

Our organisations have come together for the first time to join some very important dots and start a conversation that affects us all.

A conversation about the future of our food.













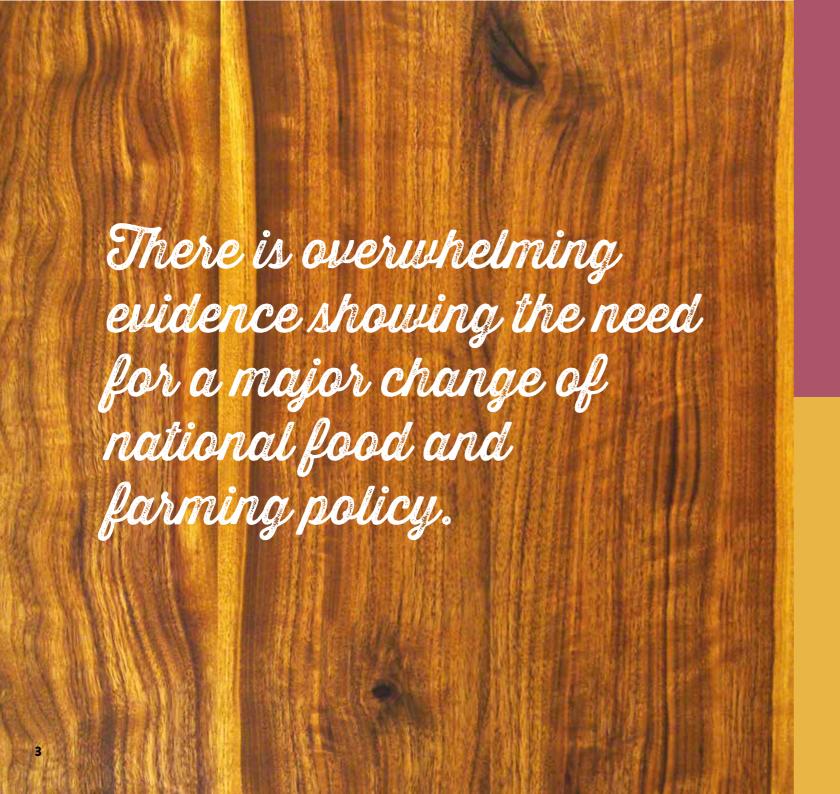












### FOOD



#### SUSTAINABLE Meal. FARMING



A SQUARE MEAL MEANS A FAIR AND **SQUARE DEAL** FOR FARMING, PEOPLE, WILDLIFE & PUBLIC HEALTH.

IMPROVING 

**ENHANCING** ATURE



#### Ingredients:

Welcome	
In a nutshell	)
Setting the table	7

Published July 2014

Square Meal: Why we need a new recipe for the future can be downloaded from www.foodresearch.org.uk/square-meal

THIS DOCUMENT IS DESIGNED TO BE READ ONLINE AND IS BEST VIEWED IN FULL SCREEN MODE (PRESS ESC TO EXIT). SAVE PAPER AND ENERGY. PLEASE DO NOT PRINT UNLESS ABSOLUTELY NECESSARY. THANK YOU.

HEALTH
GETTING A GRIP ON A GROWING CRISIS9
FOOD
GOOD FOOD FOR ALL - LASTING SOLUTIONS,
NOT STICKING PLASTERS14
FARMING
INVESTING FOR A CHANGING WORLD19
NATURE
BRINGING BACK COLOUR TO THE COUNTRYSIDE24
Qulling it together
Pulling it together
LEADERSHIP
FIXING A BROKEN SYSTEM30



## Public health, conservation, social, economic and environmental challenges, and their solutions, go hand-in-hand.

Our organisations have come together because we want to shift the debate on food and farming. We want a debate that asks the questions that matter to everyone about a healthy countryside and healthy food as these are things in which all of society has a stake. We need leadership and a new sense of direction and purpose in food and farming policy.

We put forward the analysis and policy approaches set out in this document to provide the basis for a discussion about the future direction of UK food and farming policy. There are many other issues that overlap and we want them to be part of a wider conversation.

This discussion paper is our opening contribution to a public debate of what British food and farming could and should be. We hope it will stimulate discussion and a focus on seeking integrated solutions to many different but connected problems.

The scope of the document is wide and the support of an organisation does

not necessarily imply endorsement of everything covered. This is intentional as we believe a broader approach is needed, one that rejects narrow thinking and recognises that our health and wellbeing, and that of the natural environment on which we rely, are intrinsically linked with creating food and farming sectors that are truly environmentally sustainable. This will require real leadership from Government as well as others, and a new sense of direction and purpose in food and farming policy, focusing on combined solutions to the many different, but inter-related, challenges we face.

Square Meal grew from a conversation between our organisations about the future of farming and food in England, and this is the focus of this initiative. However, we have drawn upon our experience of positive approaches across the UK and wider, and while we recognise there are important differences between countries, we also believe many of the themes and issues discussed have wider relevance.



Food and farming policy is central to many of the most pressing social, environmental and economic challenges facing UK and global society today and for the future. But these are currently being ignored or addressed in separate and conflicting ways. It is essential that policy makers attach a much higher priority to food and farming policy than they do at present and that they do it in a much more integrated way.

Increasing numbers of people, from across society, recognise that it is possible for the UK to create better food and farming systems. We already have some good practice to build on which shows how to provide all of our citizens with affordable, healthy and environmentally sustainable food; make certain that our farmers and food sector workers are properly rewarded; ensure that a truly progressive UK food and farming sector thrives and grows jobs; and protects, enhances and helps to restore our wildlife and the natural environment.

However, despite the high levels of public subsidies, all too often the wider food system in the UK fails to live up to its enormous potential to deliver for the public good. At its worst, it jeopardises the natural environment, endangers the future security of our food and widens the inequalities in health and access to quality green space. It also places UK farmers in a situation where they are finding it harder and harder to succeed.

#### Leadership

Our message to politicians at all levels and in all parties is that getting significantly greater public benefit from our wider food and farming systems will require leadership and political will. These challenges need to be addressed as part of an integrated food and farming policy that provides an inspiring and long-term vision, makes these issues inclusive and maps out a pathway to long-term food, environmental and economic security. Such leadership and vision has been lacking for some time. A "vision" of increased specialisation, increased yields, even bigger 'big business' and a bit less environmental damage is not good enough and will come at considerable cost to society.

Our organisations have come together to shift the debate on food and farming to centre stage. We put forward our analysis to stimulate a broader and more integrated discussion about the future direction of UK food and farming policy than currently exists. We see this as the start of a conversation and look forward to the feedback and discussions that will arise from this paper.

Any comments can be made at www.foodresearch.org.uk/square-meal



The countryside, farming and food deserve a far higher priority in public policy and must be treated as issues central to people's lives and their wellbeing.

We need to support people to reconnect with the countryside and understand where their food comes from, how it has been produced and why this is so important. Culturally, the British countryside is essential to our identity as a nation - it was rightly one of the major themes in the London 2012 Olympic Games' opening ceremony. Our health and wellbeing rely on 'Nature's Health Service' and it should not be ignored any more than the NHS. We need to move to systems where land owners embrace their responsibilities as stewards of nature, and are properly incentivized to provide a whole range of services for the rest of society and future generations.

Our food and farming industries are vital elements of the UK economy, with the food sector one of our largest remaining manufacturing industries. But this is only part of the economic story. The way most food is produced, processed and marketed means the dominant food and farming systems are are simply unable to provide the multiple benefits for society which they could¹. In fact these systems are costing the UK economy and society much more

than we think and creating big debts for future generations. It has been estimated that the external costs of agriculture in the UK are over £3 billion per year, as a result of air and water pollution, soil erosion, and loss/degradation of wildlife and wildlife habitats². Ill health caused by bad diets is now a public health problem on a par with cigarette smoking, costing the NHS over £6 billion a year, with the cost to the economy as a whole set to rise to £50 billion annually by 2050.

After the Second World War, UK farming gradually restored food availability with a priority on food production and industrial efficiency. The drive for increased yields led to increases in agricultural production – led by heavy reliance on artificial chemical inputs, intensification of livestock systems and increasing field sizes to accommodate larger machinery. It is well-evidenced and widely accepted that such changes have been responsible for declines in farmland wildlife, reduced water quality and impoverished soils. We have lost more than 44 million breeding birds in less than half a century<sup>3</sup> – they have vanished at a rate of one pair every minute.

Public policy is drifting, despite the growth of evidence that shows it must address the production of food's impact on the environment, jobs, health, quality of life and the social fabric. Many of the crops farmers grow are destined, not for people, but

for animal feed, fuel, or even landfill; the natural environment underpinning farming is degraded, and we have lost much of the local distinctiveness of our food. We have also seen the re-emergence of domestic food poverty on a scale not experienced since the aftermath of the Second World War, and a continuation of diets based on bland, over-processed food and empty calories. Today, many people in this country are unable to eat a healthy and tasty diet.

We need an approach to food and farming policy that provides resilient, vibrant and sustainable rural and urban development. We need an approach that will halt and reverse the decline in all the things that British people love about our countryside: diverse and plentiful wildlife; a varied landscape; farm animals enjoying life out of doors; and fresh, seasonal, local food which can be bought at fair and reasonable prices from the people who produce it. We need an approach that will address the crisis of diet-related obesity and ill health, including for those on low income, and that will safeguard the basis of future food supplies for everyone.

This approach would encourage an already emerging farming and food culture to flourish – a culture of fairly priced, sustainable, seasonal British produce and diets based on more fresh fruit and vegetables, less (and more sustainably

produced) dairy and meat, and less junk food. It would shift the debate, rejecting the mantra of producing more as the silver bullet to solve food insecurity, and addressing the real problems in our current system.



#### There is some good news in all of this.

More and more people are producing locally distinctive and delicious food, including right on our doorstep in our towns and cities. Growing numbers of schools and hospitals, restaurants, and cafes, nurseries and universities, are insisting on serving seasonal, local and good-quality food, with higher animal welfare, labour and environmental standards at no extra cost. However, these examples are still the exception and only account for a small proportion of what is consumed each day because our current system rewards a far more exploitative approach aimed at boosting the volume of exports abroad. There is also growing

recognition that widespread food poverty is simply not acceptable in 21st century UK and that the situation doesn't need to be like this.

We need to continue and expand this revival of good British farming and food that we can be proud of. The many millions of pounds of public money that go to farming must be directed at tackling the problems that matter to society and which the market is ignoring, not denying them. Public policy should support public objectives: good quality, safe jobs; proper protection of our soils and water; the creation and enhancement of space for nature, in urban as well as rural areas; and the production of good quality food.

The UK needs to champion food and farming systems that are based on an integrated agro-ecological approach (such as organic or high nature value farming), that are resilient to external shocks and have stepped up to the challenges of climate change, losses of wildlife and diminished functioning of our essential ecosystems. Our farming and food policy should tackle unfairness and abuse of power in the supply chain, demand transparency and accountability, and be willing to address the damage of UK production and consumption overseas.

Many local initiatives all over the country show that we can restore the quality of what we eat, stop and reverse the growth in obesity, reconnect with nature, bring back butterflies and birds to our countryside and towns, and treat farm animals with decency. We deserve a countryside which is open to everyone and a food system which is fit for people, protects the environment and provides sustainable livelihoods.

This paper examines the problems and proposes solutions under the four following chapters: Health, Food, Farming and Nature. The fifth chapter, Leadership, outlines the role for governments and public policy.

The Challenge





OFUNDER 185
INTIFULARE
OVERWEIGHT
OROBESE

#### HEALTH

#### Getting a grip on a growing crisis

Our food and farming systems are now undermining health and wellbeing. Having improved health in the mid 20th century by increasing affordable food supply, the systems put in place to improve public health are now creaking<sup>4</sup>. The impact of diet-related ill-health as a public health problem is currently on a par with cigarette smoking<sup>5</sup>.

The British Heart Foundation calculates that diet-related diseases accounted for 13% of all EU healthcare costs in 2009<sup>6</sup>. In the UK, ill-health caused by bad diets costs the NHS £6 billion<sup>7</sup>. The costs of obesity alone are projected by the Chief Scientist's Foresight report to rise to £49.9 bn by 2050<sup>8</sup>.

Seen through the lens of health, our food supply is distorted. Almost two thirds of adults and one third of children under

18 in the UK are overweight or obese. The Chief Medical Officer of England has stated that obesity has been normalised9. 77% of parents of overweight children in one study did not recognise that their child was overweight. National Childhood Measurement Programme data in 2012/13 shows almost 25% of Year 6 children living in the most deprived areas were obese. compared with 12% in the least deprived areas. Defra and ONS data show that only 24% of men, 29% of women and 18% of children (5-15 years old) consumed the recommended 5-a-day fruit and vegetable recommendations<sup>10</sup>. The bill for individual ill-health and social costs looks set to rise.

The degradation of the national diet is made worse by a change in lifestyle, partly as a result of the "fast food" culture and the vanishing involvement with the production and preparation of our own food.

Disconnection from nature and disregard for 'nature's health service' is a growing

problem. Today's young people have less contact with nature than ever before<sup>11</sup>. The loss of green spaces, combined with cultural changes and the rise in technology, means that less than 10% of children now play outside, compared with 40% 30 years ago<sup>12</sup>. As well as increasing rates of childhood obesity, less time spent outdoors is linked with higher levels of depression and attention deficit hyperactivity disorder (ADHD) in children<sup>13</sup>. Green space appears to be valuable for mental well-being, long term health and longevity, and children with plenty of contact with nature are less stressed and recover from stressful events better.

These problems affect the poor disproportionately, with large health and wellbeing differences between social groups widely evidenced. Put simply, there is a social gradient of health inequalities – the lower social and economic status, the poorer health is likely to be<sup>14</sup>.

As well as a decline in the overall quality of food we eat, more direct health risks are in danger of emerging if food quality rules are weakened or if we don't see greater transparency and public accountability in how food is produced. That is the clear lesson from the Elliott Inquiry into horsemeat<sup>15</sup>. Removing burdens on business must not generate burdens to health.

Over-reliance on routine use of antibiotics in farming is making a significant contribution to problems of antibiotic resistance, which is already beginning to affect medical ability to treat some diseases. We note with concern the Chief Medical Officer's alarm about this issue<sup>16</sup>, echoed by others<sup>17</sup>.

In addition to these health concerns affecting wider society, there are also issues of the safety and well-being of farm workers. Farming remains one of the most dangerous jobs in the country with 1.8% of the British workforce but accounting for 19% of the reported fatal injuries each year<sup>18</sup>.





#### Promoting sustainable diets and measuring for change

Actively encouraging more sustainable diets is central to reforming our unsustainable food system. A set of guidelines and advice for consumers is a necessary step in developing policies and practices that support dietary transition, and are vital in incentivising less environmentally damaging farming systems that also provide better returns for farmers.

A clear and robust set of principles should be developed for what constitutes a more sustainable diet, including a 'less but better' approach to consumption of livestock products, and embedding guidance on sustainable sources of fish as part of healthy eating guidance. Government should continue to encourage adoption of high quality schemes for meals eaten in restaurants and cafes, like the Food for Life Catering Mark, and promote independent certification marks like Fairtrade.

Government should also commit the ONS to develop a new Sustainable Diet basket of measures, to accompany the Consumer Price Index, and work to make food from sustainable sources more accessible than unsustainable sources.





There is a key role for government, both national and local, in showing leadership on health and well-being issues as an intrinsic part of food and farming policy.

#### We can improve the nation's health and wellbeing by:

#### Tackling health inequalities

We must reduce the social gradient of health inequalities. There is evidence of a valuable synergy between environmental sustainability and reduction in health inequalities.

#### Promoting sustainable, healthier diets

Based on more fresh fruit and vegetables, less junk food and a 'less but better' approach to consumption of livestock products to improve human health.

#### Ensuring food and water safety

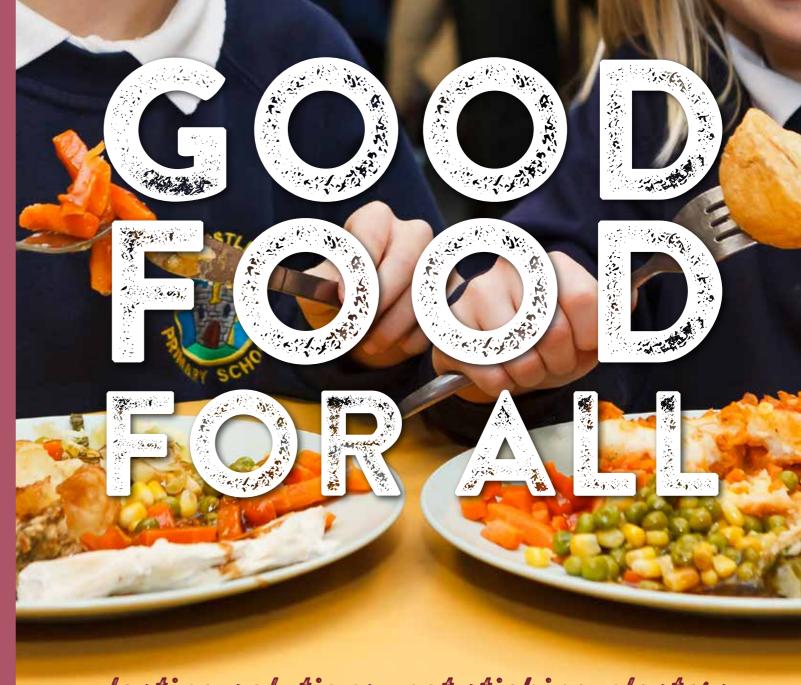
Improving the inadequate monitoring and enforcement of standards, by supporting systems which reduce disease or pollution incidences, and by challenging the move to higher risk farming and processing systems.

#### Making natural connections

Supporting initiatives to get more children and their communities outside and reconnecting with nature. Enrich positive attitudes towards nature and valuing food through formal education and informal recreation.

### 

The Unallenge



lasting solutions, not sticking plasters



The number of occasions people in crisis across the UK were provided with

# THREEDAYS ENGENCY FOOD

in the year to end of March 2014 - by Trussell Trust foodbanks alone

#### GOOD FOOD FOR ALL

- lasting solutions, not sticking plasters

The appearance of food banks in villages, towns and cities across the UK is the most recent sign of how deeply unfair our food system has become<sup>19</sup>. A significant proportion of UK households cannot afford to feed themselves<sup>20</sup> and the increasing cost (in real terms) of our food over recent years means things have been steadily getting worse<sup>21</sup>.

Aside from the unfairness, what makes these levels of food poverty so outrageous is the fact that we currently produce more than enough food to feed the world's population. People are not starving because there isn't enough food to go around - indeed, there is actually an oversupply<sup>22</sup>.

In the UK, food and farming sectors are key to our culture and our economy, sectors of which we have many reasons to be proud<sup>23</sup>. But they are also industries where low pay, insecurity and dangerous working conditions are widespread. The conditions experienced by many workers in the food and farming sector are often extremely poor and some people working in the food and farming industries are being paid such low wages that they cannot afford to eat the food they are packing or picking.

Environmental and social goals are often portrayed as being in conflict, especially by those with vested interests in the system but it is increasingly clear that it is the poor who are most impacted by environmental degradation<sup>25</sup>. It is also clear that we don't stand a chance of addressing the environmental challenges confronting farming and food production if we don't also address the social injustice that underpins many aspects of environmental degradation<sup>25</sup>. Current unsustainable farming practices and inequality of resource usage jeopardise present and future food security for the most vulnerable. As the

#### The end of the 'cheap' food era

Food prices in the UK have risen in real terms by 11.8% over the last six years and are predicted to rise above the rate of inflation for the years ahead.

A large and still-growing number of families are dependent on charities for their food supply with the number of people using food banks tripling over the past year.

During the year to end of March 2014, on 913,138 occasions people in crisis across the UK were provided with three days' emergency food by Trussell Trust foodbanks alone. This represents an increase of 163% compared to the previous year.

A reduction in nutritional quality of diets is a key trend with reduced consumption of vegetables and fruit, particularly for households with children.



We have to address the broken food system and fix it in a way that secures our capacity to produce enough food now and in the future. The good news is that it can in fact be cheaper to supply healthy, sustainable food than unhealthy, unsustainable food. This is a winwin for consumers and the  $\mathfrak{L}2.2$  billion of tax payers' money spent every year buying food for places like nurseries, schools, universities and hospitals. Hundreds of these institutions already prove that good food can be cheaper than supplying people with poor quality food.

For example, the Soil Association's Food For Life Catering Mark now covers nearly a million UK meals served each day, including 50% of schools in London, the largest nursery provider in the UK, dozens of universities, hospitals. care homes and work-place catering at a number of major UK companies, including Pearson, Sainsbury's, PepsiCo and Jaguar Land Rover. Nearly all of these catering operations can provide the good quality food required by the Catering Mark without spending more overall on ingredients. North Bristol NHS Trust has a Silver Catering Mark menu and spends just £2.15 per patient per day on ingredients. Indeed, some hospitals and schools have found that they can save money while improving quality, by sourcing locally and by sourcing food when it is in season, rather than aiming for the same menu all year round.

global population increases, developing nations expand their economies, and more people live in ways that use more scarce resources.

A focus of Government and business policies on short term "success", measured through narrow and simplistic metrics, means that not enough is being done by the supply chain and retailers to build sustainability and social responsibility into their business models. This narrow focus risks exposing the UK to further food price spikes and greater food price volatility in the future. UK food prices have risen by 12% in real terms since 2007, returning the cost of food relative to other goods to levels of the 1990s<sup>26</sup>.

Sustained growth in foods produced to higher animal welfare standards and global growth in organic sales<sup>27</sup>, despite the recession, show that consumers share many producers' desire that farm animals live a decent life where they can exhibit the normal range of behaviours. Supermarkets and others in the food industry now need to properly support producers operating to higher environmental and animal welfare standards, and those providing fair wages and safe working conditions.

# Promoting local economies and enterprise by supporting sustainable food initiatives

More emphasis is needed on reconnecting people to food, through initiatives such as growing projects, local 'food policies' and alternatives to mainstream retail such as farmers' markets and box schemes.

This can be achieved by providing targeted support for local initiatives that are demonstrating ways to educate and inspire people, especially young people, about good food.

Initiatives such as the 'Sustainable Food Cities Network'<sup>28</sup> and the Food for Life programme help promote local economies and support sustainable producers.

Encouraging sustainable producers to work together to share resources and invest in processing and promotion will enable them to

benefit from the markets that reflect the value of their produce.

As well as ensuring large retailers and processors treat their suppliers fairly, more needs to be done to support viable alternative routes to market so that there is a better balance of power.

This includes supporting the infrastructure required for mixed, sustainable agriculture systems - such as more small and medium sized abattoirs, to enable shorter chains and trustworthy traceability.





Food produced in ways which protect and enhance the environment, and provide decent working conditions and high standards of animal welfare, should not be viewed as a luxury for the wealthy and the middle classes.

The Government should support the aim of good nutritious, sustainably produced food being accessible to everyone, and ensure that those producing this food are fairly rewarded.

#### We can move towards better quality, fairer and 'greener' food for all by:

#### Redefining food security

To acknowledge that issues such as poverty and inequality are actually causing poor nutrition and lack of access to good food, rather than a lack of food supply. Rejecting the narrative that food security is best addressed through maximising food production in the UK and that 'amount of food produced' is an adequate proxy for food security.

#### Creating good jobs

Developing a labour force that is properly equipped to meet the challenges of the 21st century to enable UK food and farming companies to be successful in the future, while at the same time ensuring people working in the sector enjoy well paid, secure and safe jobs.

#### Investing in the future

Protecting the ability of future generations to feed themselves sustainably and healthily by prioritising the protection and restoration of natural resources and properly valuing them. Recognising the importance of sustainable consumption, as well as production, and working towards better measurement of our resource use.

#### Ensuring transparency, traceability and fairness in the supply chain

Through strong leadership and more direct intervention, push retailers and processors to review standards and operating practices to raise market entry requirements, improve transparency and traceability, influence food choices, provide fair contracts and give better support and reward to sustainable suppliers.

# The Phallenge

# 



# OF THE PROTEIN we feed our livestock in the EU is I M P O R T E D

#### **FARMING**

Investing for a changing world

We all have a stake in British food, farming and the countryside. Food is about our health and nutrition but it is about more than this – our culture, well-being, emotions and values are also linked with what and how we eat. But despite the resurgence in popularity of TV cooking programmes and the seemingly vast choice of products on supermarket shelves, our connections with where food comes from are more broken than ever.

Although the UK is among the most productive countries in agronomic terms – producing some of the highest wheat yields in the world<sup>29</sup> with some of the highest inputs of manufactured fertilisers - farming is about so much more than food production. Agricultural land is important for its impacts on a range of other services that matter to us all, including farmers, such as water quality and availability, carbon storage, flood alleviation, the landscape, recreation, animal welfare and wildlife. Some farmers are producing high quality food and managing land in a sensitive

way, in tune with the natural environment which underpins farming, and creating value in their communities, for example, through restoring habitats and landscape features, direct selling, diversification or other initiatives which create local jobs. But as the market often fails to reward those providing these wider benefits to society, these farmers often can't compete with those farming in a less sustainable way<sup>30</sup>.

There should be an easy solution to this. The Common Agricultural Policy spends €1 billion a week of taxpavers' money across the EU<sup>31</sup> - a vast amount that could be doing so much more to support and incentivise those farmers doing the right thing for society and the environment and push up standards across the board. But only a tiny proportion of this expenditure represents good value for money by being targeted at sustainable farming. Much of the rest ends up in the coffers of big business or capitalised in agricultural land prices, delivering little more than private profit or too often is supporting unsustainable farming systems, stifling innovation and hampering competitiveness. Many people, particularly those living in towns and cities, are often completely unaware of the extent to which their money supports the agricultural



#### Our food system is leaving many farmers in poverty

The current focus on production and supply chain 'efficiency' that disregards negative and social environmental impacts is leaving smaller and more sustainable producers unable to compete; we are losing the very farmers who are part of the solution.

Input costs are rising at a rapid rate whilst prices paid to farmers for their produce are showing little increase at best, stagnating, or even decreasing.

A quarter of Britain's farmers are living in poverty and pressure on prices means that low Not everyone is suffering from this status quo. pay, insecurity - such as zero hours contracts - and dangerous working conditions are widespread in the industry.

Many of those farmers who are doing most to protect and enhance our wildlife, our landscapes, our water resources and our carbon stores – such as organic and High

Nature Value farmers – are particularly feeling the pressure because they are not being adequately rewarded for these wider public services.

Essentially, this is because our broken system is putting UK farmers in a race that they can never win. If we try to produce our food cheaply enough to compete with low cost, unsustainable imports from around the world we will compromise our future food security and the quality of our countryside.

however: agricultural land prices are soaring; multi-national fertiliser, animal feed and food manufacturers thrive: and the profits of most of our major retailers are rising year-by-year.

We need to redress this balance to support truly progressive farming and make it the norm and not the exception.

#### Research and skills fit for the future

Academic and land-based institutions need to be supported to promote more sustainable systems, to deliver effective dissemination and to engage farmers as innovators. Higher

and further education provision for future skills should also be reviewed, and existing knowledge transfer routes such as the Agriculture and Horticulture Development Board reformed, so they embed the need to deliver sustainable farming and diets from a low impact, more resilient, food system.

sector and don't view the countryside as something they have a stake in. This needs to change.

Market forces have encouraged agricultural specialisation. This isn't just about the size of farms but also polarisation and the loss of mixed, rotational farming that has underpinned good soil, crop and animal husbandry for centuries. Historically, smaller family farms were mixed and the extreme specialisation in both arable and livestock production has left these farms in a position where they are often economically unviable and certainly an unattractive commercial proposition for the next generation of farming entrants. This specialisation, concentration on just a few major commodity crops and, in the case of livestock systems, reliance on imported protein (three-quarters of protein-rich feed in the EU is imported<sup>32</sup>) has left us with limited diversity, which combined with increasingly unpredictable extremes of weather, leaves our food production vulnerable and lacking resilience.

It has become common to use 'production efficiency' as a proxy for the environmental footprint of a farm but the challenges we face will not be addressed by attempts to make a fundamentally unsustainable system produce more without considering either inputs or impacts. This is particularly relevant in systems which rely on high inputs of finite resources or have large indirect impacts (such as driving land use change). Often these impacts are not

captured in measures of production efficiency but the negative consequences are felt in other parts of the world. The way 'efficiency' is currently calculated only captures the commodity production output of a system and does not capture the environmental and social benefits or costs of input, the multifunctional nature of agriculture or the 'value added' by farms which more directly connect with the community through independent outlets, diversification and associated initiatives.

Smaller farmers and those with diverse enterprises on the farm find themselves at a disadvantage. The lack of infrastructure - for example, due to the closure of small and medium-sized abattoirs - means fewer available markets for producers, while wholesale buyers tend to want to deal with those supplying larger quantities or commodities that fit into very tightly prescribed specifications. For a few, direct marketing has been a successful way to address this, but the skills and other resources required means that this is by no means a mainstream solution. Those producing smaller quantities face a number of disadvantages in the value they can realise for produce, including disproportionate transport, processing and auditing costs. Furthermore, there are significant barriers to accessing grant funding and effective marketing mechanisms which could enable them to compete on equal terms with others in the market.



The UK needs to prepare for a changing world and signal clearly that its vision for British food and farming is based on quality and restoring trust in economically, socially and environmentally sustainable food systems.

This can be done through: building resilience; reconnecting people with food, farming and the countryside; supporting shorter, more transparent food chains; and ensuring a fairer deal for farmers doing the right thing.

#### We can build a new future for British farming, food and the countryside by:

#### Opening up the debate

about how public money is spent on farming, food and the countryside, and moving this issue up the agenda. We need to properly engage the wider public and other interested parties such as local communities and those farmers who currently have less political voice. Consumers need to know more about where the money they spend on food goes and decision-makers in Government and business need to be more accountable.

#### Reconnecting people with where food comes from.

Enriching positive attitudes towards valuing food and the natural environment by increasing opportunities to experience, learn about and connect with these issues.

#### Fully embedding long-termism and environmental sustainability

in all aspects of agriculture policy so public support is not given to damaging systems.

Giving more priority to resilience by supporting farming systems such as agriecological and organic farming systems which are less vulnerable to external shocks and are less reliant on external inputs such as imported protein and fossilfuel based fertilisers.

#### Stop focusing on 'production efficiency' as the metric of success

and place more emphasis on other important aspects such as resilience. The current approach is based on maximising production with 'optimal' use of finite resources and minimising human labour input. More attention needs to be paid to the use of finite resources and indirect impacts, such as climate change impacts, the land use implications of increasing reliance on cereals in livestock production, and increasing diversity of production to improve resilience within local landscapes and environments. There should not be a 'one size fits all' approach.

# The Challenge

# 

COUNTRYSIDE



# BREEDING BIRDS HAVE VAN SHED IN LESS THAN 50 YEARS

#### **NATURE**

#### Bringing back colour to the countryside

The natural world which underpins food production and is critical to our health and wellbeing is under threat as never before. At a time of economic crisis, looking after the environment may seem a luxury to some but there is already plenty of evidence that the unsustainable way we are using our land is jeopardising our future security<sup>33</sup>.

The colour and richness of the countryside have been draining away and its resilience is reducing. The 2013 State of Nature report provided our most recent warning of how, despite some signs of progress in policy in recent decades, the UK countryside has been transformed in less than a generation, with birds and butterflies declining at alarming rates and a large number of species now threatened with extinction<sup>34</sup>. We have lost more than 44 million breeding birds in less than half a century<sup>35</sup> – they have vanished at a rate of one pair every minute.

Despite important progress with the introduction of agri-environment schemes, successive Westminster Governments have shown themselves reluctant to make the tough decisions, as demonstrated, for example, by not taking concerted, joined-up, decisive action to address the decline in populations of wild bees and pollinators, indicating abandonment of the 'Precautionary Principle', in favour of market forces and vested interests.

Farming needs to step up to the challenge of climate change, but in holistic and integrated ways, reducing harmful emissions across systems, but also becoming more resilient to the effects of unavoidable climate change and helping the natural world adapt.

The current 'siloed' approach to carbon accounting means that important emissions relating to land management are often overlooked. Far more attention needs to be paid to the role of different farming systems in either depleting or increasing soil carbon, and greater protection is

urgently needed for important carbon stores such as deep peat.

The environment and social impacts of UK agriculture – particularly livestock production - are increasingly felt overseas. The destruction and degradation of important habitats in the tropics to meet demand for livestock products in the EU is having disastrous consequences for biodiversity and local communities, as well as important climate change implications<sup>36</sup>.

In the UK, we generate about 16 million tonnes of food waste a year- a clear waste of water, energy and other resources. There is a need to help people alter their purchasing and cooking habits to reduce waste and save money. Yet, 60% of food waste occurs in the 'efficient' farming, production and supply chain, before it even reaches our shelves and retailer selling-practices exacerbate the problem. The current voluntary commitments in business are not ambitious enough to tackle this waste of resources.





#### The F Word

The winter 2013/14 flooding crisis highlighted the importance of re-thinking how we manage land and water resources to make our towns and rural areas more resilient to the extreme weather events that will happen more frequently in the future.

Working with nature, rather than against it, can help provide some of the solutions needed to alleviate flooding, by restoring the vital habitats such as upland bogs, wetlands, woodlands and wildlife rich grasslands which act as giant sponges.

Natural habitats can help slow heavy rainfall as it moves through the upper reaches of catchments and reduce the damage of flood peaks as they move downhill, across floodplains, while at the coast, managed realignment offers a way of recreating valuable natural habitats and protecting homes costeffectively.

Farming will have a central role to play in building resilience back into many landscapes that are at risk of flooding as indicated in parts of the Water White Paper<sup>37</sup>.

Inappropriate farm management and crop choices can contribute to floods by increasing run-off or silting rivers, while healthy farmland habitats can slow and store floodwaters. For example, wildlife-rich wetland pastures are less susceptible to damage when flooding does

happen and farming in ways that increase soil organic matter makes soils better able to hold water in times of heavy rainfall, and increases resilience in droughts.

Between 2014 and 2020, over £15bn of public money will be distributed to farmers and land managers via the Common Agricultural Policy (CAP) in England<sup>38</sup>.

The bulk of this money currently delivers very little for the environment and there is a clear case for it to work harder, including for flood risk mitigation. For example, maize is a high risk crop for soil damage such as compaction and erosion.

Research indicates that c50% of the sediment transported over winter by the river Culm in Devon and the river Tone in Somerset could be the result of erosion from maize fields<sup>39</sup>.Yet one of the basic soil protection requirements attached to CAP subsidies in England specifically excludes maize.

Better enforcement of soil protection requirements should be a key aspect of future flood prevention.

#### Regulation shouldn't be a dirty word

A well-functioning economy and society depends on regulation and there is good evidence that well-designed regulation is beneficial for business in the longer term, securing competitive advantage, reducing costs and protecting valuable resources.

Government should champion the role of effective regulation in protecting the interests of progressive business, society, animal welfare and the environment. Key environmental legislation such as the Nature Directives, Environmental Impact Assessment (Agriculture) Regulations and the Nitrates Regulations need more effective implementation and enforcement to protect our most special places and the interests of taxpayers.







The Government needs to give the environment a higher priority across food and farming policy decisions and recognise the ecological underpinning of food production.

#### We can protect the natural environment by:

#### Building a strong and connected ecological network

to restore biodiversity across the landscape; maintain water quality; manage flooding and coastal erosion; improve air quality; aid the natural world's adaptation to climate change; and protect and enhance carbon storage. Adopting the direction of travel outlined in the Lawton Review, 'Making space for nature', of more spaces for wildlife that are bigger, better and more joined up<sup>40</sup>.

#### Protecting and enhancing soil

Ensuring policies on climate change reflect the important role of land management and the need to protect existing important stores of carbon, and encourage farming practices which build soil carbon.

#### Investing in research about the environment and how it is doing

Funding proper scientific research to address the gaps in knowledge about the state of the environment.

#### Effective rural and urban planning

Implementing good spatial planning including a continuing presumption against inappropriate development and taking account of economic, environmental and other benefits of certain agricultural land.

# BETTER Square Meal. SUSTAINABLE FARMING

Pulling it together

IMPROVING

LILE

LIL

ENHANCING
ATURE

#### LEADERSHIP FIXING A BROKEN SYSTEM

The horsemeat scandal revealed much that is broken in the food systems supplying the UK.
Complicated, opaque supply chains, inadequate controls and poor co-ordination between public and private monitoring, combined with a focus on cost-cutting over consumer protection, has damaged public trust.

#### This challenge goes deep.

The UK must move food, farming and the countryside right up the political agenda. It must see these issues as too important to let vested interests dominate the debate. Our current food and farming systems are associated with worsening public health and often fail to protect the environment and animal welfare, or ensure fairness for many farmers – both in the UK and overseas. There is insufficient focus on tackling the real causes of food insecurity or providing good, safe jobs, or on

ensuring that British farming and food are synonymous with quality.

These challenges need to be addressed as part of an integrated food and farming policy that provides a long-term and inspiring vision, makes these issues inclusive and maps out a pathway to long-term food, environmental and economic security. A "vision" of increased yields, even bigger 'big business' and a bit less environmental damage is not good enough. Such leadership and vision has been lacking for some time.

The past few years have seen a fragmentation of important policy developments and have reversed the move to better integration across departments leaving farming and food policy entrenched in silos. The foundations for a sustainable and fair food system have been eroded as illustrated by: the withdrawal of support for the Sustainable Development Commission; the weakening of regulators such as the Food Standards Agency; a focus on deregulation, rather than favouring what

works for the most progressive businesses and society as a whole; and the general weakening of environment watchdogs including the new requirement on them to adopt new Growth Duties, effectively undermining their primary purpose of environmental protection and improvement. Market concentration in the food processing and retail sectors continues to undermine competition and squeeze our most progressive primary producers.

It is clear that the much needed progress towards sustainable food and farming systems will not happen without greater government leadership. The combination of market failures, coupled with powerful vested interests along the entire farming and food chain, mean that personal choice, a 'leave it to the market' approach and weak self-regulatory initiatives are an insufficient response. We know that most consumers and responsible businesses want to 'do the right thing', but face barriers in supporting more sustainable options. In securing the change needed, government must consider the full range of levers at their disposal, including more interventionist approaches where these are most effective.

We need government to ensure the protection of the natural assets which underpin our long term security, health and wellbeing. The Natural Capital Committee has recently highlighted that

our natural capital assets are in decline at an unprecedented rate and presenting environmental and economic risks as a result<sup>47</sup>. Given the global nature of food systems and the impacts of UK consumption and production overseas, the UK needs to engage strongly and influentially in addressing challenges at a European and international level.

Government must also demonstrate leadership by mainstreaming environmental sustainability and social responsibility in its own procurement and when setting R&D priorities. For too long there has been underinvestment in integrated research which recognises the multifunctional nature of agriculture and the wider social and ecological context in which our food systems operate.

Solutions

The Government must lead the UK in the debate, redefining food security in terms of the issues that matter to wider society in the long-term. It must defend the role of effective regulation in protecting the common good and the most vulnerable in society, and it must secure the foundations on which a sustainable food system can be built.

#### Huge amounts of taxpayers' money are propping up the food system

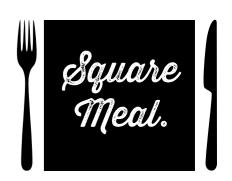
The current focus on "cheap" food is costing us more than we think. It ignores the wider costs to society of our broken food system – when these are taken into account, it quickly becomes clear that the current system is costing us far more than we can afford to pay.

The British Heart Foundation calculates that diet-related diseases accounted for 13% of all EU healthcare costs in 2009<sup>41</sup>. In the UK, illhealth caused by bad diets costs the NHS £6 billion<sup>42</sup>, and the wider economy at least £25 billion a year. This constitutes a health crisis of such magnitude that public health experts now refer to 'junk food' companies as "the new tobacco industry".

On the environmental front, it has been reported that over a ten year period, the UK water industry has spent £1 billion in capital expenditure, and £100 million a year in running costs, to eliminate pesticides from water sources<sup>43</sup>. Dealing with nitrogen pollution costs each person in Europe up to £650 a year, more than double the income gained by the agricultural sector from using nitrogen fertilisers<sup>44</sup>.

The UK spends more than £3.26 billion a year of public funds on subsidising the farming sector<sup>45</sup> but some estimate the equivalent cost per UK household is even higher, almost £400 annually<sup>46</sup>. At present, this expenditure is propping up the unsustainable agricultural system that is supposed to provide cheap food but instead leads to increases in true costs to consumers and taxpayers.

We should be using this public expenditure to support healthier, more sustainable and better value agricultural systems, rewarding the farmers who deliver the most public benefit and creating a strong and sustainable domestic food and farming sector that can provide good jobs and a healthy countryside.



#### Food procurement – leading through example

Government should be leading the way with new and better food procurement standards based on a set of sustainable dietary guidelines which are mandatory across all local and national buying and are given budgetary support.

Public spending on food should prioritise seasonality, local production, more sustainable systems like extensive, pasture-reared beef and lamb, High Nature Value and organic farming, and must insist on clear information for the consumers of all such food. This will help create a viable market for the good food being produced by some of our farmers and producers.

A particular priority should be providing good quality, sustainable, free school meals for all our primary school children. This service improves children's health and well-being, helps make the meals service more efficient and so protects jobs in catering and farming.





# square Meal.

#### What showing leadership would mean:

#### Having a clear, integrated long term vision

for the future of the farming and food sectors which works for people and for nature, and gives businesses the confidence to make the step change to environmentally and socially responsible practices.

#### Inspiring others

and showing a willingness to tackle entrenched vested interests to make the food system work better for the common good and to secure better value for public money, including being more interventionist where necessary.

#### Addressing market failure and reframing markets

ensuring public funding supports those businesses delivering public goods and that the 'polluter pays' principle is embedded in public policy. This includes championing the role of effective regulation in protecting the interests of progressive businesses and society.

#### Better integrating policy making

across departments and in Europe. Environmental and social objectives need to be embedded in cross-Government policy formation from the outset. The UK should play a leading role in the EU to help integrate food and farming policy with environmental and health objectives, and making it genuinely supportive to sustainable, forward thinking businesses.

#### Farmer input

A number of the organisations involved in this initiative farm ourselves and engage extensively with farmers. In drawing together this document, farmers also participated in our discussions and made suggestions for content as our thinking developed. We are very grateful for this input and would like to acknowledge two farmers in particular for their contributions and constructive challenge:

Gethin Owen farms a 79ha family farm in North Wales. The business model has involved a change from intensivelyfarmed grassland to mixed farming, with beef and sheep production alongside arable cropping. There has been a shift to reduced reliance on boughtin external inputs (especially feed and fertiliser) and restoring the farm's landscape and environmental features, which has also brought considerable economic benefits. The public now have the opportunity of buying high quality organic food direct from the farm, usually at a lower price than conventionally produced food at the

supermarket. A higher proportion of the farms input costs are now locally based, for example, the use of local agricultural contractors has increased, while the use of multi-national agrochemical and feed companies has reduced.

John Turner runs a 100ha mixed farm in Lincolnshire together with his brother and parents. The farm - which was converted to organic production in 1999 - produces cereal crops and supports a commercial suckler beef herd of around 100 animals that are raised exclusively upon permanent and rotational pasture. John has a particular interest in exploring how farm businesses can take practical steps to reduce their reliance upon non-renewable inputs, thereby decoupling production from volatile input prices, whilst also developing a more equitable market for produce. John is the vice-chairman of the Pasture-Fed Livestock Association.



# Let's start the conversation now.

Tell us what you think at www.foodresearch.org.uk/square-meal























#### Square Meal - contributing organisations



Compassion in World Farming works to achieve food and farming systems which respect people, promote animal wellbeing and protect the planet.

ww.ciwf.org.uk



Eating Better: for a fair, green, healthy future is a broad alliance for healthy sustainable food and farming systems.

www.eating-better.org



The Food Ethics Council works to build fair and resilient food systems that respect people, animals and the planet, by helping food businesses, government and civil society address ethical concerns at the heart of decision-making about food and farming.

www.foodethicscouncil.org



The Food Research Collaboration (FRC) is a project to facilitate joint working by academics and Civil Society Organisations (CSOs) to improve the UK food system.

www.foodresearch.org.uk



Friends of the Earth sees the wellbeing of people and planet go hand in hand – we see things differently.

www.foe.co.uk



The National Trust looks after more than 250,000 hectares of countryside, 742 miles of coastline and hundreds of special places across England, Wales and Northern Ireland for ever, for everyone. www.nationaltrust.org.uk



The RSPB is the country's largest nature conservation charity, inspiring everyone to give nature a home.

www.rspb.org.uk



The UK's leading membership charity campaigning for healthy, humane and organic food, farming and land-use.

www.soilassociation.org



The alliance for better food and farming advocates food and agriculture policies and practices that are good for people and the planet.

www.sustainweb.org



There are 47 individual Wildlife Trusts covering the whole of the UK and the Isle of Man and Alderney. Together, The Wildlife Trusts are the UK's largest people-powered environmental organisation working for nature's recovery on land and at sea.

www.wildlifetrusts.org

#### Endnotes

- 1 Bateman I J, Harwood A R, Mace G M, Watson R T, Abson D J, Andrews B, Termansen M (2013). Bringing ecosystem services into economic decision-making: land use in the United Kingdom. Science, 341, 6141, 45-50.
- 2 Pretty J N, C Brett C, Gee D, Hine R E, Mason C F, Morison J I L, Van der Bijl G (2000). An assessment of the total external costs of UK agriculture. Agricultural systems, 65, 2, 113-136.
- 3 Figure from Eaton MA, et al, 2012. The state of the UK's birds 2012. Sandy, Beds: SPB, BTO, WWT, CCW, NE, NIEA, SNH and JNCC
- 4 Boyd Orr J (1943). Food and the People: target for tomorrow 3. London: Pilot Press
- 5 Global Burden of Disease Group (2012). Global Burden of Diseases, Injuries, and Risk Factors Study 2013, The Lancet, 380, 2245, http://www.thelancet.com/themed/globalburden-of-disease
- 6 British Heart Foundation (2012). BHF 2012 European Cardiovascular Disease Statistics http://www.bhf.org.uk/publications/viewpublication.aspx?ps=1002098 [accessed 12 May 2014]
- 7 Scarborough P, Bhatnagar P, Wickramasinghe K, Allender S, Foster C, Rayner M (2011). The economic burden of ill health due to diet, physical inactivity, smoking, alcohol and obesity in the UK: an update to 2006-07 NHS costs, Journal of Public Health, 3,4, 527-35
- 8 Foresight (2007). Tackling Obesities London: Government Office of Science
- 9 Davies S (2014). Annual Report of the Chief Medical Officer, Surveillance Volume, 2012: On the State of the Public's Health, London: Department of Health
- 10 Defra (2012). Food Statistics Pocketbook 2012. London: Department for Environment,

- Food and Rural Affairs, pg 51
- 11 Commission on Education and Communication & IUCN (2012). Children & Nature Worldwide: An Exploration of Children's Experiences of the Outdoors and Nature with Associated Risks and Benefits. Minneapolis: Children and Nature Network
- 12 Natural England & England Marketing (2009). Report to Natural England on Childhood and Nature: a survey on changing relationships with Nature across generations. Warboys, Cambs: Natural England
- 13 Bird W (2007). Natural Thinking: A Report Investigating the links between the Natural Environment, Biodiversity and Mental Health. Sandy, Beds: RSPB
- 14 Marmot M (2010). Fair Society, Healthy Lives. Final Report of the Strategic Review of Health Inequalities in England Post 2010 (Marmot Review). London: University College London http://www.ucl.ac.uk/gheg/marmotreview [accessed May 12 14]
- 15 Elliot, C (2013). Elliot Review into the Integrity and Assurance of Food Supply Networks interim report. London: H M Government
- 16 Davies S, J Grant, M Catchpole (2012). The Drugs Don't Work: A Global Threat. London: Penguin
- 17 WHO (2012). The evolving threat of antimicrobial resistance Options for action. Geneva: World Health Organisation
- 18 Defra (2013). Farm Health and Safety. London: Defra https://www.gov.uk/farm-healthand-safety [accessed May 12 2014]
- 19 The Trussell Trust reports that there are now 423 food banks in the UK, with two new ones being launched every week to meet increasing demand: http://www.trusselltrust.org/stats [accessed 25 June 2014]

- 20 During the year to end of March 2014, on 913,138 occasions people in crisis across the UK were provided with three days' emergency food by Trussell Trust foodbanks alone. This represents an increase of 163% compared to the previous year: http://www.trusselltrust.org/stats [accessed 25 June 2014]
- 21 Defra, Food Statistics Pocketbook 2013 (29 May 2014 update), states that '[f]ood prices have risen in real terms by 12% since 2007': https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/315418/foodpocketbook-2013update-29may14.pdf [accessed June 25 2014]
- 22 World Food Programme (2014). What causes hunger? http://www.wfp.org/hunger/causes [accessed 25 June 2014]
- 23 The food and drink manufacturing industry is the single largest manufacturing sector in the UK, with a turnover of £92bn, Gross Value Added (GVA) of £24bn, accounting for 18% of the total manufacturing sector by turnover: http://www.fdf.org.uk/statsataglance.aspx [accessed June 25 2014]
- 24 Food Ethics Council (2010). Food Justice: the Report of the Food and Fairness Inquiry, http://www.foodethicscouncil.org/system/files/FoodJustice\_reportweb.pdf [accessed May 12 2014]
- 25 Ibid.
- 26 Defra (2014). Food Statistics Pocketbook 2013 (29 May update). London: Department for Environment, Food & Rural Affairs, p18
- 27 Soil Association (2014). Organic Market Report 2014. Bristol: Soil Association
- 28 The Sustainable Food Cities Network is an alliance of public, private and third sector organisations that believe in the power of food as a vehicle for driving positive change and that are committed to promoting sustainable food

- for the benefit of people and the planet. The Network which is run by a coalition of NGOs led by the Soil Association, Food Matters and Sustain and is funded by the Esmee Fairbairn Foundation aims to help people and places to share challenges, explore practical solutions and develop best practice in all aspects of sustainable food.
- 29 See Foresight (2011). The Future of Food and Farming. Final Project Report. London: Government Office for Science
- 30 See, for example, High Nature Value Farming (2013). http://www. highnaturevaluefarming.org.uk/what-is-highnature-value-farming/threats-to-hnv-farming/ [accessed May 12 2014]
- 31 Commission of the European Communities (2013). Multiannual Financial Framework 2014-2020 and the financing of the CAP. Brussels: European Commission. http://ec.europa.eu/agriculture/cap-funding/budget/mff-2014-2020/mff-figures-and-cap\_en.pdf [accessed May 12 2014]
- 32 Westhoek H, Rood T, van den Berg M, Janse J, Nijdam, D, Reudink M, Stehfest E (2011). The Protein Puzzle: The Consumption and Production of Meat, Dairy, and Fish in the European Union. The Hague: Netherlands Environmental Assessment Agency
- 33 For example, Foresight's 2011 report, The Future of Food and Farming report (see ref 29), concluded: 'Many systems of food production are unsustainable. Without change, the global food system will continue to degrade the environment and compromise the world's capacity to produce food in the future, as well as contributing to climate change and the destruction of biodiversity.'
- 34 Burns F. et al (2013) State of Nature. Sandy, Beds: The State of Nature Partnership http://www.rspb.org.uk/lmages/stateofnature\_tcm9-345839.pdf [accessed May 12, 2014]

- 35 Figure from Eaton MA, et al (2012). The state of the UK's birds 2012. Sandy, Beds: RSPB, BTO, WWT, CCW, NE, NIEA, SNH and JNCC
- 36 Friends of the Earth Europe (2010). From Forest to Fork. How cattle, soy and sugar are destroying Brazil's forests and damaging the climate. Brussels: FoE-Europe. http://www.foeeurope.org/sites/default/files/publications/FromForestToFork.pdf [accessed June 25, 2014]
- 37 Defra (2011). Water for Life: market reform proposals. London: Defra https://www.gov. uk/government/uploads/system/uploads/ attachment\_data/file/69480/water-for-life-market-proposals.pdf [accessed June 25, 2014]
- 38 Defra (2014). Press release: Countryside gets set to claim £15billion under CAP reform. London: Defra. April 15 2014 https://www.gov.uk/government/news/countryside-gets-set-to-claim-15bn-under-cap-reform [accessed June 25, 2014]
- 39 Mokhtar Bin Jaafar (2010) Soil Erosion, Diffuse Source Pollution and Sediment Problems Associated with Maize Cultivation in England. PhD thesis. Exeter: University of Exeter.
- 40 Lawton J, et al (2010) Making Space for Nature: A review of England's Wildlife Sites and Ecological Network Report to the Secretary of State by a Panel chaired by Prof Sir John Lawton. London: Defra 16 September 2010
- 41 British Heart Foundation (2012). BHF 2012 European Cardiovascular Disease Statistics2012. London: British Heart Foundation http://www.bhf.org.uk/publications/view-publication.aspx?ps=1002098
- 42 Scarborough P, Bhatnagar P, Wickramasinghe K, Allender S, Foster C, Rayner M (2011). The economic burden of ill health due to diet, physical inactivity, smoking,

- alcohol and obesity in the UK: an update to 2006-07 NHS costs, Journal of Public Health, 3.4, 527-35
- 43 Water UK (2001). Press Release: http:// www.water.org.uk/home/news/press-releases/ keeping-ra-290801-1
- 44 Sutton MA, Howard CM, Erisman JW et al (2011) The European Nitrogen Assessment: sources, effects and policy perspectives. Brussels: European Science Foundation
- 45 Defra (2013). Agriculture in the United Kingdom 2012. London: Defra [accessed 25 June 2014]
- 46 Rotherham L (2010) Food for Thought: How the Common Agricultural Policy costs families nearly £400 a year. London: The Taxpayers Alliance. http://www.taxpayersalliance.com/cap.pdf [accessed 25 June 2014]
- 47 Natural Capital Committee (2013). The State of Natural Capital: Towards a framework for measurement and valuation. London: Defra





