Thoughtful Eating

food, relationships and the environment from a biblical perspective

SAGE Research Report no. 1

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Sallux is the political foundation for the European Christian Political Movement (ECPM). Sallux means "Salt and Light" and we want to spark a salted debate where needed and shed light on the issues we face. We present solutions by organising events and distributing relevant publications, and will not stay on the safe side of the status quo.

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The Jubilee Centre offers a biblical perspective on social, economic and political issues, and equips Christians to be salt and light in the public square.

We believe the Bible describes a coherent vision for society that has enduring relevance for the UK and the world in the twenty-first century. At the heart of this social vision is a concern for right relationships. We seek to study, disseminate and apply this vision in order to provide a positive response to the challenges faced by individuals, communities and policy makers.

Foreword

'You are what you eat' – so the saying goes.

This is obviously true in a bio-physical sense: our bodies are sustained largely out of the food we eat, which comes from plants and animals. They are also damaged by how and what we put into our bodies.

It's also profoundly true in a relational sense: food forms us, and is formed by us, socially, culturally, economically, politically and spiritually. Behind every mouthful is a wide-ranging web of relationships involved in producing, harvesting, distributing, buying, selling, processing, packaging, preparing and serving food – and disposing of food waste.

Each of these relationships implicates us in ethical and spiritual choices. Yet for most of us in the over-fed West, such relationships are invisible – we never examine their far-reaching relational impacts. These impacts are frequently damaging to the human consumers and producers of food and to the natural ecosystems on which food systems depend.

The many relational abuses revealed by these systems testify to a deeper spiritual malaise afflicting our entire western culture – our contempt for creation as God's gift, our selfish exploitation of creation's productive resources and our breaching of the human task of trusteeship for the earth.

This excellent and timely report confronts these issues head on and offers a way forward. It is wide-ranging, thoroughly researched, packed with fascinating and disturbing information, full of practical suggestions and written with admirable clarity. It invites and challenges us to engage in 'thoughtful' eating – seeing food through a radically biblical and relational lens. It shows us that eating more 'thoughtfully' will also be eating more 'faithfully' – and more joyfully!

The report's young authors represent those who will have to confront and respond to the deep relational flaws of our food systems and the broader ecological crises of which they are a telling symptom. My generation's ignorance and greed created these crises. This report gives grounds for hope that, by God's grace, the next generation might be better trustees of the earth than we have been.

Jonathan Chaplin
Member of the Divinity Faculty, Cambridge University, and Theos Research Associate
Co-editor of *In Search of Good Energy Policy* (Cambridge University Press, 2019)

Preface

This SAGE research report, *Thoughtful Eating: Food, Relationships & the Environment* is the first of its kind.

In October 2018, we began our first ten-month leadership development programme for young Christian graduates. Andrew, Peter, Hannah and Katherine were going to live in shared accommodation and spend four days a week at the Jubilee Centre following the SAGE programme. The goal of the programme is to train leaders to *think biblically* about the world and *engage public life* to promote Christian social reform.

Part of the programme included training the 'SAGEites' to develop the skills and competencies to conduct an in-depth group research project. At the Jubilee Centre we believe that good research is the backbone for any public engagement and campaign for change. Without biblically-grounded, theologically-informed research, Christians who are zealous to make change happen can get swept along by the latest 'fads'—and these are often informed by secular thinking that does not properly account for human sin and structural evil. Finally, without proper research we won't be able to engage with those who resist the change we envision, nor shift the thinking of honest sceptics who are mostly indifferent to the issues we care about. High-quality biblical research is profoundly important for achieving social reform.

The four authors can rightly be proud of this in-depth report (there are over five hundred footnotes…) which offers high quality biblical research around the question of the food we eat and the major environmental and social impact of our food and farming systems. It provides an excellent reference for any Christian wanting to think through ways of responding to the pressing environmental challenges which we face, whether at the individual, organisation or government level. At the end of the day, I hope that you will also be challenged to look again at the food on your table, and perhaps your own eating habits might change as a result of reading this report.

Philip Powell
SAGE Programme Leader
Cambridge, July 2019

Introduction

Consider the humble brownie.

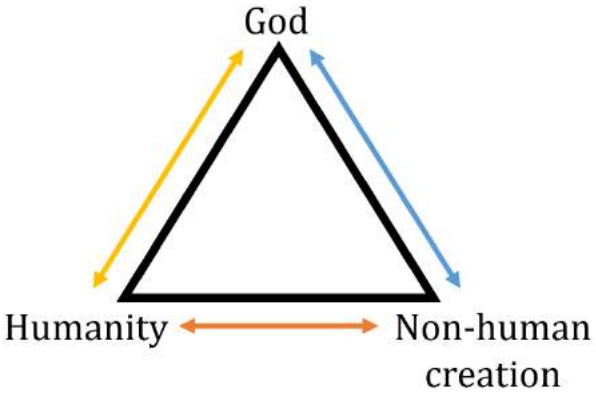
A brownie is a collection of fairly common household baking ingredients – flour, eggs, milk, cocoa powder, butter and chocolate, mixed together, and then baked. A brownie might be enjoyed over conversation in a coffee shop; or at your desk as a treat after lunch; or served warm, fresh and gooey straight from the oven. The best brownies are dense and sweet, with chunks of extra chocolate or crunchy nuts added for texture and flavour. But the brownie has a more profound story than we often realise, a story which includes the barista, the manufacturer, the supermarket worker, the home-baker. The story goes still further: from the soil, to plants, to animals, and to people. Yet eating food, even a delicious brownie, can often seem mundane or ordinary – an everyday, unimportant activity.

But a pause for reflection and contemplation reveals more of the wonder of food and eating. It is a physical, corporeal necessity, yet it brings us joy. Our mouths and senses do not just consume food, but savour it. To share food with others is a significant way to experience relational connection, through celebrations and hospitality, in fellowship and community. A brownie is a product of a set of processes by which raw ingredients are turned into something delicious. Those ingredients themselves all have their own stories – the flour milled from grain grown in soil, the sugar extracted from sugar beet, the eggs laid by chickens, the butter and milk from the cow. The cocoa beans were grown in countries far away, by people we will never know, and were imported via global trade networks. Think of all the people involved in the process – those who have planted, farmed, harvested, processed, packaged, shipped, distributed and sold all the different ingredients. When we bite into a brownie, we enter a vast web of relationships between all these people involved in the supply chain. And beyond that, we enter into a relationship with the environment: we enjoy grains, vegetables, and dairy products, which are all results of incredibly complex natural processes. We rely every day on soil, air, water, seeds, insects, birds, animals, bacteria – whole ecosystems which sustain our life through food. Yet we often fail to eat thoughtfully: instead we rush, we hurry, we consume, we eat mindlessly and thoughtlessly.

Humanity has become increasingly aware of the damage inflicted on the environment by our collective actions. This is particularly true of global food systems, which are often responsible for environmental degradation on a

huge scale. As a result, there is increasing media and cultural interest in food systems' environmental impact, with calls for large scale dietary changes and a transformation of food and eating. This book seeks to address some of these issues, and argues that the fundamental need is a change of mindset: from eating without thought for the context, relationships and impact of our food to *thoughtful eating*.

The four authors are from the UK and Ireland, and we have particularly addressed the UK context, although we also examine the global nature of modern food systems. We write from a Christian perspective, and consequently throughout this book we draw on texts from the Bible for inspiration and guidance. In this process, two important and inter-related concepts have influenced our writing. The first of these is Relational Thinking (RT), which draws on Judeo-Christian traditions, and emphasises the importance of relationships, in public as well as private life.[1] RT has been developed by the Jubilee Centre and has provided a useful paradigm for applying biblical principles to the contemporary issues we examine in this book. The second, complementary concept is theologian Christopher Wright's 'triangle of relationships' between God, Humanity, and the Earth.[2] According to Richard Bauckham, 'the biblical metanarrative is all about the relationship between God, human beings, and the non-human creation.'[3] By placing God at the top of the triangle, God is understood to be the centre and source of everything (theocentrism), as opposed to the perspective of anthropocentrism (humanity at the centre) or ecocentrism (earth/environment at the centre).[4] This relational model exemplifies the theocentric orientation of the Bible, and also visually presents the interconnected nature of the relationships, interacting with each other.[5]



This book primarily aims to examine the connections between food, relationships and the environment. By necessity, this means we exclude other important topics, which we cannot adequately cover here. In particular, in the context of the relational model we employ, the interactions between humans and animals are a key part of the relationship between humanity and the non-human creation. However, the scope of the book does not allow us to include a detailed discussion of animal welfare, particularly regarding the ethics of eating meat and animal products, and the treatment of animals in livestock production. Six further related issues that we do not examine in detail are fishing, food and human health, biotechnology, eating disorders, food packaging, and treatment of workers, although we do touch on some of these topics in brief throughout the book. A more expansive treatment of food, relationships and the environment would consider these topics in further detail.

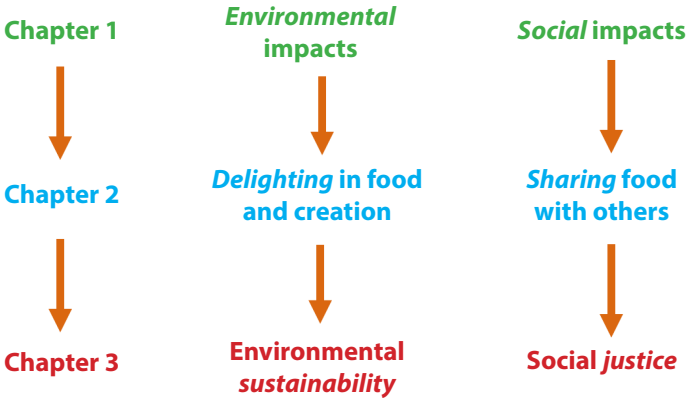
Overview

In chapter 1, we provide a detailed analysis of the *environmental* impacts of current food systems, focusing on biodiversity loss, land use, water use, pollution and soil degradation, climate change, and food waste, along with the related issues of global supply chains, food security, and population growth. We also consider the *social* consequences of environmental degradation and unjust food systems. The picture that emerges is of a way of eating that is gradually destroying the environment on which humanity relies.

In chapter 2, we provide theological reflections on humanity's relationship to the environment. We suggest that humanity's vocation is to care for the environment. Secondly, we consider contemporary theological reflections on food and eating. We propose two key themes here, *delighting* in God's gift of food given through creation, and *sharing* food with others.

In chapter 3, we suggest applications for individuals, organisations and policymakers to adopt in light of the first two chapters. We argue that food systems need to be transformed, with the ultimate goal that they contribute to both environmental *sustainability* and social *justice*.

The following illustration shows how we have organised our thinking on the subject:



Although the scale of the challenge may seem daunting, we hope that readers will also be encouraged that every individual can contribute to transforming food systems – because the starting point is a change of perspective, away from food as fuel, toward a deeper, relational appreciation of what eating represents. Food, from this perspective, is far more than a collection of nutrients: in the words of theologian Norman Wirzba, food can be understood as 'God's love made nutritious and delicious, given for the good of each other.'[6]

Chapter 1

To till and to tend: agriculture and the environment

All food production is reliant on, affects and is affected by the environment. Many elements of global food systems are contributing to a range of unsustainable environmental impacts which threaten animals, plants, the land, and whole ecosystems. We begin this book by considering a range of *environmental* impacts caused by arable farming and livestock production, as well as examining the *social* and human consequences of environmental degradation. The related issues of global supply chains, food security, and population growth require consideration in any discussion of food systems, and therefore they are also examined here. We find that livestock production has the greatest adverse environmental impacts across a range of indicators, particularly since large amounts of crops are grown as feed for animals.

Although we write with a particular focus on the UK, since modern food systems are global, we look at environmental and social impacts across the world. An acknowledgement of individual, organisational, national and international complicity in food systems' contribution to the environmental crisis is an important precursor to considering how a theocentric perspective on food and eating can encourage individuals to think and act more thoughtfully.[7]

Biodiversity loss

One of agriculture's most serious *environmental* impacts is the effect on biodiversity.[8] Food production systems are thought to be the single most significant threat to biodiversity, mainly due to habitat loss and fragmentation from agricultural land use, and the damage caused to on-farm biodiversity by intensive agriculture.[9] This has contributed to a 'mass extinction' of species, from even as recently as 1970.[10] Significant amounts of forest and rainforest have been cleared for agriculture, which severely damages biodiversity in those areas. Analysis of eleven areas experiencing deforestation 'found agriculture to be a large, usually the largest, driver of change.'[11] Globally, an estimated 27% of forest loss is due to commodity production (predominantly agriculture), with a further 24% due to shifting subsistence farming.[12] In tropical forests in

Brazil and Southeast Asia, which are very rich in biodiversity, clearance for agriculture is the dominant cause at an estimated 80%.[13]

Once land has been converted to farmland, however, determining how farming affects biodiversity is complicated by the fact that there are different levels of farming intensity, which have varying impacts. On a theoretical continuum, the two opposite approaches which produce the same quantity of food would be (1) farming which aims to maximise yields, is often less biodiverse, but uses a smaller amount of land, and (2) farming which aims for the greatest possible on-farm biodiversity, is therefore often lower yielding, but uses a higher amount of land.[14] In reality most farming methods will fall somewhere along this continuum, but these two theoretical approaches are often known as 'land sparing' and 'land sharing' respectively (see glossary for a fuller explanation).[15] Within the bounds of a farm, the intensive approach is often more harmful to biodiversity as it leaves less physical space for flora and fauna, and if fertilizers, pesticides and herbicides are used, these can harm non-target species. However, at a landscape level, combining high-yielding farming on a small land footprint with land set aside specifically for wildlife and plant life (such as in national parks) is an approach that may allow for greater biodiversity than farming the whole landscape using a low-yielding method (hence 'land sparing').[16] This is particularly true for specialist species, which struggle to survive on farmed land and make up the majority of wildlife species.[17] Generalist species, which can cope in different habitats, are less affected by low-yielding agriculture. The majority of scientific opinion is in favour of land sparing with respect to biodiversity,[18] but this must be balanced with some ideas of the 'sharers', such as the need for some farmland to be environmentally managed in order to provide land corridors that permit free movement of wildlife. The concept of land sparing has been criticised for focusing excessively on food production quantity alone, without taking into account other aspects of food systems such as food security, food waste, and diets, changes to which could also contribute to sparing land.[19] It should be noted that advocates of land sparing also recognise the need for alternatives to current systems of intensive agriculture.[20] The concept of increasing yields while simultaneously reducing environmental impacts such as biodiversity loss is known as sustainable intensification (see chapter 3). Further research is required to determine the appropriate balance between land sparing and land sharing which would allow for greater biodiversity across a range of contexts.[21]

Agricultural biodiversity (agrobiodiversity) is also an important factor to consider. Although an estimated 6,000 plant species have been cultivated for

food, the world has become increasingly reliant on a very small number of crops: just nine accounted for 66% of total crop production in 2014.[22] Since the 1960s, global per capita calorie intake has increased, but this has been accompanied by increasing global homogenisation, as a few key crops (particularly wheat, rice and maize) have come to dominate global diets. This phenomenon has been called the 'Global Standard Diet'.[23] Relying on such a small number of species poses a potential threat to the future of food from pests or diseases, or reductions in crop yields due to climate change.[24] Moving toward greater agrobiodiversity would reduce this risk, as well as benefitting ecosystem biodiversity in general.

A key *social* impact of biodiversity loss is reduced food security due to increased vulnerability to pests and diseases and reduced fresh water supply.[25] This latter point is the case because healthily functioning ecosystems regulate the quality of fresh water.[26] When they are unbalanced through species removal or pollution, the negative consequences affect everyone. A further key social impact is on medicines. As the World Wildlife Fund note, humans use 'an estimated 50,000-70,000 plant species for traditional and modern medicine worldwide.'[27] All these benefits which humanity receives from biodiversity and the natural word can be described as 'ecosystem services'. This is a concept frequently used in environmental science which – though imperfect, as we argue in chapter 2 – can be helpful in highlighting the costs to humans of environmental damage. The benefits of these 'ecosystem services' are estimated to be worth almost £25 trillion per year.[28] By neglecting biodiversity in the pursuit of agricultural expansion, societies risk impoverishment through the depletion of natural resources.

Land use

Land use and land-use change are crucial factors to consider when assessing the environmental impact of food production systems. Although there are a variety of reasons for land-use change, 'food production is the largest driver of land use and land-use change, mainly through clearing of forests and burning of biomass.'[29] Land-use change in general, and deforestation in particular, are major contributors to biodiversity loss, and to GHG emissions which contribute to climate change.[30]

One important crop which has been closely linked to land-use change, especially deforestation, is soybeans. Since the 1950s, the global soybean production rate has increased by fifteen times with 80% of all production in

the USA, Argentina and Brazil.[31] This is largely due to the increase in demand for livestock feed, as 75% of soybeans worldwide are used for this purpose.[32] This has meant that in South America, land devoted to soybean production grew from 42 million acres in 1990 to 114 million acres in 2010, mainly on land converted from natural ecosystems.[33]

A significant factor affecting the perceived need to expand agricultural land is the land required for livestock production, both pasture and arable.[34] Globally, almost 80% of agricultural land is used as grazing land and cropland producing animal feed,[35] and approximately a third of all grain is used to feed livestock.[36] In the EU, an estimated 63% of land is used to grow arable crops for livestock.[37] Although overall ruminant livestock (cattle and sheep) are the most GHG intensive, monogastrics (pigs and poultry) use a similar or greater amount of cropland because they are fed grains.[38] Using land for animal feed that could otherwise be used to grow crops for human consumption is very inefficient, and therefore a reduction in the consumption of animal products has the potential to increase the supply of food for humans and/or to reduce agricultural land use.[39] A 'livestock on leftovers' approach – avoiding using crops for animal feed that could be eaten by humans, and only keeping livestock on land unsuitable for growing arable crops – has been proposed.[40] Due to the environmental degradation associated with land-use change, the EAT-*Lancet* Commission recommended the adoption of a 'Half Earth' strategy whereby 50% of the planet is protected; this requires net zero expansion of agricultural land globally.[41]

Water use

Water is important to maintaining 'an adequate food supply and a productive environment for the human population and for other animals, plants, and microbes worldwide'.[42] The growing population and corresponding growing global demand for food has impacted freshwater supplies and consequently the food supply, as well as posing real challenges to biodiversity and water quality. Water use and water scarcity are primarily regionally specific issues, but have global implications due to the interconnected nature of globalised food systems.

In the analysis of water use, a distinction is made between green water (primarily rainfall) and blue water (also called freshwater, that is water sourced from surface or groundwater resources, for example through irrigation).[43] Blue water is usually the focus of sustainability studies, because human use

depletes blue water sources, which can have negative consequences such as contributing to water scarcity or harming ecosystems.[44] Blue water is therefore the primary consideration when assessing water use in food systems. 70% of global water withdrawal (blue water) is used for agriculture, and overall water consumption for food production more than doubled between 1961 and 2000.[45] Crops use large quantities of green and/or blue water, ranging from approximately 300 to 2000 litres per kg dry crop yield.[46] Irrigated cropland requires additional energy compared to that which is rainfed. Pimentel et al. argue that irrigated wheat requires the expenditure of more than three times the energy needed to produce rainfed wheat.[47] Transporting water for irrigation can also be problematic as approximately 60% of the water intended for crop irrigation never reaches the crop due to losses in transportation.[48] Irrigation can also cause long-term degradation of the land. If there is not adequate drainage, water tables rise in the upper soil levels, impairing crop growth. Such irrigated fields are sometimes referred to as 'wet deserts' when they are rendered unproductive due to salinisation.[49] Irrigation can affect neighbouring regions as ground water is tapped and water table levels fall to support irrigated crops. In addition, water from drainage of irrigated cropland contains large quantities of salt affecting vast areas of agricultural land and threatening the future ability to farm them. Though there are other options for irrigation which are more efficient in terms of conserving water and reduce the problems of salinisation and waterlogging, these alternatives are also energy intensive and expensive. To prevent both salinisation and waterlogging, sufficient water and adequate soil drainage must be available to ensure that salts and excess water are drained from the soil.[50]

In general, livestock production requires much higher levels of water use than arable farming, although there are very significant variations depending on water type, animal species and production system.[51] Crop products use less water than animal products, whether measured by weight or by calorie content.[52] While livestock directly consume only a small amount, the indirect water inputs for livestock production are substantial because of the water required for feed: an estimated 98% of total livestock water use refers to water for growing animal feed.[53] Using global averages for total water use, beef (15400 m^3/ton) is the most water intensive meat, while chicken (4300 m^3/ton) is the least water intensive.[54] However, there is enormous variation, so these figures should be treated with caution – arguably, global averages are not particularly helpful statistics. Intensive or industrial production systems, which rely on crops for animal feed, use more blue water than grazing systems.[55] Since there is such significant variation, pork or chicken may be in some cases

more blue water intensive than beef.[56] From a blue water use perspective, on average 'grazing systems are preferable over industrial production systems'.[57] It should be noted that using cropland to feed animals is also a concern with respect to arable land use and pollution from fertilisers.[58] Globally, increasing meat consumption has tended to shift production toward intensive systems, which increases pressure on global freshwater resources.[59] Dietary changes toward eating more plants and less animal products would on average reduce blue water demands.[60] Blue water use for crops also varies significantly, so improving water-use efficiency in agriculture is vital.[61] Farmers are key to conserving fresh water. Implementing water and soil conservation practices, such as cover crops and crop rotations, to minimise rapid water runoff related to soil erosion could be used to reduce water loss.

At a *social* level, many rural poor rely on a variety of sources of income and subsistence activities that are based on ecosystems and are thus most directly vulnerable to lack of access to water. These sources of income include small-scale farming and livestock production, fishing, hunting, and collecting fuelwood and other ecosystem products that may be sold for cash or used directly by households.[62] While agriculture has generated many so-called 'provisioning ecosystem services' such as food, fibre for clothing, and timber, it has substantially altered water quality and water quantity in many places. These alterations have significantly impacted ecosystems on which human society depends.[63]

Pollution and soil degradation

Pollution caused by food production systems negatively affects the earth's land and water. Although there are a number of concerns in this area, nitrogen and phosphorus pollution are two of the most significant.[64] The biogeochemical cycles of nitrogen and phosphorus form one of the nine boundaries in the planetary boundaries framework, developed by Johan Rockström and colleagues in 2009.[65] This research represents a scientific attempt to quantify what represents a safe operating space for humanity with respect to various earth system processes.[66] The most recent update of the planetary boundaries framework, published in 2015, found that current nitrogen and phosphorous flows significantly exceed safe levels for the world's waterways, coastal zones and oceans.[67] In both cases, food production systems using fertilisers are the main cause of the transgression of the boundaries.[68] Nitrogen and phosphorous are both essential elements for plant growth, and are therefore applied as artificial fertilisers to soil in order to improve agricultural productivity. Excessive

application of nitrogen and phosphorous in food production often results in runoff into groundwater, streams, rivers, and lakes, ultimately polluting coastal areas and the ocean, and causing eutrophication. The whole ecosystem is affected, biodiversity is lost and water quality is severely reduced.[69] Globally, this is an increasing problem in coastal areas, where the number of dead zones has approximately doubled each decade since the 1960s.[70] In addition, nitrogen and phosphorous also have other negative impacts such as toxic algae, eutrophication of terrestrial ecosystems, acidification of water and soils, and nitrous oxide emissions.[71]

Excessive fertiliser use is a particular problem in higher income countries.[72] Approaches such as nutrient recycling will be vital in order to substantially reduce pollution and stay within planetary boundaries.[73] The EAT-*Lancet* Commission concluded that although some fertiliser use will remain necessary to produce enough food for a growing global population, higher income countries should use less than they currently do, but some lower income countries, in regions such as Sub-Saharan Africa, should use slightly more.[74] However, this conclusion has been criticised by some proponents of sustainable farming systems, who argue that there are better ways for farmers to increase soil fertility and yields without using artificial fertilisers.[75] From the perspective of the precautionary principle, farming practices that minimise chemical inputs as much as possible should be supported.

One reason for excessive use of artificial fertiliser is the treatment of the soil, as current agricultural practices for both arable and livestock production lead to soil degradation. Fertilisers can 'mask' degradation for a period of time, but this contributes to a vicious cycle of ever-increasing fertiliser use to maintain soil fertility, and, as outlined above, is unsustainable. As mentioned above, for a wide variety of environmental reasons, scientists recommend transitioning toward zero expansion of new agricultural land.[76] Achieving this goal will require significant improvements in treatment of existing farmland and soil. Soil is critical for many reasons, such as biodiversity and acting as a carbon pool, but it is of course the ultimate source of almost all food: 95% of food is directly or indirectly produced in soil.[77] However, an estimated 33% of land globally is 'moderately to highly degraded due to the erosion, salinisation, compaction, acidification and chemical pollution of soils.'[78] Some agricultural practices (for example tropical deforestation for the production of beef, dairy, soybeans and maize) contribute to soil degradation in the following ways:

- Erosion: 'estimated rates of soil erosion in arable or intensively grazed lands are 100-1,000 times higher than natural erosion rates, and far

higher than rates of soil formation.'[79] Subsequent nutrient losses have to be replaced with artificial fertilisers. Soil becomes susceptible to water erosion, which increases pollution in water systems.[80]

- Soil organic carbon: soil acts as a carbon sink if managed effectively, but land-use change, especially for agriculture, means that often soil acts as a carbon source instead.[81]
- Salinisation: if irrigation water is high in salt or sodium, it will degrade soil. An estimated 20% of cropland has salt-induced yield declines.[82] The amount of world agricultural land destroyed by salinised soil each year is estimated to be 10 million ha.[83]
- Biodiversity: ecosystems within soil interact in a range of ways to contribute to healthy soil, but biodiversity is lost due to intensive agricultural practices such as the use of pesticides and herbicides.[84]
- Contamination: the misuse of agricultural inputs contributes to excess nutrients and pesticides in soil.[85]
- Acidification: use of ammonium-based fertilizers generally, as well as intensive farming practices that rely on large inputs of nitrogen fertilizers, contribute to soil acidification.[86]
- Compaction: dramatically reduces productivity and contributes to erosion. A major cause of soil compaction is the use of heavy agricultural machinery.[87]

In response to this set of problems, the concept of soil security has been developed. It is defined as 'the maintenance or improvement of the world's soil resources so that they can provide sufficient food, fibre, and fresh water, contribute to energy sustainability and climate stability, maintain biodiversity, and deliver overall environmental protection and ecosystem services.'[88]

Climate change and greenhouse gas emissions

GHG emissions from food systems constitute an estimated 19-29% of all anthropogenic global emissions.[89] These are primarily carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). Livestock production accounts for 14.5% of global GHG emissions and of these, cattle make up 65%.[90] Land use, land-use change, and feed production accounts for an estimated 45% of livestock-related emissions, while enteric fermentation in the digestive tract contributes about 40%.[91] Therefore agriculture as a whole and livestock production in particular plays a leading role in contributing to anthropogenic climate change. The statistics quoted here are measured using CO_2 equivalent

(CO_2e), meaning that other GHGs are measured relative to CO_2. It is worth noting that using CO_2e as a measure of total GHG emissions is disputed by some scientists because they suggest that this does not fully consider the environmental effects of different GHGs, particularly methane (which is produced in large volumes by cows and sheep in particular).[92] Methane has a significantly greater impact than CO_2 in the short-term, but only survives for about twelve years in the atmosphere, compared to the long-term persistence and accumulation of CO_2.[93] Nevertheless the GHG emissions statistics quoted here can still provide useful guidance.

In some respects, UK agriculture can make a positive contribution to limiting climate change; for example, 'grassland [is] a very good store of carbon, helping to mitigate the effects of climate change.'[94] Similarly, because '65% of UK farmland is highly suitable for grass production over other crops' the UK agricultural system has the potential to produce food from sustainable livestock grazing systems.[95] However, the Food Climate Research Network (FCRN) estimated in 2008 that 19% of UK GHG emissions arise from food consumption, including imports.[96] This figure does not take into account the emissions caused indirectly by land-use change, which is especially important when assessing imported foods because of factors such as deforestation (see above).[97] As such, even with the potential positive contributions mentioned above, the UK food system requires large scale change to meet emissions targets.

The *social* impact of climate change is well attested. Climate change does not, of course, simply mean warmer weather but that, as global average temperatures rise, the global climate is changing, and weather patterns are becoming more erratic. Christian climate scientist Professor Katharine Hayhoe uses the term 'global weirding' to capture the erratic nature of the emerging global climate.[98] This helps better understand how climate change can result in both the polar vortex in Michigan in 2019 and the extreme bushfires in Australia in 2018. One key social impact of climate change is the increased risk of flooding, which often disproportionately affects poorer nations who are unable to mitigate the effects of flooding, such as Bangladesh, two thirds of which is less than five metres above sea level. Another key impact is on food production. One 2017 study estimated that climate change could reduce the yields of wheat, rice and maize – three of the four most important global crops.[99] This has implications for food security. What is less obvious is the risk to human (and animal) health posed by an increase in pests and diseases, which flourish in warmer temperatures. This has a direct effect on humans through greater likelihood of contracting diseases and an indirect effect via the

animals and plants it will affect too. All of these impacts will have a significant effect on the world's poorest and most vulnerable, threatening their lives and livelihoods. Reducing emissions and mitigating these impacts is therefore a question of social justice.

Food loss and waste

'Food loss' refers to food lost in the supply chain between the producer and the market, for example due to pre-harvest problems, pest infestations, inadequate storage, or problems in packing or transportation.[100] 'Food waste' refers to food that is discarded or used for other purposes, as a result of business or household waste, for example.[101] Food loss and waste are major problems from both an environmental and ethical perspective. As discussed above, the production of food – which includes food that is wasted – is associated with a number of adverse environmental impacts. In addition, there are important ethical considerations: high levels of food waste are widely considered to be morally unacceptable, as there are millions of people across the world who are undernourished. Reducing loss and waste is one of the most important measures for improving the sustainability of food systems.

Globally, it is estimated that one third of all food produced is lost or wasted.[102] In the UK, it is estimated that a quarter of all food purchased is wasted post-farm gate (after the product leaves the farm).[103] There is no robust estimate for food loss and waste pre-farm gate (before the product leaves the farm) in the UK,[104] but a recent University of Edinburgh study estimated that over a third of fresh fruit and vegetables grown in the UK and Europe are rejected solely due to cosmetic standards.[105] All the evidence suggests that food loss and waste are very significant problems, globally and in the UK.

UN Sustainable Development Goal (SDG) 12.3 sets a target to halve food waste by 2030,[106] and one of the EAT-*Lancet* Commission's five strategy goals is to at least halve food loss and waste.[107] In the UK, the government waste reduction body WRAP launched its food waste reduction roadmap in 2018, aimed at helping the UK food industry achieve SDG 12.3.[108] The UK is moving in the right direction: according to WRAP, since 2007 food waste has been reduced by around 15%.[109] Nevertheless, there is still an enormous amount of food waste, and households remain the single largest cause.[110] As a country, the UK should aim to reduce food loss and waste all along the supply chain, but for individuals the most important action to take is to reduce food waste at a household level as much as possible. We explore reducing food waste

further in chapter 3. Food waste represents a fundamental misuse of resources and shows a lack of respect to all the human actors along the supply chain, as well as the environment upon which humanity relies.

Supply chains and eating out of season

The UK's 'self-sufficiency ratio' is estimated to be 60% for all food in 2017, though this is not an accurate measure of food security, given the complexity of food supply chains.[111] Based on the farm-gate value of unprocessed food in 2017, the UK supplied about 50% of the food consumed in the UK. The remaining 50% is sourced from across the globe with the largest share (30%) from the EU.[112]

On this basis, some have advocated buying food grown in the UK where possible. However, on average the environmental impact of food transportation is a relatively smaller proportion of the total environmental effects when considered from the perspective of a life-cycle analysis, although this does depend on the type of transportation used, since air travel produces significantly more GHG emissions than driving or shipping.[113] 'Different regions and countries have better growing conditions for certain foods; this may mean that, even after transport, the total GHG emissions of imported food can be lower than home-grown food.'[114]

Consuming food grown in the UK requires a considered approach in light of the complex food chains and the different methods of production, storage and transport of food. Currently, many types of food consumed in the UK are eaten out of season, which requires either transportation from other countries, or additional energy to produce them in the UK (for example, due to heating and lighting). Therefore, eating locally and seasonally has the potential to reduce environmental impacts (see chapter 3). The feasibility of consumers eating locally is dependent on the UK being able to produce sufficient levels of food. Attempts to move toward greater self-sufficiency in the UK would require large-scale changes to increase the production of fruit, vegetables, sugar, potato and wheat (as well as production of animal feed if meat consumption remains high).[115] This would force changes in the allocation and prioritisation of high-quality land and would overall be likely to result in lower yields and cause food prices to increase.[116] Dietary changes, particularly lower meat and dairy consumption, would be necessary to increase self-sufficiency further. It is not currently possible to entirely avoid global agricultural supply chains:

other farming essentials, including machinery, fertilisers and pesticides, would still need to be imported. Processed foods are particularly challenging to produce entirely from UK sources.

Food security

UK food consumption also has an impact on global food security. Food security was defined by the World Food Summit in 1996 as existing 'when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.'[117] This means that food security is not only a question of the availability of food but also people's ability to buy it. As noted above, factors such as biodiversity loss, water pollution and climate change threaten food security. UK food consumption has a further, more direct impact on food security, however. The UK consumes large quantities of meat and dairy, with the average person consuming 950g of meat, 1.82l of milk and milk products, and 120g of cheese a week at home.[118] Since large amounts of arable crops are grown to feed livestock, from a global perspective this reduces the amount of food available for humans to eat, although this varies across regions and countries. As mentioned above, livestock is estimated to consume approximately a third[119] of world cereal output.[120] In the UK, more than half of cereal output is used to feed animals.[121] This demonstrates that huge amounts of crops are being used to sustain higher income countries' appetite for meat (and, increasingly, that of countries like Brazil and China whose meat consumption is rapidly increasing).[122] Therefore UK consumption, particularly of meat, is contributing to reduced availability of food elsewhere in the world. Simply increasing agricultural yields cannot resolve this problem (see chapter 3).

UK food consumption has significant effects on food security in lower income countries. It is important to recognise that many farmers in lower income countries work in exploitative conditions and so the true benefit of trade for them can only be felt if these conditions are addressed. A 2018 Oxfam report found that supermarket supply chains drive inequality and exploitation, particularly of small-scale farmers and workers. Examples include forced labour, poverty wages, and human and labour rights abuses.[123] This leads to 'one of the cruellest paradoxes of our time: that the people producing our food and their families are often going without enough to eat themselves.'[124] On the other hand, UK food consumption can support food security in lower income countries. This is because buying crops, fruit and vegetables from

smallholder farmers in lower income countries can result in 'lower rates of food poverty, higher incomes, and better access to credit and extension services.'[125] However, this can only happen when there are just relationships between stakeholders in supply chains as advocated for by organisations such as Fairtrade.

Population growth

A growing global population is one of the major drivers of increased food production, and concomitant environmental degradation. The EAT-*Lancet* Commission concluded that sustainable food systems are theoretically possible for a predicted population of 10 billion in 2050, but this requires radical transformation of global food systems.[126] A population below 10 billion would require less food, and this could be beneficial if (as some argue) environmentally sustainable food systems produce lower yields. Although Malthus' pessimistic predictions regarding global population have not been realised, humanity has caused mass extinction of species (see biodiversity section). Humanity has been able to intensify agricultural production to feed a larger population, as Boserup predicted, but intensification has significantly contributed to environmental degradation. Reducing hunger and undernourishment means that the global poor will consume more resources – a moral necessity, especially in the case of food. From a biblical perspective, every person has inherent dignity, so an approach must be sought which is both environmentally sustainable and socially just.

Unremitting population growth is problematic, since the environment will become progressively more degraded, safe planetary boundaries will be transgressed even further, and resources will eventually run out. However, there is disagreement as to how high a priority reducing population growth should be, among both secular and Christian authors. Christian authors John Guillebaud and Pete Moore have argued that reducing population growth should be emphasised as a key way of 'loving neighbours', particularly the global poor and future generations, who, based on current trends, will face increased demand for scarcer resources.[127] While rejecting any approach that requires coercion, they argue for making available voluntary contraception to enable family planning in lower income countries.[128] On the other hand, demographics vary significantly in different parts of the world. Lower infant mortality, urbanisation, education and empowerment of women are all associated with reductions in population growth, whereby countries go through the demographic transition to lower birth rates. The demographic

transition involves a shift from a society with high birth and high death rates (typically preindustrial), to a society with low birth and low death rates (typically modern industrialised countries). Almost all higher income countries including Japan, China, USA, Australia, Canada and most European countries have birth rates below the replacement rate of 2.1 children per woman.[129] In the next few decades, global population growth will be concentrated in lower income countries, particularly in Africa. Many economists argue on this basis that reducing poverty and deprivation is the best way of reducing population growth.[130] Darrell Bricker and John Ibbitson have recently argued that UN population projections are overestimates, and that in the long-term the picture is one of population decline, rather than population growth.[131]

A major problem with the line of argument that focuses on reducing population growth is that it can lead to ethical apathy, especially regarding unsustainable lifestyles in higher income countries like the UK. It is possible, according to this view, to blame environmental degradation on 'poorer' people who have too many children. This is simply not true: individuals in higher income countries have, on average, a significantly greater per capita environmental impact than individuals in lower income countries.[132] Global food systems often contribute to environmental degradation because they disproportionately serve the economic interests of corporations, and facilitate the consumeristic habits of citizens in higher and middle income countries. Reducing global population growth can help, but it is even more vital to address overconsumption and work toward sustainable food systems.

Chapter 2

Give us this day our daily bread: biblical perspectives

As set out in chapter 1, global food systems are causing widespread environmental degradation. To seek wisdom for how to respond, in this chapter we examine theological models for relating to the environment and food. In part 1, we consider the implications of a biblical theology of the environment, particularly focusing on the relationships between God, humanity and the non-human creation. These relationships are established when God gives humanity a unique vocation within his creation, to rule over and take care of the earth. In part 2, we examine food and eating in the light of biblical texts and theological reflection. This suggests two vital ways humans should respond to food: *delighting* in it as part of God's creation, and *sharing* it with others.

Part 1: Delighting in creation

Human beings have been given an extraordinary responsibility by God to 'rule the earth', that is to care for and steward the non-human creation. This is first revealed in the twin vocations presented in the creation narratives of Genesis 1 and 2. Humanity's relationship to the environment is first defined in the narrative of universal creation:[133]

> *Then God said, 'Let us make mankind in our image, in our likeness, so that they may rule over the fish in the sea and the birds in the sky, over the livestock and all the wild animals, and over all the creatures that move along the ground.'*[134]

Humanity is 'fearfully and wonderfully'[135] made in God's image and charged to rule over the creatures of the earth in a way that honours the Creator. In an Ancient Near Eastern context, the concept of 'the image of God' was applied to kings, understood as a deity's representative on earth. By contrast, Genesis 1 uniquely describes all humanity, both men and women, as bearing the image of God.[136] This has profound implications: all humans are God's representatives on earth, so it is God's rule over creation that humanity should seek to emulate. Both in the creation accounts and throughout Scripture,

God's rule consists of *delighting* in and caring for his creation. In the narrative of universal creation, God delights in what he has made: 'God saw... it was very good.'[137] Sabbath is the culmination of God's creative activity, a day set apart for rest and joy, and 'the paradigmatic exercise of God's own dominion of delight'.[138] This is reflected later in the biblical text through Israel's land laws which mandate a year of rest for the land every seven years and so act as an 'extension' of the weekly Sabbath.[139] 'There is a sense here in which the land, like the people, is in a relationship with God which is founded on some form of Sabbath observance.'[140] Both signal rest at the culmination of work, and the sabbatical year in particular represents the land returning to the true ownership of God. As such, the traditions of the sabbatical year and the weekly Sabbath were significant acts of remembrance of the creation story and of God's ultimate ownership of the non-human creation.[141] Sabbath exemplifies God's concern for the non-human creation, as does his provision of food for every living creature.[142] Thus humanity's vocation is to 'imitate God's enabling and sustaining care for the world'.[143] At a human level, a biblical image for humanity's rule is that of the 'shepherd', 'servant' or 'servant-king', perfectly demonstrated by Jesus.[144]

While the universal creation narrative emphasises humanity's unique identity, the narrative of humanity's creation emphasises human mutuality with the earth.[145] Humanity (Hebrew *adam*) created from the earth (Hebrew *adamah*) is given a complementary vocation: 'The LORD God took the man and put him in the Garden of Eden to work it and take care of it.'[146] The word translated 'work' has 'service' imbued in its meaning, and similarly the word translated as 'take care of' can also mean 'keep, guard, protect'.[147] As Wirzba notes, 'Agricultural and gardening work, the Godly work that nurtures the world and nourishes its eaters, has come to be viewed by us as menial and trivial, and so unworthy of respect or honour.'[148] However, the biblical vocations call humanity to nurture creation in a just way – not worshipping it, but appreciating, serving and caring for it. Creation is 'entrusted' to humans, but ultimately the ownership sits with the Creator in his sovereignty over all creation. In determining what careful nurture looks like, the Christian farmer and poet Wendell Berry has asked: 'How much can be taken from [the environment] without diminishing it?'[149] This challenges a consumerist approach to agriculture and food consumption which only thinks in profitability terms, asking: 'How much can we extract from the environment?'

Fundamental to the vocation to care for the environment is a recognition of the intrinsic worth of the non-human creation. Modern approaches to conservation and agriculture, which talk of 'ecosystem services' and 'natural

capital', may suggest that the natural world has value only insofar as it serves human interests.[150] The Bible's creation story challenges this notion. The plants, birds and animals are all created before humans and recognised by God as good independently of humanity. Psalm 148 exhorts all of creation, human and non-human – animals, birds, fish, mountains, wind, clouds and people – to praise God.[151] In the book of Job, God challenges Job to see his place in the whole created order:

> *Who cuts a channel for the torrents of rain,*
> *and a path for the thunderstorm,*
> *to water a land where no one lives,*
> *an uninhabited desert,*
> *to satisfy a desolate wasteland*
> *and make it sprout with grass?*[152]

God provides for and delights in the natural world, irrespective of whether it serves human needs. He asks Job: 'where were you when I laid the foundations of the earth?'[153] This is an essential corrective to an anthropocentric view of the world. Instead the Bible offers a theocentric view of creation that recognises that 'both human and non-human creatures are made for the glory of God and have value directly in relation to God.'[154]

The Genesis account of creation emphasises its fruitfulness:[155]

> *Then God said, 'Let the land produce vegetation: seed-bearing plants and trees on the land that bear fruit with seed in it, according to their various kinds.' And it was so. The land produced vegetation: plants bearing seed according to their kinds and trees bearing fruit with seed in it according to their kinds. And God saw that it was good.*[156]

The vegetation is literally 'sprout-out sprouts', the seed-bearing plants 'plants seeding seed' and the fruit trees 'fruit trees making fruit'. This ostentatious use of language underlines the self-perpetuating fruitfulness of the creation and its suitability for food.[157] When the same words are repeated, the emphasis is on God's provision of these trees and plants for humans and creatures and their distribution in the food chain:

> *Then God said, 'I give you every seed-bearing plant on the face of the whole earth and every tree that has fruit with seed in it. They will be yours for food. And to all the beasts of the earth and all the birds in the sky and all the creatures that move along the ground – everything that has the breath of life in it – I give every green plant for food.' And it was so.*[158]

Ellen Davis argues persuasively that because these verses immediately follow humanity's creation, humans are responsible for maintaining 'the food system that God gives to sustain all creatures.'[159] As such, caring for the created order involves a practical concern that humans and non-human creatures alike have access to food.

Despite humanity's sin in Genesis 3 and the consequent rupture in the relationship between humanity and the earth, the creation narratives remain a call to see the world through God's eyes: 'The references to God seeing that creation was good are among the relatively rare instances in the Bible of an invitation extended to the reader to perceive through the eyes of the biblical character focused on, here meaning God.'[160] The text calls humanity to a restored sense of awe and gratitude for creation, delighting in it as its Maker does. Contemplation of the value of creation set aside from human concerns is a key step in recognition of personal and communal complicity in mistreating creation. These ideas are expanded in chapter 3 with our concept of thoughtful eating.

The material world is good

In Genesis 1 God affirms the goodness of the material world and the embodied nature of humanity.[161] This runs contrary to some characterisations of Christianity as only interested in spiritual life. According to the latter view, Christians' primary focus should be evangelism and attending to the spiritual needs of people, rather than their material needs, or environmental issues.[162] The affirmation by God of the physical creation at the very outset of the biblical narrative strongly challenges such a view.

The legal codes of Exodus, Leviticus and Deuteronomy are concerned with the right ordering of relationships in God's creation. As Davis notes, these texts aim to provide 'a precise awareness of physical being: of human life in a particular place, the land of Canaan, shared with other creatures – trees[163] and birds and animals[164] – whose own lives are precious and vulnerable.'[165] The aim of the Pentateuch is that 'people and land together should thrive in the presence of … God.'[166] The connection between Israel and the land is explored below, but this point is worth noting here as it demonstrates the importance of the physical creation to God.

The clearest affirmation of physical existence in the Bible is the Incarnation, God taking human, embodied form in the person of Jesus. Jesus demonstrates that the physical world is valuable, and the Bible's teaching that he led a

sinless life means that his was a perfect humanity. In his life on earth he therefore showed that physical human existence could be restored to the heights it experienced in the creation story, by living in perfect relationship with God, humanity and the non-human creation.[167] Jesus' messianic mission was to announce the arrival of the kingdom of God, which represents holistic renewal and reconciliation of the whole of the physical creation.[168] The restoration of all things into their original relationship with God is a profound declaration of the goodness of the material world.

Christians believe both in a physical resurrection of the body after death, as demonstrated by Jesus eating with his disciples after his resurrection,[169] and in a physical renewal of the Earth in the new creation. Though many may, consciously or otherwise, think of the Christian hope for eternity being a disembodied existence in 'heaven', the Bible teaches that there will be a 'new heaven and a new earth', and followers of Jesus will live on the new earth with God.[170] Passages such as Revelation 21:1 use the Greek word *kainos*, meaning 'new in nature or quality'.[171] Elsewhere in the New Testament the words *prophatos* or *neos* are used, which refer to newness in time or origin.[172] The picture is one of renewal and restoration, and of continuity between this world and the next.[173] Romans 8:19-22 supports this view, where Paul speaks of the creation, which will be 'liberated from its bondage to decay and brought into the freedom and glory of the children of God'. Since there is continuity between this world and the next, the material world is of eternal significance, and this has several implications for the relationships between God, humanity and the environment.

Firstly, creation is eternally precious to God, and as such humanity should care for it in order to honour God. Our God-given responsibility includes the welfare and continuance of the non-human creation. The Noahic account illustrates God's concern for the survival of the non-human creation and humanity's pastoral role in this is evident. In the command to build the ark God charges Noah with a duty of care for the animals of the Earth: 'You are to bring into the ark two of all living creatures, male and female, to keep them alive with you.'[174] Caring for the non-human creation is one way in which humanity honours God.[175] Secondly, consideration should be taken for the environmental impact on 'neighbours' of collective and individual choices: loving one's neighbours involves their physical as well as their spiritual needs. Spencer and White illustrate this through the parable of the Good Samaritan, in which Jesus teaches that one's 'neighbour' is not limited by ethnicity, culture or geography.[176] All fellow humans are neighbours. In the 21st century, the 'neighbours' that are being most affected by environmental degradation are

the poor in lower income countries, and future generations. Therefore, there is a need to recognise relational injustice, both globally and intergenerationally.[177] Serving neighbour and the non-human creation are thus intimately linked, and a further key element of this is understanding the importance of land and place.

Land and Place in the Bible

In the creation narrative, the significance of the responsibilities and blessings given to all humanity are emphasised, in relation to the whole of creation. A theology of the land, by contrast, is concretely rooted in Israel's history and God's dealings with humanity through Israel.[178] Land was understood in Ancient Israel as a sacred gift from God under an 'ideology of divine ownership' – the people were only tenants on God's land.[179] This created obligations in relationship – vertically (with God), horizontally (with the needy), and temporally (with past and future generations).[180] Fertility and fruitfulness came with obedience to God's law, whilst curses on the land were a result of disobedience.[181]

The first key point is that the land was a tangible sign of God's covenant with Israel.[182] God made this covenant with Abraham and his descendants, and fulfilled his promise by rescuing Israel from slavery in Egypt and bringing them into the promised land. Wright notes that the 'land was therefore a huge, symbolic, tangible proof to every Israelite householder that he, his family and his people had a special covenantal relationship with the Lord.'[183] The land provided for all the Israelites' needs, and was thus synonymous with God's rich provision. Just as Wright describes humanity as in a triangular relationship with God and creation, so he also describes Israel as in a triangular relationship with God and the land.[184] This is related to the idea of the 'land community' or 'earth community', which encompasses 'soil, water, air and animate creatures, ranging from the microbial to the mammal'.[185] Like Israel, who saw the land as their home for posterity, the ecosystems humans live in today must be cared for in a way that enables the long-term sustainability of all members of the ecosystem, and thus of the ecosystem itself.

The second distinctive point is that the land was considered invaluable. This is most clearly seen in the jubilee laws, which make clear that no Israelite is to permanently lose their share of the land, made possible by the cancelling of debt-slavery and the return of land to its original owners every fifty years.[186] Since the land belonged to God, it was of infinite worth and the Israelites were

only temporary residents in his land. The concept of being tenants in God's land is fundamental to an ethic of creation care.

Leviticus 25 does allow for the permanent sale of land within walled cities. These plots would have been essentially 'landless houses' and therefore useless for agriculture.[187] There is something important, then, about agricultural land. As Wendell Berry notes, it brings food, shelter, warmth, freedom and life, in a way that urban land cannot.[188] It is essential to the well-being of a people, and the way the land is treated reflects different perspectives on its value. For example, the story of Naboth's vineyard in 1 Kings 21 is a confrontation between two opposing visions of what agricultural land represents. For Ahab, the land is an economic and tradable commodity, a symbol of status and power. For Naboth it represents his inheritance which ties him into temporal relationships with ancestors and descendants, and so cannot be sold to another.[189] This story is also an illustration of the rich exploiting the land of the poor – something that is all too familiar in the modern age as well.[190]

Farming is a key part of considering the value and treatment of the land as part of God's creation. This is linked to a concept sometimes called 'creation care'. Born from the conviction that the environment has intrinsic value and ought to be thought of as a gift, not as a commodity, creation care envisions a model of farming that focuses on sustainability, for example through organic farming practices, the relationships between farmers and local community, and conservation. The Jubilee Farm, a Christian farming coop, describes creation care as 'environmental and agricultural stewardship that incorporates flourishing, fairness, wellbeing and welfare.'[191] Scholars such as Davis have been inspired by the biblical writers' 'agrarianism', described as 'a way of thinking and ordering life in community that is based on the health of the land and of living creatures'.[192] Wendell Berry is an influential voice of this perspective:

> *Agrarian farmers know that their very identity depends on their willingness to receive gratefully, use responsibly, and hand down intact an inheritance, both natural and cultural, from the past. Agrarians understand themselves as the users and caretakers of some things they did not make, and of some things they cannot make.*[193]

A key part of the relationship between God, humanity, and non-human creation is the concept of 'place'. In the creation narrative, God places humanity in the Garden of Eden.[194] Thus from the beginning of the Bible, place is significant and is shown to be a good gift from God.[195] This specific place, as with

the promised land and the tabernacle/temple, is special because it is where God dwells. Walter Brueggemann has argued that 'place' is a 'space which has historical meanings', deeply and meaningfully connected to community identity.[196] Place is a primary human need,[197] necessary for both our health and identity: 'our humanness cannot be found in escape, detachment, absence of commitment, and undefined freedom.'[198] This is an important concept because a personal connection to place imbues in people an ethic of care. On the other hand, disconnection can lead to apathy and 'placelessness',[199] which Geoffrey Lilburne links to exploitation: '[a] flagrant disregard for the uniqueness and beauty of particular places feeds into the exploitative attitudes our society so richly exemplifies.'[200]

In the New Testament, where all the promises to Israel find their fulfilment in Christ, land and place take on a different significance. Wright argues that the meaning of the land is replaced with 'fellowship', which is a New Testament concept meaning 'a practical, often costly sharing' of possessions, time, food and emotional burdens. This is the Greek word *koinonia*, which relates most often to the social and economic relationships between Christians.[201] Jesus teaches that wherever two or more believers gather, he is present with them.[202] Therefore, 'the spiritual presence of the living Christ sanctifies any place where believers are present' and God's promise to be with his people in their land is universalised.[203] Lilburne expands upon this premise to suggest that the places where Christians meet – the local communities in which they are situated – are worthy of care and love as places where God chooses to dwell. This is connected to the Incarnation, whereby God chose to enter a specific time and place, and dwell with humanity.[204] God in Christ dwelt as a person in physical places during Christ's life on earth wherever he taught and went. After Pentecost, God dwells in specific places by the Holy Spirit throughout history into the present.[205] Caring and investing in physical places of home and community works in tandem with concern for the whole earth as the special place given by God to all humanity.

Ecology and the biblical prophets

The relational triangle of God, humanity and the non-human creation is integrated and dynamic. Hilary Marlow brings an understanding of justice that relates intimately to ecological concerns through the writings of the Old Testament prophets, texts that show the 'link between justice in society and the well-being of the natural world.'[206] Justice begins with God and is extended to his people as a vocation and responsibility.[207] This calling weighs particularly

heavily on the shoulders of those called to political leadership. In Psalm 72, the judicial responsibilities of the king to his people are intimately linked to the natural world: 'May he judge your people with righteousness, and your poor with justice! Let the mountains bear prosperity for the people, and the hills, in righteousness!'[208] This Psalm illustrates the connection 'between the maintenance of divinely instituted order in society and the well-being of the wider creation.'[209]

In Amos 4 the interplay between the natural world and human flourishing is evident as human injustice (v. 1) leads to the degradation of the land (vv. 6-9) and natural disasters which directly affect humanity through death by plague and earthquakes (vv. 10-11): 'the consequences of Israel's rejection of its God are felt in the cycle of harvest and fertility, but also expressed in terms of cataclysmic devastation.'[210] Like the prophets Isaiah and Micah, Amos illustrates a close link between how society operates and the flourishing and fruitfulness of the wider environment.[211] The prophets indicate the far-reaching consequences of God's wrath: 'the devastation of the land portrayed in these texts is undoubtedly catastrophic for the whole human population, not just the wealthy élite, as well as for the rest of creation.'[212] As such, all of creation is understood to be interconnected in relationship in the writings of the prophets.

Human beings are one part of a larger created order established by God and under his sovereignty. Creation is celebrated through hymns of praise, as found in Psalm 104, in which humanity is depicted as 'but one of the many works of God'.[213] A final example would be in Isaiah 34, in which 'the ecological balance has shifted at God's behest in favour of the non-human creation, a change that warns against the assumption that human interests are all that matter to God.'[214] In this passage human-built cities and structures are overrun by wildness as a manifestation of God's wrath: 'thorns will overrun her citadels, nettles and brambles her strongholds. She will become a haunt for jackals, a home for owls.'[215] Wild animals take residence and, as Marlow contends, passages like this show that human occupation of the land and cultivation of it are not necessarily the default state of the environment.[216] The mandate for responsibility and justice is taken very seriously, and the prophets warn about the effects of injustice on the relationship between humanity and the non-human creation. The 'prophets' call for social justice' is also a call to reflect on the impact choices have 'not merely on other human beings but on the rest of the natural world as well'.[217] In the modern era, humanity faces a similar situation, where social injustice and environmental degradation

are interconnected. The prophets' holistic vision of the world has enormous relevance for humanity today.[218]

Part 2: Food and eating

In this section, we draw on L. Shannon Jung's suggestion that the biblical material can be brought together under two main categories: 'One is the pole of enjoyment, providence, goodness, *delighting*. The other is the pole of hospitality, justice, mission, *sharing*.'[219] These two themes are crucial in moving toward a joyful, relational and sustainable understanding of food and eating. Our reflections centre around a theology of food as a means of nourishment, as a gift from God and as a source of delight. We live in community, and often that centres around food through the act of gathering at a dinner table as a family, sharing a meal with friends, serving others with food at church, in shelters and food banks, and enjoying celebratory meals and feasts. Sharing food is at the core, enabling relationships to flourish whilst providing nourishment in a necessary and primal way. In this section, we focus first on *delighting*, and then on *sharing*, but it is important to emphasise that these two themes are complementary: part of delighting is sharing, and part of sharing is delighting.

Food as God's love

There is a higher vision for food that must be redeemed; it is not simply a 'manufactured product we control' but '*God's love made nutritious and delicious, given for the good of each other*'.[220] Most significantly it brings us into the triangle of relationships: with God, with each other, and finally with the non-human creation:[221]

> *Thoughtful eating reminds us that there is no human fellowship without a table, no table without a kitchen, no kitchen without a garden, no garden without viable ecosystems, no ecosystems without the forces productive of life, and no life without its source in God.*[222]

Jung has similarly argued: 'food is revelatory of the goodness and joy of the earth; it is also how we come to taste the language of grace and love; it is how we come to know community.'[223] As such, a theological relationship to food makes possible deeper memberships in creation, and, for Christians, encourages an appreciation that God's invitation is to participate 'in a grace-saturated world, a blessed creation worthy of attention, care and celebration.'[224]

Human beings are embodied and thus food is not only delightful but life-sustaining. God's concern for his creation is exemplified by his provision of food.[225] Although God provides all food, in a fallen world people do not always have enough to eat, often because of human sinfulness and injustice. Food nevertheless can be received as an expression of God's love, and the principle of 'loving God and loving neighbour' demonstrates why it is vital to not only *delight* in food, but to *share* it.

Creation is intimately tied into the Trinitarian life of the Father, Son and Holy Spirit. The Trinity exemplifies that it is in God's character to make room for others to flourish in relationship with him, and the world is a profound expression of this: 'trinitarian life shows that relationality goes much deeper, *constituting* rather than merely marking reality.'[226] Wirzba argues that in response Christians are called to be thoughtful about their relationship with food. An unjust and idolatrous view of consumption results in degraded and destroyed habitats, mistreated animals, abused workers, unjust trade arrangements, and lonely eaters. Thoughtful eating runs contrary to the mutation of food into an exclusive possession or an instrument of power, and is a reminder to society that food is a gift to be gratefully received and a source of *delight*.[227]

Decontextualisation of food

Eating is never a solitary act, even if one eats alone. The modern consumer has little understanding of how 'every sniff, chomp and swallow connects us to vast global trade networks, and thus to biophysical and social worlds far beyond ourselves.'[228] The forces of urbanisation, industrialisation, and global markets have profoundly changed the landscape of economic and cultural life, and thus the meaning of food has been transformed.[229] The result of this shift has been the loss of practical connections between consumers of food and the social and ecological contexts which make eating possible: 'food consumers end up having little knowledge or say about where their food comes from. Food producers, in turn, will face considerable pressure to grow what they do not want to grow and in a manner they may believe to be harmful.'[230] As such, the potential for injustice grows because global trade networks disconnect the individual from the complexity and reality of food production, and consumers have been uprooted from the source of their food.

A more thoughtful approach to eating will develop a deeper appreciation for and knowledge of the farming communities and practices that make eating possible: 'people can now consume a slice [of bread] and have no imagination

or sympathy for the agricultural community or ecological neighbourhood that brought it into being.'[231] Put simply, the commodification of food and the industrialisation of eating practices has produced an end result in which 'people eat with a diminished sense of the depth and breadth of relationships that constitute a food item', a narrowing which often leads to a limited sense of sympathy or care for fields, animals and farmers.[232] An important part of recontextualising food is the reality of life and death: 'eating is a daily reminder of creaturely mortality. We eat to live, knowing that without food we will starve and die. But to eat we must also kill, realising that without the death of others – microbes, insects, plants, animals – we can have no food.'[233] Food is precious not only because of the sacrifice and human care that went into its production but because it points to the divine Creator and Sustainer.[234] Jung argues: 'Eating is a spiritual practice that reminds us of who we are in the global ecology. Forgetting what food is means we also forget who God is, who we are, and the nature of the world we inhabit.'[235]

Gratitude and joy

When food is received as a gift from God, the primary human response to food is best described as gratitude, which leads to joy. Recognising the goodness of God while eating delicious foods is a key way to discover more delight and joy in life.[236] Jung contrasts two worldviews, which have very different perspectives on food. The first views life as a 'business to be managed', in which humans are understood primarily as isolated individuals who, by managing their lives effectively, can generate their own happiness and joy.[237] An alternative worldview understands life as 'a matter of relationships.'[238] This second, more relational model emphasises that originally God created humans to enjoy life in relationship with the Creator and creation. This kind of joy cannot be artificially generated or controlled, and often arises from sources external to the individual. Thus 'rather than seeing joy principally as something for ourselves, this alternative view suggests that we can contribute not just to our own but also to others' delight.'[239] The first worldview tends to approach eating as an uninspiring necessity, but the latter approaches eating as 'an occasion for appreciation and enjoyment, something to be experienced.'[240] It is this second worldview that leads to a response of joyful gratitude for God's gift of food. God's provision of manna for the Israelites in the wilderness was an exceptional instance in which food was a 'surprising, unknown, unmanufactured, and uncontrollable gift'.[241] But in some sense this is true of all food, as the psalmist declares:

He makes grass grow for the cattle,
and plants for people to cultivate—
bringing forth food from the earth:
wine that gladdens human hearts,
oil to make their faces shine,
and bread that sustains their hearts.[242]

Biblical law instructs the people to rejoice when they eat food as part of offerings to God.[243] Prophetic texts use pictures of food production and consumption as images of future joy. For example, Isaiah 9 states that the people of God will rejoice 'as people rejoice at the harvest',[244] and similarly Jeremiah 31 predicts that the restored people of Israel will 'rejoice in the bounty of the LORD—the grain, the new wine and the olive oil.'[245] When food is understood as communicating God's love, gratitude and joy are 'natural' and right responses. It is in this sense that Jung calls food 'performative', meaning that thoughtful eating encourages a response of delight and gratitude.[246] Similarly, Wirzba suggests that the act of eating is 'a daily invitation to move responsibly and gratefully within this given life.'[247]

A utilitarian perspective on food and eating severely limits our understanding of how food expresses God's provision and his delight. As Robert Farrar Capon writes, 'He [God] *likes* onions, therefore they are'; the creation of food reflects 'His present delight – His intimate and immediate joy in all you have seen, and in the thousand other wonders you do not even suspect.'[248] This has profound implications. Current global food systems encourage reckless ingratitude, nowhere more clearly demonstrated than in the sin of food waste.[249] In the narratives of Jesus' provision of food for the five thousand and four thousand, the disciples gathered up the leftovers in twelve and seven baskets respectively.[250] This shows a profound respect for food: Jesus could have produced a superabundance of food, but instead he produced enough for the crowd, with leftovers for the disciples. The disciples expressed gratitude by not wasting any food, thus behaving in a similar way to Jesus giving thanks for the food before multiplying it.[251] In one sense, all food is miraculously provided by God, so these narratives provide a model for expressing gratitude through both word and deed.

Eating characterised by ingratitude fails to see beyond one's own plate. By contrast, joyful gratitude encourages *sharing* with others, showing compassion, and working toward sustainable food systems across the world, so that all people can experience the joy of eating food as a gift from God. It also encourages gratitude for God's creation upon which all people and animals are dependent for life-sustaining food – a whole ecosystem of

which each person is only one member. Care for God's creation, humanity's vocation, becomes an opportunity to experience and express deep-rooted joy: 'our overflowing appreciation of this gift increases its enjoyment and our desire to ensure the continuation of healthy food and a healthy earth for the future.'[252] A theologically sensitive reading of the meaning of a meal renders a fuller picture, and as such thoughtful saying of grace before eating is key to responding to food biblically.

Saying Grace

One of the ways in which Christians express gratitude is through praying before a meal. Giving thanks regularly is one of the ways in which Jesus provides a model for relating to food.[253] This habit of gratitude was so important that Paul made sure to give thanks to God for food in the middle of a sea-storm.[254] The saying of grace in preparation of eating a meal is a valuable way of connecting food with God and community. 'Gathered at a table and prepared with an appropriate focus and sensitivity, we have the opportunity to voice our thanksgiving for relationships with each other – earth, plants, animals, and ultimately God – that give us life.'[255] Psalm 34 offers an invitation to 'taste and see that the LORD is good.'[256]

Saying grace, if it is done thoughtfully, is an expression of faith, and re-orientates desires in line with gratitude because 'when we daily offer a benediction on the costly miracle of life, we bear witness to a wide-ranging set of intellectual, emotional, and practical dispositions that aim to receive the members of creation in a distinct, life-honouring way.'[257] Saying grace demonstrates contemplation as God is asked to 'bless the hands that prepared' our meal and so we understand that 'we belong to the soil, to animals, and to each other, and then see in our belonging a need for humility, responsibility, and celebration.'[258] Saying grace mindful of extended food supply chains, the injustice of global food systems, and the environmental cost of production and consumption would be to cultivate what Wendell Berry calls 'a sympathetic mind': a mind that refuses to reduce the scope of thinking about the world and demonstrates this through prayers and thanksgiving.[259] Gratitude as expressed in thanksgiving places us in the context of creation, as in Psalm 148, where the joy and gratitude of the entirety of creation, both human and non-human, is pictured: 'Praise him, you highest heavens [...] Praise the LORD from the earth, you great sea monsters and all ocean depths, lightning and hail, snow and clouds, stormy winds that do his bidding [...] [Praise him] kings of the earth and all nations, you princes and all rulers on earth, young men and women,

old men and children.'[260]

Saying grace is part of delighting in food, and the experience of such delight comes when love joins perception. Paul writes that love is patient, kind, not jealous nor boastful, not proud or self-seeking, not dishonouring or bitter, and that 'love does not delight in evil but rejoices with truth.'[261] Therefore, food perceived through the lens of God's love is not dishonoured and reduced to profit, care is taken in its preparation, and joy experienced when it is eaten. Overconsumption and destruction cannot match up, therefore, to this picture of love in God's vision for food and eating. Thus, this culture of delighting in food stands in contrast to 'fast food culture' which does 'not facilitate or encourage contemplation nor does it promote an affectionate regard for what is eaten.'[262] Saying grace acts as a moment of contemplation that runs counter to the culture of fast food. In response to this, the Slow Food movement has emerged, which advocates for more intentional eating practices which are thoughtful about production, preparation and consumption of food.[263] For Christians, the Eucharist is an opportunity to experience such contemplation in a corporate setting.

Communion

In his consideration of Holy Communion, Tom Wright illustrates how 'what Christians do today when they meet to break bread and drink wine together is the central Christian action, which links us in an unbroken line… to Jesus and his friends in the Upper Room… And it links us, too, to almost all Christians throughout the world today.'[264] It is a sacrament designed to orientate the mind of the participant in gratitude and reverence. Communion or Eucharist, which comes from the Greek for 'thank you' *(eucharisto)*, points the church further to the sense of gratitude with which the tradition is imbued.[265] It is referred to as the Lord's Supper, remembering the Last Supper in which Jesus broke bread and drank wine with his closest followers as a symbol of his sacrifice.[266] The practice linked together Jewish tradition and the early Christian church, since the extension of the inheritance (Gal. 3:26-29) outlined in the New Testament meant that 'the Jewish story was the beginning of the Christian story.'[267] Passover (Pesach) commemorates the exodus of the Jewish people from slavery in Egypt. It is an act of celebration and remembrance with food at the centre, and Holy Communion celebrates an even greater liberation, salvation for believers, through the sacrifice of Jesus. Therefore, there is a temporal link between looking to the past in remembrance, being grateful in the present, and looking to the future of the kingdom to come, all experienced

through the symbolic eating and drinking of the Eucharist.

Food and eating are of central importance to the Eucharist ritual. As Jung contends, when those actions are discounted the meal can become a matter of individual salvation rather than corporate sacrament.[268] If Communion was taken without the eating of bread and drinking of wine then Christians would be in danger of losing sight of the reality of their bodies and the experience of eating and drinking together. Taking Communion thoughtfully recognises humans' 'ecological and material constitution' whilst also considering the spiritual and relational implications of the communal ritual.[269]

What happens in the meal is nourishment through Jesus Christ, since food is used both as an image but also as a physical reality with a central place in this sacrament. This illustrates that 'the whole world is coming, symbolically in that bread and wine, to the foot of the cross.'[270] Eating Eucharistically re-orientates human memory to Jesus as he offers himself as food and drink. Wirzba provocatively argues that 'eating Jesus is the ritual act that has the potential to transform eating in general so that it can be hospitable at its core and lead to communion of life.'[271] The Eucharist is a ritual but also a *meal*. Considering a meal with Christ at the centre, as the Eucharist does explicitly, has the power to transform eating. In the early church, the Lord's Supper was a true meal, probably eaten together weekly,[272] and Paul uses this to discuss division in the church: 'so then, when you come together, it is not the Lord's Supper you eat, for when you are eating, some of you go ahead with your own private suppers. As a result, one person remains hungry and the other gets drunk.'[273] As such, Paul emphasises that the meal should reflect Christ's Gospel by enacting equality rather than division.[274] Eating Eucharistically, like eating thoughtfully, requires contemplation of the relational and Christological roots of what is consumed.

Eating together

Food is a gift to *delight* in, but food is also designed for *sharing* with others. The basic act of eating together is common to all cultures, and has been called 'one of the most important articulations of human sociality.'[275]

The act of eating together is sometimes called commensality, literally meaning eating at the same table (from Latin *mensa*, 'table').[276] The word also has a broader definition, referring to 'eating and drinking together in a common physical or social setting.'[277] Commensality is a key way in which interpersonal relationships are created, developed, strengthened, and reconstituted.

Commensality can vary significantly, from everyday meals eaten by families and friends, to feasts which bring together larger groups and communities. Yet all acts of commensality have at their core the act of eating together in a common setting – a universally shared experience.

Interestingly, eating together is thought to have communal, relational and personal benefits. For example, a study based on 2016 survey data from UK adults found correlations between eating evening meals with others, and self-reported happiness, life satisfaction, and engagement with the local community.[278] Furthermore, the Living Well Index, an analysis by Oxford Economics of survey data from 8,250 people in the UK, found that social eating was a particularly important factor in subjective wellbeing: 'always' eating alone is more detrimental to wellbeing than any other factor apart from mental health conditions.[279] Among children, US and European studies have found both improved health and academic performance are correlated with family commensality.[280] A Canadian study of adolescents found that 'more frequent family dinners related to fewer emotional and behavioural problems, greater emotional well-being, more trusting and helpful behaviours towards others and higher life satisfaction.'[281] Although such studies do not prove causality, considering the historical and cross-cultural phenomenon of commensality, it seems likely that sharing meals is an important part of a healthy lifestyle. It is, therefore, concerning that survey data suggests that nearly half of all UK meals are eaten alone.[282]

Despite the enormous temporal and cultural divides between the modern world and the biblical eras, commensality remains a recognisably human experience. The narrative of humanity's creation in Genesis 2 emphasises that it is not good for humans to be alone.[283] Although eating together is only one way in which humanity's need for social interaction is met, it is probably one of the most basic and important. The significance of commensality is well expressed by a proverb:

> *Better a small serving of vegetables with love than a fattened calf with hatred.*[284]

This proverb emphasises something very recognisable: the social aspects of eating are often as or even more important than the food itself. Biblical law regularly instructs people to eat together with joy when they bring offerings to God.[285] This is an excellent illustration of both themes of *delighting* and *sharing*.

Similarly, during his ministry Jesus spent so much time eating and drinking with others that he was accused of being a 'glutton and a drunkard'.[286] Eating with

Jesus was a transformative experience: Zacchaeus' whole life was changed after a meal with Jesus.[287] It is notable that in the Gospel of Luke, much of Jesus' teaching occurs in a context of commensality.[288] Eating and drinking with Jesus was so important for the disciples that Peter specifically mentions it as the guarantee of the truth of their witness to Jesus' resurrection: '[Jesus] was not seen by all the people, but by witnesses whom God had already chosen—by us who ate and drank with him after he rose from the dead.'[289] There can be no greater affirmation of the importance of commensality. It also demonstrates the true union of the physical and spiritual – Jesus could have restored his relationships with his disciples in many ways, but he chose to do it by sharing food with them.

Commensality is also a way of both enacting and symbolising covenants. For example, in Genesis 26, Abimelek, king of the Philistines, asks Isaac to leave him because of growing tension due to Isaac's wealth.[290] Subsequently, Abimelek and Isaac make a treaty with each other – after eating together.[291] Here the meal acts as an opportunity for reconciliation and restoration of their relationship.[292] For Christians, the Last Supper is the ultimate example of commensality, at which Jesus declared a new covenant of reconciliation, made possible through his body and blood, recreated through the Eucharist.[293] Today, eating together remains a traditional part of the process of *sulh* ('peace') in parts of the Middle East, specifically a meal hosted by the family of the offender.[294]

Hospitality

Another key biblical theme regarding sharing food is that of hospitality – the combination of food and shelter. Hospitality, particularly offered to travellers and strangers, was an important Israelite and Ancient Near Eastern tradition.[295] There are a number of biblical narratives which reflect the ethic of hospitality, of which probably the most well known is Abraham's hosting of the three visitors.[296] In the New Testament, this story is probably the one referenced when the writer of Hebrews instructs Christians to 'show hospitality to strangers, for by so doing some people have shown hospitality to angels without knowing it.'[297] (The New Testament Greek word for hospitality is *philoxenia*, literally 'love of strangers' or 'love of guests'.) Hospitality, particularly among Christian brothers and sisters, is often commended as a Christian virtue.[298] The early followers of Jesus became well known for their hospitality: in the fourth century AD, the emperor Julian (a polytheist) wrote a famous letter in which he said that it was the hospitality and commensality of the Christians that

attracted so many to their 'atheism'.[299] As Tim Chester argues, hospitality has become increasingly commercialised in Western culture.[300] There is nothing necessarily wrong with this, but the biblical theme of hospitality suggests that there is relational and spiritual value in commensality around food cooked and eaten in the setting of an ordinary home.

Community and grace

Hospitality is one obvious way in which meals can create and foster community, an important biblical theme. In an influential essay, anthropologist Mary Douglas argued that meals encode messages about social relationships: 'The message is about different degrees of hierarchy, inclusion and exclusion, boundaries and transactions across the boundaries.'[301] Meals represent different levels of intimacy and acceptance. In the Bible, a good example is Boaz's invitation to Ruth to eat with his harvesters.[302] This is a way of symbolising to his workers that Ruth, a foreigner,[303] is accepted as part of the community: commensality crosses boundaries and enacts integration.

The table fellowship of Jesus contains similar messages.[304] In first century Palestine, table fellowship was very significant: in sociological terms, meals served as boundary markers (particularly between Jews and Gentiles), reinforced social stratification, and promoted social bonding.[305] Jesus' eating and drinking was, by contrast, subversive and disruptive. In Luke 5, Jesus called Levi, a tax collector, to follow him.[306] The immediate consequence is that Jesus and his disciples attend a banquet at Levi's home.[307] This angers the Pharisees, who complain that Jesus is eating and drinking with 'tax collectors and sinners'.[308] Tax collectors were social outcasts in Jesus' day: not only did they often gain wealth corruptly, but they were considered collaborators and traitors for working on behalf of Roman authorities. Yet Jesus sat down and ate with them. This outraged the Pharisees, precisely because meals represent boundaries of insiders and outsiders. But Jesus transgressed the boundaries that they considered a Jewish rabbi should respect; the message of Jesus' meals expressed his grace, inclusive and radically subversive.[309]

In Luke 7:34, Jesus is accused of being a 'friend of sinners', just before another subversive meal at which a 'sinful woman' anoints Jesus' feet with perfume.[310] It represented an enormous act of courage for the woman to cross social boundaries and come into the house of a Pharisee, where Jesus was dining – and Jesus accepts the woman, and commends her faith. In narrative terms, Luke confirms the 'accusation': Jesus *is* a friend of sinners.[311] Jesus did not

accept boundaries for meals: he went to the houses of both the élite and the marginalised, rich and poor, religious and irreligious. Jesus welcomed everyone into his new kingdom community – and Jesus' eating and drinking were some of the most controversial ways in which he did so. In the context of Palestine in the first century with all its ethnic and religious tensions, this was dangerous; as Robert Karris puts it, 'in Luke's Gospel, Jesus got himself killed because of the way he ate.'[312]

This communal aspect of eating together was one of the key characteristics of the early church, who 'broke bread in their homes and ate together with glad and sincere hearts.'[313] Meals express social status, and thus the commensality of the early church was a way to express the true equality of all Christian believers together before God. The evidence suggests that in the apostolic period, church meetings centred around meals hosted in homes.[314] This was why it was so important to Paul that Jews and Gentiles ate together.[315] Meals still carry socially encoded messages today. Shared meals can reflect grace and community, because in a very profound way meals are about relationships: they communicate hospitality, fellowship, honour, love – the sharing of life together.[316]

Food Security in the Old Testament

The book of Genesis ends with an extended story about food security around the character of Joseph in which relationships were central.[317] In these passages the prosperity of the people is intimately tied to the land and food. The seven lean cows of Pharaoh's dream and the seven withered ears of corn indicate this.[318] In the context of food insecurity and famine there is reconciliation and deliverance, as God provides for his people, and in this crisis of food security, food is at the centre of relationships. This story illustrates Joseph's gifts of administration and diligence in his role as civil servant helping the nation avoid the consequences of the crisis. The issue of food security is handled through forward planning using Joseph's dreams, government intervention, and the storage of surplus during the abundant years.[319] It is a story centred on God's providence and Joseph's wisdom, as he tells his brothers: 'God sent me before you to preserve life.'[320]

Similarly, the jubilee laws may also be seen as a mechanism by which God protects his people from food insecurity. The jubilee laws prevent the God-given gift of land from being reduced to an exclusively economic asset or a tool of exploitation by human beings. A key function of the jubilee year was

'to lift the disadvantaged out of dependency on others by reuniting them with the means of production.'[321] This system allowed families to sell land during times of economic hardship with the assurance that the land would return to the family on the occasion of the jubilee year, thus breaking a potential cycle of poverty and reuniting the individuals involved with their land, and, in this context, identity.[322] The underlying ethic of the jubilee is to ensure that 'a family should not have been totally without means of independent support for more than a generation.'[323] This is pertinent to a discussion of food security from a biblical standpoint as it indicates the concern God has not only with the provision of land and food, but with an economic security that allows for human flourishing.

Feasting and the messianic banquet

Another way in which food fosters relationships is through feasts and celebrations – birthdays and Christmas are two modern examples in which food is often at the centre of the event. Feasts are opportunities for collective gratitude and joy: 'when people feast together they gratefully acknowledge their place in the memberships of creation and the generosity of the Creator.'[324] At feasts, people prepare and eat food together, developing and strengthening interpersonal relationships. For the ancient Israelites, feasts were a time to remember the triangle of relationships between God, the people and the land. Feasts unite the themes of *delighting* and *sharing*.

For the people of Israel, there were seven major annual festivals: Passover, Unleavened Bread, Harvest (Firstfruits), Weeks, Trumpets, the Day of Atonement, and Tabernacles (Ingathering).[325] These festivals were connected to the agricultural calendar of food production, as people gathered to celebrate and eat together. Eating seasonally from the land helped the Israelites as a community remember their dependence on God for land, weather, food and life. The role of food was particularly important in Passover and the Festival of Unleavened Bread: each Israelite household ate together, and the festival was not just a celebration, but functioned as experiential collective memorialisation, the history of a nation remembered through food.[326] This is made explicit in the text where reference is made to answering children's questions about the meaning of the feast.[327] The physical eating of the festival enabled the Israelites to experience the Exodus narrative in a way that brought them together as a community in relationship with God. In later history, Hezekiah used Passover as a way of attempting to re-unite Israel and Judah, showing the potential of feasts to restore broken relationships.[328]

The institution of tithing encouraged people to celebrate by eating the crops of the land in the presence of God. Deuteronomy instructs the Israelites to joyfully eat their tithes, with their whole household, in response to God's blessing on their land and agricultural work.[329] Communal feasts 'besides *expressing* appreciation, *engendered* an appreciation that strengthened stewardship practices.'[330] Recapturing the ethic of gratitude and delight in feasting is an opportunity to celebrate the gifts of food and eating with others, which God has given to all humanity as part of his creation. Jesus confirmed the importance of feasts. His first miracle was at a wedding feast, when he turned water into wine.[331] In the parable of the prodigal son, the Father's response to his younger son's return is to celebrate with a feast.[332] Killing the fattened calf represented a significant economic expense in an ancient context, symbolising the Father's extravagance, and his joy at his son's return.

The earthly images that the biblical authors reach for to describe the future joy of God's people depict restored agricultural land and plentiful food. The vision of the new heavens and new earth in Isaiah 65, for example, pictures the people of Israel eating the food of their land in safety and security.[333] The vision is of the restoration of all creation.[334] In particular, the messianic banquet is a picture of future restoration and the kingdom of heaven in both the Old and New Testament.[335] Isaiah 25 states that God will prepare a feast for all peoples; death will be no more, so this will be a perpetual feast.[336] Jesus uses the picture of the messianic banquet frequently in his teaching: it is hosted by God as a wedding banquet for his son, and everyone, including outsiders, is invited.[337] The banquet is in some sense prefigured in the Last Supper.[338] Jesus' relational and inclusive eating in this world reflected his vision of the nature of this everlasting meal.[339] An event such as the feeding of the five thousand, where Jesus provided food for all, can be understood as a picture of the messianic banquet.[340]

It is significant that Christians' future hope is to eat together in the presence of God at a banquet. In line with the importance of embodiment and placedness, the physical realities of food and eating are upheld, especially considering the fact that Jesus ate food after his resurrection. Thus, although in an inevitably imperfect way, feasting together can provide a foretaste of the future. The messianic banquet is also radically egalitarian. Working toward making global food systems sustainable and just in order to provide food for all thus becomes a sign in this age of the age yet to come.

For citizens of higher income countries, the special nature of celebratory eating has been lost because of the (over)abundance of food: 'when every day is a virtual feast, we lose the blessing of a real one.'[341] To truly enjoy feasting,

it may be necessary to eat a more restricted everyday diet. This is an idea that Jewish sustainability organisation Hazon promotes, encouraging American Jews to 're-learn the old rhythms of simplicity and feasting' by celebrating on Shabbat and on holidays, and eating 'more lightly and more simply' the rest of the time.[342] This pattern, which requires contextualisation depending on a variety of cultural factors, has the potential to improve environmental sustainability, stimulate thoughtfulness about food, and increase delight in both an everyday diet and celebratory feasting.

Fasting

Discussion of the messianic banquet is a reminder that the full renewal of the earth and everything in it remains a hope for the future. In this present age, humans struggle with desire, distraction, temptation and addiction. The companion practice to feasting is the ancient practice of fasting: a willing abstinence from food for a period of time, which represented a way of ensuring that good and healthy desires for food were restrained. Fasting can be found throughout the Bible: to give just a few examples, it is recorded of Moses, David, Nehemiah, Esther, Anna, John the Baptist, Jesus and the early church.[343] Fasting may at first seem contradictory to the theme of delight, but Jung contrasts delighting in food with its true opposite, 'mindless eating'.[344] In fact, Jung suggests that fasting 'sharpens the delight of eating', and that true delight cannot emerge if it is 'smother[ed]... [with] immediate gratification.'[345] Fasting is an opportunity to seek God by physically remembering human limits and dependency on him, enabling people to 'more fully appreciate food as a gracious gift.'[346] But fasting also has relational benefits: it helps people to recognise 'the need to tame the greed and develop the restraint that are at the basis of all just relationships.'[347] Thoughtful eating and delighting in food are counter-cultural, and in this context fasting is an important spiritual discipline.

Fasting also connects to the theme of *sharing*: it provides an opportunity to voluntarily experience the hunger of others, and so can increase solidarity and empathy. As Isaiah recognised, it is important that fasting does not become a practice for individualised self-glorification or self-enhancement – a danger in modern culture too.[348] True fasting is 'a sacrificial movement that reorients desire, and through this reorientation participates in the healing and restoration of relationships that are weak or broken due to unjust consuming habits.'[349] It can foster a deeper appreciation of the interconnectedness of the human and non-human creation, and the source of all life in God. In response, fasting points to the need for moderation in eating, and establishing an attitude of

'joy in enough'. Fasting is not just about abstention from food; it can help develop 'a sacrificial, self-offering life that addresses and nurtures the needs of others.'[350] Out of fasting can flow an increased commitment to one of the most basic elements of social justice – food for all.

Gluttony[351]

True fasting and true feasting are complementary practices, both reflecting a relational view of the world, and helping develop a life that nurtures the needs of others. As Wirzba argues, the opposite of fasting is not feasting, but gluttony, because it 'reflects an inordinate and inappropriate desire for food, a desire that is focused on self-satisfaction rather than sharing and communal celebration. Gluttony is the opposite of fasting because it knows nothing of self-offering.'[352] Gluttons do not delight in food as a gift from God, nor do they share it with others. Gluttony can be understood as sinful in that it involves eating without relationship, 'treating one's own desires and needs as more important than those of others.'[353] Biblical texts offer warnings about gluttony, with Paul writing that eating can become idolatrous.[354] At the same time, it was Jesus himself who was accused by his contemporaries of being a glutton.[355] This provides a helpful note of caution, demonstrating that it is possible to have an excessively legalistic attitude with regards to food and eating, and to misjudge attitudes and motives in others.

Wirzba argues that gluttony is not just a sin of individuals, but also of cultures which become 'gluttonous in [their] aspirations and manners'.[356] In higher income countries, where food is cheap and easily accessible for most people, gluttony may be a sin to which people become 'insensitive through complicity'.[357] Gluttony is cultural, structural and systemic, and therefore should not be blamed solely on character deficiency.[358] It is also vital to note that it is a mistake to identify all eating disorders (including types of overconsumption) as gluttony: such cases may represent misdirected desire whereby people seek fulfilment in eating food, rather than God.[359] In biblical teaching, it is important not to idolise food and eating: unlike gluttony, *delighting* and *sharing* both point toward right relationships with God, other people and the earth.

Food and justice

Globally, human society currently has two contradictory problems with food: overnourishment and undernourishment. There are 650 million people in the

world who are obese,[360] while there are also 821 million people who are undernourished.[361] Although obesity is increasingly becoming a worldwide problem, it remains the case that it is most prevalent in higher income countries.[362] The coexistence of both overnourishment and undernourishment demonstrates the broken nature of current global food systems, which are designed to meet economic demands rather than dietary needs. In global terms, the rich are eating to excess, while the poor go hungry.

Global food systems are also contributing to intergenerational injustice. Current food production methods are unsustainable, and are making it harder to produce enough food to feed a growing global population. Jesus' command to Christians to 'love their neighbour' extends across time as well as space, so future generations are also a vulnerable group when considering food and justice.[363]

Biblical texts have much to say about justice, which in the context of food is primarily an issue of *sharing*. This is rooted in the character of God, who cares for the poor and vulnerable.[364] This is often made concrete with reference to food: as a basic human need, ensuring that everyone can eat is a requirement of a just society. Again, this starts with God, who provides food for widows, the poor and the hungry.[365] Through his creation, God provides crops and food to all.[366] Therefore, sharing food with the poor is characteristic of a righteous person,[367] but withholding food from the poor is characteristic of a wicked person.[368]

Specific applications of these general principles of social justice are found in biblical law. Leviticus prohibits selling food to poor Israelites at a profit.[369] Triennial tithes were stored up and distributed to those without access to agricultural land: Levites, foreigners, widows and orphans.[370] Sharing feasts with these vulnerable groups is mandated at annual celebrations such as Weeks and Tabernacles.[371] The Israelites were instructed to leave part of their fields and vineyards unharvested to provide for the poor; the book of Ruth provides an example of this in action.[372] Prophetic texts also emphasise the strong link between social justice and food. The prophets criticise the Israelites for observing religious rituals such as fasting but failing to address social inequality: the kind of fasting God has chosen means enacting justice, such as sharing food with the hungry.[373] Relational concerns are placed above the perceived necessity of religious ritual. Amos condemns the Israelites who oppress the poor by taxing their harvest and selling food fraudulently.[374]

In the New Testament, there is a similar emphasis on food as a concrete expression of social justice. When asked what people should do in response

to his message, John the Baptist commended sharing food with those who had none.[375] Jesus taught that the poor and marginalised were invited to the messianic banquet – and therefore they should be invited to meals in this age too.[376] In Jesus' miracles of food provision, there was enough for everyone.[377] At the final judgement, giving food to the hungry is representative of those who will enter the kingdom.[378] The early church followed Jesus' teaching, taking care to provide food for the poor.[379]

The concept of justice can be applied more broadly to the whole of creation, not just humanity. Ecological justice can be defined as justice that seeks to 'preserve and advocate for just relationships among all living things'.[380] In a similar way to social justice in human society, ecological justice denotes the need for right relationships between humanity and the non-human creation, and it is therefore imperative to approach the concept with a theocentric perspective. In Genesis 1, God creates a food supply which provides abundance for all creatures, human and non-human. As Davis has argued, it is an important part of humanity's vocation to recognise and secure the food system that has the potential to sustain all life.[381] Therefore, when humanity's eating destroys the ecosystems upon which other animals are dependent for food, it is appropriate to speak of ecological injustice.

This survey of scripture makes clear just how seriously the biblical authors took justice in relation to food. It is one of the barometers of both individual and corporate righteousness. In the ancient world, people lived far more marginal lives than the average citizen in higher income societies do today, but nevertheless there are those who still go without food in every country. However, as noted above, the greater injustices today are global and intergenerational. Current food systems are characterised by hoarding and greed, not sharing or right relationships. This requires careful reflection, undertaken in chapter three. However, as Jung has argued, a personal response may start with a recognition of complicity in the unjust systemic disorder of global maldistribution.[382]

Chapter 3

Eating joyfully, relationally and sustainably: applications

In this section, we consider a variety of suggestions for change to meet the challenges presented in the first two chapters. As already discussed, the scale of the challenge is enormous, and can only be met by transformation of global food systems. This will require contributions at all levels of society – individuals, organisations and government. Working with other groups of all faiths and none, Christians and churches have an important role to play in working towards change. For individuals, our key applications revolve around the title of our book: *Thoughtful Eating*. For organisations, we focus on agricultural practices. Businesses which occupy the space between farm and consumer, such as food manufacturers, wholesalers and supermarkets have a key role to play, and wherever possible they should provide consumers with sustainable products and information regarding environmental impacts. However, since they are primarily responding to changes in consumer demand on one hand, and legislative requirements on the other, we have not examined structural change for businesses in detail. For policymakers, we assess how sustainable farming and dietary changes can be supported through policy, legislation and awareness.

We suggest that a future vision for global food systems has two main aspects. Adapting the language of the economist Kate Raworth, food systems can become part of thriving human communities living within an environmentally sustainable and socially just space.[383] As Ellen Davis writes, using similar language: 'a just culture organises itself to meet [the need for food] for everyone, and to do so safely over the long term.'[384] With respect to *sustainability*, this means transformation toward food production that contributes to ecological stability and renewal. With respect to *justice*, this means transformation toward providing food security for all, and eradicating poverty and hunger. Our twin theological themes of *delighting* and *sharing* complement the twin themes of *sustainability* and *justice*.[385] In this way, transforming food and eating can help encourage right and just relationships between God, humanity, and the environment.

Thoughtful Eating

> *Food is not just some fuel we need to get us going toward higher things. Cooking is not a drudgery we put up with in order to get the fuel delivered. Rather, each is a heart's astonishment. Both stop us dead in our tracks with wonder. Even more, they sit us down evening after evening, in the company that forms around our dinner tables, they actually create our humanity.*[386]

> *Eating with the fullest pleasure – pleasure, that is, that does not depend on ignorance – is perhaps the profoundest enactment of our connection with the world. In this pleasure we experience and celebrate our dependence and our gratitude, for we are living from mystery, from creatures we did not make and powers we cannot comprehend.*[387]

Thoughtful eating is, in essence, the opposite of thoughtless eating. It is a practice that involves putting time, care, and consideration into the act of eating and preparation of food. It requires knowledge of the processes that bring food to the plate, appreciation, gratitude and *delight,* and it includes fuller tasting, smelling and savouring of food. As such, it is the foundation of a changed attitude to eating in the individual. As outlined in chapter 2, much of the response to food (or lack thereof) in modernity starts from the assumption that food is a commodity. However, we have argued that food, eating, and creation have a value set in God's terms rather than human terms, and are an essential part of the history and community of humanity. Thoughtful eating, by acknowledging both human and non-human membership in creation, reminds the individual that the environment must sacrifice to meet the needs of humans, in the food that is eaten and the death that action necessitates.

'Mindful Eating', connected to the practice of mindfulness, seeks to bring full attention to the experience of eating.[388] The aim is to become aware of thoughts, feelings, and the physicality of eating. This is not dissimilar in nature to thoughtful eating, however we conceive thoughtful eating to be rooted in a theocentric understanding of food and contemplation, which makes it notably different to mindfulness. Contemplation is a key part of eating thoughtfully, for 'the habit of contemplation, the ability to sit down in front of something and care enough to let it speak for itself' enhances *delighting* in food.[389] However, contemplation also allows us to recognise the connection we have with others through the food production and consumption processes. Thoughtful eating centres around eating with gratitude to God and to his creation, for the plants, animals, and vegetables on our plates.

There is a growing awareness of the link between nature and positive mental health. Charities, such as Mind, have recommended forms of 'ecotherapy' as a way of finding healing in the restorative power of creation.[390] This indicates the positive effect that spending time in green spaces or bringing nature into everyday life can benefit both mental and physical health. In a similar way, 'care farming' is the therapeutic use of farming practices as a way of supporting human flourishing and focusing on the physical, mental, social and spiritual benefits that are connected to working with soil, plants, animals and other people.[391] This, as well as horticultural therapy which applies similar principles to gardening, indicates how reconnecting to natural spaces and the non-human creation supports spiritual and mental wellbeing. This builds on the ethos of thoughtful eating, in connecting people more intimately with the non-human creation in healthy patterns of *delight* and gratitude.

Establishing daily habits of gratitude develops a fuller understanding of how food is a key part of relationships in *sharing* and given by God as a gift to *delight* in. Such habits could include marking an evening meal as an occasion in which a family or household gathers in gratitude towards each other and towards God for the provision of food and fellowship. It could also include acts of service associated with the evening meal, for example helping the cook with the preparation of food, offering to set the table or clean the dishes. Simple changes like eating more slowly and making the effort to eat at a table are practices that can contribute to both delighting and sharing food in a more thoughtful way. Heavenward gratitude involves loving and caring for both people and creation as the Father does, with thoughtfulness and joy. A wonderful example of this is the Christian ritual of saying grace before food (see chapter 2). You might use the prayer below:

Lord, thank you for this day that you have given us. Thank you for this food in front of us. I pray, bless the hands that prepared it, not only tonight in this kitchen but in all stages of the journey it took to get to our plates. Thank you for the farmers, food producers, shop workers, and all those involved in the production of this food. Thank you for your provision of creation, of our mouths to savour the taste, food to sustain us, and the people sitting around this table, with whom we experience the joy of sharing food. **Amen.**

An ethical consumer will be thoughtful about the *environmental* context of how food is grown, and the *social* context of the food systems, farmers and producers involved. Part of thoughtful eating is reflection on the environmental degradation and social injustice involved in current global food systems, rooting food back into its relational context. Environmental standards, wages and working conditions are topics that challenge the consumer in the individual complicity involved in modern food systems. Eating connects us to neighbours across the globe, and to the earth as a whole. Consider asking questions such as:

- Where was the food grown?
- What processes have gone into producing it?
- What environmental impacts may be involved in the production process? Does the product have any accredited labels (e.g. Fairtrade, Organic, etc.)?
- Who was involved in the food's production? Were the farmers, producers and sellers paid and treated fairly? What kind of relationships exist between those within the supply chain?
- Are there more environmentally sustainable alternatives that could be purchased?

The Episcopal Priest Robert Farrar Capon is known for his thoughtful approach to cooking. In his book *The Supper of the Lamb,* he describes the care and joy he takes in cooking and advises the reader to pause and reflect at the beginning of the preparation of food – to pause in gratitude before slicing the first onion of the meal, for instance.[392] Cooking from scratch or growing food, if time and resources allow, is a key way of eating more thoughtfully. As Pollan argues, even the process of growing food can make the consumer more thoughtful about food production: 'whenever your produce is anything less than gorgeous and delicious, gardening cultivates in you a deep respect for the skill of the farmer who knows how consistently to get it right.'[393] Similarly, cooking contributes to a better understanding of what goes into food. The tomatoes, herbs and vegetables that constitute a pasta sauce for instance, the tastes and flavours which go into that dish. It is also an example of *delighting* in food and rooting oneself in culture. For, 'if you choose to pay attention, cooking is an important cultural artefact, an expression of time, place, and personality.'[394] Capon also hints at another way in which thoughtful eating can seep into daily habits which is his first principle of ordinary cuisine: '*never serve anybody a whole anything*.'[395] What he means here is that appetite will rise to meet the quantity of food 'with very little additional gratitude'.[396] Therefore, to have the possibility of leftovers and to avoid overconsumption,

it is wise not to overburden a plate. Thinking along these lines discourages greed and evokes a more respectful attitude towards food. As Michael Pollan puts it, 'pay more, eat less.'[397]

Dietary changes

Eat food. Not too much. Mostly plants.[398]

Eating thoughtfully may include taking a more considered approach to diet. Implementing large-scale changes to individuals' diets, particularly excluding the consumption of animal products, has become increasingly popular. Campaigns like Veganuary have had a large uptake, reaching 250,000 people in 2019, and had extensive coverage in the media.[399] Meat alternatives, such as Quorn, have experienced growing sales.[400] Other dietary changes such as vegetarianism and flexitarianism have also gained traction, as well as eating food locally and seasonally through schemes like veg boxes. The reasons behind these dietary choices are often complex, including ethical concerns for animal welfare, concerns for the environment, philosophical belief on the status of animals and life, and financial, religious and cultural factors. In this section, we focus on examining and evaluating the environmental impacts of dietary changes which limit or exclude the consumption of animal products.

The work of Westhoeka et al. demonstrates how dietary changes such as the reduction of meat and dairy could produce a cascade of effects, through reduced production of livestock and manure, lower feed demand, resulting in lower nitrogen and GHG emissions, and freeing up agricultural land for other purposes.[401] Scientific studies find that replacing animal source foods with plant-based foods in diets reduces adverse environmental effects.[402] It is for these reasons that dietary changes are implemented on environmental grounds. These changes can take a variety of forms, from reducing the amount of meat, replacing meat with a meat substitute, or eliminating animal products all together.

Veganism

The concept of veganism can be difficult to define. Some have come to use the term in ways which stretch beyond the original definition of a diet free from food of animal origin, and its meaning often depends on the context.[403] Food and other consumer products such as clothing and toiletries can all be identified as vegan. The term was coined in 1944 by Donald Watson,

whose objective was the prevention of animal suffering and environmental degradation.[404] However, usually veganism's primary focus is on animal-derived products, rather than environmental effects, although the latter are also taken into consideration.[405]

In relation to environmental impact, a vegan diet circumvents many of the problems associated with livestock production, including the high land and water use, food directed towards feed for animals, high GHG emissions, biodiversity impact and associated pollution (see chapter 1). For example, the estimated total average water footprint of a 150g soy burger is 158 litres, while the global average water footprint of a 150g beef burger is 2,350 litres.[406]

Nonetheless, a vegan diet has other environmental impacts, different from those of eating meat. Dairy alternatives, as well as the high number of imported foods, can have detrimental environmental impacts. Nut 'milks' such as cashew, almond or hazelnut use high amounts of water in their production in areas such as California, which produces 82% of the world's almonds, contributing to the already existing water scarcity in the region.[407] Similarly, some of the protein plants consumed as meat alternatives are imported to the UK, which also extends to many fruits, vegetables and grains popular in vegan and vegetarian meals. There are a number of environmental and ethical concerns for some of these foods such as avocadoes, quinoa and soybeans due to, for example, their high water usage and land-use change, such as deforestation.

Vegetarianism

Vegetarianism differs from veganism in that this diet needs only to be free from foods which were slaughtered, not from animal products as a whole.[408] Consequently this diet allows for products such as honey, eggs, milk and dairy products, but excludes meat and fish.[409] Many of the positive environmental effects of a vegan diet are true for a vegetarian diet as well (although this varies depending on the number of dairy products in the diet).[410]

Flexitarianism

A flexitarian diet is a 'plant-based diet with the occasional addition of meat'.[411] A mostly vegetarian diet is adopted, but there are no hard rules about how often meat is consumed. This could consist of having one meat-free meal a week, or consuming meat only on rare occasions.[412] As flexitarianism

is a 'flexible' vegetarian diet, it is understood that diary and other animal products can also be consumed. Although this is a less radical dietary change compared to veganism or vegetarianism, since meat has the highest adverse environmental impacts of any food group, a flexitarian diet can still produce significant environmental benefits. Overall, red meat (beef and lamb) has the greatest negative environmental effects per serving, while pork and poultry are somewhat lower, so aiming in particular to reduce red meat consumption is often recommended.[413] The Committee on Climate Change, for example, suggest that a reduction in red meat consumption (as well as dairy) will be necessary to meet the target of net zero GHG emissions by 2050.[414] Nevertheless, plant-based protein sources are on average better environmentally than meat of any kind.[415] Given the prevalence of meat in UK diets, we suggest a flexitarian diet is the most palatable change to begin reducing meat consumption, which would have both environmental and social benefits.

Meat for celebrations

A useful approach to reducing meat consumption is by adopting a 'meat for celebrations' principle. In the past, such as in the biblical eras, this was the experience of the vast majority of the population, who would only have eaten meat on special occasions – when eating with guests, or celebrating religious festivals with sacrifices, or when a long-lost son returned to his father's house. Of course, most people had no choice in this: it was simply not possible to eat meat regularly in an agrarian society where most people depended for their livelihood on the few animals they owned. However, 'meat for celebrations' was much more environmentally sustainable than the modern norm of eating meat every day. In comparison to the message of 'eat less meat', the message of 'meat for celebrations' is framed positively, immediately implying both *delighting* and *sharing*. It also provides encouragement and motivation to buy meat which has high ethical and environmental standards, and from local and independent butchers, which can be expensive to do regularly. In this way, meat can be enjoyed when eaten with guests, or with family at a Sunday lunchtime, or during holidays such as Christmas. By giving it the status of an occasional treat, such an approach can help us truly enjoy and savour eating meat, increasing delight, as well as contributing to environmental sustainability.

It can be a challenge to adopt a more plant-based diet, particularly for those who are unfamiliar with preparing meals without meat. Some simple steps to adopt a meat for celebrations approach include purchasing second-hand plant-based recipe books, joining a cooking class, or utilising the wealth of

recipes online. Perhaps consider taking up a challenge such as giving up meat for a period of fasting, such as Lent. Where possible, planning, cooking and sharing vegetarian dishes with other people is a good way to develop this new habit.

Local and Seasonal Eating

As mentioned in chapter 1, eating local and seasonal produce is often suggested as a way of reducing the environmental impact of food. Eating food that is *both* local and seasonal reduces the amount of storage and transportation required before it is consumed. The term 'local' in relation to food production is vague and difficult to define. It can refer to an area limited by mileage, a geographical border around a consumer (e.g. county or country line), or a traditional means of production in the area. Closely linked to locality of food is the impact of food which is consumed seasonally. This too can be interpreted in a variety of different ways. Food eaten seasonally does not necessarily have to be local as this term may also include extending the natural seasonal production of food using heated greenhouses.

Eating locally is often paired with the concept of 'food miles'. This originated in the context of a social and cultural understanding of food but has since morphed into an environmental message to consumers whereby the fewer miles food has travelled is directly correlated to its environmental impact. This model was not designed to take account of the complexities of the production, transportation and storage of food, and the range of environmental impacts which are dependent on seasonality, modes of transport, method of production and varying types of storage for differing lengths of time. The environmental impact of the food system is multidimensional, as discussed in chapter 1.

Measuring the environmental impact of food, particularly the impact of transportation and storage, is complex, and results differ depending on a large number of variables. It is important to note that *local* produce is not necessarily associated with lower environmental impacts. For example, a 2008 DEFRA study compared lamb produced in the UK to lamb farmed in New Zealand. This study found that the farming methods, climate and slaughter process of New Zealand-reared lamb produced less GHG emissions than that of UK lamb, even after the effects of transportation were taken into account.[416] Another study which examined the GHG emissions of lettuce production found that consuming lettuce grown in the UK in summer is the most efficient, but during winter the most efficient is Spanish imported lettuce due to the UK

lettuce being grown indoors with fossil-fuel based heating and lighting.[417] This highlights the importance of eating both locally *and* seasonally.

Seeking to consistently eat truly local and seasonal food in the UK is a challenge. Currently the UK is only 60% self-sufficient and this is in a limited number of food types (see chapter 1).[418] The founder of Riverford, one of the largest organic veg box schemes operating in the UK, notes that providing UK-grown produce in these schemes from March-June is problematic due to the lack of harvest and because crops which have been stored from the previous harvest are running out.[419] This means the UK imports 80% of its fruit and vegetables in April, before this figure falls in June with harvests beginning again.[420] If the UK were to increase its self-sufficiency, this could cause fundamental shifts in land use, increase food prices and prompt dietary changes, including a return to seasonal eating, for the UK population. This highlights the limitations of the local and seasonal diet for UK consumers, although it remains a somewhat useful concept. There are also potential economic benefits for UK farmers if people in the UK choose to purchase more local and seasonal foods.

Johnston et al. argue that eating more local and seasonal food tends to be a common aspiration among people from higher socio-economic backgrounds.[421] Although an increase in demand for local and seasonal food would drive down prices, they are likely to remain higher than for imported foods. It is worth noting the visual impact local food production can have on the landscape (for example, polytunnels) and the social impact of agricultural workers coming into the local community.[422] It is also important to note that eating locally and seasonally requires consumer knowledge of what foods are local and when they are in season. 'Seasonal' food is sometimes associated with celebrations, festivals or cultural events which have little to do with the natural growing cycle, including Christmas turkey or chocolate at Easter.[423] Clear public messaging and education is required to promote what eating locally and seasonally entails.

Overall, from a purely environmental perspective, vegan and vegetarian diets are the most likely to reduce negative environmental impacts. However, adopting a diet where meat and other animal products are consumed less frequently, such as in the flexitarian diet, still has significant environmental benefits and is an easier step in changing diet compared to the large-scale changes demanded by more restrictive diets. Eating both locally and seasonally can also have environmental benefits as it reduces the amount of storage and transportation required.

Food waste

As discussed in the first two chapters, individuals must confront the major problem of food waste. Christians have Jesus' example to emulate: 'let nothing be wasted.'[424] In one sense, this may seem like an easy thing to change – everybody must make a commitment to wasting less food. In other ways, however, it is a challenge. Consumers in the UK are bombarded by advertisements encouraging them to buy food and drink products. Many people have become accustomed to buying more food than they need, and habits are not easily broken. In the UK, 'around 10 million tonnes of food that leaves the farm is wasted each year, with 70% of this being binned within households.'[425] The average UK household loses £470 per year due to avoidable food waste.[426] However, as we hope we have demonstrated, there are important ethical reasons for reducing food waste.[427] Among Project Drawdown's 100 proposals for tackling climate change, reducing food waste was ranked at number 3.[428]

Delighting in food provides a reminder that food is a gift, to be appreciated and respected, which leads to a recognition of the ingratitude implicit in food waste. *Sharing* food prompts reflection on how food is unjustly divided and distributed; avoiding waste at an individual or household level expresses compassion and solidarity with those who do not have enough food. Practical steps to reduce food waste may include buying less to start with, planning meals ahead of time, and storing and eating leftovers. Individuals can also contribute to measures to reduce food waste in the supply chain, such as supporting ongoing efforts to relax retail cosmetic standards through 'ugly veg' schemes. Consider psychological tips like using smaller plates or bowls and reducing portion sizes. If you save money by wasting less food, consider donating it to a charity that provides food to people who are hungry, in the UK or elsewhere. We recognise that such changes are not always easy, and will require time and thought, but each individual's contribution is important in contributing to both social *justice* and environmental *sustainability*.

Another key part of minimising food waste is understanding the labels manufacturers apply to foods. There is often confusion regarding the 'best before' date and the 'use by' date on products. A simple way to remember the difference is that use by dates are about 'safety' and best before dates are about 'quality'.[429] This means that while the manufacturer is not guaranteeing that the food will be safe to eat after the 'use by' date, the 'best before' date is simply a recommended date to eat the food by, and the food is still safe to eat after this date. Freezing food is a good option for storing leftovers and food

that would otherwise go off. According to a survey conducted by the Love Food Hate Waste campaign, almost 80% of people interviewed had thrown away food that was nearing its use by date in a week without realising that it could be frozen. They point to products such as eggs, milk, cheese and fruit which are not commonly known to be freezable.[430] It is important for consumers to be aware of the implications of labelling, and better education about labels with a view to minimising food waste is also necessary.

There are a number of smartphone apps and local community schemes such as 'Community Fridges'[431] which encourage the redistribution of food at an individual level. One example is the app Olio which encourages 'food sharing', whereby a person who wishes to 'share' food they will not consume uploads a picture and description of an item, which is then collected by someone who would use it, thus avoiding food waste on this personal level.[432]

There are a number of different models which have sought to redistribute food at an institutional level from those experiencing food surplus (that is, food which would otherwise be wasted) and connect it with those experiencing food scarcity. One example of a model focusing on food surplus is FoodCloud, a social enterprise that works in Ireland and the UK. This business model brings together different stakeholders in the food supply network, including manufacturers, retailers and producers. Surplus food is collected at regional hubs and then distributed to local charities. This model has allowed 7,500 charitable groups to utilise surplus food in Ireland and the UK, helping 45 million meals go to people instead of landfill, saving charities an estimated €61.5 million that otherwise would have been spent on purchasing food.[433] The surplus food and the charities are connected via a smartphone app where those with surplus food describe what they currently have, charities are then alerted, and can opt to receive the food to be used in their communities.[434]

Another example is The Trussell Trust, which addresses the issue of food waste from the perspective of those experiencing food scarcity. The Trussell Trust receives food donations from a number of schools, churches and individuals, as well as retailers and manufacturers, and distributes these to food banks who then allocate the food to those who require it.[435] Although donations to food banks are not classed as food surplus, redistribution from retailers and manufacturers does contribute to reducing food waste.

Farming

To feed a growing global population and safeguard our environment, farming globally and in the UK requires systemic change. Both environmental and economic sustainability are intertwined. If the environment thrives, so will a farmer's crops or livestock. Conversely, unless environmentally sustainable farming is financially viable, a farmer will be unable to make a living in this way. Measures which take both aspects into account are required for arable and livestock production.

Arable

The EAT-*Lancet* Commission recommended two overarching strategies for the future of arable farming: first, reorient priorities from quantity to quality, and second, increase yields through sustainable intensification.[436] This points to farming which contributes to both *justice* by producing high-quality and diverse foods for all, and *sustainability* by respecting and caring for the environment. One reason for the current perceived need to produce large volumes of a few crops is for animal feed (see chapter 1). Although increasing arable farming yields is important, this cannot make up for the crops unavailable for human consumption which will be used for animal feed if meat and dairy production continues to rise at current rates.[437] This highlights the importance of reducing meat and dairy consumption through a flexitarian diet.

Because of the considerable variation in sources of environmental impacts in different farming systems, 'reducing impacts means focusing on different areas for different producers and, by implication, adopting different practices.'[438] There are many ways in which arable farming can change to become more environmentally sustainable, such as agroforestry or organic cultivation, which should be selected and adapted according to the needs of the local social and ecological context.[439] Two broad concepts for sustainable arable farming are conservation agriculture and regenerative agriculture. These focus on improving long-term soil fertility, which will be vital in order to maintain yields and avoid the need to use more land for agriculture (see chapter 1). Conservation agriculture is based around three core principles: reducing soil disturbance through minimal tillage, maintaining soil cover (mulch), and managing diverse crop rotation.[440] Farming God's Way is a Christian-inspired vision for farming in Sub-Saharan Africa, based around the principles of conservation agriculture, which has had some success in reducing environmental impacts.[441] Conservation agriculture can act as a bridge to regenerative agriculture.[442]

Regenerative agriculture incorporates the same principles, but actively aims to improve soil health, for example by applying compost or manure.[443] Benefits of conservation and regenerative agriculture can include improved soil fertility, greater biodiversity, water retention, lower emissions, carbon sequestration and reduced expenditure on fertiliser and pesticides.[444]

Precision agriculture techniques are also potentially useful methods for arable farmers, particularly in lower income countries.[445] These techniques alleviate some of the environmental impacts mentioned in chapter 1, including excess water use and soil degradation, as well as promoting more efficient production and fertiliser application. Technological innovations will also have a part to play in improving the efficiency and sustainability of farming. From a Christian perspective, technology is a tool given by God for humanity to use in stewarding creation and this must be done guided by the vision for the relationship between human and nonhuman creation elucidated in chapter 2. Recent innovations include nanosensors which monitor soil and water status; unmanned aerial vehicles (UAVs) to monitor pests, weather, and disease or stress in crops or livestock; and robots which can harvest crops and pick fruit and vegetables with more precision and cause less soil compaction.[446]

Biodiversity is of central importance in arable farming (see chapter 1). Generally applicable suggestions for improving biodiversity include polyculture rather than monoculture; setting aside 10% of agricultural land for conservation; and creating corridors for biodiversity which enable wildlife to move between areas of land.[447]

As mentioned in chapter 1, land is an important carbon sink and so protecting and improving carbon storage is a vital aspect of sustainable arable farming.[448] This is also a key policy to reduce GHG emissions from agriculture. The NFU has announced its ambition to achieve net zero GHG emissions by 2040 from UK agriculture, and carbon capture and storage is an essential part of their strategy.[449] Potential options include 'incorporating farm organic wastes into soil, low or no tillage, nitrogen-fixing cover plants, replacement of annuals with perennial crops and pastures, agroforestry, establishing buffer strips, and keeping some farmland with natural vegetation.'[450]

Arable agriculture needs system-wide change, but the variety of these proposals shows that there is significant potential for ecologically sensitive agriculture, adapted to the requirements of the local context, which cares for the environment and contributes to sustainability for future generations.

Livestock

Livestock farmers have a key role to play in making farming more sustainable. Many scientists agree that meat consumption must decrease in order to return to a safe operating space within planetary boundaries.[451] However, they also recognise that 'in some contexts, livestock production can also be essential for supporting livelihoods, grassland ecosystem services, poverty alleviation, and benefits of nutritional status (particularly in children and vulnerable populations).'[452] This is also applicable within the UK, where livestock play a role in maintaining grassland, which makes up 40% of total land.[453] However, it is important to note that livestock production differs depending on the methods used. Outdoor, extensive farming[454] differs significantly from largely indoor, intensive livestock production which relies on grains grown on arable land. The latter can often have a greater environmental impact, due to high water use, land use, pollution, and GHG emissions.[455]

Though in 2012 most UK sheep and beef cattle lived outdoors for the majority of the year, the number of intensive livestock farming systems in the UK is increasing, with for example almost a dozen intensive beef farms, similar to US Concentrated Animal Feeding Operations (CAFOs), operating in the UK in 2018. [456] With herds of up to 3,000 at a time, the cattle are 'held in grassless pens for extended periods rather than being grazed or barn-reared.'[457] Significantly greater numbers of pigs and poultry are in intensive farming systems, with 800 pig and poultry 'mega-farms' in 2017, some with over a million chickens or about 20,000 pigs. These systems have a number of adverse environmental effects (see chapter 1), showing the potential benefits of reducing meat consumption.[458]

In order to be economically sustainable, it has been advocated that livestock farmers should aim to produce higher quality meat and dairy products.[459] If the number of cattle and sheep units produced decreases in order to safeguard the environment, then necessarily farmers must seek to produce a higher quality product to maintain their income. An 'eat less, eat better' narrative can be communicated to consumers to facilitate this. This is also consistent with one of the EAT-*Lancet* Commission's strategies for Global Food Transformation: 'reorient agricultural priorities from producing large quantities of food to producing healthy food.'[460] The necessity of reducing meat consumption need not impact farmers' livelihoods in the long-term if the change can be managed by consumers paying more for better quality meat. To support these measures, steps must be taken to ensure UK producers do not lose out to producers in countries with lower environmental and animal welfare standards. In order to

support farmers in the transition away from large-scale livestock production, policy and financial incentives will be required, which we explore below.

Cooperatives

An organisational response to making farming more economically sustainable is the cooperative model, where several small farms work together as a single business to both produce and sell their crops.[461] Approximately half of the UK's farmers are members and co-owners of cooperatives (155,000) and in 2016 the UK agricultural coop sector had an annual turnover of £6.2 billion.[462] The model has several benefits to farmers: it gives them greater control over sourcing feed, fertiliser and machinery, it cuts costs through economies of scale, and it enables them to share innovations that boost output and productivity.[463] Having more bargaining power is particularly important for small-scale farmers competing with big food retailers. This creates greater 'parity of power' in the supply chain networks, 'fostering [greater] participation [in the decision-making process] and conveying respect.'[464]

Farming cooperatives can also be run specifically to benefit the environment, for example, as mentioned in chapter 2, Jubilee Farm in Northern Ireland. It practises 'community-supported agriculture', where members purchase a subscription to the farm and can contribute a small amount of labour each month. The profits are reinvested in the farm and/or in a community fund.[465] Community-supported agriculture can build meaningful relationships centred on a common vision for farming in an environmentally and economically sustainable way and educate consumers. By cultivating community and local supply networks, Jubilee Farm also contributes to restoring a sense of place and helps its stakeholders to see their local environment as something to be nurtured. Such schemes are relatively new but have the potential to contribute to more thoughtful eating alongside environmental sustainability.

Cultured meat and meat alternatives

Meat grown from animal cells, called cultured meat,[466] is an emerging technology that has been promoted as a way of satisfying consumer demand for meat while reducing environmental impacts.[467] Cells taken from animal muscle tissue are placed in a nutrient-rich medium, grown, and then turned into a processed meat like a burger or chicken nugget.[468] One perceived advantage of cultured meat is that, although it is produced in a novel way, it is

genetically real meat. This distinguishes it from plant-based meat alternatives (discussed below). Cultured meat is not yet available to consumers, but several companies aiming to commercialise it have made significant progress in the last few years.[469] Cultured meat could be positive for human health, animal welfare, and environmental sustainability.[470] Focusing on the environmental impact, in comparison to industrial meat production, scientific modelling suggests that cultured meat would use less land, water and crops, and produce less GHG emissions.[471] The exact level of environmental benefit is uncertain, but overall it is likely that cultured meat would be more environmentally sustainable than traditional production.

However, the emphasis on technological innovation and efficiency could introduce a moral hazard, whereby the predicted 'easy fix' of cultured meat deters people from making other changes such as reducing meat consumption.[472] If cultured meat were to become widespread, in the short term large corporations with the necessary infrastructure and technology would have a structural advantage, which could undermine the business sustainability of those producing livestock in a traditional way.[473] Perhaps most importantly, relying on cultured meat may inhibit reflection on the underlying issues regarding humanity and the nonhuman creation.[474] It focuses on supply-side change, which could make a positive contribution to sustainability, but there are reasons to be sceptical: it may promote a reductionist paradigm of human knowledge and control, further an instrumentalised orientation toward the natural world, and undermine relationships between people, animals and land.[475] Although not inevitable, cultured meat has the potential to be part of humanity's attempt to separate itself from the non-human creation, which would decontextualize food and eating further. Eating always involves death and sacrifice, and therefore it is vital to reclaim an ethic of respect and care for the non-human creation.

Plant-based meat alternatives[476] are also often highlighted for their potential to reduce the environmental impact of eating meat. Some meat alternatives have a long history (such as tofu), some are more modern (such as Quorn), but recent focus has been on new scientifically-developed products which mimic the taste and texture of meat as far as possible, such as the burgers produced by the companies Impossible Foods and Beyond Meat. The former is made from soy protein (along with heme from genetically modified yeast), and the latter is made from pea protein.[477] In the US in 2019, Burger King started to test trial an Impossible Whopper, and newspaper reporting highlighted the similarity of the product to actual beef, claiming that it was close to indistinguishable from meat.[478] This indicates that there is consumer demand for such a product and

industry buy in. This suggests that plant-based meat alternatives do have the potential to reduce environmental impact by replacing their meat equivalents, especially if these new products are able to expand beyond the vegetarian and vegan consumer markets.

At the same time, much of the criticism of cultured meat above is also applicable to meat alternatives. Their health and environmental credentials have been questioned, since they are largely untested, highly processed, and rely on multiple processes which require energy use.[479] Again, the business of smaller producers may be threatened. As one journalist has commented, 'Silicon Valley wants to replace meat – with intellectual property.'[480] Excessive reliance on meat alternatives as an easy solution to environmental problems is problematic as, like cultured meat, they may hinder people from reflecting on the relevant relational questions, and from developing a deeper appreciation for food. However, in comparison to cultured meat, meat alternatives have the advantage of being available to consumers already and providing wholly plant-based products for those concerned about animal welfare. For those trying to eat less meat, occasionally eating meat alternative products could make a positive contribution to reducing dietary environmental impacts.

Consumer awareness campaigns

Ecolabelling is a mostly voluntary 'method of environmental performance certification and labelling'[481] that aims to identify 'products or services proven environmentally preferable overall'.[482] (Ecolabels do not cover quality and safety of products, which are expressed through 'best before' and 'use by' dates, explored in the food waste section above.) By promoting products, from household white goods to food, with higher environmental standards, it is hoped that ecolabels will influence consumers' purchasing decisions. Such a system includes a set of production standards, a certification scheme and a labelling scheme.[483] The most credible labels are those given by third parties for products or services that meet certain environmental standards.[484] In the UK alone, there are at least 88 different ecolabels.[485] Yet the impact of ecolabels relies on consumers changing their purchasing habits. In order to do so, Daugbjerg et al. argue consumers must have good knowledge of the production standards of the label and must trust the label.[486] They must also be able to distinguish between the attributes of labelled and non-labelled products.[487] Ecolabels will require greater oversight and regulation to ensure production standards are clear and consumers are fully informed regarding the environmental standards of what they are purchasing.

Yet capturing the full scope of the environmental impact of a product is a challenge. How to quantify the various impacts involved, measuring them against different types of products and describing this accurately to the consumer can be difficult. The reliability and accuracy of these labels are frequently questioned, and consumers are often left confused and sceptical with accusations of 'green-washing.'[488] However, food labelling is not without merit as ecolabels can encourage companies to employ more environmentally sustainable processes.[489] Joseph Poore has advocated for mandatory environmental labelling, similar to the energy rating that is displayed on fridges and other white goods, as voluntary labelling does not leverage consumer behaviour and businesses with high environmental impacts may opt out of labelling schemes.[490]

Another important consideration in the debate surrounding ecolabelling is that this fundamentally fosters 'green consumerism' which, although it incorporates environmental considerations, distracts from the necessary structural changes, in this case, in agriculture.[491] This 'green consumerism' remains part of the same system of unsustainable materialism and places the onus on the consumer to take charge of the problem, despite the lack of true agency which requires substantial macro-level changes and systemic transformation to achieve sustainable production.[492] Policy decisions are therefore very important (see below). However, there is also a need for policy to be paired with sufficient pressure from grassroot initiatives to raise consumer awareness and drive campaigns.

Whilst ecolabelling can be a helpful way of providing some information to consumers, it must be matched with education of the population regarding the environmental impact of consumption. As such it is a system that holds a lot of potential but requires further analysis and reform.

Food sovereignty

> *Food sovereignty is 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. It puts the aspirations and needs of those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations.*
> — Declaration of Nyéléni, the first global forum on food sovereignty, Mali, 2007.[493]

One concept that has the potential to shape public policy in a way that reflects social *justice* and environmental *sustainability* is the food sovereignty movement. It focuses on empowering producers and consumers in the food system by placing relationships at the centre of agriculture – 'it asserts that people must reclaim their power in the food system by rebuilding the relationships between people and the land, and between food providers and those who eat.'[494] It is an idea rooted in global struggles over control of the valuable resources of food and water, and the livelihoods of small-scale producers, in reaction to the perceived negative practices of big agribusiness.[495] Food sovereignty addresses some of the justice issues raised in earlier parts of this book. As part of the drive for better relationships, there is a focus on healthy and sufficient food, the rights and working conditions of food providers, giving power to local food systems, and encouraging the cultivation of knowledge and skills relating to food in society. Finally, food sovereignty places high value on natural systems, seeks to avoid costly and toxic inputs, and to improve the resiliency of local food systems in the face of the impact of climate change.[496] Food sovereignty therefore encompasses a more holistic approach, considering sustainable food and agricultural production as necessary for justice and environmental sustainability, and encouraging stakeholders to think about the relationships involved in eating and food production.[497] There is a need to work toward food sovereignty as part of a vision for just global food systems, especially considering the disparity between higher and lower income countries that currently exists. International actors, especially those working in this field, should aim to incorporate the principles of agency and empowerment into sustainable food systems, particularly in local contexts which face issues of food insecurity.

Governance and public policy

We have argued that individuals and organisations should contribute to the transformation of food systems. However, governments and policymakers have a particular and vital role to play in orchestrating change. In this section we explore some of the existing agricultural policy frameworks and proposals for change.

In June 2019, DEFRA announced a major review of the UK food system, to be led by Henry Dimbleby.[498] It will investigate the entire food system 'from field to fork', and will examine the interlocking issues of agriculture, environment, health, and business. Recommendations will result in a new National Food Strategy, to be published in 2020. This is an excellent opportunity to take

a holistic approach to the issues raised in this book. Based on the critical role policymakers play in implementing systemic change, we advocate that environmental sustainability and social justice be placed at the centre of the review's recommendations and the subsequent National Food Strategy.

EU Emissions Trading System (EU ETS)

A key element of the EU's policy to reduce GHG emissions is the EU emissions trading system (EU ETS). It operates on the 'cap-and-trade' principle in which a cap is set on the total amount of particular GHGs across the EU and is reduced over time with the goal of reducing total emissions. According to EU statistics the scheme has been successful in cutting emissions whilst bolstering the economy.[499] However, the cap-and-trade approach is not without limitations. For example, in Ireland agricultural GHG emissions make up around one third of all GHG emissions as the sector is heavily orientated towards beef and dairy farming, which results in a high export capacity of dairy and beef products pushing Ireland over the cap, whilst other countries benefit from importing the meat and dairy produced in the Irish countryside.[500] Compare this with the UK, whose agriculture (in 2017) formed 10% of total emissions[501] and the difference is evident because 'in contrast to Ireland, UK agricultural emissions have overall shown a gradual decline as a result of lower livestock numbers and a reduction in synthetic fertiliser applications.'[502] These statistics illustrate one of the key shortcomings of the ETS, which is not designed to take account of the variation between countries' agricultural sectors. Despite these shortcomings, in light of the importance of safeguarding the non-human creation and encouraging individuals and governments towards an ethic of responsibility, UK policymakers should consider participating in the ETS as part of an independent British policy.

EU Common Agricultural Policy

The UK currently operates under the EU's Common Agricultural Policy (CAP) which is designed to support farmers and reduce the environmental impact of farming. This is also significant because 30% of the UK's food is imported from the EU.[503] The CAP uses income support and subsidies to try to ensure income stability and to remunerate farmers for sustainable farming methods and conservation.

In the theological section of this book the importance of supporting food producers and investing in production methods which honour both the

environment and the food produced has been outlined. The CAP agri-environment measures provide payments to farmers who make specific environmental commitments and offset the costs of doing so.[504] Examples of the environmental practices under this scheme includes sustainable management of low-intensity pasture systems, integrated farm management and organic agriculture, preservation of landscapes, and conservation of habitats and biodiversity.[505] We suggest that these principles should form part of any independent British agricultural policy.

However, whilst the CAP has noble goals it also has some serious shortcomings. Dieter Helm holds that it dominates EU spending to a disproportionate extent and that since its inception it has created 'wine lakes and butter mountains, seriously damaged developing countries' agricultural prospects through its external tariffs and export subsidies, [and] inflated land prices'.[506] Furthermore, despite its emphasis on environmental aims, he argues that the CAP has actually reduced biodiversity and encouraged intensive farming practices, damaging the European countryside in the process.[507] This shows that a shortcoming of subsidy-led systems is that they may reward ineffective or environmentally damaging farming practices. This is a serious critique, far from the ideal of farmers being supported as stewards of the land.

Similarly, environmental groups have pointed to the ineffectual environmental or 'greening' measures outlined in the CAP, citing declining populations of insects and farmland birds as examples of the failures of the CAP's stated environmental agenda. [508] Critics argue that the current system favours 'big agriculture' who can invest in more efficient food production in contrast with smaller, less intensive and more sustainable farmers.[509] As such, the policy can disadvantage farmers seeking to adhere to higher environmental standards.[510] Two of the key principles examined in chapter 2 are not consistently achieved by the CAP: supporting farmers as stewards of the land and promoting more sustainable food production practices.

Land use and Environmental Land Management (ELM)

Under the CAP, UK farms have been operating under a Direct Payment scheme, whereby farmers are paid according to the amount of land they own. Based on the *environmental* and *social* impacts of agriculture and the importance of effective land management, it is important for British policymakers to consider different models under the assumption that the UK will no longer be governed by the CAP in the future. Future UK agricultural policy could be an opportunity to reinvent farming policy and focus payments to farmers

more directly around the provision of environmental services.[511] DEFRA has proposed a new Environmental Land Management system to replace the CAP. Recognising the environmental impacts of farming, the scheme seeks to address this issue and carries the tagline 'public money for public goods', emphasising the benefits to both farmers and broader society.[512]

The ELM proposal seeks to address environmental concerns through land management, by entering into contracts with farmers and stakeholders to develop a plan to deliver environmental benefits and safeguard the natural capital of the land. According to DEFRA, 'these agreements will make sure that the environmental benefits farmers help deliver, but which cannot be sold or bought, are paid for by the public purse.'[513] DEFRA recognises the protection of the environment as a public good that society as a whole ought to be responsible for. On this basis, the Committee on Climate Change have suggested redirecting subsidies to 'support the major transition in land use and farming practices' required by a net-zero GHG target for 2050.[514]

A key concern in moving away from the CAP and direct payments will be supporting British farmers and mitigating the cost of implementation of the new scheme. A key example of this would be through diversifying farm activities which have the benefits of providing alternative sources of income for farmers, for example through repurposing unused buildings and resources.[515]

Although making agricultural land more environmentally sustainable is important (see section on farming), it is also important to 'spare' land.[516] Reducing meat and dairy consumption, and food waste, can contribute to 'sparing' some agricultural land in the UK.[517] The Committee on Climate Change have suggested that for the UK to reach net zero carbon emissions by 2050, a fifth of agricultural land should be used instead for forests, energy crops and peatland restoration.[518] (Energy crops must not compete with or undermine food production, nor should they drive indirect land-use change; recommendations include growing non-food crops, and only using marginal or degraded agricultural land.)[519] With the land that is made available for non-agricultural uses, there are opportunities to adopt some of the principles of 'rewilding', which aims to restore natural ecosystems (such as forests) at a landscape-scale.[520] The concept of rewilding is controversial,[521] and the implementation of such schemes requires careful consideration with all stakeholders involved, but some of the principles hold potential as recognised by The Woodland Trust.[522] Such conservation principles would suggest that native mixed broadleaf afforestation would be preferable to non-native monocultures, but other factors such as resilience to disease and drought must also be considered.[523] Although it will be beneficial for some areas to

be devoted entirely to conservation, other areas should be integrated with ecologically sensitive farming systems, for example agroforestry.[524]

We have shown that there is a better vision for farming as found in the Bible which promotes the health of the land as well as producing food. It seems that part of the challenge facing policymakers is to reclaim the role of the farmer from the environmentally damaging farming practices common across the world today, to reconcile the farmer as being in step with nature rather than opposed to it, and to put in place policies designed to support the farmer, the consumer and the land.

Taxation and subsidies

Empowering the consumer to make informed decisions through public information campaigns and labelling can be a step in the right direction.[525] However, if lasting change is to be made, these types of schemes may have to be paired with stronger interventions, including taxation and subsidies, from governments.

Members of the UK Parliament have been debating a 'meat tax', with its proponents arguing on the basis of reducing GHG emissions and moving the farming industry towards being carbon neutral.[526] The proposal includes considerations for more environmentally sustainable farming, and producers such as organic livestock farmers. Caroline Lucas, MP for the Green Party, has advocated for such a tax: 'we need to bring the whole food chain into the circle of responsibility, not leaving farmers to work on their own, together with clear signals that society will play its part in funding this transition through a new agriculture policy.'[527] There are several similar taxes, for example on tobacco, alcohol, and sugar in drinks, but these mainly focus on health concerns. However, a tax on animal products could have both health and environmental benefits.[528]

Wellesley et al. argue that rising demand for meat is incompatible with meeting environmental targets and therefore advocate government intervention to reduce carbon emissions.[529] They examine the merits of a carbon tax rather than a tax specifically on animal products. This is a key distinction to consider when examining taxation as a method of addressing the problems outlined in chapter 1. Levying a tax only on animal products could be seen as discriminatory against livestock producers. Instead, combatting carbon across industries could allow for a more holistic and fair approach to meeting the challenge of environmental degradation.

The removal of subsidies for environmentally detrimental livestock production may have similar effects as product specific taxes.[530] The CAP has been argued to benefit large landowners to a disproportionate degree, since subsidies are based primarily on land size, not output quality or environmental services.[531] Basing the payment scheme around land ownership can make it challenging for small scale producers and farm businesses committed to higher environmental standards. Refocusing subsidies toward environmental services may result in an increase in prices for products with higher environmental impacts, which could in turn reduce consumption – similar to a product specific tax. If removal of subsidies for carbon intensive products is matched with higher funding for sustainable products, this could be a key way to support the transition toward sustainable farming, whilst not introducing a new tax on the consumer and the producer.

Taxation is potentially problematic as these types of measures may restrict economic access to food products for the poorest demographic groups in society: 'in the absence of complementary measures to facilitate access to substitutes and to educate people about the range of alternatives, higher prices for meat may encourage increased consumption of cheaper, poor-quality products.'[532] Government could consider subsidies for plant-based foods which could be positive in ensuring access to healthy and sustainable food products.[533] Further research is required on the potential effects of introducing carbon taxation and altering agricultural subsidy policy. A considered approach to policy implementation is required, which combines social *justice* with environmental *sustainability*.

Conclusion

Food systems have a huge impact on the environment, and as food production has intensified and global consumption has increased, so too has the damage caused by intensive agriculture and livestock production. God declared his creation to be good, and it is good – it provides us with life-sustaining food, a gift from God which is delightful and brings us together to share in fellowship. Humanity has a vocation to care for the environment, which must be taken seriously. This matters because human beings live in relationship – with God, with human neighbours, and with the non-human creation. The breakdown of these relationships, especially between humanity and the non-human creation, is one of the greatest crises facing this generation, with far-reaching repercussions for generations to come.

Food is a necessity for life. Food unites us. Food inspires us. Food represents life with the act of communion. We eat at weddings, we eat at funerals, we bring food to the bereaved, we have fellowship around tables and we eat as families. Food is innately and beautifully human.

It is also symptomatic of a fallen world. We have taken something joyful and we have not *delighted* in it, but eaten it without thought. We have not *shared* it, but kept it to ourselves. Some eat too much while others eat too little. Our eating reflects social boundaries, while Jesus ate with social outcasts. We have transformed eating with technology and ended up in a place in which we have lonely eaters and a food industry which does irreparable damage to the ecosystems on which all food depends.

However, we also have hope. As explored in this book, there is a higher vision for eating which seeks to use food as a way to bridge divisions in communities, as a way of bringing joy and pleasure to the eater, as a way of strengthening family and community, and as a way of living out the radical inclusiveness of Jesus.

We need a vision for understanding how to honour God by caring for his creation and how to love our neighbours, not only today but intergenerationally, not only our geographical neighbours but our global neighbours; 'for God has not given us the spirit of fear; but of power, and of love, and of a sound mind.'[534] We must take action, for we have the power to act. We must love, for eating enables us to experience 'a divine love that calls for our love in return'.[535] And we must challenge ourselves to recognise the truth of the situation, and respond by eating thoughtfully, for we have a sound mind.

Although developing sustainable and just food systems may seem like a daunting and complex challenge, it can be addressed by the actions of individuals, organisations and governments working together toward this common goal. Doing so is imperative to restoring right relationships between God, humanity and the non-human creation.

Glossary

Acidification: 'change in an environment's natural chemical balance caused by an increase in the concentration of acidic elements.'[536]

Agricultural biodiversity (agrobiodiversity): 'Agrobiodiversity, often referred to as crop diversity, includes cultivated and uncultivated species that comprise foods we eat or support food production. Cultivated agrobiodiversity encompasses species intentionally planted or reared by farmers.'[537]

Agroforestry: 'a collective name for land-use systems and technologies where woody perennials (trees, shrubs, palms, bamboos, etc.) are deliberately used on the same land-management units as agricultural crops and/or animals, in some form of spatial arrangement or temporal sequence.'[538]

Biodiversity: 'the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.'[539]

Biogeochemical cycle: 'any of the natural pathways by which essential elements of living matter are circulated.'[540]

Carbon capture and storage (CCS): 'a process in which a relatively pure stream of carbon dioxide (CO_2) from industrial and energy-related sources is separated (captured), conditioned, compressed, and transported to a storage location for long-term isolation from the atmosphere.'[541]

Carbon pool / reservoir: 'A component of the climate system, other than the atmosphere, which has the capacity to store, accumulate or release a substance of concern, for example, carbon, a greenhouse gas (GHG) or a precursor. Oceans, soils and forests are examples of reservoirs of carbon. Pool is an equivalent term (note that the definition of pool often includes the atmosphere).'[542]

Carbon sink: 'Any process, activity or mechanism that removes a greenhouse gas (GHG), an aerosol, or a precursor of a GHG or aerosol from the atmosphere.'[543]

Climate change: 'a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions and persistent anthropogenic changes in the composition of the atmosphere or in land use.'[544]

DEFRA: Department for Environment, Food and Rural Affairs

Earth system: 'Earth's interacting physical, chemical, and biological processes consisting of land, oceans, atmosphere, and poles, and includes Earth's natural cycles— ie, carbon, water, nitrogen, phosphorus, and other cycles. Life, including human society, is an integral part of the Earth system and affects these natural cycles.'[545]

Ecosystem: 'a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.'[546]

Ecosystem services: 'the tangible and intangible benefits that are provided by ecosystems to humans, which both enable human life and that contribute to its quality. Ecosystem services include provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services such as nutrient cycling that maintain the conditions for life on Earth.'[547]

Enteric fermentation: 'a natural part of the digestive process of ruminant animals (e.g. cattle and sheep) where microbes decompose and ferment the food present in large rumen portion of the stomach. As a byproduct of this fermentation process, some bacteria species in the stomach produce methane.'[548]

Eutrophication: 'the buildup of nutrients in a body of water (e.g. nitrogen and phosphorus) to a level in excess of what would occur naturally and to which aquatic ecosystems are adapted. This can result in detrimental impacts on many aquatic plants and animals, as well as the rapid overgrowth of some plants and algae.'[549]

Extensive agriculture: 'system of crop cultivation using small amounts of labour and capital in relation to area of land being farmed.'[550]

FAO: Food and Agricultural Organisation of the United Nations

FCRN: Food Climate Research Network

Food security: 'food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.'[551]

Food system: 'All elements and activities that relate to production, processing, distribution, preparation, and consumption of food.'[552]

Generalist species: 'a plant or animal species that is able to thrive in a large variety of environmental conditions, or that can live on a wide variety of foods.'[553]

Greenhouse gas (GHG): 'any gas that has the property of absorbing infrared radiation (net heat energy) emitted from Earth's surface and reradiating it back to Earth's surface, thus contributing to the greenhouse effect. Carbon dioxide, methane, and water vapour are the most important greenhouse gases.'[554]

Integrated farm management (IFM): 'a site-specific farm business approach that uses the best of modern technology and traditional methods. Attention to detail is key; appropriate and efficient use of inputs, smarter approaches to business planning and the adoption of innovations and new technologies, all contribute to increasing productivity whilst protecting valuable resources.'[555]

Intensive agriculture (IA): 'often used synonymously with the terms industrial agriculture and conventional farming, IA is generally used to denote farming systems that use modern technologies and economies of scale to maximise yields relative to land use and production costs (e.g. costs of labour, technology, seeds, fertilisers, and pesticides). IA is associated with high use of chemical fertilisers, agrochemicals, and irrigation. This combination of agricultural technologies became common during the Green Revolution in the mid-20th century, and has long been criticized for its high social and environmental impacts.'[556]

Land grabbing: 'acquisitions or concessions that are one or more of the following: (i) in violation of human rights, particularly the equal rights of women; (ii) not based on free, prior and informed consent of the affected land-users; (iii) not based on a thorough assessment, or are in disregard of social, economic and environmental impacts, including the way they are gendered; (iv) not based on transparent contracts that specify clear and binding commitments about activities, employment and benefits sharing, and; (v) not based on effective democratic planning, independent oversight and meaningful participation.'[557]

Land sharing: 'the principle of integrating nature conservation approaches into agricultural production across a region. Its characteristics are that of low-yielding farmland with higher biodiversity, but with less land available for the sole purpose of nature conservation. Land sharing sits at one end of the two extremes of the land sparing-sharing continuum. It has in particular been criticised for leading to lower levels of biodiversity on a regional scale and for a tendency for generalist species to thrive at the expense of specialist or endemic species.'[558]

Land sparing: 'the principle of segregating land for nature conservation from land for food (or agricultural) production within a region. It consists of high-yielding farmland with relatively lower biodiversity, with the remaining land being spared for nature conservation. Land sparing sits at one end of the two extremes of the land sparing-sharing continuum. It has in particular been criticised for its (supposed) connection to environmentally unsustainable intensive agriculture and

for undermining the food security of smallholder farmers and rural economies.'[559]

Land use: 'the purpose for which an area of land is used by humans: e.g. cropland, urban settlements, managed forests. Wild land, by contrast, is that not used by humans.'[560]

Natural capital: 'the elements of nature that directly or indirectly produce value to people, including ecosystems, species, freshwater, land, minerals, the air and oceans, as well as natural processes and functions. When we talk about natural capital, we talk in terms of assets. Any capital asset has the important capacity to produce various goods and services. Natural capital is simply those assets provided by nature which has the capacity to generate goods and services. In fact, natural capital can be regarded as the source of all other types of capital: whether manufactured, financial, human or social.'[561]

Non-human creation: as understood by Christians, the world and everything in it as created by God, excluding humanity.

NFU: National Farmers Union

Organic farming: 'an approach to farming in which synthetic chemical insecticides and herbicides and inorganic fertilisers are entirely or largely avoided. Underpinning organic farming is the idea that farming should rely on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects (e.g. agrochemicals such as pesticides and synthetic fertilisers). Certification bodies (e.g. the Soil Association in the United Kingdom) specify the practices, methods of pest control, soil amendments and so forth that are permissible if products are to achieve organic certification.'[562]

Overnourishment: 'food intake that is continuously in excess of dietary energy requirements.'[563]

Planetary boundaries: 'Nine boundaries, each representing a system or process that is important for regulating and maintaining stability of the planet. They define global biophysical limits that humanity should operate within to ensure a stable and resilient Earth system—ie, conditions that are necessary to foster prosperity for future generations.'[564]

Salinisation: 'accumulation of soluble mineral salts near the surface of soil, usually caused by the capillary flow of water from saline ground water. Where the rate of surface evaporation is high, irrigation can exacerbate the problem by moistening the soil and causing water to be drawn from deeper levels as water evaporates from the surface. The evaporation of pure water leaves the salts behind, allowing them to accumulate, and they can reach concentrations that are toxic to plants,

thus sterilising the land.'[565]

Soil organic carbon: 'carbon residue retained by the soil in humus form. It improves soil structure and fertility.'[566]

Specialist species: 'a plant or animal species that is able to thrive in only a limited variety of environmental conditions, or that has a limited diet.'[567]

Sustainable intensification: 'denotes the linked goals of maintaining or increasing the productivity of existing farmland, while reducing the environmental impacts of agriculture.'[568]

Sustainability: 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'[569]

Undernourishment: 'the condition in which an individual's habitual food consumption is insufficient to provide the amount of dietary energy required to maintain a normal, active, healthy life.'[570]

WWF: World Wildlife Fund

References

Akenji, L. (2014) 'Consumer scapegoatism and limits to green consumerism', *Journal of Cleaner Production* 63 (1): 13-23

Allen, N. (2015) 'Almonds blamed in California drought', *The Telegraph* [online] Available at: https://www.telegraph.co.uk/news/worldnews/northamerica/usa/11547127/Almonds-blamed-in-California-drought.html (Accessed: 09/04/19)

Allwood, J.M., Bosetti, V., Dubash, N.K., Gómez-Echeverri, L., and von Stechow, C. (2014) 'Glossary', in *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Edenhofer, O., Pichs-Madruga, R., Sokona, Y., Farahani, E., Kadner, S., Seyboth, K., Adler, A., Baum, I., Brunner, S., Eickemeier, P., Kriemann, B., Savolainen, J., Schlömer, S., von Stechow, C., Zwickel, T. and Minx, J.C. (eds.)] Cambridge University Press: Cambridge, United Kingdom and New York, NY, USA

Anthos, Valan (2018) 'Meat Reimagined: The Ethics of Cultured Meat', *Graduate Student Theses, Dissertations, & Professional Papers 11203* [online] Available at: https://scholarworks.umt.edu/etd/11203. (Accessed: 21/03/2019)

Appunn, Kerstine and Sherman, Luke (2018) 'Understanding the European Union's Emissions Trading System', *Clean Energy Wire* [online] Available at: https://www.cleanenergywire.org/factsheets/understanding-european-unions-emissions-trading-system (Accessed: 01/05/19)

Balmford, Andrew et al. (2018) 'The environmental costs and benefits of high-yield farming', *Nature Sustainability,* 1: 477-485

Barkham, Patrick (2017) '"It is strange to see the British struggling with the beaver": why is rewilding so controversial?', *The Guardian* [online] Available at: https://www.theguardian.com/environment/2017/jul/01/rewilding-conservation-ecology-national-trust (Accessed: 13/06/2019)

Barkham, Patrick (2018) 'EU in 'state of denial' over destructive impact of farming on wildlife', *The Guardian* [online] Available at: https://www.theguardian.com/environment/2018/mar/23/eu-in-state-of-denial-over-destructive-impact-of-farming-on-wildlife (Accessed: 25/04/19)

Bauckham, Richard (2009) 'Jesus, God and nature in the Gospels' in Robert S. White (ed.) *Creation in Crisis: Christian perspectives on sustainability*, London: SPCK

BBC News (2018) 'Third of farmed fruit and veg deemed "too ugly to sell"' *BBC News* [online] Available at: https://www.bbc.co.uk/news/uk-scotland-scotland-business-45238732 (Accessed: 29/03/19)

BEIS (Department for Business, Energy and Industrial Strategy) (2019) 'Final UK greenhouse gas emissions national statistics: 1990-2017', *Gov.uk* [online]

Available at: https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-2017 (Accessed 09/05/19)

Berry, Wendell (1977) 'The Unsettling of America', in Berry (2018) *The World-Ending Fire,* UK: Penguin Random House

Beyond Meat (2019) 'Beyond Burger ingredients', *Beyond Meat* [online] Available at: https://www.beyondmeat.com/products/the-beyond-burger/ (Accessed 16/04/2019)

Blanchard, John (1997) 'Whatever happened to Heaven?', *Reformation and Revival* 6(2): 11-36

Bookless, David (2014) '"Let everything that has breath praise the Lord": The Bible and biodiversity', *Cambridge Papers* 23:3, Cambridge: Jubilee Centre

Boström, M. and M. Klintman (2008), *Eco-Standards, Product Labelling and Green Consumerism*, Basingstoke: Palgrave Macmillan

Bowersock, G. W. (1978), *Julian the Apostate*, Cambridge, Massachusetts: Harvard University Press

Bricker, Darrell and John Ibbitson (2019) 'What goes up: are predictions of a population crisis wrong?', *The Observer* [online] (Jan 27) Available at: https://www.theguardian.com/world/2019/jan/27/what-goes-up-population-crisis-wrong-fertility-rates-decline (Accessed 10/04/2019)

Burnside, Jonathan (2011) *God, Justice, and Society: Aspects of Law and Legality in the Bible*, Oxford: Oxford University Press

Cambridge Dictionary (2019) 'Agricultural cooperative' *Cambridge Dictionary* [online] Available at: https://dictionary.cambridge.org/dictionary/english/agricultural-cooperative (Accessed 26/04/2019)

Cambridge Sustainable Food (2019) 'Food Provision Projects', *Cambridge Sustainable Food* [online] Available at: https://cambridgesustainablefood.org/food-provision-projects (Accessed 09/04/2019)

Capon, Robert Farrar (2002) *The Supper of the Lamb: A Culinary Reflection,* New York: Modern Food Library

Carman, Tim (2019) 'Burger King's Impossible Whopper tastes even better than the real thing', *The Washington Post* [online] Available at: https://www.washingtonpost.com/news/voraciously/wp/2019/04/15/burger-kings-impossible-whopper-tastes-even-better-than-the-real-thing (Accessed 16/04/2019)

Champain, Phil (2014) 'Conflict Kitchen puts peace on the table', *The Guardian* [online] Available at: https://www.theguardian.com/global-development/poverty-matters/2014/sep/10/conflict-kitchen-puts-peace-on-the-table (Accessed 25/03/2019)

Chester, Tim (2011) *A Meal with Jesus*, Nottingham: Inter-Varsity Press

Chislock, M. F., E. Doster, R. A. Zitomer and A. E. Wilson (2013), 'Eutrophication: Causes, Consequences, and Controls in Aquatic Ecosystems', *Nature Education Knowledge,* 4(4):10 Available at: https://www.nature.com/scitable/knowledge/library/eutrophication-causes-consequences-and-controls-in-aquatic-102364466 (Accessed 26/03/2019)

Committee on Climate Change (2018a) 'Land use: Reducing emissions and preparing for climate change', *Committee on Climate Change* [online] Available at: https://www.theccc.org.uk/publication/land-use-reducing-emissions-and-preparing-for-climate-change/ (Accessed: 13/06/2019)

Committee on Climate Change (2018b) 'Biomass in a low-carbon economy' *Committee on Climate Change* [online] Available at: https://www.theccc.org.uk/publication/biomass-in-a-low-carbon-economy/ (Accessed: 22/06/2019)

Committee on Climate Change (2019) 'Net Zero – The UK's contribution to stopping global warming', *Committee on Climate Change* [online] Available at: https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/ (Accessed 08/05/2019)

Convention on Biological Diversity (1992) Article 2: Use of Terms, *Convention Text* [online] Available at: https://www.cbd.int/convention/articles/default.shtml?a=cbd-02 (Accessed 07/05/2019)

Cooperatives UK (2016), 'Agricultural co-operatives: Report on the co-operative farming sector', *Cooperatives* [online] Available at: https://www.uk.coop/sites/default/files/uploads/attachments/report_on_the_co-operative_agriculture_sector_-_2016.pdf (Accessed 25/04/2019)

CPRE (2012b) 'CPRE's Vision for the future of farming: Beef and sheep farming', *CPRE* [online] Available at: https://www.cpre.org.uk/resources/farming-and-food/farming/item/3033-cpres-vision-for-the-future-of-farming-beef-and-sheep-farming (Accessed 08/05/2019)

CPRE (2012c) 'CPRE's Vision for the future of farming: Pig and poultry farming', Available at: https://www.cpre.org.uk/resources/farming-and-food/farming/item/3035-cpres-vision-for-the-future-of-farming-pig-and-poultry-farming?highlight=WyJmdXR1cmUiLCJmdXR1cmUnIiwiZnV0dXJlIjywiLCInZnV0dXJlIiwiZnV0dXJlIjy4iLCJvZiIsIidvZiIsIm9mIjyIsInBvdWx0cnkiLCJmdXR1cmUgb2YiXQ== (Accessed: 08/05/2019)

CPRE (Campaign to Protect Rural England) (2012a) 'CPRE's Vision for the future of farming: The future of arable farming', *CPRE* [online] Available at: https://www.cpre.org.uk/resources/farming-and-food/farming/item/3032-cpres-vision-for-the-future-of-farming-arable-farming. (Accessed 08/05/2019)

Curtis, Philip G., Slay, Christy M., Harris, Nancy L., Tyukavina, Alexandra, Hansen, Matthew C. (2018) 'Classifying drivers of global forest loss', *Science* 361: 1108-1111

Daugbjerg, C., Smed, S., Mørch Andersen, L & Schvartzman, Y. (2014) 'Improving Eco-labelling as an Environmental Policy Instrument: Knowledge, Trust and Organic Consumption', *Journal of Environmental Policy & Planning*, 16 (4): 559-575

Davis, Ellen F. (2009) 'Just food: a biblical perspective on culture and agriculture' in Robert S. White (ed.), *Creation in Crisis: Christian Perspectives on Sustainability*, London: SPCK

Davis, Ellen F. (2009) *Scripture, Culture, and Agriculture: An Agrarian Reading of the Bible*, New York: Cambridge University Press

DEFRA (2012a) 'Food Transport Indicators to 2010', *gov.uk* [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/138104/defra-stats-foodfarm-food-transport-statsnotice-120110.pdf (Accessed: 06/04/19)

DEFRA (2012b) 'Overseas trade in food, feed and drink.' *Gov.uk* [online] Available at: https://www.gov.uk/government/statistical-data-sets/overseas-trade-in-food-feed-and-drink. (Accessed: 05/04/2019)

DEFRA (2017) 'Agriculture in the United Kingdom 2017' *gov.uk* [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/741062/AUK-2017-18sep18.pdf (Accessed: 01/05/2019)

DEFRA (2018a) 'Family food datasets: Detailed annual statistics on family food and drink purchases', *gov.uk* [online] Available at: https://www.gov.uk/government/statistical-data-sets/family-food-datasets (Accessed: 06/04/2019)

DEFRA (2018b). 'Food Statistics in your pocket 2017 – Global and UK supply', *gov.uk* [online] Available: https://www.gov.uk/government/publications/food-statistics-pocketbook-2017/food-statistics-in-your-pocket-2017-global-and-uk-supply (Accessed: 09/04/19)

DEFRA (2018c) 'Moving away from Direct Payments', *gov.uk* [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/740669/agri-bill-evidence-slide-pack-direct-payments.pdf (Accessed: 30/04/2019)

DEFRA (2019) 'Gove appoints Dimbleby to pioneer "farm to fork" revolution', *gov.uk* [online] Available at: https://www.gov.uk/government/news/gove-appoints-dimbleby-to-pioneer-farm-to-fork-revolution (Accessed: 27/06/2019)

Delistraty, Cody C. (2014) 'The Importance of Eating Together' *The Atlantic* [online] Available at: https://www.theatlantic.com/health/archive/2014/07/the-importance-of-eating-together/374256/. (Accessed: 23/03/2019)

Diaz, R. J. and R. Rosenberg (2008) 'Spreading dead zones and consequences for marine ecosystems'. *Science* 321: 926–29.

Doreau, Michel, Corson, Michael S., and Wiedemann, Stephen G. (2012) 'Water use

by livestock: A global perspective for a regional issue?' *Animal Frontiers* 2: 9-16

Douglas, Mary (1972) 'Deciphering a Meal', *Daedalus* 101/1: 61-81

Dunbar, R. I. M. (2017) 'Breaking Bread: the Functions of Social Eating', *Adaptive Human Behaviour and Physiology* 3: 198-211

Ecolabel Index (2019) 'All ecolabels in United Kingdom', *Ecolabel Index* [online] Available: http://www.ecolabelindex.com/ecolabels/?st=country,gb. (Accessed: 09/04/19)

Eden Project Communities (2017) 'Table for one: almost half of all meals in the UK eaten alone', *Eden Project Communities* [online] Available at: https://www.edenprojectcommunities.com/blog/table-for-one-almost-half-of-all-meals-in-the-uk-eaten-alone (Accessed 26/03/2019)

Edwards-Jones, G. (2010) 'Does eating local food reduce the environmental impact of food production and enhance consumer health?', *Proceedings from the Nutritional Society* 1 (1): 1

Edwards-Jones, G., Plassman, K., York, E.H., Hounsome, B., Jones, D. L., Mila` i Canals, L. (2008) 'Vulnerability of exporting nations to the development of a carbon label in the United Kingdom', *Environ. Sci. Policy*: 479–490

Elgar, Frank. J., Wendy Craig and Stephen Trites (2012) 'Family Dinners, Communication, and Mental Health in Canadian Adolescents', *Journal of Adolescent Health* 52 (4):433-438

Encyclopaedia Britannica (2011) 'Extensive agriculture' *Encyclopaedia Britannica* [online] Available at: https://www.britannica.com/topic/extensive-agriculture (Accessed: 14/05/2019)

Encyclopaedia Britannica (2016) 'Biogeochemical cycle' *Encyclopaedia Britannica* [online] Available at: https://www.britannica.com/science/biogeochemical-cycle (Accessed: 14/05/2019)

Encyclopaedia Britannica (2019) 'Greenhouse gas' *Encyclopaedia Britannica* [online] Available at: https://www.britannica.com/science/greenhouse-gas (Accessed: 14/05/2019)

Environment, Food and Rural Affairs Committee (2017) 'Food waste in England', *parliament.uk* [online] Available at: https://publications.parliament.uk/pa/cm201617/cmselect/cmenvfru/429/429.pdf (Accessed 30/04/2019)

Ercin, A., Aldaya, M., Hoekstra, A. (2012) 'The water footprint of soy milk and soy burger and equivalent animal products', *Ecological Indicators* 18 (1), pp. 392-402

European Commission (2018) 'EU and the Paris Climate Agreement: Taking stock of progress at Katowise COP', *Report from the Commission to the European Parliament and the Council,* COM(2018) 716 final

European Commission (n.d. 1) 'Common Agricultural Policy at a glance', *European Commission* [online] Available at: https://ec.europa.eu/info/food-farming-

fisheries/key-policies/common-agricultural-policy/cap-glance_en (Accessed: 01/05/19).

European Commission (n.d. 2) 'Agricultural and Rural Development, Agri-environmental measures' *European Commission* [online] Available at: https://ec.europa.eu/agriculture/envir/measures_en (Accessed: 01/05/19)

European Commission (n.d. 3) 'EU Emissions Trading System (EU ETS)', *European Commission* [online] Available at: https://ec.europa.eu/clima/policies/ets_en. (Accessed: 01/05/19)

European Environment Agency (n.d.) 'Glossary' *European Commission* [online] Available at: https://www.eea.europa.eu/help/glossary/eea-glossary (Accessed: 15/05/2019)

European Vegetarian Union (2019) 'Definitions of "vegan" and "vegetarian" in accordance with the EU Food Information Regulation', *European Vegetarian Union* [online] Available at: http://www.euroveg.eu/wp-content/uploads/2018/08/EVU_PP_Definition.pdf (Accessed: 09/04/19)

FAO (2002) 'World Agriculture: towards 2015/2030. Summary report', *FAO* [online] Available at: http://www.fao.org/3/a-y3557e.pdf (Accessed: 04/04/19)

FAO (2008) 'An Introduction to the Basic Concepts of Food Security', *FAO* [online] Available at: http://www.fao.org/3/al936e/al936e00.pdf (Accessed: 01/04/19)

FAO (2013) 'Tackling Climate Change Through Livestock: A global assessment of emissions and mitigation opportunities', *FAO* [online] Available at: http://www.fao.org/3/i3437e/i3437e.pdf (Accessed 03/04/19)

FAO (2015) 'Healthy soils are the basis for healthy food production', *FAO* [online] Available at: http://www.fao.org/soils-2015/news/news-detail/en/c/277682/ (Accessed 27/03/19)

FAO (2015b) 'Agroforestry' *FAO* [online] Available at: http://www.fao.org/forestry/agroforestry/80338/en/ (Accessed: 17/05/2019)

FAO (2019a) 'Food Loss and Food Waste', *FAO* [online] Available at: http://www.fao.org/food-loss-and-food-waste/en/ (Accessed: 29/03/2019)

FAO (2019b) *The State of the World's Biodiversity for Food and Agriculture*, J. Bélanger & D. Pilling (eds.) *FAO Commission on Genetic Resources for Food and Agriculture Assessments:* Rome [online] Available at: http://www.fao.org/3/CA3129EN/CA3129EN.pdf (Accessed 11/06/2019)

FAO (n.d.) 'Animal production' [online] Available at: http://www.fao.org/animal-production/en/ (Accessed 22/05/2019)

FAO and ITPS (2015) 'Status of the World's Soil Resources (SWSR) – Main Report', *Rome, Italy: Food and Agriculture Organization of the United Nations and Intergovernmental Technical Panel on Soils* [online], Available at: http://www.fao.org/documents/card/en/c/c6814873-efc3-41db-b7d3-2081a10ede50/ (Accessed:

27/03/19)

FAO, IFAD and WFP (2013) 'The State of Food Insecurity in the World 2013: the multiple dimensions of food security' *Rome: FAO* [online] Available at: http://www.fao.org/3/a-i3434e.pdf (Accessed: 17/05/2019)

FAO, IFAD, UNICEF, WFP and WHO (2018), 'The State of Food Security and Nutrition in the World 2018: Building climate resilience for food security and nutrition', *Rome: FAO* [online] Available at: http://www.fao.org/3/I9553EN/i9553en.pdf (Accessed: 21/03/2019)

FAOSTAT (n.d.) 'Food Balance Sheets', *FAOSTAT* [online] Available at: http://www.fao.org/faostat/en/#data/FBS (Accessed 08/05/19)

Farming God's Way (n.d.) 'Farming God's Way', [online] Available at: https://www.farming-gods-way.org/ (Accessed: 13/06/2019)

FCRN Foodsource (2019) 'Food systems and greenhouse gas emissions' *FCRN* [online] Available: https://www.foodsource.org.uk/33-how-important-transport (Accessed: 09/04/19)

FCRN Glossary (n.d.) 'glossary', *FCRN* [online] Available at: https://www.foodsource.org.uk/glossary (Accessed: 14/05/2019)

Fischer, M. et al. (eds.) (2018) 'Summary for policymakers of the regional assessment report on biodiversity and ecosystem services for Europe and Central Asia of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services' *IPBES* [online] Available at: https://www.ipbes.net/assessment-reports/eca (Accessed: 03/04/2019)

Food Cloud (2019) 'Food Cloud', *Food Cloud* [online] Available at: https://food.cloud/ (Accessed: 09/04/2019)

Food Sovereignty UK (n.d.) 'UK Movement', *Food Sovereignty* [online] Available at: http://foodsovereignty.org.uk/ukfoodsov/ (Accessed: 01/05/19)

Food Standards Agency (2018) 'Best Before and use by dates', *Gov.uk* [online] Available at: https://www.food.gov.uk/safety-hygiene/best-before-and-use-by-dates (Accessed: 13/06/19)

Fraanje, W. (2018) 'What is the land sparing-sharing continuum?', *Food Climate Research Network, University of Oxford* [online] Available at: https://foodsource.org.uk/building-blocks/what-land-sparing-sharing-continuum (Accessed 09/05/2019)

Fraanje, W., and Lee-Gammage, S. (2018) What is Sustainable Intensification? (Foodsource: building blocks), *Food Climate Research Network: University of Oxford* [online], Available at: https://www.foodsource.org.uk/building-blocks/what-sustainable-intensification (Accessed: 13/06/2019)

Garnett, T. (2008) 'Cooking up a storm: Food, greenhouse gas emissions and our changing climate', *International Journal of Climate Change Strategies and*

Management 1(2)

Garnett, T. (2009) 'Livestock-related greenhouse gas emissions: impacts and options for policy makers', *Environmental Science & Policy,* 12(4): 491-503

Garnett, T., Smith, P., Nicholson, W., and Finch, J. (2016) 'Food systems and greenhouse gas emissions', *Food Climate Research Network, University of Oxford* [online] Available at: https://www.foodsource.org.uk/chapters/3-food-systems-greenhouse-gas-emissions (Accessed: 20/06/2019)

Garnett, T., Benton, T., Little, D., and Finch, J. (2018) 'Food systems and contributions to other environmental problems', *Food Climate Research Network, University of Oxford* [online] Available at: https://foodsource.org.uk/chapters/5-food-systems-contributions-other-environmental-problems (Accessed: 11/06/2019)

Glenza, Jessica (2019) 'Inside the impossible burger: is the meat-free mega trend as good as we think?' *The Guardian* [online], March 14. Available at: https://www.theguardian.com/food/2019/mar/14/impossible-burger-meat-from-cells-change-eating-habits (Accessed: 16/04/2019)

Global Ecolabelling (2019) 'What is ecolabelling?' *Global Ecolabelling* [online] Available: https://globalecolabelling.net/what-is-eco-labelling/ (Accessed 09/04/19)

Global Health Observatory (2017) 'Prevalence of obesity among adults, BMI ≥ 30, age-standardized: estimates by World Bank income group', *Global Health Observatory* [online] Available at: http://apps.who.int/gho/data/view.main.WB2480A?lang=en (Accessed: 21/03/2019)

Gordon, L., Finlayson C., Falkenmark, M. (2010) 'Managing water in agriculture for food production and other ecosystem services', *Agricultural Water Management*, 97 (4): 514-519

Gorringe, Timothy (2006) *Food, Farming and the Churches,* London: SPCK

Greenpeace (2019) 'Feeding the Problem: the dangerous intensification of animal farming in Europe', *Greenpeace* [online] Available at: https://www.greenpeace.org/eu-unit/issues/nature-food/1803/feeding-problem-dangerous-intensification-animal-farming/ (Accessed: 08/05/2019)

Guillebaud, John and Pete Moore (2009) 'Population matters: voluntary contraception for environmental sustainability' in Robert S. White (ed.), *Creation in Crisis: Christian Perspectives on Sustainability*. London: SPCKHarvey

Fiona (2016) 'Post-Brexit farming subsidies must protect nature, 84 groups say', *The Guardian* [online] Available at: https://www.theguardian.com/environment/2016/jul/14/post-brexit-farming-subsidies-must-protect-nature-84-groups-say (Accessed: 25/04/19)

Harvey, Fiona and Van der Zee, Bibi (2019) 'Caroline Lucas urges parliament to 'seriously consider' tax on meat', *The Guardian* [online] Available at: https://www.theguardian.com/environment/2019/jan/04/caroline-lucas-green-mp-meat-

tax-oxford-farmers-conference-prioritise-sustainability (Accessed: 08/05/19)

Hayhoe, K. (2016) 'All the extreme weather we've had lately isn't anything new, right?', *YouTube* [online] Available at: https://www.youtube.com/watch?v=LT4aZzjbl3w (Accessed: 03/04/2019)

Hayhow DB, Bond AL, Douse A, Eaton MA, Frost T, Grice PV, Hall C, Harris SJ, Havery S, Hearn RD, Noble DG, Oppel S, Williams J, Win I and Wotton S (2017) 'The state of the UK's birds 2016', *The RSPB, BTO, WWT, DAERA, JNCC, NE, NRW and SNH*, Bedfordshire: Sandy

Hazon (2014) '2022 Vision: 7-Year Goals', *Hazon* [online] Available at: https://hazon.org/jewish-food-movement/2022-vision-food-goals/ (Accessed: 15/03/2019)

Helm, Dieter (2016) 'British Agricultural Policy after BREXIT', *Natural Capital Network – Paper 5*

Hemmings, Joshua and Jonathan Tame (2017) 'Shining in the sun: a biblical vision for city transformation', Cambridge: Jubilee Centre

Horton, Amy (2012) 'A new movement is born: food sovereignty in the UK', *Global Justice Now* [online], Available at: https://www.globaljustice.org.uk/blog/2012/jul/12/new-movement-born-food-sovereignty-uk. (Accessed: 01/05/19)

Hospido A, Canals LM & McLaren S (2012) 'The role of seasonality in lettuce consumption: a case study of environmental and social aspects', *Int J Life Cycle Assess*, 14: 381–391

House of Commons (2018) 'The future for food, farming and the environment: Government Response to the Committee's Sixth Report', *Parliament* [online] Available at: https://publications.parliament.uk/pa/cm201719/cmselect/cmenvfru/1598/159802.htm (Accessed: 01/05/19)

Howard Boyd, Emma (2018) 'The Future of Farming', *Environment Agency* [online] Available at: https://environmentagency.blog.gov.uk/2018/05/08/the-future-of-farming/ (Accessed: 09/05/19)

Impossible Foods (2019) 'Impossible Burger ingredients', *Impossible Foods* [online] Available at: https://faq.impossiblefoods.com/hc/en-us/articles/360018937494-What-are-the-ingredients-. (Accessed: 16/04/2019)

International Land Coalition (2011) 'The Tirana Declaration' *International Land Coalition* [online] Available at: https://www.landcoalition.org/sites/default/files/documents/resources/tiranadeclaration.pdf (Accessed: 17/05/2019)

Institute for Government (2019) 'Explainer: Common Agricultural Policy', *Institute For Government* [online] Available at: https://www.instituteforgovernment.org.uk/explainers/common-agricultural-policy (Accessed: 24/06/19)

Irani, George (2008) 'Cultural aspects in responding to violence in the Israeli-Palestinian conflict – Palestinian perspective' in Aertsen et al., *Restoring Justice after Large-scale Violent Conflicts: Kosovo, DR Congo and the Israeli-Palestinian Case*, Devon:

Willan Publishing

Jean (2015) 'Full report from the Food Sovereignty gathering at Hedben Bridge', *Food Sovereignty* [online] Available at: https://www.globaljustice.org.uk/blog/2012/jul/12/new-movement-born-food-sovereignty-uk (Accessed: 01/05/19)

Johnston J, Szabo M & Rodney A (2011) 'Good food, good people: understanding the cultural repertoire of ethical eating', *J Consum Cult* 11: 293–318

Jones, Christopher and John Martin (2015) *Honey and Thistles: Biblical Wisdom for Renewal of Farming*, Northampton: Agriculture and Theology Project

Jubilee (2018) 'Community Shares Offer'. *Jubilee Coop* [online] Available at: https://www.jubilee.coop/wp-content/uploads/2018/10/JUBILEE_SHAREOFFER_FINAL.pdf. (Accessed: 26/04/2019)

Jubilee (2019a) 'Who we are', *Jubilee Coop* [online] Available at: https://www.jubilee.coop/who-we-are/ (Accessed: 26/04/2019)

Jubilee (2019b) 'What we Do', *Jubilee Coop* [online] Available at: https://www.jubilee.coop/what-we-do/ (Accessed: 13/06/19)

Jung, L. Shannon (2004) *Food for Life: The Spirituality and Ethics of Eating*, Minneapolis: Augsburg Fortress

Just Jr., Arthur A (1993) *The Ongoing Feast: Table Fellowship and Eschatology at Emmaus*, Collegeville, Minnesota: The Liturgical Press

Kerner, Susanne and Cynthia Chou (2015) 'Introduction' in *Commensality: From Everyday Food to Feast* (eds. Susanne Kerner, Cynthia Chou and Morten Warmind), London and New York: Bloomsbury Academic

Khoury, Colin K., Bjorkman, Anne D., Dempewolf, Hannes, Ramirez-Villegas, Julian, Guarino, Luigi, Jarvis, Andy, Rieseberg, Loren H. and Struik, Paul C. (2014) 'Increasing homogeneity in global food supplies', *Proceedings of the National Academy of Sciences of the United States of America* 111: 4001-4006

Kissinger, G., Herold, M., De Sy., V. (2012) 'Drivers of Deforestation and Forest Degradation: A Synthesis Report for REDD+ Policymakers', Vancouver, Canada: Lexeme Consulting

Knauth, R. J. D. (2003) 'Alien, foreign resident' in Alexander, T. Desmond and Baker, David W. (eds.), *Dictionary of the Old Testament: Pentateuch*, Leicester, England: Inter-Varsity Press

Kremen, C. (2015) 'Reframing the land-sparing/land-sharing debate for biodiversity conservation', *Annals of the New York Academy of Sciences* 1355(1): 52-76

LEAF (n.d.) 'Integrated farm management', *LEAF* [online] Available at: https://leafuk.org/farming/integrated-farm-management (Accessed: 14/05/2019)

Lee, Cynthia (2013) 'Family dinners nourish mental health in adolescents', *McGill Newsroom* [online] Available at: https://www.mcgill.ca/newsroom/channels/

news/family-dinners-nourish-mental-health-adolescents-225489 (Accessed: 02/04/2019)

Leopold, Aldo (1966) 'The Land Ethic' in *A Sand County Almanac*, New York: Oxford University Press

Lilburne, Geoffrey R. (1989) *A Sense of Place: A Christian Theology of the Land*, Nashville: Abingdon Press

LSE (2018) 'What is a carbon price and why do we need one', *LSE* [online] Available at: http://www.lse.ac.uk/GranthamInstitute/faqs/what-is-a-carbon-price-and-why-do-we-need-one/ (Accessed: 01/05/19)

Lynch, J. (2019) 'Agricultural methane and its role as a greenhouse gas', *Food Climate Research Network, University of Oxford* [online] Available at: https://foodsource.org.uk/building-blocks/agricultural-methane-and-its-role-greenhouse-gas (Accessed: 20/06/2019)

Lynch, J. and Pierrehumbert, R. (2019) 'Climate Impacts of Cultured Meat and Beef Cattle', *Front. Sustain. Food Syst* [online] Available at: https://doi.org/10.3389/fsufs.2019.00005 (Accessed: 03/04/2019)

Lynch, John, Donnellan, Trevor and Hanrahan, Kevin (2016) 'Exploring the Implications of GHG Reduction Targets for Agriculture in the United Kingdom and Ireland', *Rural Economy and Development Programme, Teagasc,* (Presented at 90th Annual Conference of the Agricultural Economics Society, University of Warwick, England)

MacDiarmid, J. (2014) 'Seasonality and dietary requirements: will eating seasonal food contribute to health and environmental sustainability?', *Proceedings from the Nutritional Society* 73 (1): 386-375

Marlow, Hilary (2009) 'Justice for all the earth: society, ecology and the biblical prophets' in Robert S. White (ed.) *Creation in Crisis: Christian perspectives on sustainability*, London: SPCK

Marvell, H. (2019) 'Veganuary Jumps For Joy as a Quarter of a Million People Try Vegan With Us!', *Veganuary* [online] Available at: https://veganuary.com/blog/a-quarter-of-a-million-people-try-vegan/ (Accessed: 09/04/2019)

Mathis, David (2016) 'The Lost Art of Feasting', *Desiring God* [online] Available at: https://www.desiringgod.org/articles/the-lost-art-of-feasting (Accessed: 15/03/19)

Mekonnen, M. M. and Hoekstra, A.Y. (2010) 'The green, blue and grey water footprint of farm animals and animal products', *Value of Water Research Report Series* No. 48, UNESCO-IHE, Delft, the Netherlands

Mind (2019) 'Nature and Mental Health', *Mind* [online] Available at: https://www.mind.org.uk/information-support/tips-for-everyday-living/nature-and-mental-health/#.XQIcpIhKg2x (Accessed 13/06/19)

Moo, Jonathan (2009) 'Environmental unsustainability and a biblical vision of the earth's

future', in Robert S. White (ed.) *Creation in Crisis: Christian perspectives on sustainability*, London: SPCK

Natural Capital Committee (2017) 'How to do it: a natural capital workbook', *gov.uk* [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/608852/ncc-natural-capital-workbook.pdf (Accessed: 14/05/2019)

NFU (2019a) 'NFU responds to the EAT Lancet Commission report', *NFU* [online] Available at: https://www.nfuonline.com/nfu-responds-to-the-eat-lancet-commission-report/ (Accessed: 03/04/2019)

NFU (2019b) 'The importance of British food and farming standards', *NFU* [online] Available at: https://www.nfuonline.com/back-british-farming/campaign-news/the-importance-of-british-food-and-farming-standar-606337/ (Accessed: 03/04/2019)

NFU (2019c) 'The Future of Food 2040', *NFU* [online] Available at: https://www.nfuonline.com/nfu-online/news/the-future-of-food-2040/ (Accessed: 08/05/2019)

Olio (2019) 'What is Olio?', *Olio* [online] Available at: https://olioex.com/about/#about (Accessed: 09/04/2019)

Oxfam (2009) '4-a-week: Changing food consumption in the UK to benefit people and planet', *Oxfam* [online] Available at: https://policy-practice.oxfam.org.uk/publications/4-a-week-changing-food-consumption-in-the-uk-to-benefit-people-and-planet-114037 (Accessed 04/04/2019)

Oxfam (2018) 'Ripe for Change: Ending Human Suffering in Supermarket Supply Chains', *Oxfam International* [online] Available at: https://www-cdn.oxfam.org/s3fs-public/file_attachments/cr-ripe-for-change-supermarket-supply-chains-210618-en.pdf (Accessed: 11/06/19)

Pimentel, D., Berger, B., Filiberto, D., Newton, M., Wolfe, B., Karabinakis, E., Clark, S., Poon, E., Abbett, E., Nandagopal, S. (2004) 'Water Resources: Agricultural and Environmental Issues', *BioScience* 54 (10): 909-918

Piper, John (2009) 'The Loving Meaning of the Leftovers', *Desiring God* [online] Available at: https://www.desiringgod.org/articles/the-loving-meaning-of-the-leftovers (Accessed 01/04/2019)

Pollan, Michael (2008) *In Defence of Food,* London: Penguin Books

Poore, J. (2018) 'We label fridges to show their environmental impact – why not food?', *The Guardian* [online] Available at: https://www.theguardian.com/environment/2018/oct/10/we-label-fridges-to-show-their-environmental-impact-why-not-food (Accessed: 09/04/19)

Poore, J. and Nemecek, T. (2018) 'Reducing food's environmental impacts through

producers and consumers', *Science* 360: 987-992

Porter, Stephen D., Reay, David S., Bomberg, Elizabeth and Higgins, Peter (2018) 'Avoidable food losses and associated production-phase greenhouse gas emissions arising from application of cosmetic standards to fresh fruit and vegetables in Europe and the UK', *Journal of Cleaner Production* 201: 869-878

Principles for Responsible Investment (2014) 'Environmental and social consequences of climate change', *RI Quarterly* 3

Project Drawdown (2019a) 'Conservation agriculture', *Project Drawdown* [online] Available at: https://www.drawdown.org/solutions/food/conservation-agriculture (Accessed: 13/06/2019)

Project Drawdown (2019b) 'Regenerative agriculture', *Project Drawdown* [online] Available at: https://www.drawdown.org/solutions/food/regenerative-agriculture (Accessed: 13/06/2019)

Project Drawdown (2019c) 'Reduced food waste', *Project Drawdown* [online] Available at: https://www.drawdown.org/solutions/food/reduced-food-waste (Accessed: 14/06/2019)

Raworth, Kate (2012) 'A safe and just space for humanity: Can we live within the doughnut?', *Oxfam Discussion Paper* [online] Available at: https://www.oxfam.org/sites/www.oxfam.org/files/dp-a-safe-and-just-space-for-humanity-130212-en.pdf (Accessed: 11/04/2019)

Raworth, Kate (2017) *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist*, London: Random House

Relational Research (2014) 'The Relational Proximity® Framework', *Jubilee Centre* [online] Available at: http://www.jubilee-centre.org/wp-content/uploads/2016/03/Understanding-The-Relational-Proximity-Framework.pdf (Accessed: 25/04/2019)

Rewilding Britain (2019) 'Rewilding', *Rewilding Britain* [online] Available at: https://www.rewildingbritain.org.uk/rewilding/ (Accessed: 13/06/2019)

Robinson, Claire and Antoniou, Michael (2018) 'The Impossible Burger: Boon or Risk to Health and Environment?' *GMO Science* [online] Available at: https://www.gmoscience.org/impossible-burger-boon-risk-health-environment/ (Accessed: 16/04/2019)

Röös, E., Bajželj, B., Smith, P., Patel, M., Little, D. and Garnett, T. (2017) 'Greedy or needy? Land use and climate impacts of food in 2050 under different livestock futures', *Global Environmental Change* 47: 1-12

Sainsbury's (2018) 'Sainsbury's Living Well Index', *Sainsbury's* [online] Available at: https://www.about.sainsburys.co.uk/about-us/live-well-for-less/living-well-index-reports (Accessed: 25/03/2019)

Schluter, Michael (1995) 'Roots: Biblical Norm or Cultural Anachronism?', *Cambridge Papers* 4:4, Cambridge: Jubilee Centre

Schluter, Michael and Ashcroft, John (2005) *Jubilee Manifesto: a framework, agenda & strategy for Christian social reform,* England: Inter-Varsity Press

Schluter, Michael and Lee, David John (2002) *The R Option: Building Relationships as a Better Way of Life,* Cambridge: Relationships Foundation

Shapiro, Paul (2018) *Clean Meat: How Growing Meat Without Animals Will Revolutionize Dinner and the World*, New York: Gallery Books

Sharma, Nagendra Kumar, and Kushwaha, Gyaneshwar Singh (2019) 'Eco-labels: A tool for green marketing or just a blind mirror for consumers', *Electronic Green Journal* 1 (42)

Singh-Watson, G. (2019) 'Brexit utopia is a receding dream – instead Britain faces a food shortage', *The Guardian* [online] Available at: https://www.theguardian.com/commentisfree/2019/jan/09/brexit-utopia-receding-dream-food-shortage-fruit-veg-supplier (Accessed: 09/04/2019)

Slow Food (n.d) 'Slow Food', *Slow Food* [online] Available at: https://www.slowfood.org.uk/. (Accessed: 07/05/2019)

Soh, Hui Leng Davina (2016) *The Motif of Hospitality in Theological Education: A Critical Appraisal with Implications for Application in Theological Education*, Carlisle: Langham Global Library

Spaling, Harry and Kooy, Kendra Vander (2019) 'Farming God's Way: agronomy and faith contested', *Agriculture and Human Values* 2019

Spencer, Nick and Robert White (2007) *Christianity, Climate Change and Sustainable Living*, London: SPCK.

Steffen, W., Richardson, K., Rockström, J., Cornell, S.E., et. al. (2015) 'Planetary boundaries: Guiding human development on a changing planet', *Science* 347:6223

Stockholm Resilience Centre (n.d) 'Planetary boundaries research', *Stockholm Resilience Centre* [online] Available at: https://www.stockholmresilience.org/research/planetary-boundaries.html (Accessed: 26/03/2019)

Sustainable Food Trust (2019) 'EAT-Lancet report's recommendations are at odds with sustainable food production', *Sustainable Food Trust* [online] Available at: https://sustainablefoodtrust.org/articles/eat-lancet-reports-recommendations-are-at-odds-with-sustainable-food-production/ (Accessed: 14/06/2019)

Teisl, M. F., Roe, B., and Hicks, R. L. (2002) 'Can eco-labels tune a market? Evidence from Dolphin-Safe Labeling', *Journal of Environmental Economics and Management* 43(3): 339–359

The Center for Mindful Eating (n.d.) 'Mindful Eating', *The Center for Mindful Eating* [online] Available at: https://www.thecenterformindfuleating.org/ (Accessed: 01/05/2019)

The Flexitarian (2019) 'What is the flexitarian diet?' *The Flexitarian* [online] Available at:

https://theflexitarian.co.uk/flexitarian-diet-2/ (Accessed: 09/04/2019)

The Trussell Trust (2019) 'What we do', *The Trussell Trust* [online] Available at: https://www.trusselltrust.org/what-we-do/ (Accessed: 09/04/2019)

The Wildlife Trust (2019) 'Grassland', *The Wildlife Trust* [online] Available at: https://www.wildlifetrusts.org/habitats/grassland (Accessed: 09/04/19)

The Woodland Trust (2017) '"Rewilding" – working with nature', *Woodland Trust* [online] Available at: https://www.woodlandtrust.org.uk/publications/2017/07/rewilding/ (Accessed: 13/06/2019)

Thøgersen, J. (2000) 'Psychological determinants of paying attention to eco-labels in purchase decisions: Model development and multinational validation', *Journal of Consumer Policy* 23(3): 285–313

UNCCD (2017) 'Global Land Outlook', *UNCCD* [online] Available at: https://knowledge.unccd.int/glo. (Accessed: 27/03/2019)

United Nations (n.d) 'Goal 12: Ensure sustainable consumption and production patterns', *United Nations* [online] Available at: https://www.un.org/sustainabledevelopment/sustainable-consumption-production/ (Accessed: 29/03/2019)

US Food Sovereignty Alliance (n.d.) 'US Food Sovereignty Alliance', *US Food Sovereignty Alliance* [online] Available at: http://usfoodsovereigntyalliance.org/what-is-food-sovereignty/ (Accessed: 01/05/19)

Vegan.com (2019) 'The meaning of vegan: a comprehensive definition', *Vegan* [online] Available at: https://www.vegan.com/what/ (Accessed: 09/04/2019)

Vermeulen, Sonja J., Campbell, Bruce M. and Ingram, John S. I. (2012) 'Climate Change and Food Systems', *Annual Review of Environment and Resources* 37: 195-222

Wallace, J. S. (2000) 'Increasing agricultural water use efficiency to meet future food production', *Agriculture, Ecosystems and Environment*, 82: 105-119

Wasley, Andrew and Heather Kroeker (2018) 'Revealed: industrial-scale beef farming comes to the UK', *The Bureau Investigates* [online] Available at https://www.thebureauinvestigates.com/stories/2018-05-29/inside-britains-new-intensive-agriculture-sector-beef-lots (Accessed: 08/05/2019)

Wellesley, Laura, Happer, Catherine, and Froggatt, Antony (2015) 'Changing Climate, Changing Diets: Pathways to Lower Meat Consumption', *Chatham House Report,* Available at: https://www.chathamhouse.org/sites/default/files/publications/research/CHHJ3820%20Diet%20and%20climate%20change%2018.11.15_WEB_NEW.pdf (Accessed: 24/06/19)

Westhoeka, H., Lesschen, J., Rood, T., Wagner, S., De Marco, A., Murphy-Bokern, D., Leip, A., Grinsven, H., Sutton, M., Oenemab, O. (2014) 'Food choices, health and environment: Effects of cutting Europe's meat and dairy intake', *Global Environmental Change,* 26 (1): 196-205

Willett, W., Rockström, J., Loken, B. Springmann, M. et. al. (2019) 'Food in the Anthropocene: the EAT–*Lancet* Commission on healthy diets from sustainable food systems', *The Lancet,* 393 (10170): 447-492

Wilson, Bee (2019a) 'The trouble with fake meat', *The Observer* [online] Available at: https://www.theguardian.com/food/2019/jan/27/the-trouble-with-fake-meat-beetroot-burgers-food-substitutes (Accessed: 16/04/2019)

Wilson, Bee (2019b) *The Way We Eat Now*, London: 4th Estate

Wirzba, Norman (2003) *The Paradise of God: Renewing Religion in an Ecological Age*, New York: Oxford University Press

Wirzba, Norman (2019) *Food and Faith: A Theology of Eating* (2nd ed.), Cambridge: Cambridge University Press

World Health Organisation (2018) 'Obesity and overweight', *WHO* [online]Available at: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight (Accessed: 21/03/19)

WRAP (2018a) 'Food Surplus and Waste in the UK – Key Facts', *WRAP* [online] Available at: https://www.wrap.org.uk/sites/files/wrap/Food-Surplus-and-Waste-UK-Key-Facts-23-11-18.pdf. (Accessed: 29/03/2019)

WRAP (2018b) 'Food Waste Reduction Roadmap & Toolkit', *WRAP* [online] Available at: http://www.wrap.org.uk/food-waste-reduction-roadmap, (Accessed: 23/03/2019)

WRAP (2018c) 'Be a freezer hero', *WRAP* [online] Available at: https://www.lovefoodhatewaste.com/article/be-freezer-hero (Accessed: 13/06/19)

WRI (2004) 'Food Security: Grain fed to livestock as a percent of total grain consumed 2003/4 data', *World Resources Institute* [online] Available at: http://earthtrends.wri.org/ (Accessed: 01/04/2019)

Wright, Christopher (2004) *Old Testament Ethics for the People of God*, Leicester: Inter-Varsity Press

Wright, Christopher (2006) *The Mission of God: Unlocking the Bible's grand narrative*, Nottingham: Inter-Varsity Press

Wright, N. T. (2008) *Surprised by Hope*, New York: HarperCollins

WWF (2018) 'Living planet Index Report', *WWF* [online] Available at: https://wwf.panda.org/knowledge_hub/all_publications/living_planet_report_2018/ (Accessed: 11/06/19)

WWF (2019a) 'How does Biodiversity loss affect me and everyone else?', *WWF* [online] Available at: https://wwf.panda.org/our_work/biodiversity/biodiversity_and_you/ (Accessed: 13/03/2019)

WWF (2019b) The Story of Soy, *WWF* [online] Available at: https://www.worldwildlife.org/stories/the-story-of-soy (Accessed: 13/3/2019)

You Gov (2019) 'Quorn's flexitarian-friendly products places them on the menu for meat-eaters', *YouGov* [online] Available at: https://yougov.co.uk/topics/food/articles-reports/2019/03/27/quorns-flexitarian-friendly-products-places-them-m (Accessed: 09/04/2019)

Zhao, Chuang et al. (2017) 'Temperature increase reduces global yields of major crops in four independent estimates', *Proceedings of the National Academy of Sciences,* 114(35)

Endnotes

1 RT has been developed in a number of different publications, e.g. Schluter and Ashcroft 2005, Schluter and Lee 2002.

2 Wright 2004: 182-197 and Wright 2006: 393-6.

3 Bauckham 2009: 209. We note here that there are a number of overlapping terms which are close to being synonymous in common usage, including 'creation', 'the Earth', 'non-human creation', 'the environment' and 'the natural world'. From a Christian perspective, humanity is part of, rather than separate from, the whole of creation. We have chosen to use the term 'non-human creation' in theological contexts.

4 cf. Bookless 2014: 2.

5 Marlow 2009: 193-4.

6 Wirzba 2019: xii.

7 The language of complicity is adapted from Jung 2004.

8 Convention on Biological Diversity. For full definition, see glossary.

9 Balmford et al. 2018; Willett et al. 2019.

10 WWF 2018; Willett et al. 2019: 22.

11 WWF 2018.

12 Curtis et al. 2018.

13 Ibid.; Kissinger et al. 2012.

14 Fraanje 2018.

15 See ibid. for more information on the land sparing-sharing debate.

16 Ibid.

17 Kremen 2015.

18 Balmford et al. 2018; Fraanje 2018.

19 Fraanje 2018.

20 Balmford et al. 2018; Fraanje 2018.

21 Balmford et al. 2018.

22 FAO 2019b: 114. The nine crops are: sugar cane, maize, rice, wheat, potatoes, soybeans, oil-palm fruit, sugar beet and cassava.

23 Wilson 2019b: 37-45; Khoury et al. 2014.

24 Willett et al. 2019: 21.

25 WWF 2019a.

26 Fischer et al. 2018.

27 WWF 2019a.

28 Ibid.

29 Willett et al. 2019: 22.

30 For example, due to lost absorption of CO_2 by trees, or by emissions released by ploughing.

31 WWF 2019b.

32 Ibid.

33 Ibid.

34 See also the section on food security above.

35 FAO (n.d.).

36 Willett et al. 2019: 26.

37 Greenpeace 2019.

38 Willett et al. 2019 appendix: 24.
39 Röös et al. 2017.
40 Ibid.; Garnett 2009.
41 Willett et al. 2019: 22-24.
42 Pimentel et al. 2004.
43 Garnett et al. 2018.
44 Steffen et al. 2015; Willett et al. 2019; Doreau et al. 2012; Garnett et al. 2018.
45 Willett et al. 2019: 18.
46 Pimentel et al. 2004.
47 Ibid.
48 Wallace 2000.
49 Pimentel et al. 2004.
50 Ibid.
51 Garnett et al. 2018; Doreau et al. 2012; Mekonnen and Hoekstra 2010.
52 Mekonnen and Hoekstra 2010: 5.
53 Ibid.
54 Ibid.
55 Mekonnen and Hoekstra 2010: 6; Willett et al. 2019: 35.
56 Doreau et al. 2012: 14; Willett et al. 2019 appendix: 24.
57 Mekonnen and Hoekstra 2010: 6.
58 Willett et al. 2019 appendix: 24.
59 Mekonnen and Hoekstra 2010: 39.
60 Ibid.
61 Willett et al. 2019: 28.
62 Gordon 2011.
63 Ibid.
64 Willett et al. 2019.
65 Stockholm Resilience Centre.
66 Willett et al. 2019: 5-6.
67 Steffen et al. 2015.
68 Ibid., 6-7.
69 Chislock et al. 2013.
70 Diaz and Rosenberg 2008.
71 Chislock et al. 2013; Willett et al. 2019: 19.
72 Willett et al. 2019: 20.
73 Ibid., 19-21.
74 Ibid., 19-21.
75 Sustainable Food Trust 2019.
76 Willett et al. 2019: 24.
77 FAO 2015.
78 FAO and ITPS 2015: xix.
79 UNCCD 2017: 192.
80 Ibid., 193.
81 Ibid., 193-4.

82 Ibid., 194.

83 Ibid.

84 FAO and ITPS 2015: 127-8.

85 UNCCD 2017: 194-5.

86 FAO and ITPS 2015: 122-3.

87 UNCCD 2017: 196.

88 FAO and ITPS 2015: 8.

89 Vermeulen et al. 2012. Poore and Nemecek 2018 estimated the proportion at 26%. For a more detailed discussion of food systems and greenhouse gas emissions, see Garnett et al. 2016.

90 FAO 2013.

91 Ibid., 17.

92 Lynch 2019.

93 Lynch and Pierrehumbert 2019.

94 NFU 2019a.

95 Ibid.

96 Garnett 2008.

97 Ibid., 22.

98 Hayhoe 2016.

99 Zhao et al. 2017.

100 FAO 2019a.

101 Ibid. It should be noted that these two terms can sometimes overlap, and 'determining the difference between what may be defined as food loss versus food waste consistently can be difficult' (WRAP 2018b: 23).

102 Ibid.

103 WRAP 2018a: 1.

104 Ibid., 3.

105 BBC News 2018; Porter et al. 2018.

106 United Nations.

107 Willett et al. 2019: 3, 37-8.

108 WRAP 2018b.

109 WRAP 2018a: 6 (this figure excludes 'inedible parts').

110 Ibid., 1.

111 DEFRA 2017: 105. The self-sufficiency ratio includes food grown in the UK and then exported.

112 Ibid.

113 FCRN 2019.

114 Ibid.

115 Edwards-Jones 2010.

116 Ibid.

117 FAO 2008.

118 DEFRA 2018b.

119 Willet et al. 2019: 26; FAO 2002.

120 WRI 2004 estimated the figure at 37%.

121 Garnett 2009.

122 FAOSTAT; cf. Oxfam 2009: 12.

123 Oxfam 2018: 8.

124 Ibid., 12.

125 Oxfam 2009.

126 Willett et al. 2019: 7. The authors suggest that it is unlikely sustainable food systems could provide enough food for a continuously rising global population.

127 Guillebaud and Moore 2009: 84-101.

128 Ibid.; it should be noted that there are a variety of Christian perspectives on this topic, which cannot be adequately discussed here. Guillebaud and Moore note that many Christians 'see abortion as an unacceptable method of birth planning' (ibid., 92).

129 2.1 children per woman is the replacement rate in higher income countries.

130 e.g. Raworth 2017: 49.

131 Bricker and Ibbitson 2019.

132 Raworth 2012.

133 Burnside 2011: 152.

134 Genesis 1:26.

135 Psalm 139: 14.

136 Spencer and White 2007: 84; Burnside 2011: 152-5; Wirzba 2003: 126-7.

137 Genesis 1:31.

138 Davis 2008: 64.

139 Burnside 2011: 197. The Jubilee year also represents sabbatical rest for the land, see food security section below.

140 Ibid., 199.

141 Ibid., 198.

142 Genesis 1:29.

143 Davis 2008: 145.

144 Spencer and White 2007: 84-5; Wirzba 2003: 123-148. As these authors note, the sense of caring relationship carried by the image of the 'shepherd' or 'servant' may make it preferable to the more commonly used image of the 'steward'.

145 Genesis 2:4-25; Burnside 2011: 157-9.

146 Genesis 2:15.

147 Spencer and White 2007: 84.

148 Wirzba 2019: 252.

149 Quoted in Burnside 2011: 148.

150 Bookless 2014: 2.

151 Psalm 148:7-12.

152 Job 38:25-27.

153 Job 38:4.

154 Bookless 2014: 1.

155 Davis 2009: 48.

156 Genesis 1:11-12.

157 Davis 2009: 49.

158 Genesis 1:29-30.

159 Davis 2009: 58.

160 Ibid., 48.

161 Genesis 1:31 ('very good').

162 Spencer and White 2007: 87.

163 Deuteronomy 20:19.

164 Deuteronomy 22:4, 6-7; 25:4.

165 Davis 2009: 82.

166 Ibid.

167 Bauckham 2009.

168 Ibid., 211-2 and Colossians 1:20.

169 Luke 24:43.

170 Revelation 21:1-4. For more on the biblical conception of heaven, and the importance of bodily resurrection, see Wright 2008.

171 Blanchard 1997: 17. kainos is also used in 2 Peter 3:13. cf. Spencer and White 2007: 93-4.

172 Blanchard 1997: 17.

173 Ibid.; Moo 2009 examines the relevant biblical passages in detail.

174 Genesis 6:19.

175 Bookless 2014.

176 Spencer and White 2007: 88.

177 For example, flooding and rising sea levels, which poorer countries and people have less resources with which to mitigate against.

178 Ibid., 31-32.

179 Burnside 2011: 179.

180 Ibid., 187.

181 Deuteronomy 28.

182 Davis 2009: 40.

183 Wright 2004: 190.

184 Ibid., 184.

185 Leopold 1966.

186 Leviticus 25.

187 Davis 2009: 39.

188 Quoted in ibid.

189 Lilburne 1989: 14; Burnside 2011: 187-9.

190 The controversial practice of 'land grabbing', for example.

191 Jubilee 2019a.

192 Davis 2009: 1.

193 Berry 1977: 136-7.

194 Genesis 2:8.

195 Hemmings and Tame 2012: 20.

196 Lilburne 1989: 25-6.

197 Ibid., 26.

198 Ibid., 78.

199 'Placelessness' in Lilburne's writing has similarities to the concept of 'rootlessness', discussed in detail in Schluter 1995.

200 Lilburne 1989: 110.

201 Wright 2004: 194.

202 Matthew 18:20.

203 Wright 2004: 187.

204 Lilburne 1989: 108.

205 Ibid.

206 Marlow 2009: 195.

207 Psalm 89:14; Burnside 2011: 103.

208 Psalm 72: 3-4.

209 Marlow 2009: 195.

210 Ibid., 198.

211 Ibid., 199.

212 Ibid., 200.

213 Bookless 2014: 4.

214 Marlow 2009: 204.

215 Isaiah 34:13.

216 Marlow 2009: 204.

217 Ibid., 208.

218 Ibid., 207.

219 Jung 2004: 31.

220 Wirzba 2019: xii.

221 See the Introduction in Wirzba 2019, which discusses at greater length the idea that humans are connected in relationship not only with the animals of creation that we eat but the plants and even microbes and bacteria.

222 Ibid., 74.

223 Jung 2004: 45.

224 Ibid., 44.

225 See chapter 2, part 1 'delighting in creation'.

226 Wirzba 2019: 49.

227 Ibid., 51.

228 Ibid., 43.

229 Ibid., 59.

230 Ibid., 61.

231 Ibid., 57.

232 Ibid., 63.

233 Ibid., 156-157. See chapter 5 'Life through Death: Sacrificial Eating' for more on the connection between eating, death and sacrifice.

234 Ibid., 72.

235 Jung 2004: 6.

236 Ibid., xi.

237 Ibid., 6-7.

238 Ibid., 8.

239 Ibid., xii-xiii.

240 Ibid., 9.

241 Wirzba 2019: 263.

242 Psalm 104:14-15.

243 Deuteronomy 12:7; 12:18; 14:26.

244 Isaiah 9:3.

245 Jeremiah 31:12.

246 Jung 2004: 51.

247 Wirzba 2019: xii.

248 Capon 2002: 17.

249 See chapter 1.

250 Matthew 14:20; 15:37; 16:9-10; Mark 6:43; 8:8; 8:19-20; Luke 9:17; John 6:13. Twelve can be understood as provision for each disciple, while the significance of seven can be interpreted as the traditional Jewish number of perfection (Piper 2009).

251 Matthew 14:19; 15:36; Mark 6:41; 8:6; Luke 9:16; John 6:11.

252 Jung 2004: 22.

253 Matthew 14:19; 15:36; 26:26-27; Mark 6:41; 8:6-7; 14:22-23; Luke 9:16; 22:17; 22:19; 24:30; John 6:11.

254 Acts 27:35.

255 Wirzba 2019: 239

256 Psalm 34:8.

257 Wirzba 2019: 249.

258 Ibid., 250.

259 Ibid., 254.

260 Psalm 148:3-9 and Psalm 148:11-12.

261 1 Corinthians 13:4-6.

262 Wirzba 2019: 243.

263 Slow Food.

264 Wright 2014: 37-38.

265 Ibid., 40.

266 Luke 22:19-20.

267 Wright 2014:44.

268 Jung 2004: 39.

269 Ibid., 39.

270 Ibid., 80.

271 Wirzba 2019: 200.

272 Jung 2004: 30. This meal was called agape in Greek ('love feast').

273 1 Corinthians 11:20-21.

274 Wirzba 2019: 202.

275 Kerner and Chou 2015: 1.

276 Ibid.

277 Ibid.

278 Dunbar 2017.

279 Sainsbury's Living Well Index 2018: 9.

280 Delistraty 2014.

281 Lee 2013; Elgar, Craig and Trites 2012.

282 Eden Project Communities 2017.

283 Genesis 2:18.

284 Proverbs 15:17.

285 Deuteronomy 12:7; 12:18; 14:26.

286 Luke 7:34. The theological term often used of Jesus' commensality is 'table fellowship' (Chester 2011: 19).

287 Chester 2011: 93.

288 e.g. Luke 10:38-42; 11:37-52; 14:1-24.

289 Acts 10:41; cf. Luke 24:28-35, 42-43; John 21:1-14.

290 Genesis 26:12-16.

291 Genesis 26:26-31.

292 Similarly, Jacob and Laban eat together after making a mutual covenant (Genesis 31:54).

293 Luke 22:20.

294 Irani 2008: 274; Champain 2014.

295 Knauth 2003: 32.

296 Genesis 18:1-8; cf. Genesis 19:1-3; 24:10-33; 26:1-11; Exodus 2:20; Judges 13:15; 2 Kings 4:8-37; Nehemiah 5:14-19; Job 31:32.

297 Hebrews 13:2.

298 Matthew 25:31-46; Luke 14:12-15; Romans 12:13, 19-20; 1 Timothy 5:10; Titus 1:8; 1 Peter 4:9.

299 Bowersock 1978: 88.

300 Chester 2011: 48-50.

301 Douglas 1972: 61.

302 Ruth 2.

303 Ruth was from Moab (Ruth 1:4).

304 Chester 2011: ch. 1 and 2.

305 Soh 2016: 170-2.

306 Luke 5:27-32.

307 Luke 5:30 shows that the disciples attended too.

308 Ibid.

309 Chester 2011: 27-28.

310 Luke 7:36-50.

311 Chester 2011: 42.

312 Ibid., 31.

313 Acts 2:46.

314 Chester 2011: 53-7.

315 Galatians 2:11-13.

316 Chester 2011: 50.

317 Genesis 47-50; Gorringe 2006: 52.

318 Genesis 41:27.

319 Gorringe 2006: 53.

320 Genesis 45:5 (RSV translation).

321 Burnside 2011: 203.

322 Ibid.

323 Schluter and Ashcroft 2005: 222-223.

324 Wirzba 2019: 188.

325 Jones and Martin 2015: 54.

326 Exodus 12-13.

327 Exodus 12:26-27; 13:8; 13:14-15.

328 2 Chronicles 30.

329 Deuteronomy 12:4-19; 14:22-29.

330 Jung 2004: 28 (italics original).

331 John 2:1-12.

332 Luke 15:11-32.

333 Isaiah 65:21-23.

334 Isaiah 65:17-25.

335 Jung 2004: 26; Chester 2011: 64. It is sometimes also called the 'heavenly banquet'.

336 Isaiah 25:6-8.

337 Matthew 8:11; 22:1-14; 25:1-13; Luke 12:35-38; 13:29; 14:16-24; 15:11-32; 22:30; cf. Revelation 19:6-9.

338 Luke 22:14-18.

339 Jung 2004: 28-29.

340 Chester 2011: 65.

341 Mathis 2016.

342 Hazon 2014.

343 Deuteronomy 9:18; 2 Samuel 1:11-12; Nehemiah 1:4; Luke 2:37; Matthew 4:2; 9:14; Acts 13:2-3; 14:23.

344 Jung 2004: 110.

345 Ibid.

346 Wirzba 2019: 191.

347 Ibid.

348 Ibid., 186-193; cf. Isaiah 58:6-7.

349 Ibid., 191.

350 Ibid., 191-2.

351 This account of gluttony is necessarily brief, and so cannot adequately explore the complicated interactions between gluttony, eating disorders, overnourishment and obesity. The language of 'gluttony' can be used in an insensitive and judgemental way, so it is not a term we have used outside of this section.

352 Wirzba 2019: 188.

353 Jung 2004: 70.

354 Philippians 3:19; cf. Proverbs 23:1-3, 19-21; 28:7.

355 Matthew 11:19; Luke 7:34.

356 Wirzba 2019: 189.

357 Jung 2004: 71.

358 Ibid., 57-74.

359 Ibid., 73-4; Wirzba 2019: 189.

360 World Health Organisation 2018.

361 FAO et al. 2018: 2.

362 Global Health Observatory 2017.

363 Spencer and White 2007: 88.

364 e.g. Deuteronomy 10:17-18; Psalm 68:5.

365 Deuteronomy 10:18; 1 Kings 17:7-24; 2 Kings 4:1-7; Psalm 132:15; 146:7; Luke 1:53; Luke 9:10-17.

366 Acts 14:15-17.

367 Proverbs 22:9; Jeremiah 22:15; Ezekiel 18:7; Matthew 25:31-46; Luke 2:11; James 2:14-17.

368 1 Samuel 25; Job 22:7; 24:1-12; 31:16-18; Proverbs 11:26; Ezekiel 16:49; Luke 6:19-31.

369 Leviticus 25:37; cf. Burnside 2011: 232-4.

370 Deuteronomy 14:27-29; 26:1-15.

371 Deuteronomy 16:11, 14; cf. Burnside 2011: 234.

372 Leviticus 19:9-10; 23:22; Deuteronomy 24:19-22; Ruth 2.

373 Isaiah 58:6-7; cf. Zechariah 7.

374 Amos 5:11; 8:1-6.

375 Luke 3:11.

376 Luke 14:1-24.

377 Matthew 14:13-21; 15:32-39; Mark 6:33-34; 8:1-10; Luke 9:12-17; John 6:1-14.

378 Matthew 25:35.

379 Acts 6:1-6; 11:27-30; 1 Corinthians 11:17-34; James 2:15.

380 Marlow 2009: 193.

381 Davis 2009: 58.

382 Jung 2004: 62.

383 Raworth 2012 and 2017. Raworth uses the concept of 'environmental safety'.

384 Davis 2009: 122.

385 All four themes are interrelated and mutually reciprocal.

386 Capon 2002: xxvi.

387 Wendell Berry quoted in Pollan 2008: 196-7.

388 The Center for Mindful Eating.

389 Capon 2002: 68.

390 Mind 2019.

391 Jubilee 2019b.

392 Capon 2002: 15.

393 Pollan 2008: 199.

394 Ruth Reichl in Capon 2002: ix.

395 Capon 2002: 23.

396 Ibid.

397 Pollan 2008: 183. Although this is possible for many people in the UK, we acknowledge that this is unhelpful advice for those who do not have disposable income.

398 Ibid., 1.

399 Marvell 2019.

400 YouGov 2019.

401 Westhoeka et al. 2014.

402 Willett et al. 2019: 24-25.

403 Vegan.com 2019.

404 Ibid.

405 Ibid.

406 Ercin 2012.

407 Allen 2015.

408 European Vegetarian Union 2019.

409 Sometimes called an ovo-lacto vegetarian diet (i.e. including eggs and dairy). Several other varieties exist, such as lacto vegetarianism, which includes dairy products but excludes eggs.

410 Willett et al. 2019: 24-25.

411 The Flexitarian 2019.

412 Ibid.

413 Willett et al. 2019: 24-25; appendix, 24. Pork and poultry produce less GHG emissions, but it should be noted that for other indicators such as cropland use, water use, and associated nitrogen and phosphorus use, they are often similar to meat from ruminants. This demonstrates the importance of eating less meat overall, as emphasised in this book.

414 Committee on Climate Change 2019: 25; 185.

415 Willett et al. 2019.

416 Edwards-Jones 2010.

417 Edwards-Jones et al. 2008.

418 DEFRA 2017: 105.

419 Singh-Watson 2019.

420 Ibid.

421 Johnston et al 2011.

422 Hospido et al 2012.

423 MacDiarmid 2014.

424 John 6:12; see also Ch. 2.

425 Committee on Climate Change 2019: 188.

426 Environment, Food and Rural Affairs Committee 2017: 10.

427 As well as ethical concerns, many other policy recommendations emphasise the need to reduce food waste, e.g. Committee on Climate Change 2019.

428 Project Drawdown 2019c.

429 Food Standards Agency 2018.

430 WRAP 2018c.

431 Cambridge Sustainable Food 2019.

432 Olio 2019. The environmental impact of the transport used to collect the food should also be considered – driving a significant distance for collection is probably counterproductive, for example.

433 Food Cloud 2019.

434 Ibid.

435 The Trussell Trust 2019.

436 Willett et al. 2019: 35.

437 Ibid., 1.

438 Poore and Nemecek 2018.

439 Willett et al. 2019: 7.

440 Project Drawdown 2019a.

441 Farming God's Way (n.d.); Spaling and Kooy 2019.

442 Project Drawdown 2019a.

443 Project Drawdown 2019b.

444 Ibid.

445 Willett et al. 2019: 35.

446 NFU 2019c: 11.

447 This can have multiple benefits for sustainability: for example, pollinators can thrive, while pests and diseases can be naturally controlled by wildlife which is able to return to farmed land, including spiders, beetles and small mammals (Willett et al. 2019: 36; CPRE 2012a: 2).

448 CPRE 2012a: 3; Willett et al. 2019; NFU 2019c: 22.

449 NFU 2019c: 22.

450 Willett et al. 2019: 36.

451 Ibid., 35.

452 Ibid.

453 The Wildlife Trust 2019

454 Wasley and Kroeker 2018.

455 Moreover, cattle fed on grass, rather than grain, produces better quality meat, as the animals absorb the nutrients stored in the soil (Willett et al. 2019).

456 Wasley and Kroeker 2018.

457 Ibid.

458 Although outside the scope of this book, animal welfare is also an important factor to consider with reference to intensive systems.

459 CPRE 2012b: 3.

460 Willett et al. 2019: 35.

461 Cambridge Dictionary.

462 Cooperatives UK 2016.

463 Ibid.

464 Relational Research 2014: 3.

465 Jubilee 2018.

466 Other names include 'artificial meat', 'in vitro meat', 'lab-grown meat', 'synthetic meat' and 'clean meat'.

467 e.g. Shapiro 2018.

468 Anthos 2018: 5-6. The cells can be extracted without killing or harming the animal.

469 Ibid., 4-5.

470 It should be noted that at time of writing fetal bovine serum is commonly used to encourage cell growth, so cultured meat still relies on animal death, albeit on a smaller scale. Synthetic growth mediums are currently being developed.

471 Röös et al. 2017. However, a recent study which modelled the effects of different GHGs suggested that large-scale cultured meat production could risk a negative climate impact in the long-term, although the authors did not take into account the impact of land-use change (Lynch and Pierrehumbert 2019). The main reason for this is that methane (CH_4) has a significant climate impact in the short-term, but only survives in the atmosphere for around twelve years, in contrast to the long-term persistence and accumulation of CO_2.

472 Anthos 2018: 20-22.

473 cf. ibid., 47-48.

474 Ibid., 39-51.

475 Ibid.

476 Other names include 'meat analogues' and 'meat substitutes'.

477 Impossible Foods; Beyond Meat.

478 Carman 2019.

479 Wilson 2019a; Robinson and Antoniou 2018.

480 Glenza 2019.

481 Global Ecolabelling 2019.

482 Ibid.

483 Boström and Klintman 2008.

484 Global Ecolabelling 2019.

485 Ecolabel 2019.

486 Daugbjerg et al. 2014.

487 Teisl et al. 2002 and Thøgersen 2000.

488 i.e. misinformation that hides the product's real environmental effects with 'green' marketing. cf. Global Ecolabelling 2019.

489 Sharma et al. 2019.

490 Poore 2018.

491 Akenji 2014.

492 Akenji describes this as 'consumer scapegoatism' (ibid.).

493 US Food Sovereignty Alliance.

494 Ibid. Food sovereignty should not be confused with national self-sufficiency.

495 Ibid.

496 See also chapter 1.

497 Pachón-Ariza 2013: 368.

498 DEFRA 2019.

499 Emissions reduced by 22% between 1990 and 2017 with economic growth at 58% over the same period. (European Commission 2018). The EU is on track to meet its 2020 target of reducing GHG emissions by 20% from 1990 levels and under the current policies emissions in 2030 are projected to be 30% below the 1990 level. To meet the call for a reduction of 45% by 2030, members must be more ambitious with their policies to reduce emissions.

500 Lynch et al. 2016: 5.

501 BEIS 2019.

502 Lynch et al. 2016: 7.

503 DEFRA 2018b.

504 European Commission (n.d. 2): 2.

505 Ibid.

506 Helm 2016: 2.

507 Ibid.

508 Institute for Government 2019; Hayhow et al. 2017.

509 Barkham 2018.

510 Harvey 2016.

511 Ibid.

512 House of Commons (2018). According to DEFRA 2018c: 39, 'Farmers and foresters play an important role in managing the land. Sustainable land management activities can secure and increase the provision of public goods and other environmental outcomes with social and economic benefits… However, agriculture can have significant negative impacts on the environment, for example through water pollution and greenhouse gas emissions. Land has to be effectively managed to mitigate the impacts.'

513 DEFRA 2018c: 39.

514 Committee on Climate Change 2019.

515 According to DEFRA, between 2014/15 and 2016/17, 48% of farms let out farm buildings for non-farm use. (DEFRA 2018c: 38).

516 See chapter 1 for discussion of the land sparing-sharing continuum.

517 Committee on Climate Change 2018a.

518 Committee on Climate Change 2019.

519 For further analysis of sustainable energy crop production in the UK, see Committee on Climate Change 2018b.

520 Rewilding Britain 2019.

521 Barkham 2017; NFU 2019c.

522 The Woodland Trust 2017.

523 For some of the factors involved in making these decisions, see Committee on Climate Change 2018a: 39-44.

524 Committee on Climate Change 2018a: 44-5; The Woodland Trust 2017.

525 See consumer awareness campaigns, above.

526 Harvey and Van der Zee 2019. Usually meat or even specifically red meat is targeted, although dairy and other animal products could be included, depending on how the policy is formulated.

527 Ibid.

528 Wellesley et al. 2015.

529 Ibid., vii.

530 Ibid.

531 Institute for Government 2019.
532 Wellesley et al. 2015: 15.
533 Ibid., 49.
534 2 Timothy 1:7 (NKJV).
535 Wirzba 2019: 310.
536 European Environment Agency.
537 Willett et al. 2019: 21.
538 FAO 2015b.
539 Convention on Biological Diversity 1992.
540 Encyclopaedia Britannica 2016.
541 Allwood et al. 2014.
542 Ibid.
543 Ibid.
544 Ibid.
545 Willett et al. 2019: 4.
546 Convention on Biological Diversity 1992.
547 FCRN Glossary.
548 Ibid.
549 Ibid.
550 Encyclopaedia Britannica 2011.
551 FAO 2008.
552 Willett et al. 2019: 4.
553 FCRN Glossary.
554 Encyclopaedia Britannica 2019.
555 LEAF.
556 FCRN Glossary.
557 International Land Coalition 2011. We note that 'land grabbing' is a contested term.
558 FCRN Glossary.
559 Ibid.
560 Ibid.
561 Natural Capital Committee 2017: 12.
562 FCRN Glossary.
563 FAO, IFAD and WFP 2013: 50.
564 Willett et al. 2019: 4.
565 European Environment Agency.
566 Ibid.
567 FCRN Glossary.
568 Fraanje and Lee-Gammage 2018.
569 FAO and ITPS 2015: 8.
570 FAO et al. 2018: 140.