



The
Wildlife
Trusts

A food systems approach to *farming, nature, and health*

A discussion paper





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Executive Summary

Sustainable food production depends on the natural world. The health of natural systems underpins our ability to produce food, yet these systems are under threat, putting our food security at threat. The recent State of Nature¹ report sets out the scale of the nature crisis in the UK, with continued declines in species abundance and diversity, and one in six species now threatened with extinction. The report identifies unsustainable farming practices and climate change as the biggest causes of wildlife decline. The Wildlife Trusts' briefings on the Importance of Soil Health² and on Regenerative and Agroecological Farming³ outline the key issues in detail.

Yet many of the drivers for harmful farm impact are beyond the farmgate and addressing them requires a systems-based approach that's broader than purely the way we produce food on a farm.

There is a need to better understand how the whole food system, beyond the farmgate, is leading to the loss of nature and threatening our food security. As a key driver of what and how farmers produce food, this system is not delivering safe and healthy food to the public, nor supporting farm livelihoods and businesses, whilst it is causing huge environmental harm. What is produced matters, so we need a focus on food and nutritional security, i.e., what we need, rather than maximising calorie production for current diets. This is important given the vulnerabilities now and in the future with climate change already happening. What we currently supply is not good for public health, involves over 30% wastage, and is not fit for future demands on land.

This briefing looks at the post-farmgate drivers. The specifications and delivery demands which buyers put on farmers, and the price they pay, affect what farmers grow and rear, and how they do it; the processing, transport, and retailing of food create emissions and impact nature; and the system creates significant waste along the whole chain and encourages wasteful consumption patterns.

Finally, the marketing and promotion of many foods lead to diets that harm nature and public health by promoting unhealthy, overprocessed

foods and an excess of meat and dairy, with not enough fruit, vegetables, or pulses. Sectors such as horticulture need specific attention given the need to increase production but also address its impact on nature and on peat soils.⁴

Whilst we see significant efforts from a growing number of nature-friendly farmers, the drivers for harmful farm impact are too often overlooked, complex and not transparent. There is no single solution. We need a coherent, cross-departmental approach that embeds nature into the heart of all relevant policies from land use planning, through public health, farm support and regulation, to trade.

This is essential to achieve The Wildlife Trusts' 2030 strategy, ensuring that nature is in recovery with abundant, diverse wildlife and natural processes creating wilder land and seascapes where people and nature thrive. Beyond the farmgate, we can help people to take meaningful action for nature and the climate, both in their food buying and consumption patterns, and as citizens calling for better food systems policies at the local level and across the four nations of the UK.

Here, we discuss 12 ways to tackle the food system to ensure nature and food production go hand in hand. These 12 ways fit into three areas: land, consumption, and fairness.

Making the best use of land for food production

We need:

1. A strategic approach to land use which balances needs from land for food, nature and more, developed in a fair and transparent process.
2. To make space for nature in food-producing landscapes through well-resourced policies and effective regulation.
3. To prioritise nature and nature-based food production for nutritious, healthy and sustainable diets over biofuels/bioenergy and feeds.

Shifts in consumption patterns

We need:

1. To reduce food waste in the whole food chain.
2. To switch to more nature-friendly and climate-neutral diets.
3. To design standardised environmental production and processing method labelling.
4. To put nature into standards for public food procurement.

Fairer and more sustainable food systems for nature and climate

We need:

1. Stronger regulation of all supply chains to remove abusive practices.
2. Shorter, more rewarding supply chains.
3. Planning and investment for better food supply.
4. Global trade policy based on core environmental, welfare and health standards.
5. To regulate novel crops and technology.



Introduction

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The UK food system touches our lives in countless ways. As well as providing the food we eat, it plays a huge role in shaping the natural, economic, and social environment that we live in. The agri-food sector that feeds us is the largest manufacturing sector of the UK, and when including retail and catering, it employs 4.4 million people⁵ and contributes £147.8 billion to the national economy.⁶ Farmers, however, take just 10% of the food pound overall (see Table 1).

This paper looks at how this food system impacts on nature and food security and how we can change it – through changes to what and how food is grown or reared, the way the supply chain beyond the farmgate affects production and consumption, and the impacts of consumer behaviour.

Sector ⁷	£ billion gross value added of the UK agri-food sector, 2022	Percentage, rounded up
Agriculture and fishing	£14.9bn	10
Food and drink manufacturing	£35.1bn	24
Food and drink wholesaling	£16.6bn	11
Food and drink retailing	£37.7bn	26
Non-residential catering	£43.4bn	29
Total agri-food	£147.8bn	100

“WE HAVE NO HOPE AT ALL FOR NATURE RECOVERY OR TO ADDRESS CLIMATE CHANGE, WITHOUT ACTING ON THE FOOD FARMING, DIET, AND LAND USE SYSTEM. IT IS ABSOLUTELY FUNDAMENTAL.”

- Craig Bennett, CEO, The Wildlife Trusts



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Why a food nutritional security focus?

Food security is a major political issue in the UK, with one in five children living in food-insecure households in June 2023 and healthier foods over twice as expensive per calorie as less healthy foods.⁸

What we eat has become the biggest UK risk factor for preventable disease with about 70,000 premature deaths due to diet-related ill health every year.⁹ At the global level, despite adequate food grown to feed the current population, there is a growing level of malnutrition from both inadequate access to food and greatly increased levels of obesity, partly driven by marketing of unhealthy foods.

These public health impacts result from a food system which traps us into eating in a way that is harmful to our health and harmful to our planet. For those on low incomes with little time or money, breaking free from this trap is a huge challenge. The relationship between food production costs and shelf prices is a complex one, but cost of living issues are also impacting on people's ability to eat well. Food security, nutrition and sustainability are increasingly discussed in the same context (see Box: what is food Security?)¹⁰.

The realities of climate change are placing further pressures on the ability of our food system to secure a nutritional and resilient supply of food. We know the UK is forecast to experience more severe

drought and flood events.¹¹ These events already cause significant disruption to our food security, by causing crops to fail or stress to animals, by damaging food-processing infrastructure, and by disrupting food transport networks.¹²

The way we produce food currently is contributing to this crisis, with around 19% of the UK's total emissions coming from the food system.¹³ Globally, the food system is the second greatest source of greenhouse gas (GHG) emissions after the energy sector.

Food security has become an increasingly significant political issue in the wake of the Covid pandemic and with the increased disruption to production and supply chains caused by international conflicts raising input and food prices. Food security is therefore a complex issue, but we need to be clear that continuing to harm nature will only continue to drive food insecurity, reduce the resilience of our farm systems to climate change, and increase farmers' reliance on costly and volatile inputs.

Box 1: What is food security?

There are different ways to define food security in terms of how it genuinely delivers human needs. Food security is defined by the United Nations as a state or condition *"when all people, at all times, have physical, social and economic access to food which is safe and consumed in sufficient quantity and quality to meet their dietary needs and food preferences, and is supported by an environment of adequate sanitation, health services and care, allowing for a healthy and active life."* However, it is often used in policy terms and by the food industry to suggest continuing to be able to supply the current foods we eat, from anywhere.

Given that an increasingly substantial proportion of our food is from unhealthy, unsustainably sourced foods, the term **food and nutritional security** is being increasingly preferred by food experts, especially considering the significant role of some heavily marketed foods in driving dietary diseases and ecological harms. 'Food

and nutritional security' means consistent and equitable access to healthy, safe, affordable foods essential to optimal health and well-being and should involve measures to curb unhealthy, wasteful food consumption.

'Food sovereignty' has been described by global farming movements as *"the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems,"* and is often discussed as an alternative political framework and approach to food security.

Whatever term is used to deliver nutritious, accessible, and affordable food now and in the future, we cannot do that without tackling the nature and climate crises within the food system. Without this our food supplies are neither resilient nor sustainable.



How do food systems and markets impact nature?

Activities of the whole food system – from farming, through supply chains, to consumers – have major direct and indirect effects on nature. The food market drives which crops or animals are grown or reared and how that is done, as it determines the amount, the specifications (size, cosmetic appearance, protein content etc), and costs, meaning the food system and market beyond the farmgate determine much of farming's impact. We look briefly here at four key parts of the system:

1. **Agricultural production and land use**
2. **Supply chains deals, transport and processing**
3. **Food loss and waste**
4. **Consumption patterns**



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1 Agricultural production and land use

How the land use affects the environment.

Given the dominance of food production across our landscape and globally, it may be hard to envisage where nature fits into the picture, but nature is integral to the continued functioning of our food system, and without it, agriculture and food production would quickly collapse. Our food, or nutritional security, depends upon ensuring that nature is protected and restored.¹⁷ The 2023 State of Nature report identifies agriculture as one of the most important drivers of biodiversity change in the last 50 years,¹⁸ with most of its effects being negative, as seen by downward trends in the populations of farmland wildlife like birds and insects.¹⁹

Agriculture impacts nature and wildlife through a range of different pathways, including through the direct clearance of habitats to grow crops, monoculture cropping and loss of diverse rotations, fragmentation of habitats, soil degradation and loss, and the use of chemical inputs like pesticides and fertilisers.²⁰ Yet farming with nature can work for farmers. Our recent report with the Nature Friendly Farmers Network, 'Farming at the Sweet Spot', finds that maximising production is both financially and environmentally unsustainable if reliant on large quantities of fossil fuels, artificial fertilisers, and animal feed. It revealed how farmers can achieve up to 45% increase in commercial returns in nature-friendly farms by eliminating these inputs.²¹

But agricultural production is only the start of the picture. Other parts of the food system affect nature, particularly in how they drive farmer decisions and activities.

Land used for what?

Food production dominates UK land use and so, for hundreds of years, the food system has shaped the UK's landscape and natural ecosystems. Agriculture is now the dominant land use across the UK, with around 70% of the total land area used for growing crops or rearing livestock.¹⁴ By contrast, non-farm natural habitats now make up just a small fraction of the total UK land area. For example, woodland covers just 13% of the land in the UK (3.24 million hectares), and this figure includes commercial tree plantations that are grown for timber.¹⁵

Of the 17-18 million hectares of utilised agriculture area, around 72% of this land (12.4 million hectares) is used as grassland for raising grazing livestock, compared with 19% (3.2 million hectares) that is used to grow cereals like wheat, barley and oats.³ A further 2% is used to grow oilseeds, whilst just 1% of the total utilised agricultural area (161,000 hectares) is categorised as 'horticultural' land used to grow fruit and vegetables. Finally, about 132,000 hectares are used to grow biofuels.

In addition, around 40% of the food we eat in the UK is imported and it is estimated we use over 20 million hectares of land overseas, as well as water, chemicals, and livestock, in importing significant amounts of food, animal feed and other products.¹⁶

Supply train deals, transport and processing 2

The treatment and specifications which buyers – including supermarkets, traders, processors, manufacturers, and food service providers – impose on farmers make a huge difference to how farmers and growers can act to protect nature on and around their farm.

The production, delivery, and payment terms have a huge impact. The crop or livestock product cosmetic standards (such as colour, size, blemishes) can embed a reliance on the use of certain chemicals, varieties or breeds and result in wasted produce if it is not to specification.²² Farmers are largely powerless to change this given the powerful size of their buyers and their pricing structures, and as a result are receiving an ever-decreasing portion of the 'food pound'. Recent detailed research on costs and profits for five food items suggests farmers get less than 1% of the profits.²³ Their ability to take risks and introduce agroecological or regenerative practices, such as using cover crops to protect soil, reducing chemical use, or trying a new resilient crop variety, will be hampered by such low returns.

We need government to regulate the whole supply chain, with strong enforcement, so that abusive practices are not used by retailers or anyone in the supply chain and to ensure fair negotiations on production, delivery terms, and prices.

There are also climate and pollution impacts related to the food chain as it has become highly complex and centralised. This involves major transport of raw materials – often refrigerated – for processing, trading, storage

and retail, with significant fossil fuel use. The transport infrastructure that we rely on to carry our food from field to fork can fragment important pieces of natural habitats, block the movement of species and release considerable greenhouse gases. Food manufacturers and retailers are also responsible for substantial amounts of plastic waste which often finds its way back into our wilder spaces, creating harm, some of which is only just being understood, such as microplastics in the water environment





3 Food loss and waste

Food loss and waste is an extremely harmful element of our food system. In the UK it is estimated that businesses and households waste around 9.5 million tonnes of food every year, and at the farm level around 1.6 million tonnes are wasted.²⁴ If all the food wasted by the different actors in the food system globally were a country, it would be the third largest greenhouse gas emitting country in the world.²⁵

This food waste also means significant quantities of wasted water, chemicals, fossil fuels and land which could be put to better use, such as for nature restoration.

Many of the marketing and buying practices of retail buyers lead to this waste, including poor forecasting, unnecessary specifications on cosmetic appearances, and the promotion of cheap produce. Encouraging wasteful purchasing by consumers, such as multibuys, and in catering, are also significant drivers. There is a significant lack of transparency and action on food waste in the UK despite many years of voluntary initiatives.



Consumption patterns 4

Food processing factories can also emit large amounts of greenhouse gases and other forms of pollution. A study in 2019 calculated that nearly 160 MtCO₂e emissions were associated with the UK food system in that year – the latest year for which most national-level data were available – and equivalent to around 35% of all UK territorial emissions.²⁶

Highly processed foods

An area poorly acknowledged as impacting on nature is the role of foods high in fat, salt, and sugar (HFSS), or foods defined as highly or ultra processed foods (UPFs). These foods dominate our diet in the UK with 56% of calories consumed by older children and adults coming from UPFs. Not only do these foods contribute significantly to dietary diseases, including increased risk of obesity, diabetes, and heart disease, resulting in higher healthcare costs and decreased productivity,²⁷ they also lead to environmental harms. The waste this food represents is harmful as the land could be better used.

Studies show that increased consumption of these foods has a negative impact on the natural environment, water use,²⁸ and climate change.²⁹ One French study indicated that diets high in UPFs, compared to those low in UPFs, were overall associated with intensification in GHG emissions, land use, and energy demand, particularly in food processing.³⁰

The production of UPFs is often reliant on abundant, cheap raw ingredients being available all year round, which leads to highly specialised and intensive farming and use of

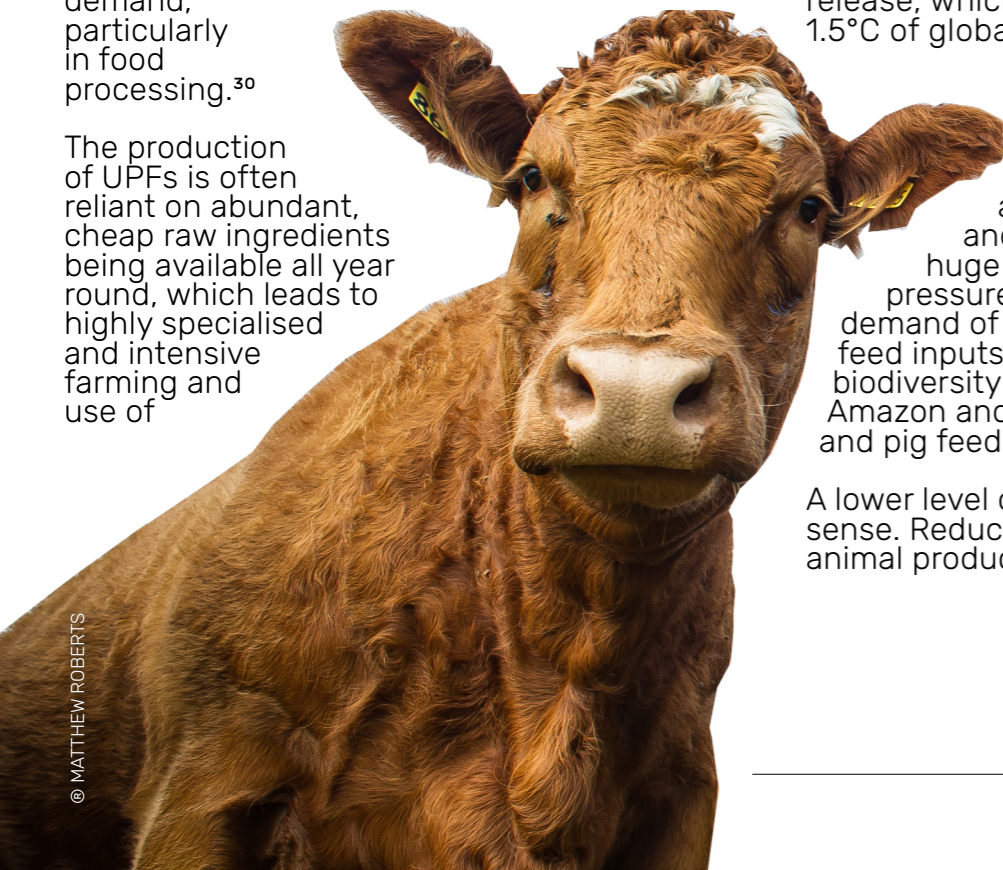
chemicals, meaning less diversity, fewer rotations, and loss of nature. The generation of large quantities of cheap outputs also promotes waste and has significant land take, which could be better used to deliver outcomes better serving society.

Meat and dairy

Meat and dairy systems use a disproportionately high amount of land, both as feed and pasture (40% of land used to grow crops in the UK goes towards feeding animals), compared to arable and horticultural systems, and with the associated chemical use, antibiotic use, and nutrient pollution, these systems are currently having a significant impact on nature. Ruminants like cows and sheep have the added impact of methane release, which alone could drive the world past 1.5°C of global heating.³¹

Poultry and pigs are primarily reared in intensive housed systems with high numbers of animals concentrated into small areas, driving down meat prices and leading to over consumption, huge water and soil pollution, and pressure for further intensification. The demand of these intensive systems for cheap feed inputs is leading to deforestation and biodiversity loss in nature-rich areas like the Amazon and Cerrado in Brazil for chicken, dairy and pig feed.

A lower level of livestock consumption makes sense. Reducing consumption of meat and animal products can significantly reduce an



individual's land and carbon footprint,³² and indeed is a recommendation of the Climate Change Committee's balanced pathway to Net Zero.³³ In countries where consumption of meat and dairy products is particularly high, reducing consumption can also yield significant health benefits. The reality is that current protein consumption levels in the UK are much higher than recommended for good health.

If meat consumption was reduced to a healthier level, a greater proportion of meat could be sourced from agroecological systems, leading to the potential to reduce agricultural GHG emissions by 5.6 MtCO₂e yr⁻¹ through increased agroecological solutions, and by between 6.9 and 17.26 MtCO₂e yr⁻¹ through a dietary shift (depending on the level of meat reduction ranging from 20% to 50% and the related lower production).³⁴ There is no doubt that eating less meat and dairy, and use meat sourced from agroecological systems, could provide more space for nature whilst increasing farm sustainability.

Fresh fruit, vegetables, pulses

One of the most critical ways we can improve nutritional food security and the nation's health is through increased consumption of fruit, vegetables and pulses.³⁵ We urgently need to embed new policies to increase demand, but supply is also an issue. Our capacity to grow our own has decreased significantly; growers were paid to grub up orchards in the 90s and recent supermarket treatment have become extremely harsh. Increasingly unstable climate conditions are also beginning to hurt growers. Now only 17% of the fruit we eat is produced in the UK, and 55% of our vegetables.³⁶ Much of the imported produce, such as salad vegetables and berries, are currently imported from water-stressed areas. In addition a significant proportion of UK vegetables are grown on carbon-rich peat soils which need to be restored from carbon emission sources to carbon sinks.³⁷

To achieve more sustainable and nature-friendly diets, we need to grow more diverse horticulture, in larger quantities, across the UK. Horticulture production is currently centralised

in just a few core areas, so it will be important to decentralise the UK horticulture industry and embed agroecological methods. This will also require investing in infrastructure such as storage and transport, in ways that do not harm nature, to ensure produce reaches consumers quickly. Our new report '*Home-grown: A roadmap to resilient fruit and vegetable production in England*'³⁸ details some key changes that are needed to deliver a change in the fruit and vegetable system.



How to achieve a food system that works with nature

Our food system is considered highly efficient and effective at delivering diverse and abundant food products, but it relies on 'just in time' delivery systems and global supplies. It is vulnerable to disruption and sudden shocks, as illustrated by Covid and recent international conflicts.

Yet we do have evidence that we can feed ourselves using nature-friendly farming. The IDDRI research report commissioned for the UK modelled how we can feed ourselves well using agroecological, nature-friendly farming, whilst cutting GHG emissions by 50-70% and releasing 1.8 million hectares (10%) of current agricultural land ecosystem restoration.³⁹ Modelling conducted by other organisations has led to similar conclusions.^{40, 41, 42} But in each of these scenarios, achieving these outcomes depends on demand-side action – i.e., removing wasteful uses of crops such as biofuels, reducing livestock feed demand, and shifting towards diets with fewer unsustainable foods including meat and dairy.

Without widespread action to transform the food system and tackle the problems described above, our food system will be increasingly vulnerable to disruptions from these shocks and stressors. Central to this transformation will be embedding nature into our food system and making sure nature and food are viewed as essential partners, not opposing forces.

There is a clear need to put nature at the heart of all related policy via

joined-up, multi-departmental policymaking, which embeds the Environment Act, the commitment to reach Net Zero by 2050 and fair dealing into all aspects of food and land use regulation, planning, and health policy. The so far overlooked 2022 independent National Food Strategy, commissioned by the Government, made clear the benefits to the economy, to nature, and to our health and wellbeing that could be realised from a coherent approach on food.⁴³

A whole-system approach is central to this, looking at production, supply chains and demand. Some of the key areas of action needed to bring about this transformation are outlined below:

Making the best use of land for food production

1. A strategic approach to land use:

We need a strategic approach to land use throughout the UK, balancing the different demands we put on land to optimise its use, ensure resilience, ensure nutritional food security, and ensure 30% of UK land is managed

for nature by 2030, sensitive to local and regional issues. In England, the developing land use framework must demonstrate how this can be delivered in practice.

2. Making space for nature in food-producing landscapes: Nature needs bringing back into our farming systems through well-resourced agri-environment schemes which drive all farmers toward agroecological approaches. This will require more funds than currently allocated to achieve the scale of need, estimated at £5.9 billion per annum over 10 years.⁴⁴ It should also ensure accessible advice and support for farmers to facilitate collaboration to drive changes at landscape and catchment scale and to create green corridors and reduce fragmentation.

3. Prioritising nature and nature-based food production for nutritious, healthy and sustainable diets over biofuels/bioenergy and feeds: Over 133,000 hectares of land in the UK was given over to producing food biofuel crops in 2023. While local, subsistence-scale bioenergy can be sustainable, industrial-scale bioenergy and bioenergy with carbon capture and storage (BECCS) risk significant and harmful impacts on nature, climate and people, both in the UK and internationally.⁴⁵ The use of bioenergy and feeds for livestock needs addressing as part of a comprehensive land use framework.

Shifts in consumption patterns

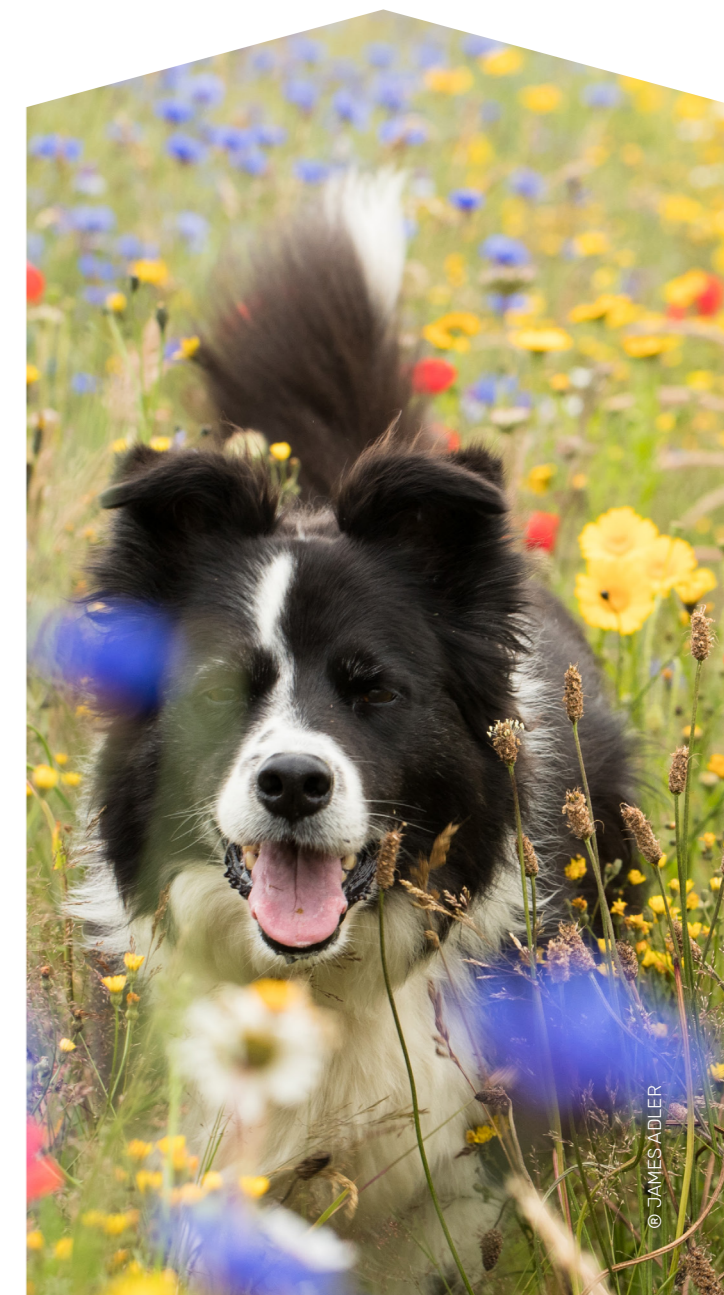
4. Switching to more nature-friendly and climate-neutral diets: There is a huge body of evidence which suggests that we need to acknowledge and act on the significant impact of meat and dairy and encourage the public, via various tools, to eat less and better meat products and more fresh foods, supporting producers through beneficial systems. The Eating Better Roadmap shows the many routes to achieving less and better meat production in the whole food chain.⁴⁶ Restricting the

promotion and sale of UPFs, with high sugar, salt and fat levels, and working to reduce their dominance in our diets will reduce the demand for the cheap raw materials they depend on.

5. Reducing food waste: Given that we waste around 30% of the food produced, this is a key area for action to reduce pressure on the land and to reduce the huge contribution food waste makes to greenhouse gas emissions. Much is related to unnecessary buyer specifications, poor forecasting, and promotions and marketing that encourage over purchasing (75% of food waste occurs at the household level). Food waste needs to be tackled with strong regulations and incentives throughout the supply chain whilst avoiding any adverse effects whereby lower prices result in higher consumption.



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6. Designing standardised environmental labelling: To ensure traceability and transparency in supply chains and ensure consumers can choose nature-friendly foods, we need data from farms and throughout the processing, production, and supply chain system, as well as labelling on all foods about the models and impact of production. We need to ensure mandatory method-of-production labelling on all foods at all points of sale. We are part of the CLEAR coalition lobbying for this.⁴⁷

7. Putting nature into standards for public food procurement: National and local public food procurement can lead the way in supporting production and consumption of nature-friendly food. Government buying standards that require accredited higher environmental production standards, based on nature protection, should be applied mandatorily across the whole public sector including central government, all schools and educational establishments, hospitals, prisons, and armed forces.

Fairer and more sustainable food systems for nature and climate

8. Regulating supply chains: Stronger regulation of all supply chains is needed, not just for the top 14 retailers currently covered by the Grocery Code Adjudicator, to remove abusive buyer practices and unfair negotiations. Food procurers, including retailers and manufacturers, should be supporting farmer innovation to support nature including removing harmful 'just in time' delivery demands and unnecessary and wasteful product specifications such as size and colour.

9. Creating shorter, better more rewarding supply chains: There is a compelling case for supporting shorter supply chains, locally-grown produce, and the infrastructure to support them. One key benefit is that ensuring farmers are well-rewarded within a less complex and extractive supply chain and are closer to the consumer will enable them to invest in agroecological practices. A report by Sustain and RSPB suggests a shift of just 10% of retail market share for sustainable, local food businesses could create an additional 200,000 jobs, support a green economic recovery, and restore nature.⁴⁸ There is also a good opportunity to gain broad benefits from a growth in peri-urban and urban agroecological enterprises close to large markets,⁴⁹ although there is a need for capital investment and supportive planning rules for local infrastructure to support shorter supply chains, including storage and processing facilities.

10. Planning and investing for better food supply: Planning can be used to control the drivers of harm. One in four high street food outlets are fast food outlets and healthier food costs nearly three times as much per calorie as less healthy food. We need to use planning, development funding, and other policies to drive consumption towards better, fresher food supplies as well as controlling unsustainable livestock enterprise development.

11. Creating global trade policy based on core environmental, animal welfare, and health standards: UK foreign trade policy must enshrine core environmental standards into any future trade agreements to protect farmers from competition with products produced to lower standards and to support high nature farming and climate action everywhere.

12. Regulating novel crops and technology: We know a good deal about farm systems that restore nature,⁵⁰ but other technological approaches⁵¹ are gaining attention and considerable investment. To ensure no unintended impacts on nature, ecosystems, public health, or land use, the development of new technologies must be transparent, comprehensively peer reviewed, publicly consulted on, and subject to robust regulation following a hazard-based approach to decision-making founded on the precautionary principle. This regulation should put in place strict protections to prevent unsafe, concerning, or unknown technologies from being approved without appropriate scrutiny and consultation.



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We are facing climate and ecological emergencies, and the two are inextricably linked — we cannot solve one crisis without tackling the other. The Wildlife Trusts is on a mission to restore a **third of the UK's land and seas** for nature by 2030 — not only in celebration of the value of nature, but also because people are part of, and entirely dependent on, nature.

We believe **everyone, everywhere, should have access to nature** and the joy and health benefits it brings. No matter where you are in the UK, there is a Wildlife Trust **empowering people to take action for nature** and standing up for wildlife and wild places. Each Wildlife Trust is an independent, grassroots, community-powered charity formed by people getting together to make a positive difference for wildlife, climate and future generations. Together we care for 2,300 diverse and beautiful nature reserves and work with others to manage their land for nature, too.

The Wildlife Trusts

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