve public procurement and ensure a nutritious vegan meal on every menu, and continues to see this as a critical short-term goal for health, environmental and ethical benefit.)

- **Stronger farmer-food user links.** Participants felt that it was crucial to build more direct links between farmers and the users of their food. As all the farmers we spoke to, as well as the food producers and researchers, explained, these links increase the 'value' of food not simply in economic terms but also measured by social, cultural, environmental and (mental) health criteria. For farmers, there is, as Josiah Meldrum put it, "a huge non-economic reward for producing stuff that is of value to others." This value is mirrored on the other side, "People want to see and know who produced their food," said Simon Billing of Eating Better. And yet, as Bruce Pearce said, voicing the thoughts of many, "this is a model not supported by the current supermarket-driven system." A fairer, more sustainable food system will connect farmers and consumers more, especially around the production of grains and arable, and show the value of the product and its human side. "To rebuild people's connection with food is fundamental," said Meldrum. "We have to re-localise supply chains and links," agreed Pearce, supported by recent analysis from the Sustainable Food Trust.¹⁷⁷
- **Democratising research to plug the gaps.** There was widespread support for the idea of overhauling data and research. "We need to transform research broadly, not only tinkering on individual projects but looking at how coordination of research can contribute to a fair and sustainable food system," said Dan Crossley of the Food Ethics Council. When it comes to the true costs of meat – its economic impact, health subsidies and other externalities – these are, as Richard Young of the Sustainable Food Trust put it bluntly, "unknown. The data doesn't exist." Although as Simon Billing of Eating Better said, "whichever way you look at it, we need to drastically reduce meat consumption."

There were further policies, legislative ideas and mechanisms that found some support across the field, in the interviews we conducted and research drawn from other organisations, although with less universal backing than those listed above. These included:

- **Carbon tax on meat reduction and removal.**

Not everyone thought a 'meat tax' was a viable political option due to the social and cultural emphasis placed in the UK on individual 'consumer' choice. Tom Gill at Promar International felt it was too blunt a mechanism. Some of our interviewees, however, felt it was a necessary, and even inevitable, policy response to the impact of animal agriculture, especially meat products, on global planetary and human population health. "We need to make meat more expensive to reflect the real cost and drive plant-protein demand this way," said Roger Vickers of the PGRO. Many accepted that with farming being so dependent on subsidies, the food-using public did not recognise the true cost of meat products. Rosie Wardle explained how her organisation, FAIRR, was putting forward a tax on meat, or a "livestock levy", as an "almost inevitable" policy to reduce consumption on public health grounds, "and to account for its negative environmental externalities. A meat tax could prevent more than 220,000 deaths and save more than US\$40 billion in healthcare costs," argue FAIRR, based on a paper from the Oxford Martin Programme on the Future of Food.¹⁷⁸ The UK Health Alliance's recent report, *All Consuming*¹⁷⁹, also called for a "climate tax" imposed on foods with a heavy environmental and health impact, from 2025.

- **Access to capital for new entrants.** As Humphrey Lloyd of the LWA said, there are "lots of barriers from encouraging new entrants into farming and that leaves people in small scale farming with a high dependence on second hand equipment and volunteers." Roger Vickers from the PGRO added that there are also high barriers to entry for "plant protein extraction, as it requires large capital investment."
- **Policies to increase restoring and rewilding.** Many participants felt we need to urgently restore our uplands and rewild those suitable areas of the UK with sustainable, research-led tree cover if we are to sequester carbon and replenish soils; some of this can be through investment in horticulture (growing fruit) but much of it will have to be through rewilding. As Helen Chesshire of the Woodland Trust told us, at present the UK has nearly the lowest level of tree cover in Europe (only Iceland and the Netherlands have less). And yet, as European food strategist Alexandra Clark pointed out, while restoring and rewilding are discussed in the Committee on Climate Change report on land use, that report's recommendations have not led to policies. Martin Lines, Chair of the Nature Friendly Farming Network, advocated for farmers to be given the funding

and opportunities to speak to other farmers to communicate the benefits and challenges of farming for nature. "Farms are enterprises," explained Isabella Tree from Knepp. "They can earn money from ecotourism and offices. For us, Countryside Stewardship and then Higher Level funding from Europe was enabling for our nature restoration and payments were assured, so we could make the transition. That has to continue if farmers are going to be able to create working farms that benefit the ecosystem too."

- **Climate justice is food justice: a zero carbon diet.** As both Peter Tyldesley, Chief Executive at the Centre for Alternative Technology (CAT), and Humphrey Lloyd of the LWA were keen to emphasise, a zero carbon diet, which follows the guidance of the EAT-Lancet Commission's findings, is part of a global commitment to climate justice in following 'fair share' principles for those countries who have, historically and still currently, contributed most to the climate emergency. The UK, as the crucible of the industrial revolution and fossil fuel extraction, has a significant 'share' to burden in responding justly to the emergency. A zero carbon diet (which a plant-based food system is most likely to deliver upon) is a large element of the UK paying its fair share for climate justice. However, there is debate around whether diets need to be 'carbon zero' or 'net zero' – a distinction that relies on whether we fully remove greenhouse gas emissions from agriculture (as argued for by CAT) or find ways to reach a 'net zero' balanced budget, as presented in the National Farmers' Union (NFU) *Net Zero* report¹⁸⁰.
- **Amend competition law.** The economics of the current food system are unfair. A key driver of farmers doing badly is the lack of fair price and fair deal in the marketplace. The Competition Commission's 2008 report into the UK groceries market, stimulated by the Office of Fair Trading's complaint in 2006, stated that "action was needed to improve competition in local markets and to address relationships between retailers and their suppliers." This led, finally, in 2012 to the establishment of a Groceries Code Adjudicator in the 2012/13 parliamentary session.¹⁸¹ As Vicki Hird from Sustain told us, "Farmers are operating under unreasonable demands from multiple big retailers (e.g. on the cosmetic perfection of products, delivery times, etc). Farmers can't treat animals, the land or workers better, nor get off the pesticide treadmill, if they are under so much pressure from the major supermarkets. Amendments to competition

law could really change this and make a huge difference for farmers.”

- **Investor support.** Large investors, such as pension funds, are interested in their portfolios supporting a fairer, sustainable food system, especially moving away from animal agriculture into plant proteins. As Rosie Wardle from FAIRR told us, so much more needs to be done to bridge policy-investor interests.
- **Policy makers are local too.** As Peter Tyldesley was quick to point out, building on outreach done by CAT in promoting a ‘zero carbon Britain’ including a zero carbon diet, there can be great gains made by mobilising at local and regional levels for policy implementation. As the Sustainable Food Places and C40 Cities have shown, councils and grassroots leaders

do not need to wait for central Government to act.

- **A National Nature Service.** Wildlife, conservation and farming organisations have proposed a nature protection and restoration service to rival the NHS in value to the UK. This idea was put forward to Defra to shape the Environment Bill with ‘shovel ready’ projects to help boost a Green New Deal response to the COVID-19 pandemic.¹⁸² As Zoe Davies at Wildlife and Countryside Link explained, “We need to underpin any Green Recovery with guarantees for nature, not only for the economy. There’s a very strong argument for rebuilding this country after the pandemic with long-term resilience through nature, with all the health benefits that brings too.”

A Seat at the Table: Principles of Working Together Despite Differences

These findings taken from interviews with those in significant positions of expertise, knowledge and influence, alongside the synthesis of published reports and peer-reviewed articles we looked at, have strengthened our understanding of what is needed for a fairer, sustainable food system. The contributions from experts and farmers across the four nations has helped us develop our legislative agenda. Of course, as we have said, the policies that we propose are our own. Yet when those with different perspectives, like sheep farmer Tim Strang and his vegan son, can sit down together and find common ground, it proves a powerful alliance in tackling shared problems. We have followed this principle.

However, one argument against moving towards a fully plant-based food system was made by many of the farmers we spoke to, as well as most of the policy experts. This argument came in their support for what has come to be called ‘regenerative agriculture’: a set of agroecological principles for a farming system that includes large herbivores to help regenerate land and soil. Many, such as Isabella Tree and Charlie Burrell at Knepp, George Young in Essex, Martin Lines of the Nature Friendly Farming Network on his farm in Cambridgeshire and Sarah Shuffell in the Welsh hillsides, are already practising rewilding and restoration, or forms of agroecological / regenerative agriculture. It is also at the heart of Soil Association and Land Workers Alliance programmes. Rather than simply ignore the passionately held beliefs of those advocating for a regenerative agriculture that includes farmed

animals, it was right that we addressed the issue head on.

The arguments for agroecology

Regenerative agriculture describes farming practices (which include grazing) that, among other things, help rebuild soil organic matter, restore degraded soil biodiversity and help mitigate against the climate emergency through carbon drawdown and improvements in the water cycle. There are many dimensions to regenerative agriculture, explored in its different manifestations as, for example, agroecology,¹⁸³ agroforestry,¹⁸⁴ silvopasture¹⁸⁵ and no-till growing.¹⁸⁶ Most of those we spoke to employed the term ‘agroecology’ to capture the full range of potential activities that were reparative for soil, climate and farm health. Agroecology is an example of ‘systems thinking’ and “emphasises the idea of ‘system redesign’ rather than ‘input substitution’ for maximum benefit”, drawing on practices such as “the use of rotations and polycultures, biological pest control or legumes to biologically fix nitrogen” and draws heavily on organic farming research and practice.¹⁸⁷

The ‘regenerative’ aspect of arguments made in favour of animal use in agroecology (as opposed to the economic arguments based on the profits made from animals as ‘stock’ and ‘produce’ in the system) are:

- Good ‘livestock’ management practices increase plant biodiversity in grasslands, which in turn enhances productivity, resilience and other ecosystem services.

- By eating fibrous feeds (e.g. grass and straw) and waste (e.g. swill), ‘livestock’ make use of biomass that humans cannot eat and this increases natural resource use efficiency.
- Animal mobility within and between agroecosystems and landscapes transfers nutrients, biomass and water in the form of animal manure.
- Manure is rich in nutrients and organic matter, which are key to the physical, chemical and biological properties of healthy soils.
- Improved pasture management supports soil carbon sequestration; this can be achieved by adjusting grazing pressure through balancing the spatial and temporal presence of ‘livestock’ (e.g. through participatory land use planning), nutrient management, diversifying pasture species mixes (e.g. with legumes), improving the mobility of animals in pastoral and agro-pastoral systems and integrating trees and pastures (silvopastoralism).^{188,189}

For Rob Percival and the Social Association, agroecological farming is the solution to “the three crises we face – climate change, soil degradation and pesticides” and alternative approaches that focus on only a single issue will not be adequate for the challenges we face. The Soil Association position was aligned at the time of writing with the

IDRRI report, *An Agroecological Europe by 2050*¹⁹⁰. The RSA’s *Farming For Change* report adopts new IDRRI analysis specifically for the UK food system, which argues that agroecological processes can help us grow enough healthy food for a future 2050 population while reducing greenhouse gas emissions and releasing 7.5% of agricultural land up for other purposes.¹⁹¹ Another RSA report, *Farming Smarter*, lays out four major risks to farming businesses in the UK (degrading natural assets, high and volatile input costs, vulnerability to a changing climate, and shifting consumer demands) as key reasons why farming on a business-as-usual basis will topple an already “financially precarious industry”. Their answer is agroecological transformation, especially investment in agroecology at pace and scale.¹⁹²

This chimes with what many of our participants told us. Isabella Tree of Knepp was adamant, as are many within the smaller scale, agroecological movement, of the necessity for large free roaming herbivores such as cows to be part of the regenerative process in replenishing soils and biodiverse areas. The way Sarah Shuffell put it was that, “I feel very comfortable with breeding and raising rare breed cows and sheep because they are great for conservation and I feel it replicates very closely a natural system.”

Agroforestry for restoring land and battling the climate emergency



Agroforestry is an agroecological solution to farming practices that sees the growing of trees, shrubs and hedgerows alongside agricultural or horticultural crops on the same land. There are over two decades of research into agroforestry providing evidence that it is biologically productive, profitable and sustainable – more so than forestry or agricultural monocultures on their own.³⁷⁹ Agroforestry systems bring numerous benefits, such as the control of run-off and soil erosion and associated losses, improved maintenance of soil organic matter and biological activity (contributing to soil fertility), reduced incidents of insect pests and associated diseases, the reclamation of eroded and degraded land, and more diverse and resilient farm and rural economies.³⁸⁰ At present only 3% of farmed land in the UK practices agroforestry – the Woodland Trust’s ambition³⁸¹ is to increase this figure to at least 10%, which would see a considerable contribution made to the UK’s achievement of its Paris climate agreement targets and the NFU’s “net zero by 2040” goal.³⁸²

Agroforestry can play a key role in fighting climate change, building more resilient farms, and improving soil fertility as both chemical and animal-derived fertilisers are reduced. Agroforestry, where animals are free-living such as wild boar or deer, can also provide benefit for environments, for example in tree-denuded uplands. For some, this can also be part of a mixed-farming model. As Helen Chesshire from the Woodland Trust told us, “Well managed and carefully placed shelterbelts, hedgerows and in-field trees can improve animal health and welfare and ultimately enhance farm profitability. Trees provide shade and shelter for sheep, as well as browse for the animals.” Agroforestry can hugely benefit arable and crop farming and is a proven success for upscaling horticultural production, as farmers grow fruits and arable crops together in complementary silvoarable systems. These can be beneficial for pollen, nectar and wildflower species planted beneath, providing havens for wildlife as well as attracting pollinators vital for farming.

Our response: a vegan agroecology

For thousands of years, the use of other animals has been directed by the vast majority of humans on 'our' terms, with animals under human ownership and management, with animals 'culled' when they 'overgraze' or become 'too old' and their veterinary costs grow. The arguments for 'regenerative agriculture' as outlined above continue to view animals in this way.

We disagree that animals should be used in this way and challenge the idea that regenerative agriculture has to use 'livestock' animals. We are working towards a world where animals are no longer killed for food, exploited for labour or used any other product. We continue to support a vision of regenerative agriculture without reliance on animals currently kept as livestock, to challenge the exploitation involved in many current models of regenerative agriculture.

There are examples. The Vegan Organic Network¹⁹³ has been researching and practising animal and 'stock' free farming, using no animal manures or fertilisers. Many farms, such as Tolhurst Organic¹⁹⁴ and the Kindling Trust in Manchester, practice this "veganic" agriculture that has fully removed the need for domesticated or farmed animal inputs.

We are aware that more research and development needs to be done to ensure the scalability of veganic practices across applicable UK landscapes. But as Roger Vickers of the PGRO told us, there remains significant scope for expanding plant-based production in the UK. We believe with further research and investment that much of this can be veganic.

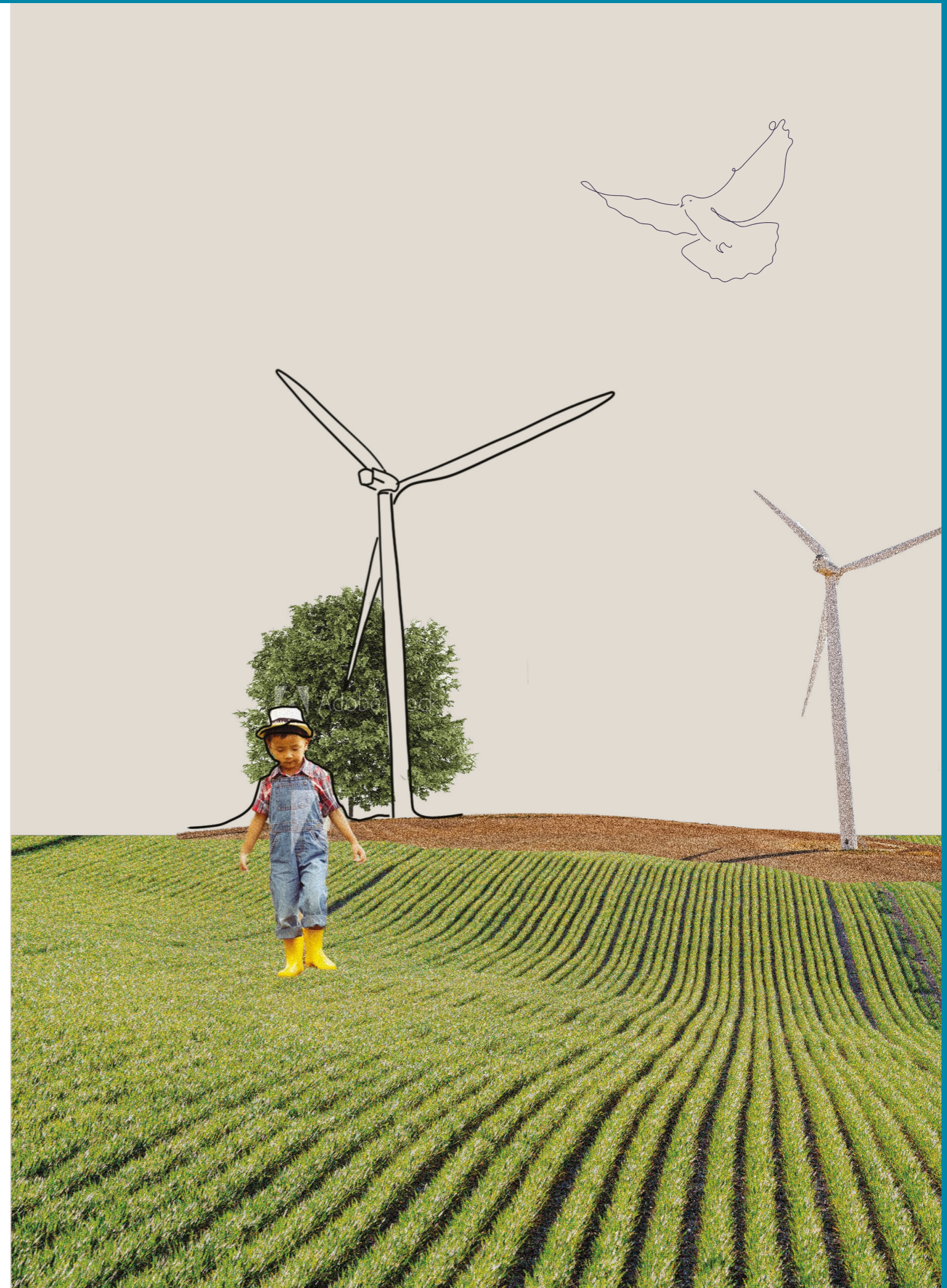
Can animals ever be part of a plant-based food system?

Could there be a future scenario in which free roaming animals play a beneficial role to the broader ecosystem with grazing, the production and spread of manure, and treading down of grasses and shrubs? As (vegan) author Martin Rowe puts it for the think-and-do tank Brighter Green, "if the ruminant offers manure, carbon-sequestering potential, social status, haulage or tillage, then why should the animal have to die to prove its worth?"¹⁹⁵ That is, can these animals still benefit soil fertility and land from their natural life processes after their release from their status as farmed animals, living free-roaming lives?

This *may* be possible. But that would take *significant* change in social relations between humans and other animals. Many alternative perspectives exist where animals are seen as equal cohabitants; farmed animal sanctuaries are one place, relationships with companion animals another. The only future scenario we support is one where previously farmed animals are free living, and given access to land with full protection during fallow periods, and restricted from access while crops are growing, returning to adjacent habitat. We accept that grazing animals have been a part of the UK's ecology and have been for many thousands of years. And we believe there may be the possibility of a reimagined relationship with large ruminant mammals, one which uses that ecological understanding as the basis of mutually respectful human-animal relationships. This is consistent with our aim as The Vegan Society to promote "the vegan method of agriculture as a means of increasing the potential of the earth to the physical, moral and economic advantage of humankind." But under existing legal and social conditions, there are no current scenarios in which farming can include animals and be 'vegan'. As such, we cannot support a regenerative agriculture that argues for animals to continue to be used in this way. While there may be in the future an acceptable 'vegan' agroecological approach to plant-based farming, at the present moment we can only support a 'vegan organic approach' as pioneered by organisations such as those in the Vegan Organic Network.¹⁹⁶

Even so, after sitting at the table together, it is clear that those working with regenerative agricultural practices are potential allies of the vegan movement, applying an ecologically sound and evidenced based approach – if not yet a vegan one. With the introduction of new laws and a change to the social mandate for how we live alongside other animals, it is possible that we could have a system that goes beyond animals' instrumentalised value as food products. But that requires removing property rights, pre-determined deaths and exploitation of those animals who are providing benefits to our soil, land and food security. In **Part 4**, alongside our legislative agenda, we outline a potential future solution for how current farmed animals could live freely and respond to this challenge.

But before we get there, in **Part 3** we look at those policy ideas and mechanisms gathered through our research in more depth.



Part 3: Solutions for a Fairer Food System Through a Multi-Criteria Lens

We recognise that any policy framework good enough for the food system we need will be a complex policy framework, based upon multi-criteria principles that operate across agriculture, environment, society and food. Most of our participants felt that these principles must be brought together under a unifying mechanism, rather than left in silos that can negatively impact one another. Rather than back away from this complex systems approach, policymakers and those wishing to influence policy must embrace it, and reshape government and governance accordingly. Long-term thinking and unifying mechanisms will work cross-government, appreciative of specialist knowledge and expertise, binding the various departments, people and processes together through an overarching vision that looks through multiple lenses at once.

Our research so far has highlighted some of the most critical issues our food systems face and a range of possible solutions to tackle them. The vision for our legislative agenda in the report, *Part One: Our Vision*, especially our Food Sustainability Bill, would start with implementing a multi-criteria framework with measures for social, economic, health and environmental solutions. Below we go into further detail of what kinds of measures these might be, as articulated in the interviews and further analysis we carried out. As you will see, all of these potential measures were advocated for by at least one of our interviewees.



While many of these policy ideas which emerged during this research fall outside the scope of The Vegan Society's advocacy work, they serve to illustrate the range of measures which could, in the future, make up the detail of a new Food Sustainability Bill. What we have done here is begin to explore each proposal to ascertain their usefulness for steering us towards a specific, achievable and vegan food system. That said, our research suggests that there are potential 'domino'

policies in each of the four criteria that would be worth investigating as priorities for their benefits in bringing about such a change. We are calling them 'domino' measures for their potential ability to catalyse further change within the specific principled criteria. We have put each 'domino' proposal at the beginning of the collection of ideas for each of the criteria, beginning with health.

Health



Many participants within the food policy space put forward ideas for the UK to implement:

New dietary guidelines that are both just and sustainable, and that would have legally binding targets.

We would add, of course, that any targets must aid a transition towards a healthful plant-based food system. Research from July 2020 provided evidence that the UK's national dietary guidelines were "incompatible with climate change, land use, freshwater and nitrogen targets" as well as inefficient in reducing avoidable diet-related deaths.¹⁹⁷ Considering our responsibility for 'fair

share' action on global climate responses, these dietary guidelines could be required by law to phase out animal products, matching the transition within the farming space of our vision to end historic property rights over other animals and their pre-determined deaths. The National Food Sustainability Council, the Plant-Based Transition Commissioner and Public Health England (or its replacement) would annually review the guidelines to update them. These would then "be the benchmark for food planning."¹⁹⁸

The other major ideas for policies gathered under 'Health' criteria are:

Measure	Unpicking the detail
Restrictions on food advertising on both traditional and social media, and new labelling initiatives	<p>The government's new Better Health strategy for tackling obesity bans advertising of High Fat, Sugar and Salt (HFSS) foods before 9pm,¹⁹⁹ but is not nuanced enough to properly reshape the media communications sphere, particularly where children and young adults are consuming media messaging. Collectively as a food policy community, we can learn from the HFSS advertising ban to see if it has any impact, and add ethical and environmental angles to any future policies' proposals.</p> <p>"If we shift behavioural purchasing issues, we can then work out what legislation or policy might need to follow," Daniel Vennard from the World Resources Institute told us. This extends to the communications environment. More ideas around restrictions on food advertising and social media were to be found in <i>A Menu for Change</i> from the Behavioural Insights Team²⁰⁰.</p> <p>Potential short-term application Advertising restrictions on foods that are classified as unhealthy, unsustainable and unfair, with new indexes showing the food's impact on population health, greenhouse gas emissions and fairness in terms of its value to primary producers.</p> <p>Potential medium-term application Under a plant-based food system there will be no animal-derived products to advertise –but during any transition we could explore budgetary support for advertising campaigns that promote the consumption of fruit, vegetables, pulses, grains, nuts and seeds in the UK.</p>

Reprogramme consumer spaces and information for health, legislating for citizen-led development and the growing plant-based food market

In 2019, 45 local authorities in England (15%) saw a more than 5% increase in the proportion of food outlets that were fast food takeaways, while only three (1%) saw decreases – and the link between numbers of fast food takeaways, poor health and deprivation remain strong.²⁰¹

The World Resources Institute has developed a ‘Shift Wheel’ to help policy makers implement mechanisms that change consumer spaces and reclaim them as citizen-spaces, directed by the healthful choices citizens wish to make, rather than the choices large corporations, supermarkets and retailers would prefer we make.²⁰²

The UK Climate Assembly is a good example of this kind of policy in practice. The assembly participants explored consumption of goods and services and prioritised five key considerations for government, including better education for consumers. They also proposed increased regulation on large retailers and supermarkets for how they currently direct purchasing habits towards unsustainable but profitable foodstuffs.²⁰³ Other programmes such as Default Veg²⁰⁴ aim to reorganise the ways in which consumers are offered what the Better Buying Lab have identified as ‘power dishes’ to prioritise healthful plant-based options above more unsustainable and processed animal-based foods.²⁰⁵ Feedback Global’s Gleaning Network is one more example of ways in which food citizens, rather than consumers, are rethinking the consumer relationship with food for more healthful, environmentally friendly and ethical practices.²⁰⁶

“If we can tackle the ownership mode of our consumption environments, we can rebalance them for citizens to do what citizens want to do, which is make better purchases,” said Daniel Vennard. Both Dan Crossley of the Food Ethics Council and Simon Billing from Eating Better also felt we needed to re-evaluate our consumption spaces, where a revitalisation of citizenship as ‘food citizenship’ would be critical to improving health outcomes. (See also the Food Shift 2030 programme²⁰⁷)

“The task is not to restrict or curb people’s freedom,” said Dan Crossley, “but working out how to provide people a better set of options to choose from, which may – almost certainly in terms of sustainability – be a smaller set of options, with clearer labelling on more than just calories.” More guidance on such policies were outlined in *A Menu for Change*, from the Behavioural Insights Team²⁰⁸, *Better by Half*, Eating Better²⁰⁹, the *Food, Farming and Countryside Commission Report: Our Common Ground* from the RSA²¹⁰, *Food Citizenship* from The New Citizenship Project / Food Ethics Council²¹¹, and the *Playbook for Guiding Diners Toward Plant-Rich Dishes*, published by the WRI²¹².

Potential short-term application

Ideas currently exist for a VAT reduction on plant foods and rates relief for plant-based businesses in the high street. These could be rolled out and prioritized without a huge investment in further resources.

Potential long-term application

Citizen-led planning and development forums may reshape high street, local and online consumption spaces, especially but not only around food, so that the choices we have are ‘less but better’. Citizen assemblies can have the effect of the “galvanizing of individual agency with participants proactively seeking opportunities to create prosocial and environmental change in the food system.”²¹³ These may be excellent spaces in which to communicate the all-round benefits of plant-based food system approaches.

The need to scale up and invest in horticulture through a range of mechanisms including loans and new entrant schemes, to boost the availability and accessibility of home grown vegetables and fruit to UK food users

Horticulture uses just 1% of all UK agricultural land and unsurprisingly received 1% of subsidies. This is despite horticulture being one of the most productive, cost-efficient forms of food production, with critical health benefits for the UK population and scope for vast improvements in our food security and resilience.

Professor Tim Lang proposed “an escalator tax to discourage the production of HFSS foods and support the rebirth of a UK sustainable horticulture.”²¹⁴ Further strategies for this investment and scaling up are already outlined in reports from the Land Workers Alliance, including *Supporting the Next Generation of Farmers, A New Deal for Horticulture, A People’s Food Policy*²¹⁵ and also in the report from Defra *Crop and Horticulture Policy Delivery Evidence Plan*.²¹⁶

Potential short-term application

Solutions that exist to support the scaling up of horticulture include an escalator tax, while providing new entrant loans to small businesses, and supporting grower and producer networks such as the Kindling Trust in Manchester and Hodmedod in East Anglia. Such investment now could ultimately lower the medium and long-terms costs for the food user for these essential foods.

Potential long-term application

A longer term 10% subsidy at the point of consumption on fruit and vegetables, which could provide a balanced approach to reducing unhealthy food consumption and that works within the existing food system structure. Mechanisms for decreasing farm-to-fork supply chains could also support this increase in UK fruit and vegetable production, so that both farmers and retailers are rewarded for local buying of fruit and vegetables, benefiting farm businesses, people and planet.

Economy and Just Work



One of the most supported ideas (that we consider the potential ‘domino proposal’ in this criterion) was a:

Guaranteed increase over two years of Gross Value Added to primary producers, made through shortening supply chains and investing in farm-to-consumer links & technologies.

Good policy could provide the framework and

mechanisms for a review into the ‘true cost accounting’ of food production, while a National Food Sustainability Council could work with other government departments to audit the amount of farm workers in low paid employment, setting targets for improvements.

The other measures that emerged in our research as particularly favoured options under ‘Economy and Just Work’ criteria were:

Measure	Unpicking the Detail
New guidelines for plant-based public procurement	The government has public procurement policies for the money it spends on public goods, increasingly shaped by the Barber Review into ‘public value’. This includes the food that is purchased for schools, hospitals, prisons, military bases and other public institutions. The ways in which government procures foodstuffs has impacts on the economies of scale in which large providers (catering companies such as Aramark, Compass and Elixir) can then shape their provision for related industries, such as universities. A third of all public spending (around £284bn) is on procurement of goods and services, including food. ²¹⁷ The largest spend by department is by the Department for Health and Social Care

(DHSC), at £75bn. While the amount spent on food is small in comparison – around £2.4bn – this still counts for around 5.5% of all UK food service sector sales.²¹⁸ Defra released a new *Plan for Public Procurement* in 2014, but many of the rules will change in a post-Brexit landscape.²¹⁹ This means, as many of our participants put forward, that this is a perfect time to reshape public procurement. And, we would add, with potential to accelerate the transition to a plant-based system. Many existing strategies in this area already exist, including in our own *Catering for Everyone* programme²²⁰, and in our *Grow Green II* report²²¹. But they are also central to the *Better by Half* campaign from Eating Better²²², in the *Government Procurement* report from the Institute for Government²²³, as well as in Defra's *A Plan for Public Procurement*²²⁴.

Potential short-term application

Our aim is to get more and better vegan options in the public sector. We want to see every school, hospital, prison and council menu contain good quality, nutritious plant-based options, every day. Our *Catering for Everyone* campaign already calls on the UK government, along with the Scottish and Welsh governments, to change the law to guarantee a plant-based option, suitable for vegans, on every public sector menu, every day. There is a precedent for this change in Portugal and more recently in California (USA), with many more governments and local authorities looking into it.²²⁵

Guidelines should direct procurement officers to prioritise fruit, vegetables, nuts, seeds, legumes and other plant-based foods in line with the new UK Dietary Guidelines as outlined above, with binding targets related to health, environment and work value indices.

These guidelines should be for national, regional and local authorities, supporting the public, charitable and voluntary sectors to develop plant-rich menus and food offers.²²⁶ There are already a number of positive successes implementing these policies.²²⁷

Potential long-term applications

In addition, as we proposed in our *Grow Green II* report²²⁸, “public procurement could be enhanced by further developing the Government Buying Standards. There are already calls to improve these standards for environmental reasons or to promote British produce. UK-produced protein crops could be promoted under either or both considerations.”²²⁹

All relevant policies and guidelines should direct and support everyone working in food procurement to prioritise vegetables, pulses, wholegrain foods, fruits, nuts, seeds and other plant-based foods. This will help ensure that public sector menus are healthy, sustainable, affordable and ethical – with food which is over one third vegetables and fruits, over one third whole grains and other higher fibre starchy foods, and with pulse-based (beans, chickpeas, peas and lentils) main dishes and plant dairy alternatives available at every meal. This in turn will help accelerate the transition to a sustainable, ethical plant-based UK food and land management system.

Mechanisms to improve farmer-food user links for British plant and legume crops

Most in the food and farming policy space see a need for investment in technologies led by on-farm and producer network research, alongside economists, ecologist and ‘consumer’ behaviour experts. This research should aim to find the best ways to build up local and regional markets, with clear food identities, connecting food users with farmers and primary producers. These ideas are shaped by strategies already outlined in *Nature Means Business*, *The Nature Friendly Farming Network*²³⁰; *Grow Green I : Tackling climate change through plant protein agriculture*, *The Vegan Society*²³¹; *Blueprint for UK Pulses*, *PGRO*²³²; *A Menu for Change*, *Behavioural Insights Team*²³³; and in *Distribution Case Studies: Local Supply Chains*, *Land Workers Alliance*²³⁴.

Potential short-term application

This can be done through new retail and market mechanisms, investment in physical spaces to connect people with farm enterprises (such as visitor centres and farm shops) as well as support for box schemes and delivery. Much of this can be driven by new technologies, especially apps, and platforms such as those being trialled by *Crowdfarming*.²³⁵ This will require much more input from food technology companies.

Potential long-term application

However, none of these mechanisms are likely to have much traction without changes in competition law to challenge and change the ways in which supermarkets currently dominate the retail and food purchase landscape. These could have long term benefits and more research is needed to see how this could happen.

Food needs better competition policy to increase the return on food going to farmers and SME producers, co-ops and collectives

Governments *can* act quickly to amend or change competition law around food when it is in the national interest – as they did in March 2020 to adapt to the emerging coronavirus epidemic.²³⁶ These ideas are looked at in more detail in *Competition Policy and the Food Chain*, *Sustain*,²³⁷ *Feeding Britain*²³⁸, the immense and immensely readable book from Professor Tim Lang; and *Beyond the Impossible*²³⁹, *Brighter Green*.

Potential short-term application

Competition law around food is a critical issue for taking sustainability into account, especially the climate emergency. New competition law could propose how supermarkets can, for example, collaborate to increase recycling or reduce plastic, whereas competition law may currently block their collaboration.²⁴⁰

Potential long-term application

Returning to the Competition Commission's investigation into the groceries market from 2008, food policy would benefit from the introduction of legislation to ensure a fairer level of competition for retail at the local and regional level, ensuring no supermarket dominates a space, and improving the access direct to co-ops, collectives and primary producers. Limiting the concentration of the large supermarkets can reinvigorate urban and rural communities around food. This would need to be thought through, ensuring the new hi- and agri-tech suppliers (including the emerging alternative meat, cellular agriculture and precision fermentation corporations) do not step in and dominate tech-driven spaces over local farm suppliers with less capital and, indeed, is driven by our plant-based legislation.

Strengthen workers' rights and legislate to secure the value of farm labour work especially in horticulture

Farm labour is hugely undervalued and underpaid. Many of our participants identified the need to explore binding targets for pay and improved conditions, including access to affordable homes for farm workers, intertwined with planning law changes to ensure easier development of farm accommodation on land identified for development or renewal in the government's new planning review.²⁴¹ Such strategies are already outlined in *Improving Small Farm Productivity*²⁴², Land Workers Alliance, and *Support for Migrant Workers*, from UNISON.²⁴³

Potential short-term application

There would need to be a timescale for overall improvements in the pay levels and workers' rights of those in farming, with legislation to strengthen the assessment and oversight of those improvements.

Climate Change and Ecosystems



Many of those working in the food policy space advocated for:

Clear metrics and binding enforcement relating to food value for defined public goods (measured as 'public value') that interact through practical and usable mechanisms with the policies as laid out by ELMs in the Agriculture Act and the Environment Bill.

We already know that decarbonizing the food system must align with net zero targets set across the economy. This requires targets to be set for increases in the proportion of UK farming that produces plant-based proteins and other products,

as well as in reductions in greenhouse gas emissions within energy use, transportation of food and other on-farm technologies. Such clear metrics are essential for any food legislation to be effective. How these would be set, and how they would be enforced, would require further research. But, as proposed in the Well-being of Future Generations Bill (No.2) 2020, this could be via the mechanisms of Citizen Assemblies.

The other ideas that emerged through our research that we have grouped under the criteria of 'Climate Change and Ecosystems' were:

Measure	Unpicking the Detail
Ambitious targets for meat reduction (while for us being clear that an end to animal product use is necessary)	<p>There is growing public willingness, and even expectation, that government take a lead on environmental issues, as noted in the Behavioural Insights Team report <i>A Menu for Change</i>: "Research suggests the public expects government to lead on environmental issues, and the mandate for bold environmental policy is ever-increasing as we witness global protests and growing concern among the public²⁴⁴."</p> <p>There is also a convergence between foods with lower environmental impact and those which tend to promote health, making targets for meat reduction and elimination complimentary to public health strategies. The British Dietetic Association concludes that "Meat and dairy products are leading contributors to Green House Gas (GHG) emissions and other environmental impacts and emphasis should be on reduction of meat (red and processed meat in particular) and processed meat products (PMP) in line with the Eatwell Guide (EWG) and replaced with appropriate plant-based proteins such as beans and pulses, and plant-based dairy alternatives."²⁴⁵</p> <p>Evidence given to the House of Commons Select Committee on Food, Poverty, Health and the Environment from the Food Foundation and the London School of Hygiene and Tropical Medicine (LSHTM) highlighted "research which found that the least healthy diets on average produce around 25% more greenhouse gas emissions than the healthiest, largely because they contain more meat and less fruit and vegetables."²⁴⁶ And the World Wide Fund for Nature, UK Committee on</p>

Climate Change and the Intergovernmental Panel on Climate Change are just some of the notable global groups that have called for significant reductions in the consumption of animal products to help address the climate and ecological crises. They suggest different targets which attempt to balance environmental necessity with public readiness to make changes. Some of these arguments and evidence for approaches are already outlined in *Health Motivated Taxes*, Marco Springmann et al²⁴⁷; *The Livestock Levy*, FAIRR²⁴⁸; *Land Use: Policies for a Net Zero UK*, Committee on Climate Change²⁴⁹; and *Meat Tax Proposal for Europe*, TAPPC.²⁵⁰ We would support reduction targets in the context of a pathway to zero animal use.

Potential application

As discussed throughout this report, a truly fair food system cannot involve the forced breeding and slaughter of animals. The application of reduction targets would for us aim to reduce 'meat' consumption to zero. Such targets could be contained within a Food Sustainability Bill, as incremental targets set as intermediate steps on the way to eliminating animal products from the food system entirely. These staged 'meat' reduction targets would set a trajectory for the transition to a plant-based food system and guide policy decisions to enable people to make more sustainable, healthy and just food choices.

These targets would be assessed on multiple criteria – not simply greenhouse gas emissions, but also on ammonia pollution and runoff from intensive pig and poultry businesses, other forms of environmental damage, as well as on health grounds. At the same time, direct tax incentives could be introduced to ensure that such targets are met and the unfair, unsustainable animal agricultural practices that are driving our ecosystems to destruction are properly reflected in their price. Indeed, politicians around the world, including in Germany²⁵¹ and Denmark,²⁵² are moving towards either new or tougher legislation, where forms of meat tax already exist.

A Nitrogen Tax helping farmers get off the fertiliser treadmill, supported by investment in nitrogen-fixing legumes and other plant sources

The Sustainable Food Trust looked closely at nitrogen fertilisers, and the potential for a tax, in its true cost accounting report from 2017, identifying the external costs of agriculture (as £120bn in the UK). Specifically, on nitrogen, they wrote "the farming sector [is] by far the largest source of pollution from reactive nitrogen, responsible for approximately two-thirds of all nitrogen pollution of the atmosphere and aquatic environment, while transport and energy production account for one-third between them ... the negative costs to society of nitrogen fertilisation in the EU27 exceeds its contribution to the gross value added to the primary agricultural sector by its use by €70 billion per year."²⁵³

A nitrogen tax was mentioned by many of our participants, such as farmer Tim Strang and Rob Percival from the Soil Association, as well of course by Richard Young from the Sustainable Food Trust. More detail can be found in *The Hidden Cost of UK Food*, from the Sustainable Food Trust²⁵⁴, and *Blueprint for UK Pulses*²⁵⁵, from the PGRO.

Potential application

While there are issues to resolve over how it could work in practice, a nitrogen tax (and associated anti-dumping laws) that learns from the successes and challenges of the Swedish law, that existed from 1984 to 2009²⁵⁶ and the existing tax in Croatia to protect coastal waters, could significantly advance a plant-based future. In particular, a nitrogen tax may pay for increased support for organic methods of fertility building, including both research and financial incentives for practices such as: reducing losses through cover crops, companion crops, minimum and no tillage, green manures and more nitrogen-fixing legumes in rotation.²⁵⁷

Critically, the overuse of nitrogen in developed countries such as the UK could be stopped to then help share nitrogen fertilisers where they are underused and would be of great benefit to rural subsistence communities.²⁵⁸ However, more research is necessary before adopting any nitrogen tax.

Investment in crop research and development to enable greater adoption of nitrogen-fixing legumes in arable rotations

Demand for plant proteins is increasing and crops will need to cater to growing markets, both for whole beans and isolates for use in manufactured plant-based products.²⁵⁹ While most legumes grown in the UK are currently used for animal feed, the market for direct human consumption means higher potential crop value bringing benefits to UK growers. Many of our participants called for a publicly funded program of crop research and development focused on legumes, to address key barriers to greater adoption of legumes in arable rotations, namely availability of crop varieties, knowledge and risks to the farmer. Some of the detail here is already outlined in *Blueprint for UK Pulses*²⁶⁰, from the PGRO.

Potential application

A research program could aim to increase the availability of suitable crop varieties for the range of UK soil and climactic conditions. It could also make high quality data and information openly accessible, giving more farmers the confidence to grow a variety of legumes and an understanding of what can be grown where.

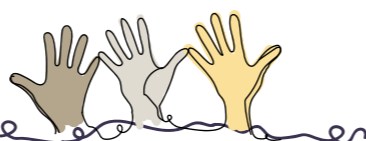
Planning law changes to help farmers develop their land into secure enterprises

Farmers need to be able to respond quickly to changing environmental, financial and public impacts on their businesses. Good planning has a role to play in helping support the development of affordable housing for farm labour in the rural economy, as well as change-of-use building projects for increasing rural and out of city office and business space. Planning changes will likely help hugely in these areas. Planning law changes also respond to the need for farmers to redeploy land and areas of their enterprise into more profitable uses, if the forthcoming ELMs system of payments is flexible enough to help farmers make a profit from all parts of their businesses. Many of these strategies are already outlined in *Planning Barriers Faced by New Organic Horticultural Businesses in England*, from the Land Workers Alliance²⁶¹, and our own *Grow Green I*²⁶².

Potential application

Planning law changes could aid farmers switching to plant-based production, such as planning regulations to support polycultures, new forms of irrigation and an increase in horticulture businesses.

Social and Cultural Values



Finally, our research found an urgent need to:

Rewrite the story of our relationship with food, animals and the land.

This may sound philosophical – and it is – but it is also practical and material, and has many global precedents, including here in the UK. In Scotland’s Land Reform Act (2016), for example, a ‘right to buy’ is enshrined in legislation that recognises the public value of selling land, even against the interests of the landowner, if and when that purchase would benefit the community seeking to purchase it. It is truly a

right to buy. Any Food Sustainability Bill would do well to enshrine a similar philosophical approach in law, focusing on **fair food sustainability seen through the lens of equity for all**. This approach foregrounds realistic reflection on the birthright of other animals to live their own species-specific lives, while improving the current food system so that it meets everyone’s nutrition, calorific and cultural and social needs, such as clean water, air, protected nature and land use.

Other measures that emerged through our research under ‘Social and Cultural Values’ were:

Measure

A public education programme to help facilitate an improved and realistic view of the value of food and farming today

Unpicking the Detail

As Roger Vickers told us, “We don’t get food and nutrition classes at school any more, nothing about food groups and cooking. We must reinvent our connection to food production. And that starts with education.”

Farmers such as George Young of Fobbing Farms blogs, speaks, podcasts and lectures on plant-rich and pesticide-free farming, focused on rural renewal and fair living. Martin Lines of the Nature Friendly Farming Network, and many of the network’s members, are also models for sustainable futures of farming; while Ian Tolhurst of Tolhurst Organic is setting the example for “veganic” farming, including, before COVID struck, many visits to his farm. These farmers, networks and the farmer clusters initiative, are helping both farmers and the general public learn and connect with these stories.

Many more participants advocated for this kind of public education programme, with details and strategies already existing in a number of programmes and publications, such as *A People’s Food Policy*, Land Workers Alliance, et al;²⁶³ *Farmer Dialogues Initiative*, from the Food Ethics Council;²⁶⁴ *The Hidden Cost of UK Food* report from the Sustainable Food Trust²⁶⁵; *Organic Market Report*, by the Soil Association²⁶⁶; and *A Menu for Change*, Behavioural Insights Team²⁶⁷.

Potential short-term application

As explored in our *Grow Green I: Tackling climate change through plant protein agriculture* report²⁶⁸, we support a pulses education campaign for both food producers (for what can be grown, how and where) and for the general public, who could hugely increase their consumption of pulses to meet nutritional and protein needs.

Potential long-term application

In 2009, the Farm Animal Welfare Council proposed policies for the necessary conditions for ethical consumption which included citizens to be educated about food and farming from childhood.²⁶⁹ This has not yet been implemented. Investment in a major public education programme – which could be part of the Food Sustainability Bill – could radically change our social and cultural relationships with the value of food, which has been lost after decades of drift towards a cheap food culture, and so also reprogramme our relationship with animals previously used as food. Educators have the ability to influence and alter consumer behaviour. With some of the worst diets in Europe, escalating obesity and diabetes, and an unhelpful view of farming as both bigger and more sustainable than it currently is, this re-evaluation of food and farming will take long-term, systems thinking. Critically, it must be led by farmers and farming.

Public education in schools, colleges and other centres focusing on a multi-criteria approach to the role of food and its value in culture and society is likely to be beneficial and was supported by many of our participants. These education programmes would discuss how food is sourced whilst addressing the environmental issues surrounding food production. Such education would place a greater emphasis on farm-led, plant-based visibility whilst also ensuring basic nutrition education for everyone. Improved labelling and marketing for food, with more stringent rules for what is communicated about the health benefits, could drastically improve our food environment and address our public health challenge.

Democratise research through investment, on-farm led projects and digital technologies

Roger Vickers at the PGRO, and others we spoke to, called for more money for plant crop research. “We need to invest more in veg protein research,” said Vickers, “as it is woefully underfunded. Government needs to put money into creating value in the food chain.”

Rob Percival from the Soil Association called for more uniform monitoring of soil health in the UK. Part of this must address the huge insect decline, driven by insecticide use and (industrial) animal agriculture.²⁷⁰ Soil fertility is broadly but not thoroughly understood and climate resilience is confronting us “with new frontiers of risk” added Percival. Governments also tend to think *big is better* and so, as Percival put it, research currently “mostly benefits from bias towards big farms and agri-tech. It needs to be democratised.” This means more research done ‘on-farm’ and led by farmers – the Soil Association is producing new research with IDDRI on what would need to happen to create an agroecological UK by 2050 (in line with IDDRI’s European vision).²⁷¹

As Bruce Pearce from the Organic Research Network said, we need to stop responding to short term problems and “get farmers and ecologists working together long-term; there’s lots of information available that needs to be looked at through a more practical lens, and then find ways to get that knowledge out to farmers, through for example formalised peer-to-peer learning.”

Josiah Meldrum of Hodmedod agreed. “Farmer-led research gives people freedom to develop practices at their own pace, without resistance from being told what to do. So, farmers do what they think is right and scientists gather info. It shouldn’t be that scientists come in and remove variables and dictate. It’s research done ‘with’ rather than ‘on’.”

Some of the strategies our participants discussed are already outlined in *Grow Green II Sustainable Solutions for the Farm of the Future*²⁷²; *Blueprint for UK Pulses*, from the PGRO²⁷³; *Research Priorities*, the Organic Research Network; and *For Whom? Questioning the Food and Farming Research Agenda*, from the Food Ethics Council²⁷⁴.

Potential application

Government departments and farm groups could explore mechanisms that help democratise and integrate research practices, supporting increases in investment for on-farm and farm-led research, especially into the data for defining and strengthening a plant-based food system that is resilient for the future.

A National Nature Service to grow skills and labour in developing nature protection schemes

Led by Wildlife and Countryside Link but with widespread support among the food and farming community, we would also in principle support the positive move to legislate for a National Nature Service that can lay the groundwork for the transitional (and transformational) release of domesticated animals from proprietorial farmed business into safe, sanctuary and regenerative areas. While a National Nature Service would support a range of ecosystem protections and support restoration schemes, it could also provide guidelines and mechanisms to increase people’s respectful engagement with all animals, including currently farmed animals. These ideas are more fully outlined in *A National Nature Service*, Wildlife and Countryside Link²⁷⁵; and *Agroforestry: The Benefits*, The Woodland Trust²⁷⁶.

Food Citizenship development through citizen assembly projects

As Daniel Vennard from WRI/Better Buying Lab explained, the more citizen involvement takes place prior to the legislative changes, the more likely we are to achieve our ambitions in line with the Paris Agreement and SDG targets. This was also supported by the Food Ethics Council and other participants. Strategies for food citizenship are also outlined in *A Menu for Change*, the Behavioural Insights Team²⁷⁷; *Better by Half*, Eating Better²⁷⁸; *Food Citizenship*, The New Citizenship Project / Food Ethics Council²⁷⁹; *A People’s Food Policy*, Land Workers Alliance²⁸⁰; *Food, Farming and Countryside Commission: Our Common Ground*, RSA²⁸¹; and *The UK Climate Assembly Report*²⁸².

Potential short-term application

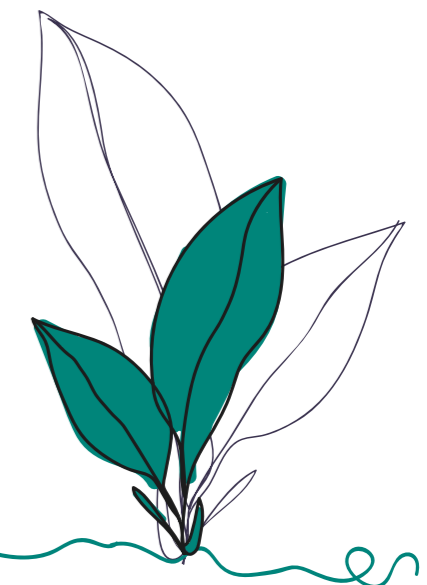
Food citizen assemblies to help build increased food system literacy in supporting the transition to a fairer and more sustainable food system. Citizen-led forums, similar to the UK Climate Assembly, can help local and national government to reshape high street and online consumption spaces.

A Food Value programme that would ensure fair access to food for all those on low incomes

Those involved in food policy and the farmers we spoke to were interested in developing education programmes through schools and public delivery bodies to reset our public understanding of the real value of food. This included not only the costs and the processes by which food reaches our plates, but also the value of food to the health of nation and planet. This kind of programme could draw upon strategies already outlined in *A Menu for Change*, Behavioural Insights Team²⁸³; *Better by Half*, Eating Better²⁸⁴; *Food Citizenship*, The New Citizenship Project / Food Ethics Council²⁸⁵; and *The UK Climate Assembly Report*²⁸⁶.

Approaching these measures through a multi-criteria approach has helped us understand how complex our food system is and therefore how nuanced future policies must be. We set out from here with the knowledge that there is still much to investigate in the detail of how such policies

may work effectively to bring about a fairer and sustainable plant-based food system. However, our research has given us the confidence to discuss a set of high-level legislative proposals that we commit to as our agenda for food policy change.



Part 4: Our Charter for Change

Our Charter for Change: The Vegan Society's Role in Food System Policy

The Vegan Society has a vision for a plant-based food system that rests upon our desire to provide social and legal protection for all beings in a fully vegan society. Such a vision will include finding urgent solutions to our mounting environmental and social crises in ways that are fair to everyone. As the coronavirus pandemic showed us, our just-in-time logistics and delivery systems can crack under pressure – and the climate emergency will bring far worse shocks than even the tragedy of COVID-19. As it has also showed us, we can act quickly and collaboratively to change existing systems when there is the political will to do so.

The Vegan Society is set to become an increasingly important voice in the UK food policy conversation. Along with campaigns, education and media programmes, policy and legislation is a critical channel for us to pursue in bringing about our vision. This new research has provided us with a clearer sense of how UK food system participants – from farmers to producers to policy experts – envision change happening. It has clarified for us a picture of what needs to be done, when, and by whom. It is not a simple picture, but rather a complex and interconnected portrait of a dynamic system that is always already changing. And we have presented it here through the lens of equity for animals, to take into consideration their health, needs and freedoms for any decisions to be made when designing new policies or legislative agendas.



In Part 4, we offer our discussion of the research and propose policies that we believe take the current state of the food system and approaches

to food policy into account; and that, when seen through our lens of equity, can begin to usher in a fairer food system for all.

Discussion

Inevitable Change?

All those we spoke to envisaged a sustainable food system being a fairer food system. Most understood the current picture and the impacts of animal agriculture, pesticides, nitrogen fertilisers, monoculture, reliance on imports and a lack of diversification in funding and research as a picture that needs to change. Many are already advocating for a food system with much more emphasis on plant proteins and plant-based foods. The recent Chatham House paper, *Food Systems Impacts on Biodiversity Loss*, introduced the need for three levers for food system transformation, the first of which is "to change dietary patterns to reduce food demand and encourage more plant-based diets."²⁸⁷ A plant-based food system has become one of the most obvious responses to the mounting climate emergency and the crises in transgressing planetary boundaries, pollution levels and accelerating inequalities.

With the advance of cultured meat products, a rising awareness of the disastrous impacts of animal agriculture on both planetary and human health, and fast changing lifestyle and dietary choices, we see the transition to a plant-based food system as not so much hopeful but rather *inevitable*. Adopting theories of systems thinking evident in multi-criteria approaches, we see the question as not *if* animals will be released from our developed country food systems but *when, how* and *where first*. Some believe it will be in the United States by 2035, while others argue 2030. We believe the UK should take a pioneering lead to avoid the "forceful, abrupt and disorderly"²⁸⁸ impacts that will inevitably come about from rapid food system and environmental change if we are not proactive in responding to those changes.

In claiming this inevitability, we adapt thinking from Inevitable Policy Response (IPR) preparations, a process introduced for global finance systems to adequately respond to climate change where government action has failed to do so. Those who have developed the IPR argue, "a forceful policy response to climate change within the near term is not priced into today's markets. Yet it is inevitable that governments will be forced to act more decisively than they have so far, leaving investor portfolios exposed to significant risk."²⁸⁹ Such

risks impact global food systems. We believe that adequately responding to the risks threatening both UK and global food systems – including in the UK our lack of food sovereignty and security – means adopting pioneering and forceful policies now, to avoid the harms that come about by not acting. As Chatham House's recent paper and a growing number of studies have made clear, the global community must shift towards a predominantly plant-based food system if we are to meet our collective agreements to avoid the climate and ecological emergencies, revitalise the planet's soils and feed at least nine billion people by 2050.

Equal Responsibility?

Some parts of the global community, such as the UK, are more able to make that shift *now*. Globally, two billion people (a quarter of the world's population) survive as 'smallholder' farmers working less than five acres of land and require 'livestock' for immediate sustainable futures.²⁹⁰ In the UK, however, the vast majority of people do not live subsistence lifestyles. We access food via our market system. We are *not* each reliant on growing our own food to eat a healthful, sustainable diet; we rely on others to grow, produce and sell the food for us.

The UK is well placed to shoulder its global obligations, drawing on its deep farming history, innovative tech industry, and rich and temperate lands, to pioneer this change. This would benefit both the UK and wider world, transforming our current brittle, unhealthy food system. The UK is the fifth richest economy in the world and yet leads Europe on the number of people living in food insecure households, as well as teenage obesity levels and those relying on charitable food parcels from food banks. We eat the highest proportion of ultra-processed foods in Europe and grow only 16% of our own fruit, despite being rich in lands suitable for horticulture. The problem is not that we are a poor society. The problem is that we have crafted an unequal food system, one which in many cases actually works less well than in many poorer economies.

What Have All These Other Issues Got To Do With The Vegan Society?

We were established in 1944 with the ambition

“to seek an end to the use of animals by man for food, commodities, work, hunting, vivisection, and by all other uses involving exploitation of animal life by man.”²⁹¹ In the twenty-first century, it is no surprise to those who have adopted a vegan lifestyle and philosophy that many of the world’s greatest problems we face, including health epidemics, but especially the climate emergency, soil erosion, deforestation, water use, nitrogen overuse, pollution, ocean acidification, the collapse of insects and other biodiversity, are driven by animal agriculture – the very exploitation that we seek to end. Conversely, prioritising biodiversity is shown to enhance rather than limit crop yields.²⁹²

We have then a charter for change, with responsibility to UK and global societies. Ultimately, our charter is to benefit this planet we share with the great galaxy of other beings, from the butterfly to the blue whale. The research conducted here has helped us form proposals that take stock of existing ‘wicked problems’ and, based on the current scientific research, follow the outcomes to the only logical and inevitable solution: that a plant-based food system is the fairer and most sustainable for all.

Questions You Ask a Vegan: Context Shaping our Charter

The evidence gathered in this research adds to our existing understanding and ethical approach to food system transformation and animal use. So, as we present proposals for new legislation, the research helping us shape those proposals, so too do the questions, arguments and obstacles we have already been asked – and answered. In the above, we have covered most, if not all, of the objections to our demand for a fairer, sustainable plant-based food system. But it is worth revisiting them again in brief, before laying out the detail of our policy proposals.

These are the most common questions asked in exploring if a fully plant-based food system is possible. We answer them here with fair responses while keeping in mind the multiple health, environmental, economic and social challenges we all face.

Do plant-based foods have a higher environmental impact? No. The most comprehensive study conducted on this issue came from Poore and Nemecek at the University of Oxford. Their meta-analysis consolidated data from over 38,000 farms globally producing 40 different agricultural goods. They found that high impact plant-based food products generally had a smaller environmental footprint than even the lowest impact animal-based products.²⁹³ The ‘scare stories’ about almonds and water use, avocados ‘not being vegan’ and

the killing of ‘wild’ animals and insects in plant production are all relevant, as they are part of a vast, complex and increasingly industrialised global food system. However, these do not compare to the environmental destruction currently caused globally by mass industrial animal agriculture, especially ‘beef’ and ‘dairy’.

But that’s globally – is it the case that plant-based foods perform better environmentally than animal farming in the UK? Yes.

Transport of food products represents a small fraction of their total emissions, most of which are generated in the production phase, such as methane from the digestive processes of cows and sheep, and nitrous oxide from the management of manures and application of fertiliser. Carbon emitted due to land use change accounts for another significant component. While there is a lot of variability in the emissions caused by different production methods in different countries, even the meat products which lead to the lowest emissions are worse than the average emissions from meat substitutes or pulses.^{294,295} Deep sea trawling is now added to that list for its huge impacts on emissions.²⁹⁶ As Helen Harwatt and Matthew Hayek have modelled, the UK can be entirely plant-based, growing the food to meet all of our nutritional and caloric needs, using a third less land, and saving either nine- or twelve-years’ worth of the UK economy’s emissions, depending on which system is implemented.²⁹⁷ We argue it is the endless cycle of rapid reproduction and slaughter within the UK agricultural system that causes the greatest impacts on emissions and pollution. For example, the average life span of ‘broiler’ chickens (grown for meat) is only 45 days.²⁹⁸ If animals are removed from the food system, their environmental impacts will drastically reduce with the end of each natural life cycle without forced reproduction.

So, you are saying that to accept our ‘fair share’ of global responsibility for environmental impacts from agriculture, we must be plant-based? Yes.

The evidence points to the need to remove animals from food systems where it will not directly impact the survival and well-being of human populations, e.g. in countries such as the UK. As the EAT-Lancet Commission states, “the transformation to healthy diets by 2050 will require substantial dietary shifts,” including, for its authors, “a greater than 50% reduction in global consumption of unhealthy foods, such as red meat and sugar, and a greater than 100% increase in consumption of healthy foods, such as nuts, fruits, vegetables and legumes.” As the Commission also states, “the changes needed differ greatly by region.” For us, this means that nations who *can* make a greater transition really *must*. We must do this if we are to act our part in the global community to avert the climate

catastrophe. We can transition to a plant-based food system without adverse effects and to do so would be to support the world’s two billion people who survive in subsistence economies, who would suffer immediate further inequalities by being asked to change their existences without the means to do so healthfully.

But can we meet all our nutritional needs on a plant-based diet? Yes. The British,²⁹⁹ American³⁰⁰ and Canadian³⁰¹ dietetic associations all support the view that, as our BDA put it, “well-planned, plant-based diets can support healthy living at every age and life stage.” The EPIC-Oxford study found that vegans were deficient in some areas (such as zinc, calcium and vitamin B-12) and so it is important to support nutritional planning, including selective use of fortified foods and supplementation – but this research has also highlighted several weaknesses in the real-life diets of ‘meat’ eaters.³⁰² Plant-based diets are also considerably more environmentally friendly than meat diets, as Tom Embury of the British Dietetic Association was keen to explain, pointing to their One Blue Dot programme.³⁰³ “Sustainability is more complicated than people think, but plant options are usually better. The key for us is that everyone can eat better. I’d say 99% of us are below our recommended intake in something, but there are many of us who are close. So how can we work with that, and reframe the question around health *and* sustainability. What more can we do?”

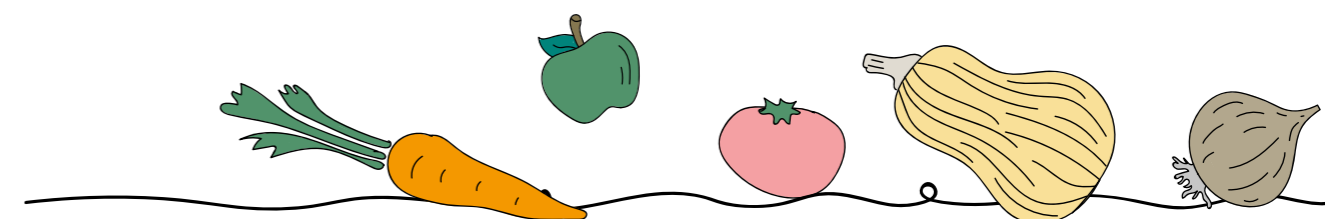
Can we meet our nutritional needs with more sustainable UK home grown produce? Yes. As Helen Harwatt and Matthew Hayek have shown, the UK can produce all of its own food, calories and nutritional needs, using up to a third less land we currently do, while meeting out climate commitments – but only if we shift away from animal agriculture and switch to a plant-based food system.³⁰⁴

Are modern vegan diets too ‘artificial’ compared with perceived ‘natural’ diets based on animal products? No. As Tom Embury of the BDA told us, “Many dieticians will feel some doubts about prescribing a vegan diet to their clients, which is much to do with not wanting to be seen as the ‘food police’. But I’ve not met a dietician who thinks

a healthy vegan diet is impossible.” When people go vegan they often eat more fruit and vegetables, and enjoy meals higher in fibre and lower in saturated fat.^{305,306} As discussed above, the UK currently eats more ‘ultra-processed’ food than all other European countries for which data is available and our food environment is set up for unhealthy new products, whether they be vegan or made from animals. An unhealthy diet is usually based on these ultra-processed, high fat, sugar and salt foods, regardless of whether they are vegan or animal-derived. When used selectively, fortified foods and supplementation play important roles in nutrition, including vegan diets, which allow the most room for healthful minimally-processed plant foods like wholegrains, fruit, nuts and seeds, vegetables and legumes.

Are rural economies dependent on animal farming? No – and don’t need to be, either. Nearly half a million people work on farms across the UK and the total income from farming in the UK is over £5bn. Yet while rural areas support around half a million businesses, most are unrelated to farming.^{307,308} Small and micro enterprises (such as pubs, cafés, hospitality, arts and education) employed about 70% of the workers in rural England, pre-pandemic. A tenth of employment in rural areas is tourism related, which, again, pre-pandemic, provides more to the UK economy than agriculture.³⁰⁹ In total these rural businesses contribute £261bn to England’s economy, with distribution, transport, accommodation, food, public administration, education and health being the largest contributors.³¹⁰ In Wales, while agriculture uses 78% of the land, it contributes only 8% of the total Gross Value Added (GVA) to the Welsh economy.³¹¹

But, while figures for England show that agriculture, forestry and fishing as a sector make one of the smallest contributions to rural economies³¹² – adding only 2% of rural England’s GVA in economic terms – at least 15% of the rural workforce are employed in agriculture, forestry and fishing. We are aware that their livelihoods and incomes will be impacted by any transition to a plant-based food economy. Unemployment rates are lower in rural economies than in the urban economy mainly due to the employment in farming,³¹³ while,



as one would then expect, employment rates are higher, with for example less redundancies in rural economies during the coronavirus pandemic.³¹⁴

That's why we support the wishes of farmers, farming unions and government to have a thriving and sustainable rural economy, where farmers and farm workers remain in their communities and continue to run viable business enterprises. Indeed, our proposed Food Sustainability Bill would go some way to improve the financial return to farmers for their produce, valuing food properly. This Bill should see the implementation of a wide range of mechanisms to diversify incomes and outputs, and support nature friendly farming via the environmental stewardship of agricultural land, e.g. through increases in agroforestry via tree planting, hedgerows, and nut and fruit orchards. The mechanisms we propose, and those proposed by others such as the Land Workers Alliance,³¹⁵ could mean lower barriers for new entrants to farming, bringing a revitalised horticulture industry back to our rural economy. We also encourage further research into shortening supply chains so that more money stays within local and regional economies, going directly into the pockets of growers and producers.

While grazing animals such as sheep are lauded, especially in the Lake District, as part of the traditional rural tourist experience, proposals to increase agroforestry (from around 3% to 10% of agricultural land)³¹⁶ would increase the rich benefits that tourists accrue from visits to the countryside. People are drawn to the countryside not only for farmed animals and the landscapes they inhabit, but for the forested landscapes.³¹⁷ What will benefit the countryside is bringing an end to the most polluting forms of UK indoor industrial animal production, where up to 97% of chickens and 100% of breeding sows never see grass or sunlight. We also do not need to kill animals for British residents and international tourists to enjoy seeing grazing animals in the landscape. There are other ways and with political courage we can implement transformations to existing systems so they are fairer and sustainable.

Can farmers and farm workers make a living under a plant-based food system? Yes. As it stands, horticulture is the agricultural sector least reliant on EU subsidies for its profitability, with the smallest percentage gap between incomes with and without subsidy.³¹⁸ As Humphrey Lloyd of the Land Workers Alliance told us, "Horticulture is highly productive per unit area, and provides a lot of jobs per unit area, so it is a job creation system. The income off one acre of land is enough to support two people." A shift towards horticultural production and policies to

grow our consumption of fruit, vegetables, legumes, pulses, nuts and seeds, with continued government support for 'public goods' adding 'public value' through a multi-criteria approach to health, work and environment, would improve the situation for many if not most farmers across the UK. As Lloyd continued, "There's a huge social and health dimension to horticulture, as no-one currently eats enough fruit and veg. And horticulture works well in community and social settings, so it strengthens local and rural bonds."

Much of the apprehension about switching to a plant-based food system comes from those farmers who currently graze 'livestock' on pasture that is unsuitable for crops such as wheat or barley. But the question is not 'can all current pasture land be given over to plant crops'? Rather, we need to ask ...

Can we grow more plant crops for human consumption, across UK farmland? The answer is again Yes. As Roger Vickers from the PRGO said, "we know that we can expand our pulses and legumes crops from around 3–4% of arable crop area up to around 15%, even 20%. There is a huge opportunity here. The closest rotation is around one in five crops, which is four or five times the current rotation. We also know that the real soil benefits of legumes kick in with rotation."

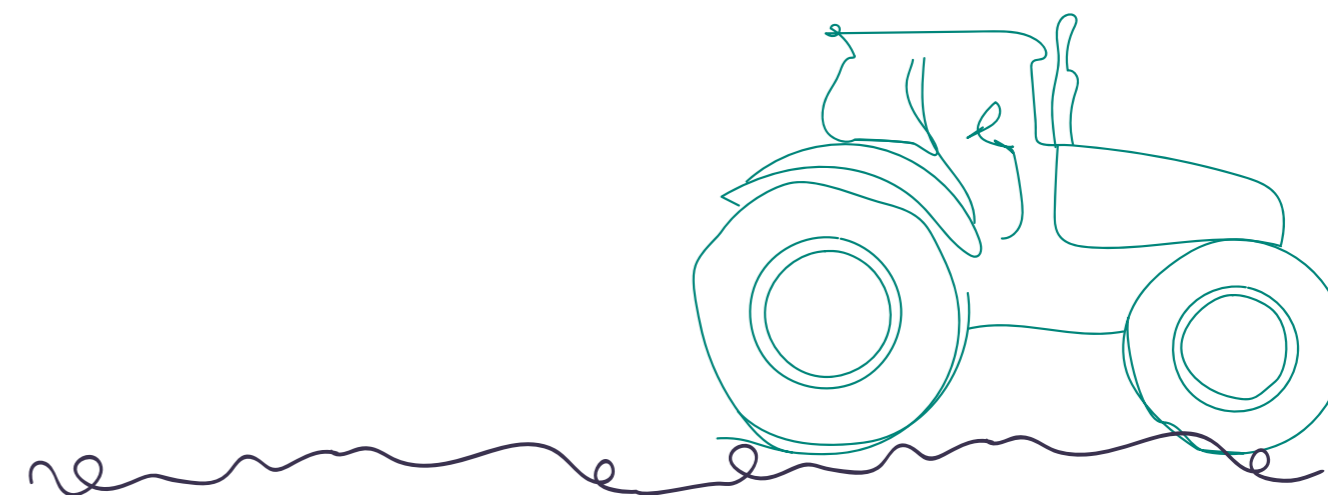
However, as Vickers pointed out, supported by Bruce Pearce at the Organic Research Network, we need a huge amount of investment in the data of what can be grown where. We need to learn from what is working in various locations and landscapes. For George Young, his mixed farm model is reaping rewards, with more peas and legumes grown than ever (and pesticide free too) using natural predators such as ladybirds to control aphids. As Josiah Meldrum from Hodmedod put it, shifting to plant-based production makes rural areas more resilient. "We previously came up with the Norwich food resilience project – asking, can Norwich feed itself? The answer was yes, if we change land use and diets. We made a big spreadsheet and came up with a scenario that could be replicated, depending on landscape, of course. But it would be predominantly plant-based. We did see a function for animals, such as in recycling food waste. But it would be much more in line with the EAT-Lancet plate than the current set of norms." Tim Strang, farming his sheep on the hills in Wales, suggests there is the opportunity in his area to return to growing oats. Christian Reynolds from City University's Centre for Food Policy agrees – we really must begin growing more oats. Perhaps Oatly's plan to open a new oat milk processing plant in Peterborough will be the stimulus for this change.³¹⁹

Can we reduce the use of fertilisers and pesticides on arable land? Yes. Global fertiliser use has increased almost fivefold since 1960. Estimates are that nitrogen-based fertilisers have contributed 40% percent to the increases in per-capita food production in the past 50 years.³²⁰ However, they have also outstripped the safe operating space at planetary levels for soil health³²¹ and in the UK as well. "There is no future in fertiliser," said Rob Percival of the Soil Association. "There are too many health and nature concerns – we cannot keep using chemicals. Our insect populations are declining rapidly,³²² our soil is being degraded. We have to farm in ways that give back to the soil. For that, rotational farming and diversity is key." Removing the use of agrochemicals has been shown to have a positive benefit for invertebrates, insects and farmland birds.³²³

Size of farm is also a part of the 'lock-in' that obstructs change, especially on huge wheat, barley and rape arable farms.³²⁴ Governments tend to see big as better, too. As Richard Young of the Sustainable Food Trust told us, "In 2015 there was a meeting in Bristol of 50 livestock farmers with the government, who all voted to accept mixed farming would be ideally best for agriculture and environment. But the government said it couldn't envisage it." Yet rotational farming, using nitrogen-fixing crops to repair soils, increasing the value of food so farmers can leave fields to regenerate, and using natural predators instead of pesticides, will lead to a healthier environment and population. We saw this for ourselves, witnessing the changes

on Martin Lines's farm, as well as George Young's. The methods exist, although we are aware that some farmers remain reliant on non-organic pesticides and fertilisers, with research needed into organic means for securing crops. The productivity implications of a shift to a fully organic plant-based system have yet to be worked out, and in the interim we support a careful hybrid of chemical and organic techniques. What is lacking is the overarching political vision to make it happen.

Can we replenish the health of UK soil without animals? Yes. Regenerative agriculture uses many potential approaches to restore soil health. Using a no-till approach is one part of that; nitrogen-fixing crops such as legumes make a huge contribution to soil organic matter. As we wrote in 'Grow Green II: Sustainable Solutions for the Farm of the Future'³²⁵, "Pulses are nitrogen-fixing crops, taking their nitrogen from the air and storing it in their roots. This feature provides pulses with the tremendous benefit of not requiring nitrogen fertiliser in most growing conditions, unlike most crops. Avoiding the use of nitrogen fertiliser, which involves significant greenhouse gas emissions in production, also reduces nitrous oxide emissions, one of the worst greenhouse gases, and can drastically reduce nitrate leaching into the water table."³²⁶ The viability of farming without the use of manures has been demonstrated in the UK and has been established for some time.³²⁷ We argue for an increase in the use of more efficient green manures in rotation,^{328,329} as well as better utilization of crop residues, cover crops, and ramial and composted woodchips.^{330,331}



[Interlude]

'Cultured Meat' and the Future of Food Technologies

While our vision for the food system involves diets rich in fruit, vegetables and whole grains, the influence of new food technologies on future protein consumption can't be ignored. The emerging field of cellular agriculture is set to transform animal agriculture by shifting production away from farming at the whole-organism level – that is, farming animals – and instead focusing on processes at the cellular level, to bring food (and other) products to market. Blue Horizon's analysis suggests that by 2035 "every tenth portion of meat, eggs, and dairy eaten around the globe is very likely to be alternative. That's a lot."³³² Most cellular agriculture organisations are currently working to produce animal-derived agricultural products ('meat', 'leather', 'milk', 'eggs', etc.). While profitability and return on investment are key concerns, the industry was initially driven by – and remains largely motivated by – environmental and ethical concerns with the current global animal agriculture industry.^{333,334}

However, while growth in regularly farmed plant-based alternatives has grown exponentially in the past few years, such as the Beyond Meat burger (made from pea protein) and the explosion of plant-based milks, there are still no cellular-produced meats available to mainstream consumers. As such, most organisations involved (despite Blue Horizon's analysis above) such as the Good Food Institute, Cultivate and Cellular Agriculture UK, are wary about making predictions as to the sector's influence on traditional farming methods. Yet interest and growth are undeniable. By the end of 2019, there were at least 32 venture-backed companies across five continents, some of whom were either in partnership with, taken over by, or invested into by the existing corporate 'meat' giants such as Tyson and Cargill. Globally, a total of US\$166 million in venture capital had been invested in the field.³³⁵

The current global market for meat is worth around US\$1.7tn; as the Good Food Institute puts it, "if cultivated meat captured only 10 percent ... that would be \$170bn in annual revenue."³³⁶ As such, while the 'cultured meat' sector is still nascent, some forecasters see cellular agriculture, driven by the need to counter the environmental crisis as much as by potential industry profits, as contributing to the disappearance of entire animal-derived food sectors (such as the American 'beef' industry) by 2030.³³⁷ This will be driven largely by cost: according to one report, "the cost of proteins will be five times cheaper by 2030 and 10 times cheaper by 2035 than existing animal proteins, before ultimately approaching the cost of sugar."³³⁸ Yet it is not only a cost concern. Food produced through cellular agriculture "will also be superior in every key attribute – more nutritious, healthier, better tasting, and more convenient, with almost unimaginable variety. This means that, by 2030, modern food products will be higher quality and cost less than half as much to produce as the animal-derived products they replace."³³⁹

It is the environmental credentials of cellular agriculture, while as yet unproven at scale, that remain one of the most appealing aspects for socially-minded investors and food users. Early analysis of comparisons with European production of meat and dairy suggested that cellular agriculture could produce similar quantities of food with 7-45% less energy use, 78-96% less greenhouse gas emissions, 99% land use, and 82-96% less water use.³⁴⁰ Production is not yet at a scale which allows these claims to be properly evaluated.³⁴¹ However, research suggests considerable environmental and global health benefits could accrue, depending on how the technology is scaled up.³⁴² And there remain plenty of research gaps for the broad environmental, cultural, social and health impacts of cellular agriculture and in particular cultured meat.³⁴³

While the majority of investment (and headlines) around cellular agriculture emerge from the United States, especially Silicon Valley, the UK has a small but promising cellular agriculture sector. This has been driven primarily by universities, with research laboratories and spin out technology companies operating from bases at Aberystwyth, Aston, Bath and Newcastle. Many of these have been funded by U.S.-based technology start-ups and investors. Cellular Agriculture Ltd, a start-up from the Institute of Biology, Environment and Rural Sciences at the University of Aberystwyth, is working with the Pedigree Welsh Pig Society to examine "cell sourcing and harvest for cultured pig meat [...] the first and only study in the world exploring the properties of primary porcine cells to find the most efficient for cultured meat production."³⁴⁴ Most of these initiatives are not 'full stack' – they are not aiming to work at every level of the process to bring an actual product to the consumer market – but are rather seeking to develop business-to-business technologies to aid producers such as Just (which produces vegan eggs and mayonnaise) with more efficient production methods.

Public acceptance and perceived 'edibility' of cell-based products remains an unanswered question, with fears of 'Frankenfoods' echoing those voiced around Genetically Modified Organisms.³⁴⁵ Efforts are being made to analyse the language and narratives to improve acceptability for food users.^{346,347} For groups such as the Good Food Institute,³⁴⁸ the aim is in large part to avoid such questions by having "a default architecture of food choices without anyone having to adopt any of the perceived social, political, or ethical 'baggage' they or others might assign to veg*nism, or even meat and dairy reduction."³⁴⁹ However, for the time being "terms such as cellular or cell-based have the advantages of being accurate and relatively neutral."³⁵⁰ These questions will be crucial if demand

for certain high-impact foods continues to exceed environmental limits. As think tank Brighter Green put it, "unpleasant and uncomfortable compromises are likely to be necessary as we struggle to cope with diminishing resources in a world marked by simultaneous over-abundance and scarcity [...] Urban, industrialized and cellular agricultures are likely to be essential because climate change is already affecting pastoralists and farmers of all kinds all over the world."³⁵¹

Edibility goes beyond naming, however. One of the main objections to cellular agriculture when seen through a vegan lens is the requirement for animals from which the necessary biological materials are taken. This includes 'starter cells' taken from carefully selected animals, and the widespread use of foetal bovine serum (often taken from the unborn calves of slaughtered cows) in the culturing protocols used by most companies in the field. However, the UK-based Higher Steaks (who focus on cultured pork meat and are the only UK 'full-stack' company) has "already established culturing protocols that work sufficiently well without foetal bovine serum, but are continuing research efforts in this area."³⁵²

Scaling up and generating demand remain key for cellular agriculture,³⁵³ but its arrival and burgeoning investment means "the possibilities remain open for a fully reimagined food landscape [...] [with] destabilized binaries of veganism and carnivorousness, sustainability and cruelty, natural and unnatural."³⁵⁴ It holds out great promise for mitigating climate catastrophe, reducing global hunger, and removing animal deaths from our food systems.

Other innovations could also lead to profound changes in global protein supply. For example, 'Precision fermentation' can be used to take more readily available inputs (such as starches) and turn them into other useful compounds with very high efficiency. Making protein in this way involves creating the conditions for specially selected bacteria and enzymes to convert simple inputs into complex proteins with a wide range of textures and flavours.³⁵⁵

Some of these processes do not require agricultural inputs and can produce protein using only energy, compounds taken from the air such as CO₂ and ammonia, and mineral salts.³⁵⁶ Proteins from fermentation have already made their way into widely available plant-based products. While it is a mistake to view these technologies as a panacea for the food system, they raise the prospect of low cost and plentiful protein which put less pressure on soils and land, and they could help to address tensions between productivity and sustainability in traditional farming practices.

With a nod to the proposals made in the RSA's *Common Ground*³⁵⁷ report, we agree that we must take a step beyond 'public money for public goods' when it comes to food itself, to reach an understanding of a plant-based food system measured in 'public value'.

The concept of 'public value' was laid out in the Barber Review³⁵⁸ and adopted by the Civil Service, as a framework to align public spending for better outcomes for citizens that improve public value. For our food and farming system, this approach broadens the opportunities for more visionary and radical changes. As the RSA notes, a 'public value' approach to food provides scope "not just for subsidies, but also taxes and reliefs, procurement, regulations and more."³⁵⁹ Such social and economic contexts would mean we reframe our understanding of the food system:

- From stable to complex and continuously changing;
- From broadly homogenous populations to increasingly diverse communities;
- From problems largely defined by professionals to being negotiated by citizens and communities;
- From strategies produced by the state to co-produced by civil society.³⁶⁰

This framework discerns the nuances that a systems-thinking approach to public management of land use and food production is likely to lead to, especially if we commit to the "Great Food Transformation"³⁶¹ required. We believe these

contexts shaping a 'public value' approach suit the credible implementation of a plant-based food system. With this framework guiding our ideas for the monies that would need to be spent on implementing such changes, we lay out the detail of our policy proposals below.

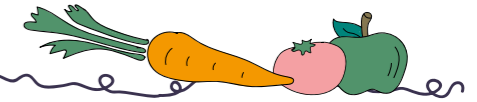
We propose **two Bills to be made Acts in the next six years**. These are:

A **Food Sustainability Bill**, backed by legally binding targets and new governance mechanisms, that will recalibrate our relationship with food and its production and consumption to underpin social, cultural and planetary well-being.

A **Well-being of Future Generations Bill** for England, Scotland and Northern Ireland, to align the rest of the UK with Wales, so that together the four nations can frame and action government decisions in relation to sustainable development, environment, food, land use, climate and health, in terms of future needs.

We believe they are two interconnected parts to solve the same puzzle and help bring about what others have already called for in this "Great Food Transformation."³⁶²

Proposal 1: The Food Sustainability Bill



A part of life as crucial as food should have its own overarching strategy, government Bill and oversight mechanisms to provide the systems thinking the food environment needs. A Food Sustainability Bill can and should be the central pillar of the government's white paper that has been promised within six months of publication of the final *National Food Strategy Report (Part 2)*, due in 2021.

Such a Bill would need to be implemented with two supporting mechanisms. Those involved in the making of laws often talk of mechanisms rather than policies as the levers of change. Good governance mechanisms are critical to ensure that multi-criteria principles are legally binding and enforceable. Many of the current failures in our food system are not due to a lack of either binding targets nor good legislation, but the ability to enforce them. As such, we have proposed two new governance mechanisms to ensure policies are translated into the pioneering fairer and sustainable food system we want. These are:

1. **A National Food Sustainability Council** with legal powers and oversight to ensure both principles and legally binding metrics are followed and met in transforming the food system; there should also be a central government and devolved powers committee into which the Council reports directly. This Council should be the new independent body described in Henry Dimbleby's *National Food Strategy: Part 1*³⁶³, which reports on and scrutinizes any post-Brexit trade agreements with other trading nations. Its scope would include "economic productivity; food safety and public health; the environment and climate change; society and labour; human rights"³⁶⁴ and, we add, a legal framework of 'animal freedoms' that shapes any 'animal welfare

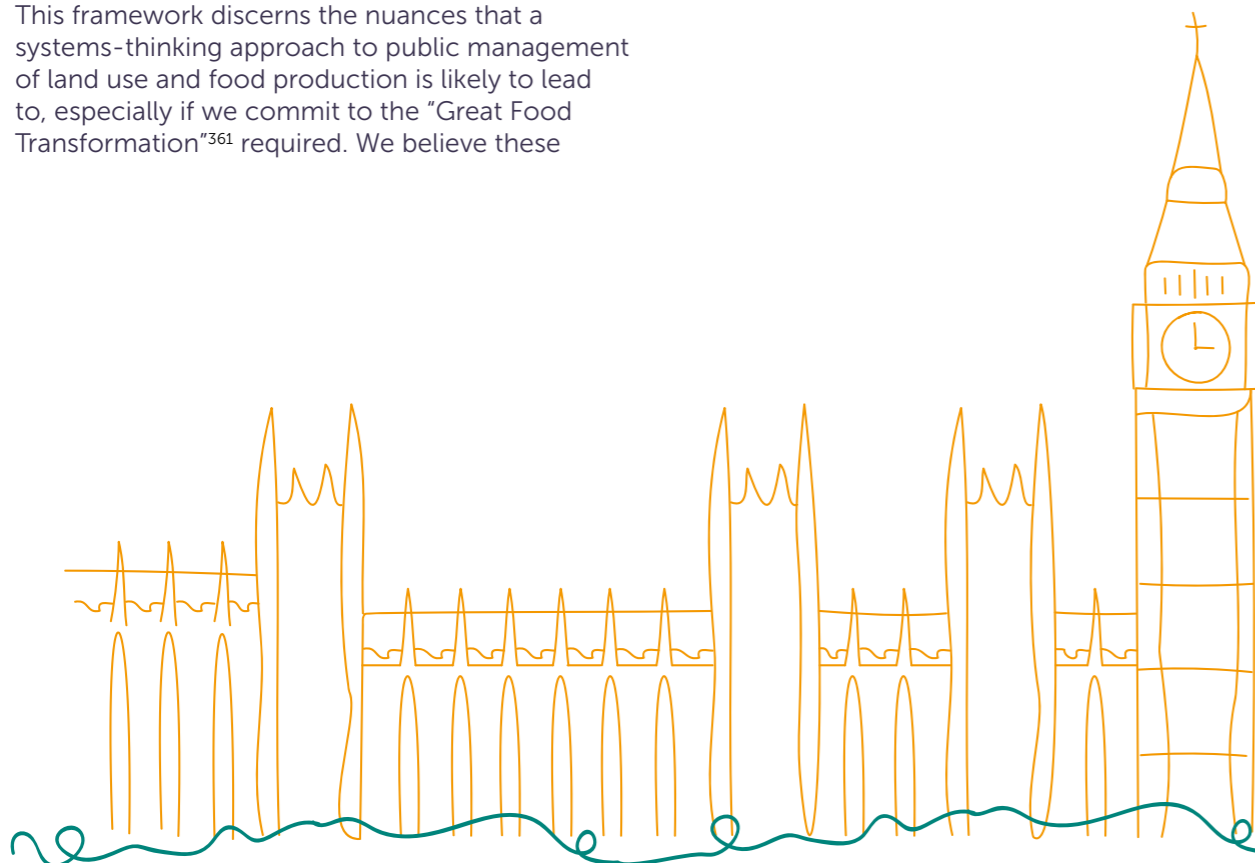
protection' outcomes.

2. **New Legally Binding Metrics** tied to commitments such as the Paris Agreement, the Sustainable Development Goals, and UK-wide health, economic, ecosystem and social measurements (such as reductions in obesity, reductions in food insecurity and child poverty-related malnutrition) as well as animal and climate justice.

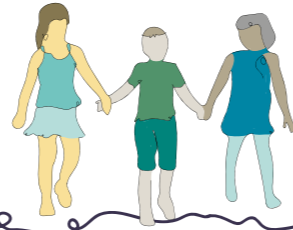
Our research also suggests that for such a Food Sustainability Bill to work effectively, it must draw up and enforce "a new set of multi-criteria principles for the UK food system"³⁶⁵ across at least four key areas: **health; economy and just work; environment and climate; social and cultural values**. These should also address questions of **governance and quality** in the food system. These are overlapping criteria and principles in one area will naturally help facilitate achievement of ambitions for targets in other areas.

This approach would allow us to operate on a different philosophy than the productionist model that has driven farming and food supply for the last seven decades. Rather than 'more food, cheaply' these multi-criteria principles should be based on a philosophy of recognising the true cost and value of food, and a 'right to food with fairness' enshrined in the Food Sustainability Bill; such **fair food sustainability** will always, for The Vegan Society, lead to the eventual elimination of animal products.

The second, complementary and critical Bill for UK-wide legislation that will see through our vision of a fairer, sustainable food system that takes those next steps towards fully plant-based production and consumption practices follows:



Proposal 2: A Well-being of Future Generations Bill (England, Scotland and N.I.)



This will align with Wales's Well-being of Future Generations Act (2015). The Act frames government decisions in relation to a sustainable environment and in terms of future impacts, so that bodies listed in the Act "think about the long-term impact of their decisions, to work better with people, communities and each other and to prevent persistent problems such as poverty, health inequalities and climate change."³⁶⁶

Inspired by this successful legislation, in March 2020 Green Party member Caroline Lucas MP introduced a Well-being of Future Generations (No.2) Bill to the Houses of Parliament under the Ten Minute Rule. It has received its first reading but there is no scheduled second reading and at present does not have parliamentary support to come into law. It has been supplanted to some extent by the text of the Climate and Ecological Emergency Bill, but we applaud Lucas's efforts and believe such well-being legislation is both vital and inevitable to adequately meet the challenges of the 21st century, with practicable and actionable mechanisms. We support the current text of the Bill as presented, which in outline:

- Defines 'sustainable development' as the measurable process for improving the social, economic, environmental and well-being of the UK.
- Establishes the 'future generations principle' that the needs of the present are met without compromising the ability of future generations to meet their needs.

- Introduces the idea of a Citizens' Assembly to recommend well-being goals.
- Obliges all public bodies to set and publish "well-being objectives" designed to maximise its contribution.³⁶⁷

The text of the proposed UK-wide Bill provides a legal right, exercisable by 'a person', to bring proceedings against a public body on the grounds that it has acted (or proposes to act) in a way which breaches its 'future generations' obligations. This differs from the powers in the 2015 Act. There, the Welsh Senedd appointed a Future Generations Commissioner, who has overseen interventions in changes to land use planning, transport and housing, but has no legal right to exercise other than to institute reviews of public body activities.

Although Wales's Act has so far not been directed towards food system improvements, in conducting this research there was a high level of support for such systems-led legislation helping governments to think long-term about food. As such, we propose additional legislative mechanisms to the existing text of the Bill to include:

- A **Plant-Based Transition Commissioner** to oversee joined-up and fair thinking to help farmers, producers and users make necessary social, cultural and economic shifts towards an arable and horticulture-led, plant-based food system over time.
- An obligation placed on the Secretary of State to produce a **"future food system risk assessment"** that stands alongside the more generic "national future risk assessment" as outlined as an obligation in the text of Lucas's proposed Bill.

We believe that together, these two Bills, when made Acts in law, will radically transform our food system for the better. In the short- to medium-term, they will lay the ground for shifts towards a predominantly plant-based UK food system as envisaged by the majority of existing serious and

credible reports and organisational agendas. In the long-term,

Ready-at-hand for the future: An End to Animal Slaughter Bill?

However, neither of these Bills are specifically vegan legislation. If our vision is for a specific, practical and achievable plant-based food system, how will this come about?

We are committed to the advancement of a vegan world where all beings, regardless of species, maintain bodily autonomy and their birthright to flourish in species-specific ways. This includes currently domesticated animals used in the production of food products. As you would expect of The Vegan Society, we foreground – from already commonly held social values – this lens of the ethical treatment of animals in our final piece of proposed legislation.

As such, we have conceptualised one further Bill that will become implementable when shifts in the food system, consumer behaviours and public attitudes reach a certain tipping point towards the fairer and equal treatment of other animals. This Bill is:

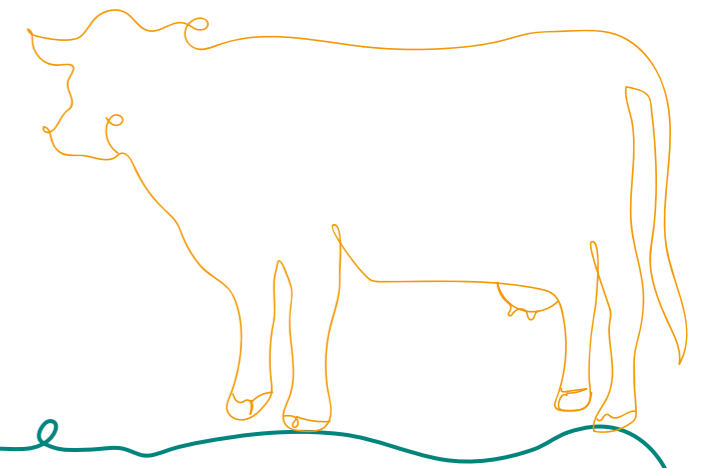
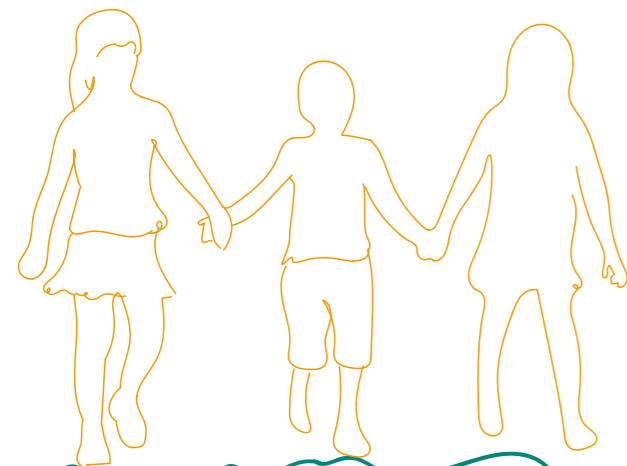
An **End to Animal Slaughter Bill** to bring about a phased end to historic property rights over other animals and allow them full, supported and stewarded lifespans free from pre-determined deaths. The Bill also proposes medium- and long-term mechanisms and financial support – an "ELMs for animals", if you will – put into place to help any remaining 'livestock' farmers transition away from animal production, while providing end of life care for the animals they have farmed for generations.

Its most prominent legal act will be to end slaughter by removing historic property rights over animals and allow animals full, supported and stewarded lifespans. This is how it could work:

- The Bill includes legislation to end enforced breeding, with a phased approach aligned with the decline in demand for slaughter-based products leading, over time, to populations of previously farmed animals declining significantly; the remaining animals will meet their natural deaths at the end of natural lifespans.

- The Bill will also create medium- and long-term mechanisms and financial support – an "ELMs for animals" – put into place to help the remaining 'livestock' farmers transition away from animal production, while providing end of life care for the animals they have farmed for generations.
- The Bill will make the stewardship of previously farmed animals a 'public good' and benefit from continued payments through aligned mechanisms.
- Payments will go to stewards within a transition period whose length is measured by the natural lifespan of the animals to provide access to land, veterinary care and other support for those animals to live out their species-specific lives.
- As farmers are currently highly reliant on subsidy for farm income, we expect many farmers to transition into these stewardship roles, alongside their development of pulse, legume, and horticulture farming crops, agroforestry and other nature-friendly practices, supported through incentive payments.
- The Bill will create funds for research to find replacements in the agroecological systems for animals in terms of the ecological services their presence and manures provide.

This solution is one that could meet our ethical and environmental obligations, supporting all those farmers motivated to regenerate land while still growing food, or providing restored or rewilded spaces for UK population health and benefit. It also rests on existing **economic, environmental, health and social** realities that will all benefit from a changed relationship with other animals and their removal from the food system:



- Our **economic vision for this Bill** builds on existing financial realities. Up until 2021, a fifth of the entire EU budget (£24bn) was spent on subsidies to 'livestock' farmers. In the UK, CAP provided £3.4bn annually, distributed mainly on farm size. Lowland grazing 'livestock', less favoured area grazing 'livestock', mixed farms and 'dairy' farming all received significantly more income from subsidies than they did from actual farm produce. Indeed, in general farms (the situation is more acute in Scotland and Wales) were receiving more income from subsidies than they did from farming.³⁶⁸ In 2017, the average farm income with subsidies was £37,020, but without subsidies was £14,300.³⁶⁹ With the majority of grazing 'livestock' having relied on subsidy to make a profit anyway, we argue the slaughter of animals was for a long-time incidental to the economic viability of most UK 'livestock' businesses. Our long-term legislative goal would be to include fairness for other animals within the definition of the 'public' for whom public goods are secured by future payments and use the money set aside in the new mechanisms to transition farmers away from this (financially and environmentally) unsustainable animal farming and fishing.
- Our **environmental rationale for this Bill**, even taking only the climate emergency into account (putting aside health, economic and ethical issues), rests on the analysis that it is essential we end the cyclical deaths of animals in the food system. The population sizes of animals bred for continuous slaughter, and the births of the next generation to take their places, in an ever-shortening production cycle, is driving the destructive climate impacts of animal agriculture. Caught in this profit cycle, the numbers of farmed animals never reduce – and indeed, in parts of the world, is growing. 'Livestock' now accounts for 60% of all mammal mass on the planet. We know such numbers are unsustainable. We also know that the National Farmers Union continue to avoid the reality of the environmental impacts of UK beef, sheep and dairy farming, instead offering unproven technologies and an overreliance on government action in their *Net Zero by 2040* plan.³⁷⁰ Were animals freed from this system and its enforced breeding programmes, their numbers would begin to decline rapidly in natural life cycles and damaging methane emissions would reduce immediately. As such, we must end the rapid cycle of animal deaths and their immediate replacement, while finding ways to respect the lives of those animals still living.

- Our **argument for human health in this Bill** is that it further embeds the benefits of whole food, plant-based diets for the wider population and supports a renaissance in UK food security. As Henry Dimbleby writes in his introduction to the *National Food Strategy: Part 1*, "a peculiarity of the modern food system [is] that the poorest sectors of society are more likely to suffer from both hunger and obesity."³⁷¹ According to the Food Foundation, "the diets of typical British families now pose the greatest threat to their health and survival."³⁷² Just half (54.8%) of British adults get their 'five-a-day' of fruit and vegetables; for most minority ethnic groups, this falls below half;³⁷³ 85% of secondary school children are not eating enough fruit and vegetables, more than 90% are not eating enough fibre and all are eating too much sugar.³⁷⁴ In the UK we eat more 'ultra-processed' food (high in fat, salt and sugar) than every other EU country for which there is enough data.³⁷⁵ A UK food system based on homegrown fruit and vegetables, with an increase in other plant-based foods such as nuts, seeds, legumes and pulses, will contribute to life-changing improvements in the health of the UK population.
- Our **social vision for this Bill** rests on the already visible shift in public behaviour and attitudes – perhaps most stimulated by the climate, microbial and polluting impacts of global animal agriculture – that will lead to an inevitable tipping point in public consensus. When this point is reached, public demand – with a majority either consuming no animal products or considerably less – will support an end to the ongoing exploitation of animals in the food system. Our proposed legislation will be ready to enact when that tipping point is reached, rapidly seeing through the changes we require for this fairer, more sustainable food system ready for generations to come.

Can it work?

Although this Bill would feel radical and abrupt if brought into law now, we offer this Bill as 'future-ready legislation' that, by the time of its implementation, will come to be seen as necessary. Even though we wish that would happen sooner rather than later, we are realistic in our view. As social changes gain momentum, however, such shifts in public behaviour and attitudes – not least, perhaps, led by the climate, microbial and polluting impacts of global animal agriculture – will lead inevitably to a tipping point in public consensus. We continue to champion these changes and believe it is wise to have legislation ready for when it is needed.

At that point, there will be one major question left to answer (and which nearly every vegan and animal advocate has, at one time or another, been asked): *what will you do with the animals?*

What will happen to the existing animals?

Whenever the existing animal-based food system ends, to be replaced by a plant-based food system, there will be some animals set free. Currently in the UK, at any one time there are around 250 million living farmed animals, mostly chickens. We believe our Food Sustainability Bill and our Well-being of Future Generations Bill, if made law, will lead over time to a considerable reduction in that number. We do not know how many animals may need to be provided with support, but an End to Animal Slaughter Bill could be prepared to outline a strategy for their protection and stewardship for the remainder of their lives, allowed to live and flourish in species-specific ways. Even in the most co-created farmed animal sanctuaries, previously farmed animals continue to need human stewardship – not least because of the terrible health conditions they suffer from many farming practices. So, any solution will have to put the animals' lives and health first with human help.

Veganism does not have a goal to phase out all relationships between humans and other animals. If there is the possibility of radically different relations between humans and non-human animals, where they are no longer property but co-constituents of habitats with protected rights, then some cows, sheep and pigs could continue to provide benefits, not as exploited labour but as free roaming beings. This would provide space within regenerative projects to contribute freely to agroecological

outcomes, with compensatory funds for farmers to become stewards in a land management system where animals can flourish.

Of course, the question of how much land would benefit from grazing ruminants (such as the reintroduced Kent bison)³⁷⁶ is up for debate. But we imagine it would be much lower than that which is currently grazed, and at a much lower average population density, resulting in many fewer animals. As a result, we do not imagine a future where anywhere near current numbers of animals would need to be protected and stewarded.

What we do know is this: if we are to shoulder our share of responding to the global climate emergency, we must go further than those other countries historically less responsible for greenhouse gas in reaching net zero carbon emissions. The fastest, and healthiest, way to do this is to transition to a plant-based food system. If the policymakers and people of the UK are to be as fair as possible to those animals we say we love, then we should release them from their pre-determined deaths in the food system, and into stewardship, no longer as property but still stewarded. While this would cost money, it is simply an extension of what we already pay to farmers in subsidies to keep their cattle and sheep farms afloat. But the savings – in terms of greenhouse gas reductions, reversing environmental destruction, reducing poor health and improving our soil – will not only save over £120bn a year in hidden costs, but also save nearly *one billion* animal lives a year. It could also save the planet.

What happens now?

There is much work still to do. Confident as we are in the proposals we put forward in this legislative agenda, the interviews and synthesis we have conducted has given us more measures to explore – as most good research does. Before adopting any of the specific ideas laid out in Parts 2 and 3, we need to ensure they support our vision for a fully ethical plant-based food system. Any new policy will interact with others across multiple criteria and have both intended and unintended consequences. Our future research agenda will look closely at these measures to see which are the most appropriate for our needs.

In the immediate future, however, we can begin to have conversations with policymakers, politicians and those within farming and food production, based on where we have arrived with this research and our charter for change. We look forward to these conversations, working with others to transform our food system for the benefit of all.

We welcome all comments and feedback on this research as well as our legislative agenda laid out in the report, *Part One: Our Vision*.

**Dr Alex Lockwood, lead author, University of Sunderland
The Vegan Society Policy Team**

From the Future? A Plant-Based Success Story

We're back in 2030 and down the road from Jane is another farm, this one run by John.

John is a third-generation farmer growing mainly arable crops. At first John struggled with some of his pea crops, as the vegetable is very difficult to cultivate in unpredictable climatic conditions. But with support from market funds and engagement with peer-to-peer knowledge through his farm cluster, John made it through the touch and go first few seasons, and is now rotating through heritage cereals, peas, chickpeas (in healthy competition with Jane) and is also putting in agroforestry: hedgerows, shelter belts and in-farm trees.

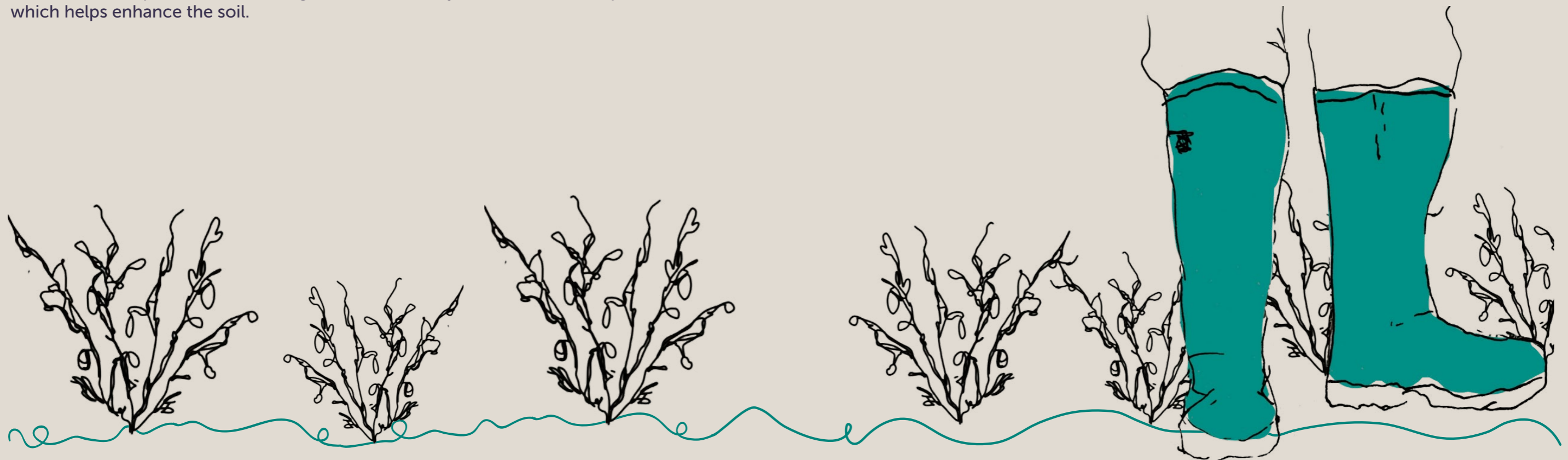
But the biggest success for John has been the non-economic reward he's received from selling his produce through small producer networks and new technology direct to customers. His name is on his products – and food users get in touch. Before, when he was producing arable crops, half of which went for animal feed (official figures say around one third of all UK crops are destined for animal feed) the production and consumption of his work was anonymous, and he received only financial reward—and then, most of that through subsidy. But from the products he sells now he gets lots of feedback, which he really enjoys. Farming means something again, now that people recognise the value of his efforts. This is something John never had with commodity arable. The farm is now mostly in a five-year arable rotation including red clover for seed, wheat, oats and peas. His farm also grows naked barley and he runs a compost business which helps enhance the soil.

In the last 15 years, John has run funded schemes to plant areas of wild bird seed mixes, create wildflower areas and flower-enhanced boundary strips, as well as leaving an area of fallow land as a food and nesting source. This de-commodifying of farm produce made John fall in love with farming again. He knows he is regenerating the soil while connecting with the users of his produce. It also means that, with this growth in financial viability, John can think even longer term. He and his family have built an on-farm classroom, working with the Innovative Farmers Field Lab³⁷⁷ and the Nature Friendly Farming Network.³⁷⁸ He is perhaps proudest of the research that has gone into growing profitable crops of carlin peas (marketed as black badger), a pea traditionally eaten on bonfire night in Lancashire. You can buy them via the shop at Hodmedod.

Sorry, did we say 2030? We meant today. All of these practices are happening now on different farms across the UK – on Martin Lines's farm in Cambridgeshire, Mark Lea's farm in Shropshire and on George Young's farm in South Essex. Many are mixed farms and continue to require animal manure or grazing ruminants. So, while they are mainly plant-based, they do continue to farm animals. We did not want to end on an unrealistic note. We still have some way to go working with the farming community if we are to transition to the fully plant-based system that we envisage, where Jane – our

imagined farmer of the future – is reaping the benefits of the legislation we propose in this report. However, in our vision, for example, the chicken manure that Martin Lines uses to build fertility on his (real!) farm could come from chickens released from their sheds and pre-determined deaths, and allowed to live freely. If we are still a long way from that, these examples show us that many of the most innovative farms producing the crops we need more of – beans, pulses, legumes and fruit – continue to use animals or animal products. Our vision is to change that relationship, but we accept that we can only do so when that change is beneficial for all.

But what these examples also show us is that, in 2021, we are in the transition to a plant-based food system. Whether this be brought about by alt-proteins, consumer choice, the next zoonotic pandemic, our global health crises or climate change, or perhaps even through compassion for animals, this is the unarguable direction of travel. Our commitment is to see through this vision, advocating for and working with the farming community to build a fairer, sustainable and healthy food system for every one of us, human and animal. We believe the research we have conducted, the realistic multi-criteria approach we have adopted and the credible policies we have formulated can and will help us achieve that.



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